<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>12</td>
</tr>
<tr>
<td>Undergraduate Students</td>
<td>13</td>
</tr>
<tr>
<td>Academic Opportunities</td>
<td>13</td>
</tr>
<tr>
<td>Auditing Courses</td>
<td>13</td>
</tr>
<tr>
<td>Degree Chart: Undergraduate-Level</td>
<td>13</td>
</tr>
<tr>
<td>Degrees: Undergraduate-Level</td>
<td>16</td>
</tr>
<tr>
<td>Majors, Minors, and Certificates</td>
<td>17</td>
</tr>
<tr>
<td>Non-Traditional Coursework</td>
<td>19</td>
</tr>
<tr>
<td>Online-Distance Education</td>
<td>19</td>
</tr>
<tr>
<td>Study Abroad</td>
<td>19</td>
</tr>
<tr>
<td>Undergraduate - Graduate Concurrent Enrollment</td>
<td>20</td>
</tr>
<tr>
<td>Unique Programs</td>
<td>20</td>
</tr>
<tr>
<td>Academic Policies and Procedures</td>
<td>21</td>
</tr>
<tr>
<td>Admission</td>
<td>21</td>
</tr>
<tr>
<td>Academic and Judicial Discipline</td>
<td>24</td>
</tr>
<tr>
<td>Attendance and Excused Absences</td>
<td>26</td>
</tr>
<tr>
<td>Final Examinations</td>
<td>26</td>
</tr>
<tr>
<td>Grades</td>
<td>27</td>
</tr>
<tr>
<td>Graduation Requirements</td>
<td>29</td>
</tr>
<tr>
<td>Leaves, Withdrawals and Readmission</td>
<td>31</td>
</tr>
<tr>
<td>Name Changes</td>
<td>34</td>
</tr>
<tr>
<td>Pass/Fail Option</td>
<td>34</td>
</tr>
<tr>
<td>Registration</td>
<td>34</td>
</tr>
<tr>
<td>Transcript Policies</td>
<td>37</td>
</tr>
<tr>
<td>Transfer Credit</td>
<td>37</td>
</tr>
<tr>
<td>Veterans Information</td>
<td>38</td>
</tr>
<tr>
<td>Student Services and Organizations</td>
<td>38</td>
</tr>
<tr>
<td>Clubs and Organizations</td>
<td>38</td>
</tr>
<tr>
<td>Disability Resource Center</td>
<td>40</td>
</tr>
<tr>
<td>Financial Aid</td>
<td>40</td>
</tr>
<tr>
<td>Health, Counseling, Wellbeing, and Safety</td>
<td>42</td>
</tr>
<tr>
<td>Student Government</td>
<td>45</td>
</tr>
<tr>
<td>Tuition, Fees and Expenses</td>
<td>45</td>
</tr>
<tr>
<td>Undergraduate Student Life</td>
<td>47</td>
</tr>
<tr>
<td>Rights and Responsibilities</td>
<td>48</td>
</tr>
<tr>
<td>Access to Student Records</td>
<td>48</td>
</tr>
<tr>
<td>Code of Student Conduct</td>
<td>50</td>
</tr>
<tr>
<td>Honor System</td>
<td>50</td>
</tr>
<tr>
<td>Student Responsibility</td>
<td>50</td>
</tr>
<tr>
<td>Honors and Distinctions</td>
<td>50</td>
</tr>
<tr>
<td>Academic Honor Societies</td>
<td>50</td>
</tr>
<tr>
<td>Honors Programs</td>
<td>51</td>
</tr>
<tr>
<td>President’s Honor Roll</td>
<td>51</td>
</tr>
<tr>
<td>University Honors</td>
<td>51</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>53</td>
</tr>
<tr>
<td>Academic Opportunities</td>
<td>53</td>
</tr>
<tr>
<td>Auditing Courses</td>
<td>53</td>
</tr>
<tr>
<td>Certificates: Graduate-Level</td>
<td>53</td>
</tr>
<tr>
<td>Degree Chart: Graduate-Level</td>
<td>54</td>
</tr>
<tr>
<td>Degrees: Graduate-Level</td>
<td>57</td>
</tr>
<tr>
<td>Graduate Program Major Concentrations</td>
<td>59</td>
</tr>
<tr>
<td>Non-Traditional Coursework</td>
<td>59</td>
</tr>
<tr>
<td>Online-Distance Education</td>
<td>59</td>
</tr>
<tr>
<td>Academic Policies and Procedures</td>
<td>59</td>
</tr>
<tr>
<td>Admission</td>
<td>59</td>
</tr>
<tr>
<td>All Graduate Students</td>
<td>60</td>
</tr>
<tr>
<td>Doctoral Degrees</td>
<td>72</td>
</tr>
<tr>
<td>Diploma Degree Programs</td>
<td>74</td>
</tr>
<tr>
<td>Non-Thesis Master’s Degrees</td>
<td>75</td>
</tr>
<tr>
<td>Thesis Master’s Degrees</td>
<td>75</td>
</tr>
<tr>
<td>Student Services and Organizations</td>
<td>77</td>
</tr>
<tr>
<td>Clubs and Organizations</td>
<td>77</td>
</tr>
<tr>
<td>Disability Resource Center</td>
<td>78</td>
</tr>
<tr>
<td>Financial Aid</td>
<td>79</td>
</tr>
<tr>
<td>Graduate Student Government</td>
<td>81</td>
</tr>
<tr>
<td>Graduate Student Life</td>
<td>82</td>
</tr>
<tr>
<td>Health, Counseling, Wellbeing, and Safety</td>
<td>82</td>
</tr>
<tr>
<td>Tuition, Fees and Expenses</td>
<td>84</td>
</tr>
<tr>
<td>Rights and Responsibilities</td>
<td>88</td>
</tr>
<tr>
<td>Access to Student Records</td>
<td>88</td>
</tr>
<tr>
<td>Code of Student Conduct</td>
<td>90</td>
</tr>
<tr>
<td>Dispute Resolution</td>
<td>90</td>
</tr>
<tr>
<td>Honor System</td>
<td>92</td>
</tr>
<tr>
<td>Student Responsibility</td>
<td>92</td>
</tr>
<tr>
<td>Non-Traditional Students</td>
<td>93</td>
</tr>
<tr>
<td>Auditors</td>
<td>93</td>
</tr>
<tr>
<td>Online-Distance Education</td>
<td>93</td>
</tr>
<tr>
<td>Rice Learners</td>
<td>93</td>
</tr>
<tr>
<td>Second Bachelor’s Degree for Rice Alumni</td>
<td>94</td>
</tr>
<tr>
<td>Visiting Students (non-degree)</td>
<td>94</td>
</tr>
<tr>
<td>Faculty</td>
<td>97</td>
</tr>
<tr>
<td>Faculty Grading Guidelines</td>
<td>97</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Non-Traditional Coursework</td>
<td>97</td>
</tr>
<tr>
<td>Syllabus Standards</td>
<td>98</td>
</tr>
<tr>
<td>Programs of Study</td>
<td>99</td>
</tr>
<tr>
<td>Departments and Programs</td>
<td>100</td>
</tr>
<tr>
<td>Accounting</td>
<td>108</td>
</tr>
<tr>
<td>Master of Accounting (MAcc) Degree</td>
<td>113</td>
</tr>
<tr>
<td>African and African American Studies</td>
<td>116</td>
</tr>
<tr>
<td>Certificate in African and African American Studies</td>
<td>118</td>
</tr>
<tr>
<td>Minor in African and African American Studies</td>
<td>119</td>
</tr>
<tr>
<td>Air Force Science</td>
<td>122</td>
</tr>
<tr>
<td>Ancient Mediterranean Civilizations</td>
<td>124</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Ancient Mediterranean Civilizations</td>
<td>126</td>
</tr>
<tr>
<td>Anthropology</td>
<td>129</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Anthropology</td>
<td>164</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Anthropology</td>
<td>166</td>
</tr>
<tr>
<td>Minor in Anthropology</td>
<td>168</td>
</tr>
<tr>
<td>Applied Chemical Sciences</td>
<td>169</td>
</tr>
<tr>
<td>Master of Science in Applied Chemical Sciences (MSACS) Degree</td>
<td>170</td>
</tr>
<tr>
<td>Applied Physics</td>
<td>173</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Applied Physics</td>
<td>174</td>
</tr>
<tr>
<td>Architecture</td>
<td>177</td>
</tr>
<tr>
<td>Bachelor of Architecture (BArch) Degree</td>
<td>196</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Architectural Studies</td>
<td>198</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Architecture</td>
<td>199</td>
</tr>
<tr>
<td>Master of Architecture (MArch) Degree</td>
<td>201</td>
</tr>
<tr>
<td>Master of Science (MS) Degree in the field of Architecture</td>
<td>205</td>
</tr>
<tr>
<td>Art History</td>
<td>206</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Art History</td>
<td>251</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Art History</td>
<td>258</td>
</tr>
<tr>
<td>Minor in Art History</td>
<td>261</td>
</tr>
<tr>
<td>Asian Studies</td>
<td>266</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Asian Studies</td>
<td>277</td>
</tr>
<tr>
<td>Minor in Asian Studies</td>
<td>280</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>283</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>305</td>
</tr>
<tr>
<td>Bachelor of Science in Bioengineering</td>
<td></td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Bioengineering</td>
<td>308</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Bioengineering / Doctor of Medicine (MD) Degree with Baylor College of Medicine</td>
<td>310</td>
</tr>
<tr>
<td>Master of Bioengineering (MBE) Degree</td>
<td>310</td>
</tr>
<tr>
<td>Master of Bioengineering (MBE) Degree / Doctor of Medicine (MD) Degree with UT Health Science Center</td>
<td>314</td>
</tr>
<tr>
<td>Master of Bioengineering (MBE) Degree and a Major Concentration in Global Medical Innovation</td>
<td>317</td>
</tr>
<tr>
<td>Master of Bioengineering (MBE) Degree, and a Major Concentration in Applied Bioengineering</td>
<td>319</td>
</tr>
<tr>
<td>BioSciences</td>
<td>321</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree / Master of Science (MS) Degree / Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology</td>
<td>345</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Biochemistry</td>
<td>347</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics</td>
<td>350</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology</td>
<td>353</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology</td>
<td>356</td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Biochemistry</td>
<td>359</td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics</td>
<td>361</td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology</td>
<td>364</td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology</td>
<td>367</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology</td>
<td>370</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Ecology and Evolutionary Biology</td>
<td>372</td>
</tr>
<tr>
<td>Master of Science (MS) Degree in the field of Biochemistry and Cell Biology</td>
<td>373</td>
</tr>
<tr>
<td>Master of Science (MS) Degree in the field of Ecology and Evolutionary Biology</td>
<td>375</td>
</tr>
<tr>
<td>Minor in Biochemistry and Cell Biology</td>
<td>377</td>
</tr>
<tr>
<td>Minor in Ecology and Evolutionary Biology</td>
<td>378</td>
</tr>
<tr>
<td>Bioscience and Health Policy</td>
<td>380</td>
</tr>
<tr>
<td>Master of Science in Bioscience and Health Policy (MSBHP) Degree</td>
<td>381</td>
</tr>
<tr>
<td>Degree/Major/Program</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Master of Science in Bioscience and Health Policy (MSBHP)</td>
<td>383</td>
</tr>
<tr>
<td>Business Degree / Master of Business Administration (MBA) Degree</td>
<td>384</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Finance</td>
<td>458</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Management</td>
<td>460</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Accounting</td>
<td>462</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Finance</td>
<td>464</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Marketing</td>
<td>465</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Strategic Management</td>
<td>467</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Doctor of Medicine (MD) Degree with Baylor College of Medicine</td>
<td>469</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Chemical Engineering (MChE) Degree</td>
<td>469</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Computational and Applied Mathematics (MCAAM) Degree</td>
<td>471</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Computer Science (MCS) Degree</td>
<td>473</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Industrial Engineering (MIE) Degree</td>
<td>474</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Materials Science and Nanoengineering (MMSNE) Degree</td>
<td>476</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Mechanical Engineering (MME) Degree</td>
<td>477</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Science in Bioscience and Health Policy (MSBHP) Degree</td>
<td>479</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Science in Environmental Analysis (MSEA) Degree</td>
<td>480</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Science in Space Studies (MSSpS) Degree</td>
<td>482</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Science in Subsurface Geoscience (MSSG) Degree</td>
<td>483</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree / Master of Statistics (MStat) Degree</td>
<td>485</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Executive Program</td>
<td>486</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program</td>
<td>490</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Accounting</td>
<td>495</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Chemistry</td>
<td>500</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Energy</td>
<td>505</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Entrepreneurship</td>
<td>509</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Health Care</td>
<td>514</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Marketing</td>
<td>518</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Operations Management</td>
<td>523</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Real Estate</td>
<td>527</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Strategic Management</td>
<td>532</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Online Program</td>
<td>536</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Professional Program</td>
<td>540</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Professional Program (Evening, Evening Extended)</td>
<td>545</td>
</tr>
<tr>
<td>Master of Business Administration (MBA) Degree, Professional Program (Weekend)</td>
<td>549</td>
</tr>
<tr>
<td>Minor in Business</td>
<td>553</td>
</tr>
<tr>
<td>Chemical and Biomolecular Engineering</td>
<td>554</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Chemical Engineering</td>
<td>569</td>
</tr>
<tr>
<td>Bachelor of Science in Chemical Engineering (BSChE) Degree</td>
<td>571</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Chemical Engineering</td>
<td>576</td>
</tr>
<tr>
<td>Master of Chemical Engineering (MChE) Degree</td>
<td>577</td>
</tr>
<tr>
<td>Master of Chemical Engineering (MChE) Degree / Master of Business Administration (MBA) Degree</td>
<td>578</td>
</tr>
<tr>
<td>Chemical Physics</td>
<td>580</td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree with a Major in Chemical Physics</td>
<td>580</td>
</tr>
<tr>
<td>Chemistry</td>
<td>582</td>
</tr>
<tr>
<td>Bachelor of Arts (BA) Degree with a Major in Chemistry</td>
<td>598</td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree with a Major in Chemistry</td>
<td>600</td>
</tr>
<tr>
<td>Doctor of Philosophy (PhD) Degree in the field of Chemistry</td>
<td>603</td>
</tr>
<tr>
<td>Cinema and Media Studies</td>
<td>604</td>
</tr>
</tbody>
</table>
Minor in Cinema and Media Studies ........................................ 606
Civic Leadership ................................................................. 608
Certificate in Civic Leadership .............................................. 610
Civil and Environmental Engineering ..................................... 613
Bachelor of Arts (BA) Degree with a Major in Civil and
Environmental Engineering and a Major Concentration in Civil
Engineering ........................................................................... 632
Bachelor of Arts (BA) Degree with a Major in Civil and
Environmental Engineering and a Major Concentration in
Environmental Engineering .................................................. 636
Bachelor of Science in Civil Engineering (BSCE) Degree ........... 639
Doctor of Philosophy (PhD) Degree in the field of Civil
Engineering ............................................................................ 644
Doctor of Philosophy (PhD) Degree in the field of
Environmental Engineering .................................................... 645
Master of Civil and Environmental Engineering (MCEE)
Degree in the field of Civil Engineering ................................. 647
Master of Civil and Environmental Engineering (MCEE)
Degree in the field of Environmental Engineering ................. 649
Master of Science (MS) Degree in the field of Civil
Engineering ............................................................................. 652
Master of Science (MS) Degree in the field of Environmental
Engineering ............................................................................ 653
Classical Civilizations .............................................................. 654
Minor in Classical Civilizations ................................................. 664
Classical Studies ...................................................................... 666
Bachelor of Arts (BA) Degree with a Major in Classical
Studies ..................................................................................... 676
Cognitive Sciences ................................................................... 678
Bachelor of Arts (BA) Degree with a Major in Cognitive
Sciences .................................................................................... 680
College Courses ....................................................................... 684
Computational and Applied Mathematics ............................... 697
Bachelor of Arts (BA) Degree with a Major in Computational
and Applied Mathematics ...................................................... 710
Doctor of Philosophy (PhD) Degree in the field of
Computational and Applied Mathematics .............................. 712
Master of Computational and Applied Mathematics
(MCAAM) Degree ................................................................. 713
Master of Computational and Applied Mathematics
(MCAAM) Degree / Master of Business Administration (MBA)
Degree ....................................................................................... 714
Minor in Computational and Applied Mathematics .............. 716
Computational Science and Engineering ............................... 717
Master of Computational Science and Engineering (MCSE)
Degree ....................................................................................... 718
Computer Science .................................................................... 720
Bachelor of Arts (BA) Degree with a Major in Computer
Science ..................................................................................... 751
Bachelor of Science in Computer Science (BSCS) Degree ....... 752
Doctor of Philosophy (PhD) Degree in the field of Computer
Science ..................................................................................... 755
Master of Computer Science (MCS) Degree ......................... 756
Master of Computer Science (MCS) Degree / Master of
Business Administration (MBA) Degree ............................... 760
Master of Computer Science (MCS) Degree, Online Program .. 761
Master of Science (MS) Degree in the field of Computer
Science ..................................................................................... 762
Critical and Cultural Theory .................................................... 763
Certificate in Critical and Cultural Theory ............................... 764
Data Science ........................................................................... 766
Master of Data Science (MDS) Degree ................................. 768
Master of Data Science (MDS) Degree, Online Program ......... 771
Minor in Data Science ............................................................. 773
Dual Credit Teacher Credentialing ......................................... 774
Certificate in Dual Credit Teacher Credentialing - English ....... 790
Certificate in Dual Credit Teacher Credentialing - History ......... 791
Earth, Environmental, and Planetary Sciences ....................... 792
Bachelor of Arts (BA) Degree with a Major in Earth,
Environmental, and Planetary Sciences ................................ 821
Bachelor of Science (BS) Degree with a Major in Earth,
Environmental, and Planetary Sciences ............................... 824
Doctor of Philosophy (PhD) Degree in the field of Earth
Science ..................................................................................... 829
Master of Science (MS) Degree in the field of Earth Science ... 830
Minor in Earth, Environmental, and Planetary Sciences ......... 830
Economics ............................................................................. 831
Bachelor of Arts (BA) Degree with a Major in Economics ....... 850
Doctor of Philosophy (PhD) Degree in the field of Economics ... 851
Doctor of Philosophy (PhD) Degree in the field of Economics
and a Major Concentration in Econometrics and Quantitative
Economics ................................................................................. 853
Doctor of Philosophy (PhD) Degree in the field of Economics
and a Major Concentration in Economics and Finance ... 855
Education ................................................................................. 856
<table>
<thead>
<tr>
<th>Degree</th>
<th>Program Name</th>
<th>Concentration/Field</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT</td>
<td>Master of Arts in Teaching (MAT) Degree, for Current Rice Undergraduates</td>
<td></td>
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<td>MAT</td>
<td>Master of Arts in Teaching (MAT) Degree, for Experienced Teachers</td>
<td></td>
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<td>MAT</td>
<td>Master of Arts in Teaching (MAT) Degree, for Experienced Teachers with Principal Certification</td>
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<td>MAT</td>
<td>Master of Arts in Teaching (MAT) Degree, for New Teachers</td>
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<td>EE</td>
<td>Bachelor of Arts (BA) Degree with a Major in Electrical Engineering</td>
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<td>Bachelor of Science in Electrical Engineering (BSEE) Degree</td>
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<td>Doctor of Philosophy (PhD) Degree in the field of Electrical and Computer Engineering</td>
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<td>Master of Electrical and Computer Engineering (MECE) Degree</td>
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<td>Energy and Water Sustainability</td>
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<td>Minor in Energy and Water Sustainability</td>
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<td>Master of Energy Economics (MEEcon) Degree</td>
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<td>Engineering Design</td>
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<td>EE</td>
<td>Engineering Management and Leadership</td>
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<td>Certificate in Engineering Leadership</td>
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<td>945</td>
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<td>EE</td>
<td>Master of Engineering Management and Leadership (MEML) Degree</td>
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<td>EE</td>
<td>Master of Engineering Management and Leadership (MEML) Degree, Online Program</td>
<td></td>
<td>952</td>
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<td>EE</td>
<td>English</td>
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<td>958</td>
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<td>Bachelor of Arts (BA) Degree with a Major in English</td>
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<td>Bachelor of Arts (BA) Degree with a Major in English and a Major Concentration in Creative Writing</td>
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<td>Doctor of Philosophy (PhD) Degree in the field of English</td>
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<td>Entrepreneurship</td>
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<td>Master of Science in Environmental Analysis (MSEA) Degree / Master of Business Administration (MBA) Degree</td>
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<td>Bachelor of Arts (BA) Degree with a Major in German Studies</td>
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<td>EE</td>
<td>Global Affairs</td>
<td></td>
<td>1057</td>
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<td>Master of Global Affairs (MGA) Degree</td>
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<td>Global Health Technologies</td>
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<td>Minor in Global Health Technologies</td>
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<td>EE</td>
<td>Gnosticism, Esotericism and Mysticism</td>
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<td>Certificate in Gnosticism, Esotericism and Mysticism</td>
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<td>Greek Language and Literature</td>
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<td>Doctor of Philosophy (PhD) Degree in the field of History</td>
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<td>Dual Doctor of Philosophy (PhD) Degree in the field of History, with Instituto Mora, in Mexico</td>
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<tr>
<td>EE</td>
<td>Dual Doctor of Philosophy (PhD) Degree in the field of History, with Universidade Estadual de Campinas (UNICAMP), in Brazil</td>
<td></td>
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</tr>
</tbody>
</table>
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology ......................................................... 1883
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Psychometrics and Quantitative Psychology ........................................ 1884
Religion .................................................................................................................. 1885
Bachelor of Arts (BA) Degree with a Major in Religion ...................................... 1917
Doctor of Philosophy (PhD) Degree in the field of Religion ............................. 1921
Master of Arts (MA) Degree in the field of Religion ........................................... 1922
Minor in Religion ................................................................................................ 1923
Science Teaching ................................................................................................. 1926
Master of Science Teaching (MST) Degree ....................................................... 1927
Social Policy Analysis ......................................................................................... 1928
Bachelor of Arts (BA) Degree with a Major in Social Policy Analysis ............ 1930
Social Policy Evaluation ....................................................................................... 1933
Master of Social Policy Evaluation (MSPE) Degree ........................................... 1935
Sociology ............................................................................................................. 1937
Bachelor of Arts (BA) Degree with a Major in Sociology ................................. 1958
Doctor of Philosophy (PhD) Degree in the field of Sociology ......................... 1960
Minor in Sociology ............................................................................................. 1961
Space Studies ...................................................................................................... 1962
Master of Science in Space Studies (MSSps) Degree ........................................ 1963
Master of Science in Space Studies (MSSps) Degree / Master of Business Administration (MBA) Degree ................................................. 1966
Spanish and Portuguese ....................................................................................... 1967
Bachelor of Arts (BA) Degree with a Major in Spanish and Portuguese .......... 1979
Minor in Spanish and Portuguese ...................................................................... 1982
Sport Management .............................................................................................. 1983
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Analytics ................................................................. 1989
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Law ................................................................. 1991
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Leadership ................................................................. 1993
Sports Medicine and Exercise Physiology ......................................................... 1995
Bachelor of Arts (BA) Degree with a Major in Sports Medicine and Exercise Physiology ................................................................. 2004
Statistics ............................................................................................................. 2006
Bachelor of Arts (BA) Degree with a Major in Statistics ..................................... 2021
Bachelor of Science (BS) Degree with a Major in Statistics ............................ 2024
Doctor of Philosophy (PhD) Degree in the field of Statistics ......................... 2027
Master of Statistics (MStat) Degree ................................................................. 2028
Master of Statistics (MStat) Degree / Master of Business Administration (MBA) Degree .............................. 2031
Minor in Statistics ............................................................................................. 2032
Study of Women, Gender and Sexuality ........................................................... 2034
Bachelor of Arts (BA) Degree with a Major in Study Of Women, Gender and Sexuality ................................................................. 2045
Certificate in the Study of Women, Gender and Sexuality .......................... 2049
Subsurface Geoscience ..................................................................................... 2051
Master of Science in Subsurface Geoscience (MSSG) Degree ....................... 2052
Master of Science in Subsurface Geoscience (MSSG) Degree / Master of Business Administration (MBA) Degree ................................. 2055
Systems, Synthetic and Physical Biology .......................................................... 2056
Doctor of Philosophy (PhD) Degree in the field of Systems, Synthetic and Physical Biology ................................................................. 2059
Teaching and Learning ....................................................................................... 2061
Certificate in Teaching and Learning ............................................................... 2068
University Courses ............................................................................................. 2069
Visual and Dramatic Arts .................................................................................... 2075
Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Film and Photography ........................................... 2100
Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Studio Art ................................................................. 2104
Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Theatre ................................................................. 2107
Courses ............................................................................................................... 2110
African and African American Studies (AAAS) .............................................. 2112
Air Force Science (AFSC) ............................................................................... 2112
Americas Research Center (ARC) ................................................................. 2114
Ancient Mediterranean Civil (AMCI) .............................................................. 2115
Anthropology (ANTH) .................................................................................... 2115
Applied Physics (APPL) ................................................................................ 2149
Arabic (ARAB) ............................................................................................... 2150
Architecture (ARCH) ...................................................................................... 2151
Art History (HART) ........................................................................................ 2168
Welcome to the 2021-2022 publication of the General Announcements, Rice University's official catalog of courses, degrees, policies, and curricular requirements.
UNDERGRADUATE STUDENTS

The undergraduate experience at Rice is one of intense personal interactions. The close sense of community created by individual placement in residential colleges is extended to warm intellectual and personal relationships with members of the Rice faculty. "Inside the hedges," the beautifully designed, spacious campus is small enough to encourage a sense of belonging even as students engage with the lively cultural currents of one of the country's largest cities.

The academic philosophy at Rice is to offer students beginning their college studies both a grounding in the broad fields of general knowledge and the chance to concentrate on very specific academic and research interests. By completing the required distribution courses, all students gain an understanding of the literature, arts, and philosophy essential to any civilization, a broad historical introduction to thought about human society, and a basic familiarity with the scientific principles underlying physics, chemistry, and mathematics. Building on this firm foundation, students then concentrate on studies in their major areas of interest.

Rice University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), the recognized regional accrediting body in the 11 U.S. Southern states.

Rice grants eleven undergraduate degrees. The majority of undergraduates earn the Bachelor of Arts (BA) or the Bachelor of Science (BS), in a range of majors. The BS degree is offered in a number of science fields and in various fields of engineering. The George R. Brown School of Engineering offers seven BS degrees, including the BS degree in Computer Science (BSCS), with the six programs leading to the BS degrees in Bioengineering (BSBE), Civil Engineering (BSCE), Chemical Engineering (BSCHE), Electrical Engineering (BSEE), Materials Science and NanoEngineering (BSMSNE), and Mechanical Engineering (BSME) being accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org. The Shepherd School of Music also offers a Bachelor of Music (BMus), and the School of Architecture an undergraduate professional Bachelor of Architecture (BArch) degree.

Undergraduates may major in any of the numerous fields provided by the various schools of architecture, humanities, music, social sciences, natural sciences, and engineering. To accommodate the full range of individual student interests, specific interdepartmental majors and minors also are available, as are various departmental minors and selectively approved area majors. In certain departments, students also have the option of overlapping the upper-level coursework of their undergraduate degree with those basic requirements necessary to earn an advanced degree in the field, considerably reducing the time required to complete their graduate studies. The Shepherd School of Music offers a dual degree in music (BMus/MMus) that may be completed with a fifth year of study. The BA–BArch professional track is the primary course of study for undergraduate architectural study at Rice. All students who successfully apply to the university and the School of Architecture enter into this program. This program leads to a degree of Bachelor of Arts with a major in Architecture (BA) after four years, followed immediately by the professional Bachelor of Architecture (BArch) degree sequence, which consists of a one year internship program (Preceptorship) and one year of advanced coursework.

Through Rice's Education Program, students interested in teaching in secondary schools may complete a program of teacher training, leading to teacher (TEA) certification in the state of Texas, while pursuing their rice degree. Students interested in satisfying the requirements for admission to medical, dental, or law school should consult with the Office of Academic Advising for completing these programs in conjunction with the various majors.

Academic Opportunities

- Auditing Courses (p. 13)
- Degree Chart: Undergraduate-Level (p. 13)
- Degrees: Undergraduate-Level (p. 16)
- Majors, Minors, and Certificates (p. 17)
- Non-Traditional Coursework (p. 19)
- Online-Distance Education (p. 19)
- Study Abroad (p. 19)
- Undergraduate - Graduate Concurrent Enrollment (p. 20)
- Unique Programs (p. 20)

Auditing Courses

During the fall and spring semesters, currently enrolled degree-seeking Rice students, who are registered for at least one course for credit, may audit one or more courses at Rice without charge by securing permission of the instructor and by registering as an auditor with the Office of the Registrar. During the summer sessions, enrolled Rice students may audit one or more courses at Rice at the cost of the auditor fee for Rice alumni (see Cashier's website [https://cashier.rice.edu/]).

Upon completion, the audited course will appear on the student’s transcript with a grade of either "AUD" or "NC." As noted in Grades (p. 27), instructors report the AUD ("Audit") grade in those instances where the auditing student has met the audit requirements of the course as defined by the instructor. A grade of NC ("No Credit") is reported in instances where the auditing student has not met the audit requirements of the course as defined by the instructor.

There are no credit hours associated with audited courses, and auditing a course does not affect a student's GPA. Requests to audit a class or to change from audit to credit or vice versa must be done by the dates and deadlines documented in the posted Academic Calendar (see Academic Calendar [https://registrar.rice.edu/calendars/]).

Degree Chart: Undergraduate-Level

The School of Architecture

- Bachelor of Architecture (BArch) Degree (p. 196)
- Bachelor of Arts (BA) Degree with a Major in Architectural Studies (p. 198)
- Bachelor of Arts (BA) Degree with a Major in Architecture (p. 199)

The George R. Brown School of Engineering

- Bachelor of Science in Bioengineering (BSBE) Degree (p. 305)
- Chemical and Biomolecular Engineering
  - Bachelor of Arts (BA) Degree with a Major in Chemical Engineering (p. 569)
  - Bachelor of Science in Chemical Engineering (BSChE) Degree (p. 571)
- Civil and Environmental Engineering

Rice University
Bachelor of Arts (BA) Degree with a Major in Ancient Mediterranean Civilizations (p. 636)
Bachelor of Science in Civil Engineering (BSCE) Degree (p. 639)
Computational and Applied Mathematics
Bachelor of Arts (BA) Degree with a Major in Computational and Applied Mathematics (p. 710)
Minor in Computational and Applied Mathematics (p. 716)
Computer Science
Bachelor of Arts (BA) Degree with a Major in Computer Science (p. 751)
Bachelor of Science in Computer Science (BSCS) Degree (p. 753)
Data Science
Minor in Data Science (p. 773)
Electrical and Computer Engineering
Bachelor of Arts (BA) Degree with a Major in Electrical Engineering (p. 908)
Bachelor of Science in Electrical Engineering (BSEE) Degree (p. 912)
Energy and Water Sustainability
Minor in Energy and Water Sustainability (p. 922)
Engineering Design
Minor in Engineering Design (p. 943)
Financial Computation and Modeling
Minor in Financial Computation and Modeling (p. 1030)
Global Health Technologies
Minor in Global Health Technologies (p. 1069)
Materials Science and Nanoengineering
Bachelor of Arts (BA) Degree with a Major in Materials Science and NanoEngineering (p. 1355)
Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree (p. 1357)
Mechanical Engineering
Bachelor of Arts (BA) Degree with a Major in Mechanical Engineering (p. 1427)
Bachelor of Science in Mechanical Engineering (BSME) Degree (p. 1429)
Operations Research
Bachelor of Arts (BA) Degree with a Major in Operations Research (p. 1755)
Rice Center for Engineering Leadership
Certificate in Engineering Leadership (p. 950)
Statistics
Bachelor of Arts (BA) Degree with a Major in Statistics (p. 2021)
Bachelor of Science (BS) Degree with a Major in Statistics (p. 2024)
Minor in Statistics (p. 2032)
The School of Humanities
African and African American Studies
Minor in African and African American Studies (p. 119)
Ancient Mediterranean Civilizations
Bachelor of Arts (BA) Degree with a Major in Ancient Mediterranean Civilizations (p. 126)
Art History
Bachelor of Arts (BA) Degree with a Major in Art History (p. 251)
Minor in Art History (p. 261)
Asian Studies
Bachelor of Arts (BA) Degree with a Major in Asian Studies (p. 277)
Minor in Asian Studies (p. 280)
Center for Languages and Intercultural Communication
Certificate in Language and Intercultural Communication - Arabic (p. 1271)
Certificate in Language and Intercultural Communication - Chinese (p. 1273)
Certificate in Language and Intercultural Communication - French (p. 1275)
Certificate in Language and Intercultural Communication - German (p. 1277)
Certificate in Language and Intercultural Communication - Hindi (p. 1278)
Certificate in Language and Intercultural Communication - Italian (p. 1280)
Certificate in Language and Intercultural Communication - Japanese (p. 1282)
Certificate in Language and Intercultural Communication - Korean (p. 1284)
Certificate in Language and Intercultural Communication - Portuguese (p. 1286)
Certificate in Language and Intercultural Communication - Russian (p. 1288)
Certificate in Language and Intercultural Communication - Spanish (p. 1290)
Cinema and Media Studies
Minor in Cinema and Media Studies (p. 606)
Classical Civilizations
Minor in Classical Civilizations (p. 664)
Classical Studies
Bachelor of Arts (BA) Degree with a Major in Classical Studies (p. 676)
English
Bachelor of Arts (BA) Degree with a Major in English (p. 983)
Bachelor of Arts (BA) Degree with a Major in English and a Major Concentration in Creative Writing (p. 988)
Environmental Studies
Minor in Environmental Studies (p. 1022)
European Studies
Bachelor of Arts (BA) Degree with a Major in European Studies (p. 1026)
French Studies
Bachelor of Arts (BA) Degree with a Major in French Studies (p. 1041)
Minor in French Studies (p. 1043)
German Studies
Bachelor of Arts (BA) Degree with a Major in German Studies (p. 1054)
Minor in German Studies (p. 1056)
Greek Language and Literature
Minor in Greek Language and Literature (p. 1107)
History
  Bachelor of Arts (BA) Degree with a Major in History (p. 1149)
  Bachelor of Arts (BA) Degree with a Major in History and a Major Concentration in History: International Concentration (p. 1155)
  Minor in History (p. 1164)

Jewish Studies
  Minor in Jewish Studies (p. 1223)

Latin American Studies
  Bachelor of Arts (BA) Degree with a Major in Latin American Studies (p. 1294)

Latin Language and Literature
  Minor in Latin Language and Literature (p. 1302)

Medical Humanities
  Minor in Medical Humanities (p. 1441)

Medieval and Early Modern Studies
  Bachelor of Arts (BA) Degree with a Major in Medieval and Early Modern Studies (p. 1452)
  Minor in Medieval and Early Modern Studies (p. 1457)

Museums and Cultural Heritage
  Minor in Museums and Cultural Heritage (p. 1509)

Philosophy
  Bachelor of Arts (BA) Degree with a Major in Philosophy (p. 1769)

Politics, Law, and Social Thought
  Minor in Politics, Law and Social Thought (p. 1828)

Poverty, Justice, and Human Capabilities
  Minor in Poverty, Justice and Human Capabilities (p. 1833)

Religion
  Bachelor of Arts (BA) Degree with a Major in Religion (p. 1917)
  Minor in Religion (p. 1923)

Spanish and Portuguese
  Bachelor of Arts (BA) Degree with a Major in Spanish and Portuguese (p. 1979)
  Minor in Spanish and Portuguese (p. 1982)

Study of Women, Gender and Sexuality
  Bachelor of Arts (BA) Degree with a Major in Study Of Women, Gender and Sexuality (p. 2045)

Visual and Dramatic Arts
  Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Film and Photography (p. 2100)
  Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Studio Art (p. 2104)
  Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Theatre (p. 2107)

The Jones Graduate School of Business

Business
  Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Finance (p. 458)
  Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Management (p. 460)
  Minor in Business (p. 553)

Entrepreneurship
  Minor in Entrepreneurship (p. 994)

The Shepherd School of Music

Music

Bachelor of Arts (BA) Degree with a Major in Music (p. 1578)
Bachelor of Music (BMus) Degree with a Major in Bassoon Performance (p. 1580)
Bachelor of Music (BMus) Degree with a Major in Cello Performance (p. 1583)
Bachelor of Music (BMus) Degree with a Major in Clarinet Performance (p. 1585)
Bachelor of Music (BMus) Degree with a Major in Composition (p. 1587)
Bachelor of Music (BMus) Degree with a Major in Double Bass Performance (p. 1589)
Bachelor of Music (BMus) Degree with a Major in Flute Performance (p. 1592)
Bachelor of Music (BMus) Degree with a Major in Harp Performance (p. 1594)
Bachelor of Music (BMus) Degree with a Major in Horn Performance (p. 1596)
Bachelor of Music (BMus) Degree with a Major in Music History (p. 1598)
Bachelor of Music (BMus) Degree with a Major in Music Theory (p. 1602)
Bachelor of Music (BMus) Degree with a Major in Oboe Performance (p. 1604)
Bachelor of Music (BMus) Degree with a Major in Organ Performance (p. 1607)
Bachelor of Music (BMus) Degree with a Major in Percussion Performance (p. 1609)
Bachelor of Music (BMus) Degree with a Major in Piano Performance (p. 1611)
Bachelor of Music (BMus) Degree with a Major in Trombone Performance (p. 1613)
Bachelor of Music (BMus) Degree with a Major in Trumpet Performance (p. 1616)
Bachelor of Music (BMus) Degree with a Major in Tuba Performance (p. 1618)
Bachelor of Music (BMus) Degree with a Major in Viola Performance (p. 1620)
Bachelor of Music (BMus) Degree with a Major in Violin Performance (p. 1622)
Bachelor of Music (BMus) Degree with a Major in Vocal Performance (p. 1625)

The Wiess School of Natural Sciences

Biosciences
  Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Biochemistry (p. 347)
  Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics (p. 350)
  Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology (p. 353)
  Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology (p. 356)
  Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Biochemistry (p. 359)
  Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics (p. 361)
Degrees: Undergraduate-Level

Physical and Astronomy
- Bachelor of Science (BS) Degree with a Major in Astronomy (p. 1788)
- Bachelor of Arts (BA) Degree with a Major in Astronomy (p. 1789)
- Bachelor of Science (BS) Degree with a Major in Astrophysics (p. 1791)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Applied Physics (p. 1792)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Biological Physics (p. 1794)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Computational Physics (p. 1796)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in General Physics (p. 1798)
- Minor in Physics (p. 1801)

Chemical Physics
- Bachelor of Science (BS) Degree with a Major in Chemical Physics (p. 580)

Chemistry
- Bachelor of Arts (BA) Degree with a Major in Chemistry (p. 598)
- Bachelor of Science (BS) Degree with a Major in Chemistry (p. 600)

Earth, Environmental, and Planetary Sciences
- Bachelor of Arts (BA) Degree with a Major in Earth, Environmental, and Planetary Sciences (p. 821)
- Bachelor of Science (BS) Degree with a Major in Earth, Environmental, and Planetary Sciences (p. 824)
- Minor in Earth, Environmental, and Planetary Sciences (p. 830)

Environmental Science
- Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Earth Science (p. 1001)
- Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology (p. 1005)
- Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Earth Science (p. 1008)
- Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology (p. 1011)

Health Sciences
- Bachelor of Arts (BA) Degree with a Major in Health Sciences (p. 1118)

Mathematics
- Bachelor of Arts (BA) Degree with a Major in Mathematics (p. 1403)
- Bachelor of Science (BS) Degree with a Major in Mathematics (p. 1404)
- Minor in Mathematics (p. 1407)

Neuroscience
- Bachelor of Arts (BA) Degree with a Major in Neuroscience (p. 1739)
- Minor in Neuroscience (p. 1741)

Physics and Astronomy
- Bachelor of Arts (BA) Degree with a Major in Astronomy (p. 1788)
- Bachelor of Arts (BA) Degree with a Major in Physics (p. 1789)
- Bachelor of Science (BS) Degree with a Major in Astrophysics (p. 1791)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Applied Physics (p. 1792)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Biological Physics (p. 1794)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Computational Physics (p. 1796)
- Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in General Physics (p. 1798)
- Minor in Physics (p. 1801)

Sports Medicine and Exercise Physiology
- Bachelor of Arts (BA) Degree with a Major in Sports Medicine and Exercise Physiology (p. 2004)

The School of Social Sciences

Anthropology
- Bachelor of Arts (BA) Degree with a Major in Anthropology (p. 164)
- Minor in Anthropology (p. 168)

Cognitive Sciences
- Bachelor of Arts (BA) Degree with a Major in Cognitive Sciences (p. 680)

Economics
- Bachelor of Arts (BA) Degree with a Major in Economics (p. 850)

Linguistics
- Bachelor of Arts (BA) Degree with a Major in Linguistics (p. 1339)

Managerial Economics and Organizational Sciences
- Bachelor of Arts (BA) Degree with a Major in Managerial Economics and Organizational Sciences (p. 1342)

Mathematical Economic Analysis
- Bachelor of Arts (BA) Degree with a Major in Mathematical Economic Analysis (p. 1385)

Political Science
- Bachelor of Arts (BA) Degree with a Major in Political Science (p. 1823)

Psychological Sciences
- Bachelor of Arts (BA) Degree with a Major in Psychology (p. 1876)

Social Policy Analysis
- Bachelor of Arts (BA) Degree with a Major in Social Policy Analysis (p. 1930)

Sociology
- Bachelor of Arts (BA) Degree with a Major in Sociology (p. 1958)
- Minor in Sociology (p. 1961)

Sport Management
- Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Analytics (p. 1989)
- Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Law (p. 1991)
- Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Leadership (p. 1993)

The Dean of Undergraduates

Center for Civic Leadership
- Certificate in Civic Leadership (p. 610)

Naval Science
- Minor in Naval Science (p. 1726)

Degrees: Undergraduate-Level

Bachelor of Arts Degrees
The specific requirements of individual majors leading to the Bachelor of Arts degree vary widely. No department may specify more than 80 semester credit hours (including prerequisites, required courses, and related laboratories) for the Bachelor of Arts. Students in architecture must complete at least 45 semester credit hours in coursework outside of major requirements.
Bachelor of Science Degrees in the Wiess School of Natural Sciences

The Bachelor of Science degree is offered with majors in astrophysics; biosciences; chemical physics; chemistry; earth, environmental and planetary sciences; environmental science; mathematics; and physics. The specific degree requirements vary from field to field and differ from those of the Bachelor of Arts in that there are greater technical requirements. No department may specify more than 80 semester credit hours (including prerequisites, required courses, and related laboratories) for the Bachelor of Science.

Bachelor of Science Degrees in the George R. Brown School of Engineering

- Bioengineering (BSBE)
- Chemical Engineering (BSChE)
- Civil Engineering (BSCE)
- Computer Science (BSCS)
- Electrical Engineering (BSEE)
- Materials Science and NanoEngineering (BSMSNE)
- Mechanical Engineering (BSME)

The Bachelor of Science degree in a given engineering field is distinct from the Bachelor of Arts degree in that it must meet greater technical requirements. In establishing a departmental major for the Bachelor of Science degrees, departments may specify up to a defined maximum number of hours of coursework towards that major (including prerequisites, required courses, and related laboratories).

For the declared majors associated with the Bachelor of Science degrees, the Bioengineering department specifies up to 99 semester credit hours of coursework towards its major; the Chemical and Biomolecular Engineering department may specify up to 95 semester credit hours; the Civil and Environmental Engineering department up to 94; the Computer Science department up to 85; the Electrical and Computer Engineering department up to 86; the Materials Science and NanoEngineering department up to 92; and the Mechanical Engineering department specifies 87 semester credit hours of coursework.

To earn the corresponding Bachelor of Science degrees, students must meet the following minimum semester credit hour requirements in total coursework:

- Bioengineering majors — a total of at least 131 semester credit hours
- Chemical Engineering majors — a total of 127 semester credit hours
- Civil Engineering majors — a total of at least 133 semester credit hours
- Computer Science majors — a total of at least 128 semester credit hours
- Electrical Engineering majors — a total of at least 134 semester credit hours
- Materials Science and NanoEngineering majors — a total of at least 126 semester credit hours
- Mechanical Engineering majors — a total of at least 127 semester credit hours

The programs leading to BS degrees in Bioengineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Materials Science and NanoEngineering, and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET; https://www.abet.org.

Other Bachelor’s Degrees

The professional Bachelor of Architecture (BArch) degree requires a fifth year of study and a one-year preceptorship. The Bachelor of Music (BMus) degree requires advanced courses in performance and ensemble in addition to the core music curriculum.

Majors, Minors, and Certificates

Undergraduate Majors

To receive a bachelor’s degree, a student must complete the requirements for at least one major. Rice offers majors in many fields. Within some majors, students have the choice of a particular area of concentration. Students also may choose to fulfill the requirements for more than one major; such majors do not necessarily need to be in related fields. Because majors are part of degree programs, students should pay particular attention to the major’s corresponding degree. In some instances, the requirements for a major may differ depending on the degree and major combination the student is pursuing. As an example, the major requirements for a Computer Science major pursuing the BA degree differ from those of a Computer Science major pursuing the BSCS degree. When a student formally declares a major, they should declare both the degree and major combination that they are pursuing. The process for declaring majors appears in the Declaring Majors or Area Majors sections below.

More detailed information on the academic majors described below may be found in the corresponding school or Programs of Study sections, or by contacting the department. Additional information on degrees and majors, including some maximum total hours limits for majors, can be found at Degrees: Undergraduate Level (p. 16). Other helpful information on dual degrees and multiple majors may be found at the Major, Minors, and University Certificates (https://registrar.rice.edu/students/majors_minors/#dual) page of the Office of the Registrar’s website.

School of Architecture

Students admitted to the university as architecture majors must first complete four years of the BA program (architecture major) before applying to the BArch program in their senior year. If admitted, they are assigned a preceptorship with an architectural firm for a one-year period, after which they return to Rice to complete the BArch degree program. The School of Architecture also offers a BA in Architectural Studies, which provides a foundation for graduate-level study of architecture and/or pursuit of other fields. More information on this academic school, its departments and programs can be found at: https://ga.rice.edu/programs-study/departments-programs/architecture/ (https://ga.rice.edu/programs-study/departments-programs/architecture/)

George R. Brown School of Engineering

Rice offers majors in bioengineering, chemical and biomolecular engineering, civil and environmental engineering, computational and applied mathematics, computer science, electrical and computer engineering, materials science and nanoengineering, mechanical engineering, and statistics. These programs lead to either the BA or the BS degree and may qualify students for further graduate study. More information on this academic school, its departments and programs can be found at: https://ga.rice.edu/programs-study/departments-programs/
Engineering \(\text{https://ga.rice.edu/programs-study/departments-programs/engineering/}\)

School of Humanities

Students may declare majors in art history, classical studies, English, European studies, French studies, German studies, Spanish and Portuguese, history, philosophy, religion, and visual and dramatic arts. Interdisciplinary majors are available in ancient Mediterranean civilizations, Asian studies, Latin American studies, medieval and early modern studies, and the study of women, gender, and sexuality. More information on this academic school, its departments and programs can be found at: \(\text{https://ga.rice.edu/programs-study/departments-programs/humanities/}\)

Jones Graduate School of Business

Students may pursue the BA degree with major in business and a major concentration in finance or a major concentration in management. More information on this academic school, its departments and programs can be found at: \(\text{https://ga.rice.edu/programs-study/departments-programs/business/}\)

Shepherd School of Music

Music students may opt for either a BA or a Bachelor of Music (BMus) degree in performance, composition, music history, and music theory. Students who pass a special qualifying examination may elect an honors program that leads to the simultaneous awarding of the BMus and Master of Music (MMus) degrees after five years of study. More information on this academic school, its departments and programs can be found at: \(\text{https://ga.rice.edu/programs-study/departments-programs/music/}\)

Wiess School of Natural Sciences

All natural sciences departments, including biosciences; chemistry; earth, environmental, and planetary sciences; environmental science; kinesiology; mathematics; neuroscience; and physics and astronomy, offer programs leading to the BA degree. BS degrees are offered in some departments. Majors include astronomy; astrophysics; biosciences; chemical physics; chemistry; earth, environmental, and planetary sciences; environmental science; health sciences; mathematics; physics; and sports medicine and exercise physiology. Students also may elect double majors combining one of the programs in natural sciences with another science, a humanities discipline, or an engineering field. More information on this academic school, its departments and programs can be found at: \(\text{https://ga.rice.edu/programs-study/departments-programs/natural-sciences/}\)

School of Social Sciences

Rice offers majors in anthropology, economics, linguistics, mathematical economic analysis, political science, psychology, social policy analysis, sociology, and sport management. In addition the cognitive sciences major includes science, engineering, and humanities courses, while the managerial studies major incorporates coursework in the schools of engineering and management. More information on this academic school, its departments and programs can be found at: \(\text{https://ga.rice.edu/programs-study/departments-programs/social-sciences/}\)

Declaring Majors, Minors, and Certificates

Students declare a major, minor, or certificate via a Declaration Form. The department chair or designee must sign the form acknowledging the declaration. The department will counsel the student about the requirements that must be met to complete the major and the likelihood the student will be able to meet them. If the department believes a student is not well prepared for success in its major (or minor, or certificate), it may express its reservations on the form and/or propose a specific course of study to help improve the student’s background. No department or program, except the School of Architecture and Shepherd School of Music, may refuse to admit an undergraduate into its program unless specific curricular conditions for such refusals are included in the relevant description of the program requirements, or in cases of resource limitations. Students may not obtain multiple undergraduate degrees with the same major (for example, a student may not pursue both a BA and a BS with a major in Chemistry).

Students are encouraged to declare an official major as soon as they have decided on it so that a major advisor can be assigned. Students may declare a major at any time up to, before, or during the spring semester of their second year at Rice. They will not be permitted to register for the fall semester of their third year without having declared a major. The major declaration deadline is listed in the Academic Calendar \(\text{https://registrar.rice.edu/calendars/}\) each year. (Transfer students should declare within their first year or before reaching junior level status.)

Students are always free to change their major by completing the Change of Major form. However, such a change may entail one or more additional semesters at the university. Area majors are an exception to this rule and must be declared by the fourth semester before graduation (see Area Majors below).

Some majors provide students an opportunity to declare a major concentration. Major concentrations are formally recognized subfields of study within a major, and they are represented by a coordinated set of courses emphasizing a subfield in that program. For those majors with approved concentrations, the major concentration is listed on the student’s academic transcript as an element of the official curriculum.

Additionally, some majors allow for areas of specialization. Areas of specialization are pre-specified collections of elective courses that, when taken together, cover particular areas of specialization within a major or major concentration. These can be viewed as an advising strategy to assist students in choosing electives. An area of specialization is not an academic credential and is not listed on the student’s academic transcript.

Students may declare a minor only after they have first declared a major. The declaration of minor process is identical to that of majors. Students may not major and minor in the same subject (for example, a student may not pursue both a major and minor in History).

Additionally, students may declare their intent to pursue a university certificate only after they have first declared a major. The declaration of intent to pursue a university certificate process is identical to that of majors.

Once a student declares a major, minor, or certificate, the title of the major, minor, or university certificate is noted on the student’s transcript, and a faculty advisor in the appropriate department or program is assigned. To gain full benefit of departmental or program course offerings, students should meet regularly with faculty advisors.
To assess progress toward degree requirements, students should:

1. monitor their Degree Works degree audits (via ESTHER) to review progress toward degree requirements; and
2. meet regularly with their faculty advisors to review progress toward completion of major, minor, university certificate, and degree requirements.

For instructions on how to declare a major, minor or certificate in ESTHER, visit the Major, Minors, and University Certificates (https://registrar.rice.edu/students/majors_minors/) page of the Office of the Registrar's website.

Area Majors
Students with well-defined needs that are not met by established departmental or interdisciplinary majors may propose an area major. Area majors combine courses from more than one department into a cohesive plan of original study that is equivalent in quality and rigor to a traditional major.

Area majors are rare and limited by the available academic resources and must be distinct from other majors at Rice. They differ from double majors, which must conform to the requirements of both departments. An area major constitutes a single major with specific requirements that include courses from two or more departments. No course in an area major may be used to fulfill the requirements of an additional major, minor or a certificate, and students with area majors must still meet all the other university graduation requirements.

Students initiate an area major after first consulting with faculty advisors from each of the departments involved. Once support has been obtained from these faculty advisors, students should consult the Office of Academic Advising (OAA) which serves as a liaison to the Committee on the Undergraduate Curriculum (CUC). Students work closely with each faculty advisor to design a comprehensive and substantial course of study and to decide on an appropriate title. This course of study must be formulated in a written proposal. Each faculty advisor and the OAA must sign off on the plan before submission to the chair of the CUC. The CUC determines final approval. As part of the review process, the CUC consults chairs of the involved departments to confirm that courses necessary for successful and timely completion of the major will be offered. If approved, the OAA officially certifies the area major plan to the Office of the Registrar and goes on to oversee the major on behalf of the faculty advisors. Any change in the area major requirements needs the approval of both the faculty advisors and the CUC.

Students may not propose an area major if they are within three semesters of graduation unless the Committee on Examinations and Standing rules that exceptional circumstances warrant this action. Under no circumstances may students propose an area major in their final semester before graduation.

Non-Traditional Coursework
Courses tailored for individual students provide a valuable opportunity for them to pursue an academic or professional interest under the supervision of a Rice faculty member. Such courses are typically titled as independent study or research, directed reading, internships, or are described as a teaching experience. Although the organization of these courses is quite variable, they are subject to the same basic requirements as other course offerings. In particular:

- The subject matter and intellectual level of the course must be appropriate for Rice.
- The instructor of record must hold a regular faculty appointment at Rice. This instructor is responsible for submitting the final grade, in consultation with the student’s immediate supervisor, if appropriate.
- The course must have a written syllabus that meets published Rice Syllabus Standards (p. 98). In addition, the syllabus must include a description of anticipated activities and topical content.
- Credit hours assigned are subject to the same amount-of-work considerations as other courses. Credit hours will be awarded in accordance with the Rice credit hour guidelines (https://registrar.rice.edu/facstaff/contact_hours/) and fixed at the time of registration.
- All Academic Calendar (https://registrar.rice.edu/calendars/) (or Registrar) deadlines for registration, add/drop, completion of coursework, and grade submission must be met.

Online-Distance Education
Rice University provides online-distance education courses and programs to extend its academic reach and enhance classroom instruction. Such courses are available for credit to degree-seeking students. These courses provide the same high quality as face-to-face instruction, as governed by the regulations and principles of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Please see University Policy 846, Distance and Online Education (https://policy.rice.edu/846/), for further details.

Rice Online for-credit Courses
Each academic year Rice offers a number of for-credit courses online. These courses use the online method of instruction, indicating that the majority of the class time instruction is occurring when and where students and instructors are not in the same place. These online course offerings can be found in the official Rice Course Schedule (https://courses.rice.edu/admweb/swkscat_main) by querying by method of instruction.

Study Abroad
Rice University Study Abroad provides substantial, intellectually rigorous, and culturally enriching international opportunities. Rice Study Abroad is committed to providing high quality academic-based educational programs in collaboration with prestigious international universities and select program providers. Rice approved programs are distinguished by their academic focus contributing to the curricular needs of Rice University as well as integration with host communities through opportunities such as intensive language instruction, field studies, professional internships, and independent study.

Students must make their study abroad arrangements through Rice Study Abroad (http://abroad.rice.edu/) in order to ensure proper enrollment, credit transfer, financial aid portability, scholarship eligibility, and risk management coverage.

Students should familiarize themselves with the university’s transfer credit policy, and specifically that for International Transfer Credit (p. 37), before studying abroad. Please note that some departments have additional program-specific transfer credit guidelines or restrictions.
Undergraduate - Graduate Concurrent Enrollment

Advanced Rice undergraduate students may be accepted into a Rice graduate program prior to receiving their undergraduate degree. Their formal graduate program enrollment is deferred until after the bachelor’s degree has been awarded, at which time the students will complete a minimum of one semester of residency as a Rice graduate student. With certain stipulations, undergraduate students may i.) begin work on their graduate degree at Rice prior to completing all degree requirements for their bachelor’s degree, and ii.) must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).

A student cannot be admitted to concurrent enrollment in Rice undergraduate and graduate programs without the approval of the dean of graduate and postdoctoral studies. The graduate application should be submitted as usual and will have decanal review as part of the process.

While concurrently enrolled in a graduate program, in order not to jeopardize financial aid funding, Rice undergraduates should maintain enrollment in at least 12 credit hours of study to count toward the undergraduate degree and may be enrolled in no more than a total of 18 credit hours combined between the undergraduate and the graduate degrees. By default, all courses in which undergraduate students are enrolled count toward the undergraduate degree, regardless of the course number. To designate courses that will count toward the graduate degree, Rice undergraduates concurrently enrolled in a graduate program must submit an Undergraduate Student in Graduate Degree Program Special Registration Request Form (https://rice.app.box.com/s/yfy6ha99uy1q182q4z9u5tuyvnd/) as part of the registration process each semester. Students submit the completed form to the Office of the Registrar once registration is open, but no later than the Friday of the second week of courses for each term. Please note: If a student were to have a change of plans and withdraw from the graduate degree program before completing the bachelor’s degree, those courses taken toward the graduate degree program would be returned to the undergraduate record.

Important: Please note that seeking a graduate degree while still a Rice undergraduate may have financial aid implications. Undergraduate students applying for graduate programs should consult with the Office of Financial Aid (https://financialaid.rice.edu/) prior to accepting an offer of admission. Any undergraduate students enrolled in a graduate degree program will not be eligible to request a continuance of their federal financial aid beyond their eighth semester of study at Rice. Furthermore, students will not be eligible for any undergraduate financial aid after the completion of their undergraduate degree requirements. Once the undergraduate degree is conferred, students that have been concurrently enrolled will be classified as a graduate student. Students are only eligible for graduate loans if classified as a graduate student. Students are not classified as graduate students until they have successfully completed their undergraduate degree program.

Unique Programs

Rice undergraduates have the opportunity to pursue a number of unique academic programs during their course of study. A few are highlighted below.

Century Scholars Program

The University’s goals of attracting superior undergraduates, fostering collaboration between students and professors, and sustaining a commitment to undergraduate education have culminated in a groundbreaking scholarship and mentoring program. The Rice University Century Scholars program matches select incoming freshmen with faculty mentors (https://ouri.rice.edu/contacting-faculty-about-research/) for a two-year period. During that time the student and mentor collaborate on one of the mentor’s research projects. In addition to the research opportunity, select students receive a two-year merit scholarship and a research stipend.

For more information regarding the Century Scholars Program, please see the program’s website: https://ouri.rice.edu/faculty/grants/century-scholars/ (https://ouri.rice.edu/century-scholars/).

Rice Undergraduate Scholars Program (RUSP)

The Rice Undergraduate Scholars Program (RUSP) is a two-semester, 1-credit undergraduate research program aimed at students interested in careers in academia and research. Junior and senior Rice students engage in a year-long research project and attend weekly seminars on topics of research and the academic life. The program is focused on developing research and presentation skills, an understanding of an academic career, and how to apply to post-undergraduate education (graduate, medical, and law) and nationally competitive fellowships. In addition to this, all students in the program will have access to funding that may be used for research materials or conference attendance.

For more information regarding the RUSP program, please see the program’s website: https://ouri.rice.edu/rusp (https://ouri.rice.edu/rusp/)

Rice-UT Public Health Scholars Program

Beginning in Fall 2015, a collaborative program agreement became effective between Rice University (Rice) and the University of Texas School of Public Health (UTSPH). The program is designed to allow select Rice undergraduate students interested in pursuing a graduate program in public health to obtain dual undergraduate and graduate credit by enrolling in up to 5 graduate courses (16 credit hours) at UTSPH during their senior year. This unique Rice-UTSPH Program enables accepted Rice students to earn credit towards their Rice undergraduate degree (BA or BS with any major), and to accelerate the completion of their UTSPH Master of Public Health degree (MPH) to within one year after completing their Rice undergraduate degree.

For more information regarding the Rice-UTSPH program, please see the program’s website: https://ouri.rice.edu/student-resources/public-health-scholars-program (https://ouri.rice.edu/student-resources/public-health-scholars-program/).

Teacher Education

Students in the teacher education program earn Texas state teacher certification at the secondary level, grades 7–12. Subjects include art, English language arts and reading, history, Latin, life sciences, mathematics, physical sciences, physics/mathematics, science, social studies, and Spanish. For more information on teacher education programs at the undergraduate and graduate levels, see Education (p. 856).
Academic Policies and Procedures

All undergraduate students are subject to the academic regulations of the university. Students are responsible for making certain they meet all departmental and university requirements and academic deadlines.

The Committee on Examinations and Standing (EX&S) administers the rules and regulations documented here. Under unusual or mitigating circumstances, students may submit a written petition requesting special consideration to the committee. Students should address all correspondence to the EX&S committee in care of the Office of the Dean of Undergraduates. Further information about the petition process can be found on the Dean of Undergraduates website, at https://dou.rice.edu/committee-examinations-and-standing (https://dou.rice.edu/committee-examinations-and-standing/).

- Academic Calendar (https://registrar.rice.edu/calendars/)
- Admission (p. 21)
- Academic and Judicial Discipline (p. 24)
- Attendance and Excused Absences (p. 26)
- Final Examinations (p. 26)
- Grades (p. 27)
- Graduation Requirements (p. 29)
- Leaves, Withdrawals and Readmission (p. 31)
- Name Changes (p. 34)
- Pass/Fail Option (p. 34)
- Registration (p. 34)
- Transcript Policies (p. 37)
- Transfer Credit (p. 37)
- Veterans Information (p. 38)

Admission

Rice offers more than 50 undergraduate majors across seven academic schools of study, including architecture, business, engineering, humanities, music, natural sciences, and social sciences. All applicants must specify which one of our seven academic schools is their primary intended area of study. In addition, applicants will be asked to indicate up to three specific academic areas of interest (majors, minors, pre-professional tracks). Our academic schools are looking for different strengths and qualities in applicants. Students should choose the school that most accurately reflects their intended area(s) of academic interest.

Rice seeks through its admission policies to bring bright and promising students to the university from a range of socioeconomic, cultural, geographic, and other backgrounds. We consider an applicant’s race or ethnicity as a factor in the admission process and believe that racial and ethnic diversity is an important element of overall educational diversity. Rice places a premium on the recruitment of students, regardless of their races or ethnicities, who have distinguished themselves through initiatives that build bridges between different cultural, racial, and ethnic groups. In so doing, we endeavor to craft a residential community that fosters creative, intercultural interactions among students, a place where prejudices of all sorts are confronted squarely and dispelled. Though race and ethnicity is never the defining factor in an application or admission decision, we do seek to enroll students from underrepresented groups in sufficient and meaningful numbers as to prevent their isolation and allow their diverse voices to be heard. We also seek students whose parents did not attend college as well as students from families with a well-established history of college-level education.

Admission

Through holistic evaluation review we evaluate the breadth of students’ accomplishments, interests and contributions to their communities within the context of their life experiences. We consider a variety of factors including the rigor of a student’s coursework, academic performance, extracurricular activities and achievements, essays, and articulated knowledge about the Rice community. We are careful not to emphasize any single academic metric, such as class rank, grade point average, or test scores. We evaluate each student within the context of their school and personal environment and consider what opportunities they have had access to as well as the challenges that they may have faced. We value the breadth of socioeconomic, cultural, geographic, racial or ethnic, educational and other perspectives that each student brings to the table. More information about Rice’s admission philosophy can be found here (https://admission.rice.edu/apply/application-philosophy/).

Undergraduate First-Year Applicants

First-year applicants are those who will complete high school by the end of the current academic year.

- Students enrolled in concurrent high school and college courses are considered first-year candidates.
- Students who have elected to take time off from schooling between graduating from high school and enrolling in college are considered first-year candidates.
- Completion of a high school diploma (or an equivalent) prior to enrollment is required for all new incoming students.

Domestic vs. International

Domestic applicants are those who hold one of the following citizenship or residency statuses:

- U.S. citizenship
- Permanent Residency
- DACA
- Undocumented who do not hold DACA status but have resided in the U.S. for an extended period of time
- Refugee/Asylee

International applicants are foreign nationals applying to Rice. Foreign nationals are students living outside the U.S. or living in the U.S. who hold, a valid F-1, J-1, H-1, H-4, etc. visa/ status, as well as those pending Permanent Residency status. Rice’s international student designation is based on residency or citizenship status rather than where a student lives and studies.

Decision Plans

Rice offers three first-year application decision plans: Early Decision, Regular Decision, and QuestBridge National College Match.

Early Decision Plan

Early Decision is a binding decision plan designed for students who have selected Rice as their first choice. Students may initiate applications to other colleges under nonbinding plans but must withdraw those applications if admitted to Rice. For more information, visit the Decision Plan section of the First Year Domestic Applicants page (https://
admission.rice.edu/apply/first-year-domestic-applicants/) or the First Year International Applicants page (https://admission.rice.edu/apply/first-year-international-applicants/).

Regular Decision Plan

Regular Decision is a non-binding decision plan. For more information, visit the Decision Plan section of the First Year Domestic Applicants page (https://admission.rice.edu/apply/first-year-domestic-applicants/) or the First Year International Applicants page (https://admission.rice.edu/apply/first-year-international-applicants/).

QuestBridge National College Match

Rice is one of the original QuestBridge university and college partners (starting in 2004), and we have a proven commitment to providing access to low-income students. Programs Rice supports include the College Prep Conferences and the National College Match program. For more information about applying to Rice through QuestBridge, please visit QuestBridge’s Rice University page (https://www.questbridge.org/college-partners/rice-university/) at contact us directly at admission@rice.edu (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/admission/admission@rice.edu).

Application Requirements

A list of the most current application requirements, fees and deadlines can be found on the First Year Domestic Applicants page (https://admission.rice.edu/apply/first-year-domestic-applicants/), First Year International Applicants page (https://admission.rice.edu/apply/first-year-international-applicants/) or Transfer Applicants page (https://admission.rice.edu/apply/transfer-applicants/).

Shepherd School Music Applicants

Applicants interested in Shepherd School of Music must submit additional materials depending on their area of study. For more information, please visit the Shepherd School of Music Admission page (https://music.rice.edu/undergraduate/undergraduate-studies/).

School of Architecture Applicants

Applicants interested in the School of Architecture must submit a portfolio of creative work. Portfolios should be uploaded via your Rice Admission Student Portal. The portfolio should demonstrate creative potential and is not expected to be architectural in focus. The School of Architecture does not accept CDs or DVDs. For more information, we encourage you to visit the School of Architecture (https://arch.rice.edu/Admissions/Undergraduate-Admissions/) website.

School of Humanities - Visual and Dramatic Arts Major Applicants

Applicants interested in pursuing a major in Visual and Dramatic Arts (VADA) under the School of Humanities are encouraged to submit a portfolio of creative work. To submit a portfolio, it should be uploaded via your Rice Admission Student Portal. Note: Please see portfolio specifications below; submissions exceeding those specifications will not be accepted.

The portfolio should demonstrate creative potential and is not expected to be professional in quality. It may include examples of sketches, paintings, photography, models, etc. VADA does not accept CDs or DVDs, but VADA can access URLs to Vimeo or social media pages provided within the PDF.

Portfolio specifications:

• PDF file labeled with applicant name (example: JaneDoe.pdf)
• 15 MB maximum file size
• Page size should be horizontally oriented A4 or Letter (8.5” x 11”); images should be between 150dpi and 300 dpi
• The first page should be a cover/title page with the applicant’s name
• Content can be up to 10 pages (not including the title page); more than one image or work can be included per page
• Captions of images with title, year of execution, media, and size are encouraged. A one to two sentence description is also acceptable.

High School Requirements

Official Transcripts

Official high school/secondary school transcripts must include grades from 9th through 11th grade as well as courses being taken in the 12th grade. Early Decision applicants are encouraged to submit first marking period grades, when they become available. Regular Decision applicants are required to submit mid-year grades from 12th grade, when they become available.

Applicants studying in an international exam-based curriculum, must submit:

• All official high school transcripts
• Final exam results (for example IGCE/GCSE, CBSE X/ AISSCE X)
• Predicted exam results, if available

Course Requirements

Rice seeks students who demonstrate intellectual vitality through their course selection and their grade performance. Most applicants will challenge themselves by taking advantage of the rigorous coursework available to them. At a minimum, students must complete the following.

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Number of Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>Social Studies</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory Science (e.g. biology, chemistry, physics)</td>
<td>2</td>
</tr>
<tr>
<td>A foreign language</td>
<td>2</td>
</tr>
<tr>
<td>Additional credits in any of the categories above</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
</tr>
</tbody>
</table>

• At a minimum, the natural science and engineering divisions require trigonometry or precalculus and both chemistry and physics. Students may substitute a second year of chemistry or biology for physics.
• Students admitted with curriculum deficiencies will be asked to complete the required work by taking high school or college-level courses during the summer before enrolling at Rice.
Standardized Testing

Standardized tests have long served to provide an external benchmark of college-readiness that provides meaningful information about a student’s preparedness for the rigors of a Rice education. Standardized tests are one factor of many that are considered in the admission process. For more information visit the Standardized Testing section of the First Year Domestic Applicants page (https://admission.rice.edu/apply/first-year-domestic-applicants/), First Year International Applicants page (https://admission.rice.edu/apply/first-year-international-applicants/) or Transfer Applicants page (https://admission.rice.edu/apply/transfer-applicants/).

English Language Proficiency

Applicants whose first language is not English are required to demonstrate English proficiency in one of two ways:

1. Completing at least two years of full-time study in an English language curriculum prior to submitting an application.
2. Submitting one of the following official test scores: Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), or Duolingo.

To be considered official, all scores must be sent directly from the testing organization. Rice’s TOEFL code is 6609.

Letters of Recommendation

Candidates must submit letters of recommendation from their counselor and two teachers.

Counselor Letter of Recommendation

The counselor letter of recommendation serves to highlight the accomplishments of a student within the context of their high school. The letter must come from an applicant’s assigned school counselor, college counselor, principal, or headmaster.

Teacher Letters of Recommendation

The two teacher recommendations serve to highlight the applicant’s academic strengths and contributions in the classroom. Both of these recommendations should be from teachers of core academic subjects, and ideally one recommendation should relate to the applicant’s intended area of study. Though not a requirement, we would prefer letters from teachers who have taught the student for a full course.

Supplemental Letters of Recommendation

The required counselor recommendation and two teacher recommendations provide the Admission Committee with all the information we need to make an informed admission decision. However, if someone has unique and personal knowledge about an applicant’s accomplishments or talents, the applicant may have that individual submit a supplemental recommendation.

Interviews

We recommend an interview for first-year applicants, though they are optional and not guaranteed. Interviews are a great way to articulate one’s knowledge about Rice and an excellent opportunity to showcase academic and personal successes while learning more about the campus experience.

Rice/Baylor Medical Scholars Program

The Rice/Baylor Medical Scholars Program is a partnership between Rice University and Baylor College of Medicine that promotes the education of students who are scientifically talented, compassionate towards others and socially conscious. Through this joint effort we seek to enroll students of high-achievement that desire to work in healthcare and represent the diverse communities in which they serve. Rice and Baylor College of Medicine select a limited number of first-year students each year to pursue a four-year bachelor's degree at Rice, followed by conditional admission to Baylor College of Medicine.

Financial Aid & Scholarships

Need-Based Financial Aid for Domestic Students

We know that one of the biggest factors in determining the right school is affordability. Because we believe talent deserves opportunity, Rice offers need-blind admission to domestic students. This means we do not consider finances when we review the application. Additionally, Rice meets 100 percent of demonstrated need – without loans – for those who are eligible for the Rice Investment, one of the most notable financial aid programs in the country. For more information about need-based financial aid and The Rice Investment, please visit our Office of Financial Aid website (http://financialaid.rice.edu/). See also Tuition, Fees and Expenses (p. 45).

Merit-based Scholarships

The Office of Admission offers merit-based scholarships to incoming first-year students who distinguish themselves academically and personally among our highly competitive group of admitted students. These scholarships are based solely on merit and financial need is not taken into consideration. There is no separate application or interview required, the Admission Committee automatically considers all admitted students, both domestic and international, on the basis of the student’s application for admission. About 20% of admitted students are offered a merit scholarship each year. Students awarded a merit-based scholarship will be notified at the time of admission.

International Student Financial Statement

All international applicants living outside the U.S. or in the U.S. must complete the International Student Financial Statement and supply the appropriate supporting documentation. International applicants not requesting financial aid must demonstrate the ability to finance their education at Rice. Those requesting financial aid must provide information about their family’s financial status.

To complete the required Financial Statement, applicants will need to do the following:

- Indicate if they will or will not be requesting financial aid
- Submit all bank statements or affidavits supporting total funds available to go towards the total cost of attendance. Tax documents and proof of income are not accepted as supporting documentation.
- Submit all award letters or documentation supporting any scholarship funds available to go towards the total cost of attendance.
- Provide an explanation of how the applicant plans to cover the cost of attendance if the total sum of available funds is below $70,000.
All supporting financial documentation must be in English and converted to U.S. dollars.

The International Student Financial Statement can be found on the Rice Admission Student Portal once the application is submitted. An application will not be complete until the financial statement and all required documentation are submitted.

### AP/IB/International Examination/Dual Enrollment Credit

#### Advanced Placement (AP) Exams

Rice University awards transfer credit for the Advanced Placement (AP) Program, which enables high school students to earn transfer credit for college-level courses taken in high school upon completion of AP examinations with a score of 4 or 5. For more information about the AP transfer credit process, please visit the Advanced Placement (AP) Credit page (https://registrar.rice.edu/students/ap_credit/).

#### International Baccalaureate (IB) Exams

Rice University awards transfer credit for International Baccalaureate (IB) examinations for students who hold the International Baccalaureate Diploma and have obtained a score of 6 or 7 on higher level exams. For more information about the international exams transfer credit process, please visit the International Baccalaureate (IB) Credit page (https://registrar.rice.edu/students/ib_credit/).

#### International Exams

Students who complete various international exams with a grade of A or B may receive transfer credit. These exams include A-Levels, the Abitur, CAPE, CEGEP (Science Option), French Baccalauréat (Science Option), Italian Maturita, and Swiss Federal Maturity Certificate. For more information about the international exams transfer credit process, please visit the International Exam Credit page (https://registrar.rice.edu/students/international_exam/).

#### Transfer/Dual Credit

The Office of the Registrar evaluates courses taken at other regionally accredited colleges or universities (or their foreign equivalent) that are appropriate to the Rice curriculum for potential transfer credit. For more information about the transfer or dual credit process, please visit the Transfer Credit page (https://registrar.rice.edu/students/transfer_credit/).

### Undergraduate Transfer Applicants

Students are considered transfer applicants if they have:

- Completed a high school diploma (or an equivalent)
- Earned at least 12 semester hours of college credit after graduating high school (with at least a 3.2 grade point average in their most recent college work)

If a student has earned 12 or more semester hours of credit since completing high school (or earning an equivalent), they must apply as a transfer. Transfer applicants must complete at least four semesters of course work (equal to 60 semester hours) as a full-time student at Rice to be eligible for a bachelor’s degree. For more information please visit Transfer Credit (p. 37).

### Academic and Judicial Discipline

#### Academic Probation

Students are placed on academic probation at the end of any semester if:

- Their grade point average for that semester is less than 1.67, or
- Their cumulative grade point average is less than 1.67 (this requirement is waived if the grade point average for that semester is at least 2.00).

The period of probation extends to the end of the next semester in which the student is enrolled. Students on academic probation may not be candidates for, or hold, any elected or appointed office, nor are they allowed to enroll in more than 17 semester hours.

#### Academic Suspension

Students are suspended from the university at the end of any semester if they:

- Earn grades that will place them on academic probation a third time, or
- Have a grade point average for the semester that is less than 1.00 (exceptions are made for students completing their first semester at Rice).

Students readmitted after a previous suspension will again be suspended if in any succeeding semester they fail to achieve at least one of the following requirements:

- a cumulative and semester grade point average of at least 1.67, or
- a semester grade point average of at least 2.00.

The first suspension period is normally one semester; the second suspension period is at least two semesters. Students may only return for a fall or spring semester following suspension, not for summer school. Students are not readmitted after a third suspension.

Participation in student activities on and off campus and use of Rice facilities, including, but not limited to, the student center, the colleges, the playing fields, the recreation center, and the computer labs, are limited to enrolled students.

Students placed on academic suspension are notified by the Office of the Registrar after all final grades have been received and posted to their record. Suspension is lifted the first day of class of the semester when the student returns to the university. When students serve the nominal term of suspension but do not intend to return to Rice, suspension is lifted after permission from the Committee on Examinations and Standing is granted.

Students facing a first or second academic suspension who verify with the Office of the Registrar, academic advising, and their department that
successful completion of their proposed academic plan would satisfy
their degree requirements in one semester if allowed to return, may
petition the dean of undergraduates for immediate readmission. This is
known as the “senior exception rule”, and students may be granted this
exception only once. If granted, both the immediate readmission and the
exception will be noted on the student’s academic transcript.

Senior exception students that do not complete their degree
requirements in the one semester for which they were readmitted, but
finish with a GPA which allows for good academic standing may be
allowed to continue with their studies at Rice, but only by petitioning and
receiving approval from the dean of undergraduates.

Senior exception students should note that if they do not complete their
degree requirements in the one semester for which they were readmitted, and
finish with a GPA resulting in an academic suspension, that second
or third suspension will be applied to their academic record.

Students who fulfill all of their degree requirements at the end of a
semester under academic circumstances that would normally place them
on probation or suspension will not have the terms “academic probation” or “academic suspension” placed on their transcript for that semester, but
will instead have the notation of “Good Standing with Exception” and be permitted to graduate.

Readmission After Academic Suspension
Students seeking readmission after academic suspension should
address a letter of petition to the Committee on Examinations and
Standing (https://dou.rice.edu/committee-examinations-and-standing/), in care of the Office of the Dean of Undergraduates, which must be
received by June 1 for readmission in the fall semester and November 1
for readmission in the spring semester. The petition should demonstrate
what the student did while they were separated from Rice and how they
have prepared themselves to function successfully as a student at Rice.
The petition must include two supporting letters from persons for whom
the student has worked during the suspension period as a student or
an employee, as well as an academic plan. Academic plans must be
reviewed and approved by the Office of Academic Advising by June 1
for readmission in the fall semester and November 1 for readmission
in the spring semester. To allow time for review and revision of the
academic plan, students must submit their first draft academic plan at
least three weeks in advance of the deadline. Guidelines for completing
an academic plan can be found on the Office of Academic Advising
website (https://oaa.rice.edu/). If the problems causing the previous
difficulty appear to be resolved, the student generally is readmitted.

Students returning from academic suspension must maintain regular
contact with the Office of Academic Advising or a designated faculty
advisor throughout the semester. In the first semester upon return from
an academic suspension, students may not become candidates for, or
hold, any elected or appointed office, nor are they allowed to enroll in
more than 17 semester hours.

In some instances, the committee may postpone approval of readmission
or rule that suspension is permanent. Although it may do so at its
discretion, the Office of the Registrar does not normally place on
probation or suspension students who perform poorly in the Rice
Summer Sessions. Students should be aware, however, that Rice Summer
Sessions grades are included in their grade point averages.

Disciplinary Probation, Suspension, and
Expulsion
The Code of Student Conduct (https://sip.rice.edu/code-of-student-conduct/) applies to all Rice students and applies to conduct both on
and off campus. The Office of Student Judicial Programs may sanction
students, including implementing disciplinary probation or suspension
or expulsion for violations of the Code of Student Conduct or the Honor
Code. Students who have been expelled, who are serving a suspension, who are under investigation for disciplinary violations, or who have Code
of Conduct or Honor Code proceedings pending against them may not
receive their degree even if they have met all academic requirements
for graduation. Students who are suspended or expelled must leave the
university within the time frame specified by Student Judicial Programs,
generally 48 hours of being informed of the decision, though in cases of
unusual hardship, Student Judicial Programs may extend the deadline.
Any tuition refund will be calculated from the official date of suspension
or expulsion based on the refund schedule noted in the Academic
Calendar (https://registrar.rice.edu/calendars/), published by the Office
of the Registrar. A grade of “W” will be assigned to all enrolled courses
regardless of when the suspension or expulsion began. Expelled students
will have the expulsion noted on their transcript.

While on disciplinary probation or suspension, students may not run for
or hold any elective or appointed office in any official Rice organization.
Participation in student activities on and off campus and use of Rice
facilities, including, but not limited to, the student center, the colleges, the
playing field, the recreation center, and the computer labs, are limited to
enrolled students.

Students seeking readmission after a suspension for Honor Code
or Code of Conduct violations or other nonacademic action should
submit a petition in writing to the Office of Student Judicial Programs
by emailing SIP@rice.edu. That petition should include information
on what the student did while away from Rice, including any schooling
or employment; how the student met any requirements described by
Rice at the time of separation; what the student did to address any
issues leading to the separation; and what the student learned from the
separation. Once approved by Student Judicial Programs, the petition is
forwarded to the dean of undergraduates (for undergraduate students) or
to the dean of graduate and postdoctoral studies (for graduate students) for final readmission approval and action.

Due to the nature of graduate programs, reinstated students may not be
able to return to the same advisor or secure the same level or source of
financial aid.

Degree Revocation
Rice University reserves the right to revoke any degrees granted. A degree
awarded may be revoked if the university becomes aware that the degree
should not have been granted, such as a degree that was obtained by
violating the Honor Code or Code of Student Conduct or by deception,
misrepresentation, falsification of records, academic misconduct,
research misconduct, or if the work submitted in fulfillment of — and
indispensable to — the requirements for the degree are determined to
fail to meet the academic standards that were in effect at the time the
degree was awarded. Notification of the date of revocation will appear
on the student’s transcript, and the student will be asked to return the
diploma. The provost receives all recommendations for revocation of
degrees and, after reconsideration and review, forwards to the president
any recommendations deemed to be warranted. The provost may also
initiate and forward a recommendation for a degree revocation to the
The university also reserves the right to withdraw a degree to correct an administrative error, such as an incorrectly listed degree, or in a situation where it was found that a student had not actually fulfilled all graduation requirements.

Attendance and Excused Absences

Students are expected to attend all scheduled activities for all of the classes for which they are registered during the entire course of the academic semester for which they are enrolled. The Academic Calendar (https://Registrar.rice.edu/calendars/) indicates normal class days, recesses, and holidays. Instructors, however, may schedule required activities on other days, including recesses, holidays, and weekends, if required by programmatic needs, such as laboratories or field trips. Such requirements must be clearly stated in the online course description available at registration and on the syllabus, and instructors should try to provide compensatory time off for students.

The university understands that students participating in university-sponsored events, including athletics competitions, will miss some class sessions during the semester. Students will inform their instructors in a timely manner and in advance of absences resulting from participation in such events. In these cases, faculty will give students a reasonable accommodation to make up for the work missed.

Two university-sponsored events, including athletics competitions such as games, matches, or tournaments, may be scheduled for the period beginning with the Monday of the last week of classes and ending with the last day of final exams (a 17-day period). Scheduling additional events requires approval from the Committee on Examinations and Standing. For the two allowable events, one may be scheduled during the last week of classes, one may be scheduled during the reading period (defined as the day following the last day of classes through the day before finals begin), or one may be scheduled during the Finals Period.

This policy permits flexibility in scheduling; however, the maximum number of allowable events over the three periods is two. For these events, only one night outside of Houston is allowed per period. Events where scheduling is not under the control of the university do not count toward this two-event limit. This rule also applies to cases in which participation is on an individual basis, such as by track student-athletes. All university-sponsored organizations with events during this period must notify the Office of Academic Advising at least one month prior to the event.

Absences for activities other than university-sponsored events may be negotiated on an informal basis between the student and the faculty member. Alternatively, absences may be formally excused on a case-by-case basis if a petition explaining the nature of the event, accompanied by suitable documentation, is submitted to the Committee on Examinations and Standing at least two weeks before the event.

Resolving Conflicting Course Obligations

Scheduled Outside of Assigned Class Time

Many courses require presentations that cannot reasonably be accommodated within the scheduled class period. Problems occur when faculty schedule these presentations during times that conflict with other regularly scheduled classes.

Principles

- Generally, faculty should plan their course activities to avoid conflicts with other regularly scheduled classes.
- Generally, all deadlines and schedules will be included in the syllabus or announced, in writing, early in the semester.
- It is the responsibility of faculty members to make appropriate accommodations and adjustments when required class exercises are scheduled outside of assigned class time.
- A student must not be penalized either directly or indirectly.

Resolution of Scheduling Conflicts

- Class presentations outside of the scheduled class time should be held on evenings and weekends.
- Registrar-assigned class times take priority over activities of other classes.
- When two or more classes require activities outside of class time, the order of priority is determined by the date at which the exercise was announced in writing and scheduled.
- When two or more classes require activities outside of class time, activities which require external reviewers or coordination of multiple schedules have priority over individual exercises that can rescheduled.
- Required exercises outside of assigned class times that are announced at the last minute do not take priority over those announced earlier, even if they require coordination of multiple schedules.

Roles and Responsibilities

- Ideally, faculty will cooperate with one another when they need to resolve scheduling conflicts.
- If faculty involved are unable to find a solution that does not penalize or unduly disadvantage the student, department chairs will resolve the scheduling conflict.
- If department chairs are unable to resolve the scheduling conflict, the matter will be referred to the dean of undergraduates or the dean of graduate and postdoctoral studies, or their designees, who will have final authority for resolution.

Final Examinations

The decision to give a final exam as a required part of the course rests with the instructor. All tests and examinations are conducted under the honor system. No examinations or other course assignments may be due between the last day of classes and the first day of the final examination period.

Examinations are considered final examinations when they:

- Cover more than the material learned since the last exam, or
- Are the only exam in the course, or
- Require comprehensive knowledge of the entire course.

Such exams may be given only during the final examination period.

All undergraduate-level courses are assigned a final examination time by the Office of the Registrar. Upon request, graduate-level courses may be scheduled for a final examination time. Instructors may choose to
use that officially assigned time for a scheduled final examination, may choose to give a take-home exam, or may choose to give no exam at all. If they choose to give a scheduled final examination, the Office of the Registrar will assign a room, and the final exam will be administered in that room at the designated time. Some instructors assign end-of-term projects or papers rather than final examinations. With regard to due dates, final papers or projects will be treated the same as take-home exams.

Take-home exams should be made available to students as soon as possible after the semester’s last day of classes, and no later than the end of the next business day after classes have ended. Take-home exams may be no longer than five hours in length. The due date of take-home exams may be no earlier than the end of the examination time assigned to that class by the Office of the Registrar. Instructors may specify due dates later than this time, but not later than the end of the last day of the examination period.

As noted in the Faculty Grading Guidelines (p. 97), no student should be given an extension of time or opportunity to improve a grade that is not available to all members of the class, except for verified illness or justified absence from campus. However, students cannot be required to take more than two scheduled exams in two consecutive calendar days. Students also cannot be required to complete more than two take-home and/or scheduled final exams on the same calendar day (unless this is the last day of the examination period). In both instances, if the student wishes to make alternative arrangements and is unable to work out such arrangements with the instructor(s) involved, the instructor of the third and any subsequent exams will be required to allow the student to reschedule that exam.

**Grades**

**Grades**
See also Faculty Grading Guidelines (p. 97) and Syllabus Standards (p. 98).

**Pass/Fail Option**
Undergraduates may register for courses on a Pass/Fail basis. Students:

- May not take more than one course as a Pass/Fail per semester for each full year of residence (students studying in off-campus programs through Rice are considered to be in residence for the purpose of this rule).
- May not take more than four courses as Pass/Fail.
- May not take more than a total of 14 semester hours total as Pass/Fail.
- May register for only one course as Pass/Fail in a semester.
- May not take as Pass/Fail a repeatable course previously taken and designated as Pass/Fail.
- May not take as Pass/Fail those courses used to meet the requirements for their major, minor, or certificate.*
- Must designate courses to the Pass/Fail grade mode online, via ESTHER, no later than the posted deadline, usually the end of the 10th week of semester.
- May not take First-Year Writing-Intensive Seminar (FWIS) courses as Pass/Fail.

Students may convert a pass/fail course to a graded course by submitting the proper online conversion form, via ESTHER, and must adhere to the pass/fail deadlines as stated in the Academic Calendar (https://registrar.rice.edu/calendars/). Students wishing to designate a course as pass/fail during the summer sessions should see Registration During Summer Sessions (p. 34).

Students should be aware that while a grade of P does not affect their grade point average, a grade of F is counted as a failure and is included in their GPA. Students who take a course during the Rice summer session as pass/fail also should be aware that this counts toward their allowable total of four courses. For more information, please see The Pass/Fail Option (https://registrar.rice.edu/students/reg_pass_fail/) on the Office of the Registrar’s website.

*Please Note: If students have completed as Pass/Fail courses that are needed to meet the requirements for their major, minor, or certificate, they should request in writing to the Office of the Registrar that the P grade be replaced with the letter grade earned. Otherwise, the Office of the Registrar will uncover the P grade during the final degree audit process (which begins with day one of the student’s final semester). Once the P is uncovered, it will not be restored or subsequently returned to that course; therefore, students should review their Degree Works degree audits carefully to ensure that the courses are applied in their degree audit as expected.

**Satisfactory/Unsatisfactory**
Satisfactory/unsatisfactory courses are those that do not use traditional grading procedures and instead assign a grade of S or U rather than a letter grade. Such courses or labs are designated by the instructor and are, in most cases, graduate-level courses. With S/U courses, instructors report the S if the student successfully completes the course, or the U if they have not. Students should be aware that while a grade of S or U does not affect their grade point average, no credit will be awarded if a grade of U is received. Courses with a grade of S will count towards total credits earned. Visiting Post Baccalaureates cannot take courses on a satisfactory/unsatisfactory grading basis.

**Audit**
Students have the option of auditing courses. For auditing students, instructors report either the AUD or the NC grade symbol, the AUD if the student met the audit requirements of the class, or the NC if they have not. There are no credit hours associated with audited courses, and auditing a course does not affect a student’s GPA. Request to audit a class or to change from audit to credit or vice versa must be done by the dates and deadlines documented in the posted Academic Calendar (https://registrar.rice.edu/calendars/). (See Grade Designations AUD (p. 27) and NC (p. 28) below.)

**Grade Symbols**
Instructors are required to report a grade for all students whose names appear on the class roster. They grade their students using the following conventional symbols: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F.

**Grade Designations**
Under certain circumstances, special designations accompany the student’s grade. These designations do not affect the grade point average. The special designations include the following:

**AUD (“Audit”)**
This designation is only used for students auditing the course, and specifically where the auditing student has met the audit requirements of the course as defined by the instructor. A grade designation of “NC” (No Credit) is given to students who do not meet the audit requirements.
There are no credit hours associated with an AUD grade designation. (See Audit above.)

**INC (“Incomplete”)**

Instructors report this designation to the Office of the Registrar when a student fails to complete a course because of verified illness or other circumstances beyond the student's control that occur during the semester. Students must provide independent corroboration of their illness or circumstances, and they are expected to coordinate with the instructor prior to final grades being submitted. For an INC received in the fall semester, students must complete the work by the end of the first week of the spring semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the second week. For an INC received in the spring or summer semester, students must complete the work before the start of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the first week. If a grade is not submitted by the appropriate deadline, the INC will be automatically converted to a failing grade.

Students with an INC must be certain that tests, papers, and other materials affecting their grade or essential to completing a course requirement are delivered by hand to the appropriate professor or office according to the timeline previously stated, for the instructor to grade the documents and submit the final grade to the Office of the Registrar by the deadline. Loss or lateness because of mail service is not an acceptable excuse for failing to meet academic deadlines. Students also should be aware that they may be placed on probation or suspension when the INC is changed to a grade, either by an instructor or by default.

**NC (“No Credit”)**

This designation signals that no credit was granted for the course. It is used in situations where a person auditing a course has not met the audit requirements of the course as defined by the instructor. (See Audit above.)

**NG (“No Grade”)**

This designation signals that no credit was granted for the course. As a non-punitive grade, the NG is applied administratively and used in rare situations.

**OT (“Other”)**

Instructors report this designation to the Office of the Registrar when a student fails to appear for the final examination after completing all the other required work for the course. An OT received during a fall semester must be resolved and instructors must submit a revised grade by the end of the first week of the spring semester. An OT received during a spring semester must be resolved and instructors must submit a revised grade by the end of the fourth week after Commencement. An OT received during a summer semester must be resolved and instructors must submit a revised grade by the end of the first week of the fall semester. If a grade is not submitted by the appropriate deadline, the OT will be automatically converted to a failing grade. Students should be aware that they may be placed on probation or suspension when the OT is changed to a grade, either by an instructor or by default.

**SA (“Study Away”)**

This designation is used for students that participate in a course of study hosted at another institution, such as a Rice-sanctioned Study Abroad program, or an approved Inter-Institutional agreement. The grade of SA is awarded for the Rice placeholder course, carries no grade points and there are no credit hours earned for a course which receives a grade of SA. There is corresponding transfer credit that is articulated once an official transcript is received from the host school.

**TR (“Transfer Credit”)**

This designation is used when a student is granted credit for coursework that is transferred into Rice from another institution, or has earned credit by eligible exam (Advanced Placement, etc.), as per Rice's Transfer Credit policy for undergraduates (p. 37) or for graduates (p. 60). Transferred courses have no effect on a student's Rice grade point average.

**W (“Official Withdrawal from University”)**

Students who officially withdraw from the university after the designated drop deadline, the seventh week of classes, will receive a final grade of "W" for each course in which they were enrolled at the time of withdrawal. Students who officially withdraw from the university by the drop deadline will not receive the grade of “W” for any courses in which they were enrolled for that semester. These courses will not be included on the official transcript.

**W (“Late Drop with Approval”)**

An undergraduate student who receives approval from the Committee on Examinations and Standing to drop a course after the designated drop deadline will receive a grade of “W” for that course. A graduate student may petition in writing to the dean of graduate and postdoctoral studies to drop a course after the designated drop deadline. Graduate students who receive approval from the dean of graduate and postdoctoral studies will receive a grade of “W” for that course. When requests for late drops are denied by the committee (for undergraduates) or by the dean of graduate and postdoctoral studies (for graduates), the Office of the Registrar records the submitted grade.

If a student drops a class before the designated drop deadline for the semester, the course will not be included on the official transcript. New undergraduate matriculants in their first semester at Rice may drop a class up until the last day of classes, and through the end of week ten in their second semester, if that is a full-term Spring semester, and the course will not be included on the student's official transcript. Graduate students are reminded that the rule allowing new matriculants in their first semester at Rice to drop a class up until the last day of classes applies only to undergraduates.

### Grade Points

To compute grade point average, letter grades are assigned numeric values as follows:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Numeric Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
</tbody>
</table>

<sup>1</sup> For graduates
To graduate from Rice University, all students must:

 Students are responsible for making certain that their plan of study

Degrees

Degree Requirements for All Bachelor’s

Students are responsible for making certain that their plan of study

Graduation Requirements

The General Announcements (GA) is the official Rice curriculum. In the

Event that there is a discrepancy between the GA and any other websites or

Publications, the GA shall prevail as the authoritative source.

PLEASE NOTE:

• LPAP courses: No more than 4 hours of credit for LPAP courses may

be counted toward graduation.

• COLL courses: No more than 3 hours of credit for student-taught

College Courses (COLL) may be counted toward graduation. (This

includes all courses COLL 100 - COLL 199 as well as the COLL 200

Teaching Practicum.)

• *Full-time registration: Participation in a full semester Rice-approved

Study Abroad program may count towards the fulfillment of this

requirement (where full-time enrollment is at least 12 semester credit

hours in that fall or spring semester).

• **Pass/Fail courses: If students have completed as Pass/Fail courses

that are needed to meet the requirements for their major, minor, or

certificate, they should request in writing to the Office of the Registrar

that the P grade be replaced with the letter grade earned. Otherwise,

the Office of the Registrar will uncover the P grade during the final
degree audit process (which begins with day one of the student’s

final semester). Once the P is uncovered, it will not be restored or

subsequently returned to that course; therefore, students should

review their Degree Works degree audits carefully to ensure that the

courses are applied in their degree audit as expected.

In order to earn a second degree, students must fulfill the requirements

outlined in the Dual-Degree Requirements section below.

Writing and Communication Requirement

All students must complete and pass a First-Year Writing-Intensive

Seminar (FWIS). An FWIS is a content-based, 3-credit hour seminar

open only to first-year students that can focus on any topic, and in

which writing and communication pedagogy plays a significant role

in assignments and grading. To facilitate success in meeting this

requirement, all students must take the Composition Examination prior

to matriculating. Students who do not pass the Composition Exam, or

fail to take it, must successfully complete the FWIS 100 Introduction

to Academic Writing course during their first semester, prior to enrolling

in the FWIS course used to meet the graduation requirement. FWIS 100
cannot be used to meet the Writing and Communication (FWIS)

graduation requirement.

All first-year students must enroll in and successfully complete an FWIS
during their first year at Rice, and all first-year students will be notified

prior to Orientation Week if they have been assigned to take an FWIS
during the fall or spring of their first year. The following transfer credit

restrictions exist for FWIS courses, and this Writing and Communication

Requirement:

• Students who matriculate as freshmen may not substitute pre-

matriculation transfer credit for the FWIS.

• Transfer students who wish to satisfy the FWIS requirement with

courses from another institution must apply for this credit in their

first semester at Rice. The course taken at another institution will

only be considered for transfer as an equivalent FWIS course i.)

with the approval of the Program Director, and ii.) provided that the

course transfers in as at least 2.5 semester credit hours.

• Neither freshmen nor transfer students may satisfy the FWIS

requirement by taking an equivalent course at another institution

after matriculating at Rice.

Grade Point Average Calculation

For each course carrying standard letter grades, the credit hours

attempted and the points for the grade earned are multiplied. The grade

points for each course are added together, and the sum is divided by

the total credit hours attempted. Grade point averages are noted each

semester on the student’s official transcripts. Courses taken on a S/U or

pass/fail basis are excluded from the grade point average calculation.

Structure:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
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<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
</tr>
</tbody>
</table>

1 Effective Academic Year 2018-2019, the A+ grade is now worth 4.00,

not 4.33, in calculating the GPA.
All FWIS courses carry the FWIS designation and cannot be taken as Pass/Fail. Students are allowed to change FWIS sections during the first two weeks of classes each semester, but they cannot drop one FWIS section without simultaneously adding another. After week two, FWIS courses cannot be dropped. In extraordinary circumstances, students may submit a petition to the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/), who may approve a drop on an exception basis.

See the Program in Writing and Communication’s web site (https://pwc.rice.edu/) for FWIS section descriptions and for more information on the required English Composition Exam.

Distribution Requirements (Groups I / II / III)

Distribution courses introduce the knowledge, intellectual skills and habits of thought characteristic of disciplines or of inquiry across disciplines within three main areas: humanities, social sciences, and natural sciences and engineering. They are broad-based, accessible to non-majors, and provide a foundation that enables students to integrate knowledge from multiple perspectives. No single course is expected to fulfill all the criteria or goals of a distribution group. Courses that presume students’ special expertise or that teach techniques or career-based skills without exposure to modes of analysis and scholarship in the relevant discipline are not eligible for distribution credit. Research or independent study courses and internships and practica are also excluded. In some instances, courses satisfying major, minor, and/or certificate requirements may additionally meet distribution requirements.

Group I

These courses, which are broad in theme and scope, prompt students to probe the modes of knowledge, inquiry or creative practice characteristic of the arts and humanities. Group I courses provide students with essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life.

Group II

These courses introduce the theories, problems, methodologies, and substance of the social sciences. They are intended to familiarize students with different approaches to the study of human behavior and how individuals interact with and are shaped by cultural, social, economic, and political groups and institutions. Because of the complexity and scope of human behavior, these courses may be multi-disciplinary in nature. Group II courses provide a foundation for thinking about the social worlds we inhabit and the diverse behavioral factors that both structure human activity at multiple scales and contribute to the dynamism of social and cultural systems.

Group III

These courses are designed to give students a basic knowledge of the capabilities and limitations of scientific inquiry and technological development, and to develop their skills in analytical thinking and quantitative reasoning. They provide grounding in the scientific method, engineering design, theorem development, or quantitative analysis. They provide students with the essential knowledge and tools required to appreciate, understand, and critically assess the elegance and power of the natural world and our effect upon it. Some understanding of basic scientific concepts and how the scientific process produces new knowledge is essential for informed participation in contemporary society. In an increasingly data-driven world, an understanding of how numerical and categorical information can be manipulated and interpreted is also vital. The goal of Group III courses is to promote an understanding of the value and impact of scientific thinking and engineering design, and to foster a critical appreciation of experimentation, quantitative applications, and scientific research.

Academic Planning for Distribution Requirements

Each student is required to complete at least 3 courses of designated distribution courses of at least 3 credit hours each in each of Distribution Groups I, II, and III. The 3 courses in each group must include courses in at least two departments in that group. Divisional or interdisciplinary designations, e.g., HUMA or NSCI, count as departments. For the purpose of this rule, a course taken at another institution and transferred to Rice as an equivalent distribution course will be counted as one of these courses, provided that the course earns at least 2.5 semester credit hours.

Students must complete the distribution requirements in each group by taking courses that are designated as a distribution course at the time of course registration, as published in that semester’s Course Offerings (https://courses.rice.edu). Courses taken outside of Rice and transferred in can be used to satisfy distribution requirements, assuming they are on the list of approved and designated distribution courses at the time they were taken. Completed courses taken prior to matriculation are subject to the list of designated distribution courses at the time of matriculation.

Analyzing Diversity Requirement *

Beginning Fall 2022, all matriculated students must complete and pass one course of three or more credit hours in the area of Analyzing Diversity. Such courses primarily focus on how difference is understood across human societies, on how those understandings have changed over time, and on the consequences of those understandings for human development. Courses meeting this requirement equip students with foundational know-how in the critical study of matters related to diversity, and prepare them to apply such knowledge in other areas of study as they advance at the university.

Analyzing Diversity courses are grounded in three principal areas:

• Social and Cultural Analysis prepare students to scrupulously examine systems of belief about human difference, and how those beliefs are made manifest in cultural practices and social dynamics (particularly in multicultural contexts).

• Systemic Inequities and their Redress, pay considerable attention to inequities related to race, region, religion, ethnicity, (dis)ability, gender expression, sexual orientation, and other aspects of identity. Students in these courses also learn to analyze efforts to address and redress inequity, disenfranchisement, and injustice.

• Equity, Knowledge, and the University attend to the disciplines comprising higher education— helping students to analyze both the ramifications that systemic inequalities hold for the production and dissemination of knowledge, and the difference that more equitable and inclusive societies, research practices, and pedagogies can make for the core functions of the university and beyond.

A wide range of courses are identified as eligible to meet the Analyzing Diversity (AD) graduation requirement and are accessible to students from throughout the university. All AD courses additionally carry Distribution Credit or fulfill the university’s Writing and Communication
(FWIS) requirement and are allowed to fulfill simultaneously more than one university graduation requirement category.

Students are encouraged to complete the requirement within their first two years of study, and by taking an AD-eligible course published in that semester’s Course Offerings (https://courses.rice.edu). Courses taken outside of Rice and transferred in can be used to satisfy this requirement, provided the course is approved for transfer as an AD-eligible Rice equivalent course at the time it was taken, or at the time of matriculation if the course was completed prior to matriculation.

* While the new Analyzing Diversity course category has been added to Rice’s official curriculum beginning in 2021-2022, it will not officially become a university graduation requirement until academic year 2022-2023, and with undergraduate students matriculating Fall 2022 and beyond.

**Applicable Academic Graduation Requirements**

Students enrolled in bachelor’s programs may choose to follow the graduation general and program requirements in effect for any academic year between their matriculation or graduation. This is known as the GA Year, or Catalog Year in the university’s degree audit system, Degree Works.

If the student graduates more than seven years after their matriculation, they must graduate under the regulations in effect at the time of their last readmission, or those in effect for any academic year between their readmission and graduation. Departments and programs may review coursework completed more than seven years before the student’s anticipated graduation. However, if they determine that a course no longer satisfies the requirements of that major, minor, or certificate, then it is not credited toward the program’s requirements, although it remains on the student’s record.

Academic credential (degree program, major, minor, or certificate) requirements may vary from year to year during the period between a student’s matriculation and graduation. The department or program may, at its discretion, make any of these variations available to a student for completion of the program requirements. When declaring the degree and major, minor, or certificate, students and advisors should identify and clearly document the catalog year and the requirements to be followed. Each should retain a copy of the documented requirements. If a new degree program, major, minor, or certificate is created during the student’s time at Rice, the new program will be available to the student as of the year the program appears in the General Announcements.

**Application for Degree and Degree Conferral**

Students are responsible for making certain that their plan of study meets all degree and major (and minor and/or certificate) requirements.

To graduate from Rice University, all students must submit an Application for Degree Form available in ESTHER (https://esther.rice.edu). This form is required for all students who plan to complete their degree requirements at the end of a fall, spring, or summer semester. A late fee will be assessed for applying after the deadline (please consult the semester-specific Academic Calendar (https://registrar.rice.edu/calendars/) for deadlines). Upon completion of degree requirements, degrees are approved by the faculty and conferred in December, May, and August. Fall and Spring degree recipients may then participate in the annual commencement ceremony, celebrated each year after the conclusion of the spring semester. Summer degree recipients have the option of participating in the following year’s annual commencement ceremony.

Under specific, limited circumstances, an undergraduate student may participate in commencement without being a degree recipient, provided that the student would be joining their matriculating class in that commencement. The specific policy, rules and procedures are available on the Office of the Dean of Undergraduates’ website (https://dou.rice.edu/).

**Dual-Degree Requirements**

To earn a second four-year bachelor’s degree, also known as a dual degree, currently enrolled undergraduates who have not yet completed their first bachelor’s degree must:

- Be accepted for the second major by the major’s department or program
- Fulfill all requirements for the second degree
- Complete at least 30 additional semester hours at Rice University, beyond the hours required for their first degree (these hours are applied to the second degree)

Students seeking a second degree should submit an additional declaration of major form with the Office of the Registrar (https://registrar.rice.edu/students/majors_minors/). This paperwork should include the addition of the proposed degree and major programs along with the approval of the chair or undergraduate advisor of each department involved, indicating that the proposed course program satisfies all major and degree requirements.

Under certain conditions, students have the option to declare majors offered in different degree programs without pursuing the dual degree option. For example, a student may pursue a BS degree with a major in Physics, and choose to double major in Religion. (Rice does not award a BS with a major in Religion, only a BA.) In this scenario, the student selects and completes not only the degree and major requirements of their primary program, but the major requirements for their double major. With the above example, upon conferral of the BS degree with a major in Physics, the student’s final academic transcript will include not only that awarded BS degree and Physics major, but the sentence notation, “Student has additionally met the requirements for a major in Religion, normally associated with a Bachelor of Arts degree.” More information on this option, sometimes referred to as the "No-Degree Option", may be found on the Office of the Registrar (https://registrar.rice.edu) website, on the Majors, Minors, and University Certificates (https://registrar.rice.edu/students/majors-minors-and-university-certificates/) page.

Students with a previously earned bachelor’s degree from Rice who wish to earn a second bachelor’s should look at the Second Bachelor’s Degree for Rice Alumni (p. 94) page.

**Leaves, Withdrawals and Readmission**

All students taking a leave or withdrawal from Rice should submit their written request on an Undergraduate Separation Request Form (https://dou.rice.edu/student-resources/petitions-special-requests/undergraduate-separation-request/). Student separations are effective when acknowledged by the university. Approval of a withdrawal and leave of absence is always contingent on the student’s satisfactory completion of coursework in the semester preceding the leave. Students
performing poorly may have their approved leave converted to an academic suspension.

After a separation of more than four semesters, students seeking to return to Rice must submit a written petition to the dean of undergraduates who has discretion to submit it to the Committee on Examinations and Standing. The petition should be received no later than June 1 for the fall semester and November 1 for the spring semester. The petition should include an academic plan approved by the Office of Academic Advising and two letters of support. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by May 7 for readmission in the fall semester and by October 7 for readmission in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising website (https://oaa.rice.edu/academic-planning/).

Coordination of Separations and Returns

Rice is committed to students’ long-term success and to seeing them thrive during their college experience. Part of that commitment means that Rice supports students if they decide to leave the university for a period of time. Professionals in these areas also work with students to plan a roadmap back to Rice.

The Office of the Dean of Undergraduates oversees readmission processes. Each request for readmission will be reviewed individually. The dean of undergraduates or his/her designee will make readmission decisions. Students are encouraged to contact the Office of the Dean of Undergraduates with questions about separations and re-enrollment at the university.

Students are expected to follow the process outlined in their letter from the dean of undergraduates and any other communications from Rice regarding expectations for separation and readmission. Additionally, sometimes students are separated from Rice through more than one process and are required to submit readmission requests to multiple university departments. In certain cases, readmission may be accompanied by additional requirements to support the success and wellbeing of the student.

Leave of Absence

Students may request a leave of absence from the university by submitting their written request on an Undergraduate Separation Request Form (https://dou.rice.edu/student-resources/petitions-special-requests/undergraduate-separation-request/) at any time before the first day of classes in the semester for which they are requesting a leave. A leave of absence taken after the first day of classes is considered a voluntary withdrawal.

To gain readmission following an approved leave of absence of not more than four semesters, students must notify the Office of the Dean of Undergraduates no later than June 1 for the fall semester and November 1 for the spring semester. We strongly recommend that the student consult with the Office of Academic Advising about their academic plan.

Military Leave of Absence

Students who require a leave of absence because of being called to active military duty may request a military leave of absence from the university by submitting their written request on an Undergraduate Separation Request Form (https://dou.rice.edu/student-resources/petitions-special-requests/undergraduate-separation-request/).

For students serving a branch of the United States Armed Force, including the National Guard or Reserve to gain readmission following active military duty of not more than five years, students must notify the Office of the Dean of Undergraduates no later than June 1 for the fall semester and November 1 for the spring semester. Students will be readmitted in accordance with federal law (20 U.S.C. sec.1091c; 34 C.F.R. sec 668.18). The petition will not need approval of the Committee on Examinations and Standing, even if the leave has been greater than four semesters. For students called to active military duty other than by a branch of the United States Armed Forces, to gain readmission following active military duty of not more than two years, students must notify the Office of the Dean of Undergraduates no later than June 1 for the fall semester and November 1 for the spring semester.

We strongly recommend that the students returning from military leave consult with the Office of Academic Advising about their academic plan.

Voluntary Withdrawal and Readmission

Students may withdraw voluntarily from the university at any time during the semester up until the last day of classes. Students wishing to withdraw should inform their college magister and submit their written request on an Undergraduate Separation Request Form (https://dou.rice.edu/student-resources/petitions-special-requests/undergraduate-separation-request/). The Office of the Dean of Undergraduates may notify other offices of the university as necessary. Students who fail to give notice of withdrawal should expect to receive grades reflective of any missed academic work.

If students are in good academic standing at the time of their withdrawal, they may be considered for readmission after submitting a written petition to the Office of the Dean of Undergraduates. The petition, received no later than June 1 for the fall semester, or November 1 for the spring semester, should include an academic plan approved by the Office of Academic Advising and two letters of support. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by May 7 for readmission in the fall semester and by October 7 for readmission in the spring semester. To gain readmission, students whose grades would have led to suspension had they not withdrawn are treated as if they had been suspended.

Medical Withdrawal

Students may request a medical withdrawal from the university by submitting their written request on an Undergraduate Separation Request Form (https://dou.rice.edu/student-resources/petitions-special-requests/undergraduate-separation-request/).
Involuntary Withdrawal

On rare occasions, the university may insist on a student's involuntary withdrawal if, based on current medical knowledge and/or the best objective evidence, the dean of undergraduates or his/her designee, determines that:

- The student poses a threat to the safety or welfare of him/herself or other members of the Rice community;
- The student has a serious medical or a psychological condition that the student cannot effectively address while enrolled or which is likely to be severely exacerbated by the Rice academic and/or living environment; or
- The student demonstrates behavior that seriously interferes with the education of other members of the Rice community.

Before placing any student on an involuntary leave of absence, Rice will consider whether there are alternative measures or reasonable accommodations that would permit the student to remain enrolled while remediating the issues that led to the student being considered for involuntary withdrawal.

A student may, within 48 hours of receiving the dean of undergraduates' written decision on an involuntary leave of absence, submit a written appeal to the provost.

Readmission Following Medical or Involuntary Withdrawal

Students taking time off due to an involuntary withdrawal are also encouraged to contact the Student Wellbeing Office (https://wellbeing.rice.edu/) about the roadmap back to Rice. The Student Wellbeing Office is part of the Dean of Undergraduates Division and serves as a liaison to the medical readmission process during the separation process and when students are ready to return.

Following a medical or an involuntary withdrawal, students should submit a written petition for readmission to the Office of the Dean of Undergraduates (https://dou.rice.edu/) no later than June 1 for the fall semester and November 1 for the spring semester. Students who voluntarily or involuntarily withdraw for psychological/psychiatric reasons within the last five weeks of a semester are strongly encouraged to focus on their well-being needs and will not be eligible to apply for immediate readmission. Therefore, petitions for readmission will be considered in the following readmission request cycle and must be received no later than the applicable June 1 or November 1 deadline.

This petition must include documentation that the student is medically fit to return to Rice. The student may be asked to present documentation that student has been evaluated and has completed follow-up measures recommended by the student's treating health care professional. This may include a statement of the health care professional's credentials, a description of their contact with the student, the evaluation method, the diagnosis, the recommended follow-up measures and the student's efforts to complete them. The student's efforts to complete those follow-up measures will be evaluated to determine whether the student used the time away from Rice to address the issues that necessitated his/her withdrawal and to acquire skills to facilitate a successful return to Rice.

When evaluating the student's petition for readmission, the dean of undergraduates may obtain a recommendation regarding medical fitness from the director of the Rice Counseling Center or Student Health Services or their designees. Students may be required to schedule an interview with the director of the Rice Counseling Center (https://wellbeing.rice.edu/counseling-center/about-us/) or Student Health Services (https://health.rice.edu/) or their designees.

Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by May 7 for readmission in the fall semester and by October 7 for readmission in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising website (https://oaa.rice.edu/academic-planning/). Further information is available by contacting the Office of the Dean of Undergraduates.

Unauthorized Withdrawal

Students who leave the university without proper notification of withdrawal are considered to have resigned. Resigned students will only be considered for readmission under exceptional circumstances. In order to be considered for readmission, students must submit a petition no later than June 1 for the fall semester and November 1 for the spring semester to the dean of undergraduates who has the discretion to submit it to the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/). The petition should include an academic plan approved by the Office of Academic Advising and two letters of support. Academic plans must be reviewed and approved by the Office of Academic Advising by June 1 for readmission in the fall semester and November 1 for readmission in the spring semester. To allow time for review and revision of the academic plan, students must submit their first draft academic plan by May 7 for readmission in the fall semester and by October 7 for readmission in the spring semester. Guidelines for completing an academic plan can be found on the Academic Advising website (https://oaa.rice.edu/academic-planning/).

Resignation

A student may resign from the university by notifying the dean of undergraduates in writing. Resignation means the student is withdrawing, is no longer a student at Rice, and will not return to Rice. A resignation becomes effective when accepted by the dean of undergraduates. In general, if a student is under investigation for a potential Code of Student Conduct violation or has charges pending under the Code, disciplinary proceedings will terminate upon acceptance of the resignation by the dean of undergraduates. However, this general rule does not apply if the resigning student has been charged with sexual assault, sexual harassment, dating violence, stalking or any other behavior that could result in expulsion. A student who resigns is not eligible to receive a degree from Rice, even if the student has otherwise met all of the requirements for the degree. A notation will appear on the resigned student's transcript indicating that the student is ineligible to reenroll unrelated to academic or financial reasons.

All Separated Students, Presence on Campus

All students separated from Rice, whether voluntarily or involuntarily, withdrawn, resigned, or due to academic or disciplinary suspension, must leave campus within 48 hours. Exceptions are granted by the
Name Changes

To comply with a number of government agencies' reporting requirements, the university must record the name of each student who is a U.S. citizen as the student's name appears on the student's Social Security card. Students who need to change their names on Rice University records and who are U.S. citizens must notify the Office of the Registrar and present a Social Security card, marriage license, divorce decree or court order, and picture identification when submitting the form. After the change is implemented, the name on the Rice University transcript will read as printed on the supporting document(s).

Pass/Fail Option

Undergraduates may register for courses on a Pass/Fail basis. Students:

- May not take more than one course as a Pass/Fail per semester for each full year of residence (students studying in off-campus programs through Rice are considered to be in residence for the purpose of this rule).
- May not take more than four courses as Pass/Fail.
- May not take more than a total of 14 semester hours total as Pass/Fail.

Students who have been readmitted must comply with any restrictions or requirements placed upon them by the dean of undergraduates or the Office of Student Judicial Programs. Failure to comply with or follow the restrictions or requirements may be cause for disciplinary action under the Code of Student Conduct (https://sip.rice.edu/). Student Judicial Programs may implement a period of disciplinary probation and/or other restrictions as a condition of any readmission.
Each year, the Office of the Registrar publishes specific registration deadlines for the semesters of that year in the Academic Calendar (https://registrar.rice.edu/calendars/). Deadline due dates for student account balances for each term are published here in the General Announcements under the appropriate sections and on the Cashier’s website (https://cashier.rice.edu/). Any student not registered as of the last day to add classes or any student who is in arrears or becomes in arrears after the last day to add classes will be withdrawn from the university. Withdrawn students will not be allowed to receive credit for the withdrawn semester.

Appeals to this policy must be addressed to the dean of undergraduates. If readmitted, students must petition the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/) to add classes late and must pay a late registration fee of $125. Additionally, students who are readmitted after being withdrawn for nonpayment will be assessed a $375 readmission fee.

**Drop/Add**

During the first two weeks of classes, students may add or drop courses without penalty. After the second week of the semester, the following conditions apply for adds and drops. Undergraduate students:

- May not add courses after the second week of classes, except in extenuating circumstances and with the approval of the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/) (a $75 fee per course will be assessed).
- May drop courses through the seventh week of classes without penalty.
- May not drop courses after the end of the seventh week of classes except in extenuating circumstances and with the approval of the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/) (a $75 fee per course will be assessed). Students who receive approval to drop a course after the designated drop deadline will receive a grade of “W” for that course.

Newly matriculated undergraduate students, both new first-time and transfer students in their first full-term semester at Rice (Fall or Spring), are permitted to drop courses up to the last day of classes. These same students, in their second semester at Rice, if that semester is a full-term Spring semester, are permitted to drop courses through the tenth week of classes without a fee.

Students are allowed to change FWIS sections during the first two weeks of classes each semester, but they cannot drop one FWIS section without simultaneously adding another. After week two, FWIS courses cannot be dropped. In extraordinary circumstances, students may submit a petition to the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/) who may approve a drop on an exception basis.

There are a small number of courses for which an approved drop-back provision exists. Under certain conditions, for the course pairings on that approved list, a student can drop from the advanced course into the identified lower course until the seventh week of class. More information on this, including the list of courses, may be found on the Office of the Registrar (https://registrar.rice.edu) website, on the Drop-Back Provision page (https://registrar.rice.edu/students/dropback/).

For courses with start and end dates not coinciding with Rice's typical semester calendar, otherwise known as “part of term” courses, the Office of the Registrar will consult with the instructor and:

- Set the add deadline approximately one-seventh of the way into the course.
- Set the drop deadline approximately one-half of the way into the course.
- Post these special deadlines on the Office of the Registrar’s website, under Academic Calendars (https://registrar.rice.edu/calendars/).

Students may not drop courses where the Honor Council has ruled a loss of credit.

Note: Weeks are defined as academic instruction; thus, midterm recess is not included in this calculation.

**Course Load**

Students at Rice normally enroll for 15 to 18 semester credit hours each semester. For most students, this allows completion of graduation requirements in 8 semesters. In some instances a student may feel the need to petition for a registration overload. Petitioning for a registration overload should be a last resort and only for students with truly extenuating circumstances that would necessitate a course overload.

**Registration Overloads**

- Students must secure permission in writing from either the Office of the Academic Advising or their appropriate major advisor(s) to register for more than 18 credit hours in any semester. Information on the registration overload petition process can be found on the Office of Academic Advising website (https://oaa.rice.edu/policies-and-procedures/overloads-and-reduced-course-loads/overloads/).
- Music students and architecture students are not held to this semester credit hour limit due to their unique curricula; the credit hour limit for these students is 20 credit hours per semester.
- No student may receive credit for more than 18 semester credit hours in a semester, including courses taken concurrently at another college or university, without prior written approval. See Other Special Circumstances Requiring Permission below.

**Reduced Course Loads**

- Students wishing to enroll in fewer than 12 credit hours must secure permission in writing from the Dean of Undergraduates through the Office of Academic Advising (https://oaa.rice.edu/policies-and-procedures/overloads-and-reduced-course-loads/) before registering for courses. In the absence of extenuating circumstances necessitating a reduced course load, such permission will not generally be granted.
- To request such permission, students must complete the Part-Time Request form (https://docs.google.com/forms/d/e/1FAIpQLSd27dHYEQocrpKaK032RNacxNo1rmletiRWJajg3YPBhcb8SO/viewform/).
- Students also should be aware that the Office of the Registrar must report a student's part-time status to various groups, such as loan agencies, scholarship foundations, insurance companies, etc. It is in students’ best interest to determine if they will be affected in any way by part-time status (such as with financial aid, etc.).

**Other Special Circumstances Requiring Permission**

- Students must secure permission in writing from the Office of the Dean of Undergraduates (https://dou.rice.edu/student-resources/petitions-special-requests/) before registering for courses to complete Rice graduation requirements elsewhere.
• Students must secure permission in writing from the Office of the Dean of Undergraduates (https://dou.rice.edu/student-resources/petitions-special-requests/) before registering for courses concurrently at another college or university, regardless of the delivery method of the course.
  a. In the absence of extenuating circumstances necessitating concurrent registration, such permission will not generally be granted.
  b. Credit or coursework at another college or university completed in a semester while enrolled at Rice will not be recorded by the Office of the Registrar without prior receipt of written permission from the dean of undergraduates.

For more information, visit the Office of the Registrar website (https://registrar.rice.edu/students/course-overloads/).

Course Numbering System
Courses numbered 100-499 are considered undergraduate-level, with the 100-299 sequence classified as lower-level (freshman/sophomore) and the 300-499 sequence classified as upper-level (junior/senior). Courses numbered 500-and-above are considered to be at the post-baccalaureate or graduate-level. Undergraduate and graduate students may, with departmental approval, take certain courses outside their designated level.

Holds
Registration, official transcripts, degree verification, and other administrative processes may be impacted by a hold on a student account. Students may consult the website of the Office of the Registrar (https://registrar.rice.edu/students/holds/) to discover why a hold exists and how to resolve the issue. The Office of the Registrar cannot remove holds governed by another office or department.

Repeated Courses
Students may repeat courses previously taken; however the record of all attempts and the corresponding earned grades remain on the transcript. Additionally the grades for all attempts are included in both the term and overall grade point average calculations. If students repeat courses previously passed, credit is awarded only for the course with the highest grade. For example, a student took HIST 117 and received a grade of B. The student then repeated HIST 117 and received a grade of A. Both grades—the B and the A—appear on the transcript and are included in the student’s GPA; however, the student only receives three credits toward the degree. On the transcript, a repeated course is indicated by one of the following values:

I – Included in GPA and earned hours
A – Included in GPA, but excluded from earned hours
E – Excluded from both GPA and earned hours

Each course attempt will be included in a student’s academic history. Under no circumstances will repeated course attempts be removed from a student’s academic history or official transcript, nor will a student be retroactively dropped from a course that they completed.

Some Rice University courses may be repeated for credit. They are specifically noted in the Course Offerings (https://courses.rice.edu) each semester. If a course may be repeated for credit, each grade appears on the permanent record and is included in the student’s grade point average.

If students repeat courses for which they have received either advanced placement or transfer credit, the credit will be removed from the transfer or advanced placement credit. Nor can credit be received twice for students transferring in courses that repeat courses previously completed at Rice. Likewise, students will not receive transfer credit for courses previously completed at Rice with a passing grade, with the exception of courses designated as repeatable for credit. In extraordinary extenuating circumstances, an exception to the repeat transfer credit rule can be granted by the dean of undergraduates (for undergraduates).

Students may not receive credit twice for cross-listed, equivalent, or graduate/undergraduate equivalency courses taken at the same time. If the course is not repeatable, students may not receive credit for cross-listed, equivalent, or graduate/undergraduate equivalency courses taken in different semesters.

Change in Registration
The Academic Calendar (https://registrar.rice.edu/calendars/) lists deadlines for dropping or adding a course or section. This schedule is binding for all students. Adding or dropping a course, including transferring from one section to another or changing credit status in a course, must be accomplished online or through the completion of the appropriate forms and submission to the Office of the Registrar.

Changing a course to/from audit status must be done by the deadlines as posted in the Academic Calendar (https://registrar.rice.edu/calendars/) for the applicable semester. If a student feels they have exceptional circumstances, they can request exceptions to these deadlines by petitioning the Committee on Examinations and Standing (https://dou.rice.edu/committee-examinations-and-standing/).

Registration During Summer Sessions
Registration for the Summer Sessions begins in March of each year. Currently enrolled Rice students should register for summer courses online via ESTHER (https://esther.rice.edu/) as per normal registration processes and procedures. Rice students should be aware that the registration and payment deadlines do differ, depending on the summer session, and should familiarize themselves with the Academic Calendar (https://registrar.rice.edu/calendars/). Summer courses that do not generate enrollments sufficient to cover their costs may be canceled prior to the first day of class.

Pass/Fail During Summer Sessions
Currently enrolled Rice students can designate a summer course as Pass/Fail during the summer sessions, but can do so only by visiting the Office of the Registrar in person and completing a Pass/Fail Designation form. Similarly, conversions of summer Pass/Fail grades can only be done via paper form at the Office of the Registrar. Students should adhere to the applicable Pass/Fail deadlines, as stated in the Academic Calendar (https://registrar.rice.edu/calendars/).

Auditing Courses During Summer Sessions
As noted in Auditing Courses (p. 13), currently enrolled Rice students may audit one or more summer courses at Rice at the cost of the auditor fee for Rice alumni (see Cashier’s Website (https://cashier.rice.edu)).
Transcript Policies

Rice University provides official hard-copy transcripts and electronic transcripts. Official transcripts are issued only at the request of the student via ESTHER (https://esther.rice.edu/) or via the National Student Clearinghouse (https://www.studentclearinghouse.org/secure_area/ Transcript/to_bridge.asp). Official transcript requests should be made at least five working days before the desired date of issue. A fee per transcript must be received before a transcript is issued. Expedited transcripts for express delivery will incur an additional fee. See the Tuition, Fees, and Expenses section of the General Announcements for undergraduate students (p. 45) or for graduate students (p. 84).

Transcripts that have been presented for admission or evaluation of credit become a part of the student's permanent record and are not reissued. Transcripts from other institutions, if needed, must be sent to Rice University directly from the original issuing institution. For additional information and instructions, visit the Transcript Requests (https://registrar.rice.edu/students/transcripts/) page of the Office of the Registrar's website.

Transfer Credit

Courses taken at another college or university that are appropriate to the Rice curriculum may be approved for transfer credit toward a Rice undergraduate degree. Students must have taken the course at a United States academic institution accredited by a regional accrediting agency, or at a foreign institution accredited by the appropriate agency, such as the government's Ministry of Education. Studies done in one's home country constitute transfer credit through the Office of the Registrar. Official transcripts from the transfer credit institution must be sent directly from the institution's registrar to Rice's Office of the Registrar or hand-delivered in an official sealed envelope. For students participating in an official study abroad program (i.e., studying in a country that is not one's home country) this coursework must be approved by Rice's Study Abroad Office (https://abroad.rice.edu/).

All coursework must have earned a grade of at least a C- or the equivalent. Students may not transfer courses taken pass/fail or on a similar basis at other institutions. Additionally, students will not receive transfer credit for courses previously completed at Rice with a passing grade, with the exception of courses designated as repeatable for credit. In extraordinary extenuating circumstances, an exception to the repeat transfer credit rule can be granted by the dean of undergraduates (https://dou.rice.edu/).

The following types of non-traditional coursework will not transfer to Rice for undergraduate credit: a.) life experience; courses offered by non-collegiate sponsors such as businesses and government agencies, and labor unions, even if evaluated by the American Council on Education (ACE); b.) equivalency examinations (e.g. CLEP); c.) remedial, college preparatory, and life skills courses; d.) MOOCs (massive open online courses); and e.) areas of study offered by regionally accredited institutions but not offered at Rice, such as agriculture, hotel management, police academy, and fire science.

Generally, grades earned for transfer credit are not entered on the Rice transcript, and transferred courses have no effect on a student's Rice grade point average. However, where coursework taken at other institutions has been approved by the faculty as an explicitly specified component to a program's curriculum, the courses will be entered on the transcript and counted in the student's Rice grade point average (including grades lower than C-). Such opportunities are listed in the program curriculum description. Students should keep in mind that if they choose to pursue an advanced degree, the transcripts from transfer credit institutions, with the actual grades earned in the transferring courses, will be requested as part of a graduate school's admission process.

After matriculation at Rice, students are limited to 15 semester hours of summer school transfer credit. This restriction is waived for credit earned during an official summer study abroad program through the Study Abroad Office. Additionally, transfer credit taken at another institution while concurrently enrolled at Rice is subject to Rice's course load (p. 35) policy. Individual departments may place additional restrictions on particular courses and/or institutions. Similarly, various majors, minors, certificates and degree programs may limit the amount of transfer credit that students may apply to them.

All transferable credits from schools utilizing a system other than the semester hour (such as quarter hours or ECTS credits) will be converted to semester hours. In accordance with university guidelines and based on the external transcript, the Office of the Registrar will determine appropriate transferable credit hours and whether the credits are upper-level or lower-level. In no instance will a course transfer in with credit greater than the semester hour equivalent originally earned for the coursework.

Students with much transfer credit should be aware of the general graduation requirements (p. 29), including the following: Students must be registered at Rice full-time for at least four full fall and/or spring semesters, complete at least 60 semester hours, more than half of their upper-level degree work, and more than half of their upper-level major work at Rice; for the purpose of distribution eligibility, a course taken at another institution and transferred to Rice as an equivalent distribution course must earn at least 2.5 semester credit hours. (Students also should check their specific departmental major requirements).

Prematriculation Transfer Credit

For transfer work completed prior to matriculation, the Office of the Registrar, in conjunction with the academic departments, determines whether courses are appropriate for transfer to Rice as Rice equivalent courses or as TRAN, general elective hours. TRAN will be indicated as either upper- or lower-level and will count toward the total hours needed for graduation and for required upper-level credit if the TRAN credit is designated by the Office of the Registrar as upper-level. If courses transferred to Rice as TRAN credit are subsequently granted Rice equivalent course credit by the Office of the Registrar and academic department, the TRAN credit is reduced by the number of credit hours of the Rice equivalent course. The Rice equivalent course is then listed on the student's transcript and satisfies the university and major requirements the Rice course satisfies.

Postmatriculation Transfer Credit

Continuing students who plan to transfer courses are strongly advised to seek prior approval. Without such approval, students cannot be certain transfer credit will be accepted at Rice. To receive Rice equivalent credit, students are required to complete the appropriate form through the Office of the Registrar and secure approval from the designated transfer credit advisor in the department offering the Rice equivalent course. Unless approval is secured before or after completing the transfer credit, students can expect transferable courses to be granted TRAN. Transfer credit will be evaluated only after the Office of the Registrar receives an official transcript from the other college or university.
International Transfer Credit

Students seeking transfer credit for courses taken prematriculation and postmatriculation at institutions outside the United States must present a professional course-by-course evaluation of the foreign official transcript. The professional evaluation must verify that the foreign institution is equivalent to a regionally accredited U.S. academic institution and must include an explanation of credits earned (including U.S. semester hour equivalents), grade equivalents, and course levels (lower- or upper-level). Two reliable services with course-by-course evaluations that include this required information are:

- SpanTran (https://www.spantran.com/)
- Education Credential Evaluators (https://www.ece.org/)

All professional evaluations should be obtained from one of these two recommended credential services and submitted to the Office of the Registrar (for undergraduate students) or to the degree program (for graduate students). Payment for the professional evaluation is the responsibility of the student.

Students participating in an official study abroad program through the Study Abroad Office are exempt from the requirement of having the international transcript professionally evaluated, unless the Office of the Registrar is unable to make a clear distinction of the credit earned. Study abroad international transfer credit may be transferred back to Rice in the following situations:

Third-Party Providers

Students participating in a study abroad program with a third party provider must provide a School of Record transcript in order to transfer credit back to Rice.

Direct Enrollment

Students participating in a study abroad program with direct enrollment into a foreign university should be prepared to provide a professionally evaluated transcript if the Office of the Registrar is unable to make a clear distinction of the credit earned.

European Credit Transfer System (ECTS)

A number of European institutions use the European Credit Transfer System (ECTS). One ECTS credit is comparable to one-half (0.5) semester hour credit at Rice. It is suggested that students take 30 ECTS credits per semester, which will transfer to Rice as 15 semester hours. A minimum full-time load during the fall and spring semesters is 24 ECTS, which will transfer to Rice as 12 semester credit hours.

Transfer credit for study away from Rice, including international study, is governed by guidelines established by Rice’s Faculty Senate, available here (https://rice.app.box.com/s/ei6zpuxuvfr9t89k71i435p1dkjx2ot/)

Veterans Information

Qualified veterans, dependents of deceased or disabled veterans whose death or disability is a direct result of their military service, or dependents in receipt of transferred benefits from a veteran may be eligible for VA educational benefits under one of the following programs while attending Rice University:

- Chapter 30: Montgomery G.I. Bill® - Active Duty/Discharged
- Chapter 31: Vocational Rehabilitation
- Chapter 32: Veterans Educational Assistance Program (VEAP)
- Chapter 33: Post 9/11 G.I. Bill®
- Chapter 35: Dependents Education Assistance
- Chapter 1606: Montgomery G.I. Bill® - Selected Reserve
- Chapter 1607: Reserve Education Assistance Program (REAP)

Rice University does not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a covered individual borrow additional funds, on any covered individual because of the individual’s inability to meet student financial obligations to Rice University due to the delayed disbursement funding from VA under Chapter 31 or Chapter 33 (other than those that may be required by the particular aid program itself). Rice University may require additional payment or impose a fee for the amount that is the difference between the amount of the student’s financial obligation and the amount of the VA education benefit disbursement. In some cases, the student may be required to submit a Free Application for Federal Student Aid (FAFSA).

If you qualify for state or federal education benefits through military service and payment to the school is delayed, you may be eligible for a 60 day deferment of tuition and fees to avoid late fees and/or being dropped from classes. The deferment request form is available here: https://www.tvc.texas.gov/wp-content/uploads/2017/09/HB-846-Form-Fillable.pdf. Submit the completed form to the Office of the Registrar.

At Rice University, veterans’ benefits are managed through the Office of the Registrar. This office assists all veterans and their dependents who wish to receive Veterans Administration (VA) educational benefits.

Please see the Office of the Registrar’s website (https://registrar.rice.edu/students/veterans/) regarding the documentation required to obtain educational allowances from the VA.

Veterans who are planning to attend the university should contact Rice University’s Veterans Affairs Representative (registrar@rice.edu) at least two months before the date of entry. Such time is required to expedite the processing of paperwork for educational allowances from the VA.

For certification of benefits, students should have an enrollment of at least half time (6 credit hours for undergraduates).

For additional information regarding other veterans’ educational programs, contact the Office of the Registrar at 713-348-4999 or registrar@rice.edu.

Student Services and Organizations

- Clubs and Organizations (p. 38)
- Disability Resource Center (p. 40)
- Financial Aid (p. 40)
- Health, Counseling, Wellbeing, and Safety (p. 42)
- Student Government (p. 45)
- Tuition, Fees and Expenses (p. 45)
- Undergraduate Student Life (p. 47)

Clubs and Organizations

Office of Student Activities

The Office of Student Activities, located in the Rice Student Center, oversees the activities of various campus-wide student organizations,
student requests for facilities usage, and coordination of various leadership development programs.

In addition to managing the registration process, finances, and general advising for over 300 registered clubs at Rice University, Student Activities provides direct advising to the following organizations:

- Student Association (SA) ([https://sa.rice.edu/](https://sa.rice.edu/)) - Undergraduate student government, including college presidents
- Graduate Student Association (GSA) ([https://gsa.rice.edu/](https://gsa.rice.edu/)) - Graduate student government
- Impact Rice Retreat (IRR) ([https://studentcenter.rice.edu/student-activities/leadership/impact/](https://studentcenter.rice.edu/student-activities/leadership/impact/)) - A student-led leadership development retreat for freshman and sophomore students
- Summit Leadership Symposium ([https://studentcenter.rice.edu/student-activities/leadership/summit/](https://studentcenter.rice.edu/student-activities/leadership/summit/)) - Advanced student leadership development program
- Rice Program Council ([https://owlnest.rice.edu/organization/ricепrogramcouncil/](https://owlnest.rice.edu/organization/ricепrogramcouncil/)) - Host campus-wide student events on and off campus

The Rice University clubs are divided into eleven genres: Academic/Honorary, Cultural/International, Environmental and Sustainability, Political, Recreational/Sport, Religious/Spiritual, Service, Social Justice, Social/Special Interest, STEM, and Visual/Performing Arts. The full list of registered clubs can be found on OwlNest ([https://owlnest.rice.edu/organizations/](https://owlnest.rice.edu/organizations/)), Rice's new student engagement platform. Student Activities also provides leadership development opportunities in the form of Lunch and Lead sessions, the Impact Rice Retreat, Summit Leadership Symposium, and additional club development programs.

A large number of student organizations address special student interests, such as the Black Student Association, the Hispanic Association for Cultural Enrichment at Rice, the Chinese Student Association, Rice Young Democrats, and Rice University College Republicans. There are also numerous sport related clubs such as sailing, rugby, volleyball, and soccer. Some of the special-interest groups include a pre-med society, a pre-law society, and Habitat for Humanity.

Many organizations are associated with academic and professional disciplines, such as foreign language clubs, honor societies, and student affiliate groups such as the American Institute of Chemical Engineers, the American Society of Civil Engineers, and the American Society of Mechanical Engineers.

Student Activities also recognizes a number of religious and spiritual organizations. These include, but are not limited to, Chi Alpha Christian Fellowship, the Baptist Student Ministry, Catholic Student Association, Hillel, the Muslim Student Association, and the Rice Interfaith Council. Many of these clubs are assisted by local clergy or staff, and form the Joint Campus Ministries ([https://studentcenter.rice.edu/student-activities/club-resources/joint-campus-ministries/](https://studentcenter.rice.edu/student-activities/club-resources/joint-campus-ministries/)).

The Clubs Office is located in the lower level of the Rice Student Center and provides computers, workspace, storage, and a color copier for club convenience.

For more information on the Office of Student Activities, please visit [https://studentactivities.rice.edu/](https://studentactivities.rice.edu/).

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### Center for Civic Leadership

The Center for Civic Leadership (CCL) fosters engaged citizenship among Rice undergraduates through integrated curricular and experiential learning opportunities. These opportunities help students develop the capacity to exercise civic leadership by better understanding themselves, their responsibilities as citizens, the complexity of social issues, and the mechanisms for creating sustainable change in Houston and communities beyond. By serving as the hub for the university’s engagement with off-campus partners in Houston, the United States, and around the world, the CCL assists Rice faculty and staff with creating additional experiential learning opportunities with external partners.

In addition to academic coursework in leadership, the CCL offers research, service, advocacy, philanthropy, and public policy opportunities that enable students to work with a range of off-campus partners in the public, private, and non-profit sectors. Programs include Urban Immersion, Alternative Spring Break, Houston Action Research Teams, the Loewenstern Fellowship in Civic Research and Service, and the Leadership Rice Mentorship Experience. While CCL programs are open to all undergraduates, those who seek greater depth and intentionality in their leadership development have the opportunity to pursue the Certificate in Civic Leadership. As home to undergraduate fellowships advising, the CCL also enables students to build upon their academic and leadership experiences to identify undergraduate and post-baccalaureate opportunities that best meet their future goals.

For more information on the Center for Civic Leadership, please visit [https://ccl.rice.edu/](https://ccl.rice.edu/).

### Rice Student Volunteer Program

By heightening student awareness of community needs and generally raising social consciousness, the Rice Student Volunteer Program (RSVP) has organized volunteer projects for Rice students, faculty, and staff since 1985. Historically, the most popular event of each semester is Outreach Day, a Saturday when students volunteer with multiple nonprofit agencies throughout the Houston area, learning how to take thoughtful action to build a stronger, more just community. RSVP invites each student’s involvement as an officer, a committee member, a project organizer, or an interested participant in any RSVP event.

For more information on the Rice Student Volunteer Program, visit [https://www.rsvp.rice.edu/](https://www.rsvp.rice.edu/).

### Intercollegiate Speech and Debate

Consistently ranked in the top 10 nationally, the George R. Brown Forensic Society sponsors competition in the categories of Individual Events, Lincoln–Douglas, and Parliamentary Debate. The society provides students with the chance to hone their public speaking skills and to qualify for competition both at the American Forensic Association National Individual Events Tournament and at the National Parliamentary Debate Championships. Recognizing the importance of developing strong communication skills, the society has an open admission policy, inviting students with little or no previous experience as well as those with extensive high school backgrounds to become members of one of the most successful teams at Rice.

For more information on speech and debate, please visit: [https://debate.rice.edu/](https://debate.rice.edu/).
**Office of Multicultural Affairs**

The Office of Multicultural Affairs (OMA) has, as its primary mission, coordinating and implementing comprehensive educational, cultural, and social programs designed to emphasize inclusiveness, while promoting intercultural dialogue, awareness, and respect for diversity. Through advocacy, cultural programs, and education, OMA also helps students understand and appreciate racial, ethnic, gender, and other differences, while creating opportunities for students to challenge prejudice and expand their cultural knowledge and appreciation.

OMA utilizes its programming and support systems to provide an optimum developmental environment where all members of the University community may develop to the highest level of their potential in an atmosphere free from harassment and bias, thereby ensuring Rice's standing as an intellectually and culturally vibrant community. Cultural student clubs, such as the Black Student Association, the Hispanic Association for Cultural Enrichment at Rice, and the South Asian Society meet regularly with OMA to discuss programming logistics and other issues. Another major program for students under OMA is HARAMBE, (Swahili for "working together in unity" or "let’s pull together"), a group that seeks to create a unifying event for entering African-American students, allowing them to build social and academic connections with peers, faculty, and staff.

For more information about the Office of Multicultural Affairs, please visit [https://oma.rice.edu/](https://oma.rice.edu/).

**Disability Resource Center**

Located on the first floor of Allen Center, the Disability Resource Center coordinates campus services for individuals with documented disabilities. For academic accommodations, adaptive equipment, or disability-related housing needs, the Disability Resource Center is the campus resource for all students with disabilities. Information is maintained on scholarships, internships, and other programs specific to students with disabilities. Students can schedule an appointment with the director of the Disability Resource Center by calling 713-348-5841. For more information, see the Disability Resource Center website at [https://drc.rice.edu](https://drc.rice.edu).

**Section 504/ADA Coordinator**

The director of Disability Resource Center also serves as the Section 504/ADA coordinator at Rice University. Please direct any concerns or complaints related to disability issues to our office:

Disability Resource Center  
111 Allen Center  
713-348-5841

**Financial Aid**

The financial aid programs at Rice provide assistance to meet demonstrated need for university attendance for all admitted students. Through grants, endowments, low-interest loans, campus work opportunities, or a combination of these programs, Rice makes every effort to provide students and families assistance to meet their educational expenses. The financial aid program receives funding from many sources. Rice uses contributions from alumni and friends to establish and maintain scholarships and loan funds. Federal and state grant, work, and loan programs also provide funds. Awards are based primarily on financial need and a computed Expected Family Contribution (EFC), although there also are attractive loan opportunities for students and families who demonstrate no need. Financial aid information is also available online at the Office of Financial Aid ([https://financialaid.rice.edu](https://financialaid.rice.edu)) website.

The university determines need for first-time students by having them complete the College Scholarship Service (CSS) PROFILE ([http://cssprofile.org](http://cssprofile.org)). Students register for CSS PROFILE by visiting its website at [https://cssprofile.org](https://cssprofile.org) ([https://cssprofile.collegeboard.org/](https://cssprofile.collegeboard.org/)). Students will complete the PROFILE online. The PROFILE number for Rice is 6609. First-time students also complete the Free Application for Federal Student Aid (FAFSA ([https://fafsa.ed.gov/](https://fafsa.ed.gov/))) ([https://studentaid.gov/h/apply-for-aid/fafsa](https://studentaid.gov/h/apply-for-aid/fafsa)). The FAFSA school code for Rice is 003604. Student and parent income tax documents, including W-2 forms, are required to be submitted to The College Board using Institutional Documentation (IDOC) Service ([https://idoc.collegeboard.org/idoc/](https://idoc.collegeboard.org/idoc/)).

The university determines need for continuing students by having them complete the FAFSA ([https://studentaid.gov/h/apply-for-aid/fafsa](https://studentaid.gov/h/apply-for-aid/fafsa)) and the PROFILE ([http://cssprofile.org](http://cssprofile.org)). Additional documents may be requested by the Office of Financial Aid and uploaded through ESTHER.

“Need” is the amount required to meet the difference between each student’s basic educational expenses and the student’s family’s resources. Parents are expected to contribute according to their financial means, taking into account income, assets, home equity, number of dependents, and other relevant factors. Students are expected to contribute as well from their own assets and earnings, including appropriate borrowing against future earnings.

Additional information about applying for financial aid and how aid works at Rice is available online through the Office of Financial Aid ([https://financialaid.rice.edu](https://financialaid.rice.edu)).

**Need-Based Application Process**

Rice University is a need-blind school. Applicants are admitted to the university regardless of their family’s ability to pay for college. Rice will meet 100% of demonstrated financial need as determined by university calculations. Rice considers applicants for all appropriate assistance administered by the university, including grants, scholarships, loans, and work. Students receive notification of an offer after their financial aid files are complete. The Office of Financial Aid provides financial assistance only for coursework sponsored through Rice University.

To apply for financial assistance, first-time students must submit the following:

- CSS PROFILE ([http://cssprofile.org](http://cssprofile.org))
- Free Application for Federal Student Aid (FAFSA) ([https://studentaid.gov/h/apply-for-aid/fafsa](https://studentaid.gov/h/apply-for-aid/fafsa))
- Student and parent income tax documents and W-2 forms (IDOC) ([https://idoc.collegeboard.org/idoc/](https://idoc.collegeboard.org/idoc/))

Priority application dates for first-time students:

- Early Decision: November 15
- Regular Decision: February 1
- Transfer Applicants: April 15

Continuing students must submit the following:

- CSS PROFILE ([http://cssprofile.org](http://cssprofile.org))
- Free Application for Federal Student Aid (FAFSA) ([https://studentaid.gov/h/apply-for-aid/fafsa](https://studentaid.gov/h/apply-for-aid/fafsa))
- Student and parent income tax documents and W-2 forms (IDOC) ([https://idoc.collegeboard.org/idoc/](https://idoc.collegeboard.org/idoc/))

Priority application dates for continuing students:

- Early Decision: November 15
- Regular Decision: February 1
- Transfer Applicants: April 15
Financial Aid participates in the following programs:

To assist students and parents with educational financing, the Office of Student Loan Funds provides scholarships in part or in full.

Graduate early, unexpended merit funds will not be granted to the student. Rice University sponsors and supports students with merit awards. Merit Scholarships are offered through the Office of Admission to students with demonstrated merit.

Institutional need-based grants (i.e., Rice Investment Grant, Rice Grant, etc.) may be exchanged for endowed scholarships. Endowed scholarships are available through Rice Online, in class, or "Rice in country" coursework, and for participants in other Rice faculty-led overseas programs.

Rice Summer coursework is only available for for-credit Rice Online, in class, or "Rice in country" coursework. Undergraduate students who receive need-based aid during the academic year are eligible to receive financial aid toward a total of nine credit hours of summer coursework at the time of billing. Students arrange for deferred payment through the Cashier's Office.

Rice offers a deferred payment plan to enable families to finance students' educational costs. This plan divides each semester's charge over four installments. Details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier's Office.

A few endowments for student loans have been established at Rice University. These funds exist separately from the normal financial aid program. Rice uses them to make small emergency loans to students experiencing unexpected financial problems or showing additional need beyond regular eligibility. All requests for these loans must be submitted to the Office of Financial Aid.

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Additional information regarding loan options is available online through the Office of Financial Aid.

Student Employment Programs

Opportunities for employment are available to students, either on or off campus, during the academic year. Students are eligible to work under either the Federal Work-Study Program or the Rice Work Program.

Students interested in employment should access the Office of Financial Aid webpage.

Deferred Payment Plan

Rice offers a deferred payment plan to enable families to finance students' educational costs. This plan divides each semester's charge over four installments. Details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier's Office.

Summer Aid

Effective with Summer Session 2019, degree-seeking Rice undergraduates who receive need-based aid during the academic year are eligible to receive financial aid toward a total of nine credit hours of Rice summer coursework during their time as a Rice undergraduate. This aid is only available for for-credit Rice Online, in class, or "Rice in country" coursework, and for participants in other Rice faculty-led overseas programs offered for Rice credit during the summer. It is not available for non-Rice summer programs.

The summer request deadline and additional information is available through the Office of Financial Aid.

Financial Aid Eligibility

Undergraduate students are eligible to apply for need-based Rice sponsored and federal/state/private aid during the first eight semesters at Rice; for transfer students the number of semesters is prorated based on the number of hours transferred. If a student is enrolled beyond eight semesters, the student may apply for federal/state/private aid for an additional two semesters. (Architecture students may apply for Rice sponsored aid for two semesters following their preceptorship to complete the BArch degree.) If a student attends part time during a semester or withdraws during a term, the semester is counted toward the number of semesters aid is available.

**Decision**

Financial aid offers are determined annually. Award amounts are specified in the financial aid offer letter. Because financial circumstances change from year to year, Rice conducts an annual review of need and offers aid accordingly. For this reason, continuing students must complete the CSS PROFILE and file the FAFSA every year that they seek assistance.

The university, from time to time, may adjust its methods of computing financial need or its policies regarding the types of financial assistance that it offers to meet the financial needs of the largest possible number of students. Therefore, the amount and type of financial aid may change from year to year, even when the student's financial situation appears to remain relatively stable.

**Disbursements**

Financial aid awards during the academic year occur in two equal disbursements (fall and spring semesters), and are released to the student's account once all requirements are completed. The scheduled disbursements are credited a week prior to the start of each term or upon completion of financial aid requirements, whichever is later.

Missing requirements may be reviewed through the financial aid tab in Esther. Additional disbursement information is available on the Office of Financial Aid website.

**Types of Financial Aid and Assistance**

**Need-Based Scholarships/Grants**

Various need-based scholarships and grants are awarded to assist students with demonstrated need. Institutional need-based grants (i.e. Rice Investment Grant, Rice Grant, etc.) may be exchanged for endowed or named scholarships in part or in full.

**Merit Scholarships**

Merit Scholarships are offered through the Office of Admission to incoming students. Merit scholarships may only be used for coursework sponsored by Rice University. Should a student with a merit award graduate early, unexpended merit funds will not be granted to the student. Merit scholarships may be exchanged for endowed or named scholarships in part or in full.

**Student Loan Funds**

To assist students and parents with educational financing, the Office of Financial Aid participates in the following programs:

- **Federal Direct Loans**—These are low-interest loans made to students attending school on at least a half-time basis. Subsidized loans require need-based financial aid eligibility, but unsubsidized loans are not based on financial need.

- **Private Education Loans**—These nonfederal and state loans are available to students attending school on at least a half-time basis. Eligibility is not based on financial need. These are credit-based loans and may require a co-signer.

A few endowments for student loans have been established at Rice University. These funds exist separately from the normal financial aid program. Rice uses them to make small emergency loans to students experiencing unexpected financial problems or showing additional need beyond regular eligibility. All requests for these loans must be submitted to the Office of Financial Aid.

Additional information regarding loan options is available online through the Office of Financial Aid.

**Student Employment Programs**

Opportunities for employment are available to students, either on or off campus, during the academic year. Students are eligible to work under either the Federal Work-Study Program or the Rice Work Program.

Students interested in employment should access the Office of Financial Aid webpage.

**Deferred Payment Plan**

Rice offers a deferred payment plan to enable families to finance students' educational costs. This plan divides each semester's charge over four installments. Details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier's Office.

**Summer Aid**

Effective with Summer Session 2019, degree-seeking Rice undergraduates who receive need-based aid during the academic year are eligible to receive financial aid toward a total of nine credit hours of Rice summer coursework during their time as a Rice undergraduate. This aid is only available for for-credit Rice Online, in class, or "Rice in country" coursework, and for participants in other Rice faculty-led overseas programs offered for Rice credit during the summer. It is not available for non-Rice summer programs.

The summer request deadline and additional information is available through the Office of Financial Aid.

**Financial Aid Eligibility**

Undergraduate students are eligible to apply for need-based Rice sponsored and federal/state/private aid during the first eight semesters at Rice; for transfer students the number of semesters is prorated based on the number of hours transferred. If a student is enrolled beyond eight semesters, the student may apply for federal/state/private aid for an additional two semesters. (Architecture students may apply for Rice sponsored aid for two semesters following their preceptorship to complete the BArch degree.) If a student attends part time during a semester or withdraws during a term, the semester is counted toward the number of semesters aid is available.
State Grant Eligibility
Texas residents may be eligible for a Texas Equalization Grant (TEG). Renewal requirements for TEG include a completion rate of 75%, cumulative GPA of 2.5 or higher, and completion of at least 24 credit hours per academic year. If a student encounters difficulty that prevented meeting any or all of these standards, a TEG hardship appeal may be submitted. Additional information is available through the Office of Financial Aid (https://financialaid.rice.edu/types-aid/grant/).

Undergraduates Enrolled in Graduate Courses
In some cases, an undergraduate student may be accepted provisionally to a Rice graduate program, allowing the student to pursue simultaneously graduate and undergraduate degrees while still classified as an undergraduate student. In order to maintain need-based financial aid eligibility as a full-time undergraduate, the student must be classified as an undergraduate student and be enrolled in at least 12 undergraduate semester credit hours toward the undergraduate degree. If the undergraduate hours drop below 12 semester credit hours, then the need-based financial aid may be adjusted or cancelled. Need-based aid is not available once the student is classified as a graduate level student or graduate level credit hours exceed undergraduate level credit hours for the semester.

International Students
Need-based aid is available to international students and is decided on a case-by-case basis. If the student indicated on the application for admission that need-based aid would be required to attend, then the student must submit an application for need-based aid to the Office of Financial Aid, and that office will determine whether there is demonstrated need. Eligible students must reapply each year by submitting a CSS Profile (https://cssprofile.collegeboard.org/). International students not receiving need-based aid in their first year are not eligible to apply for need-based aid in subsequent years at Rice.

Consumer Information
A summary listing of student consumer information is available through the Office of Financial Aid (https://financialaid.rice.edu/).

Loan Counseling
Students who are recipients of federal student loans will be required to complete online loan entrance counseling before funds will be credited to student accounts. Students also will be required to complete online exit counseling at the completion of a program of study, enrollment of less than half-time, or withdrawal from Rice. Failure to complete online loan exit counseling will result in a transcript hold.

Satisfactory Academic Progress
Federal regulations (CRF § 668.34) require that students demonstrate satisfactory academic progress toward completion of their degree to continue to receive institutional, federal, and state financial aid. With the exception of the BArch degree program in architecture, eligibility for institutional aid is limited to the equivalent of 8 semesters of undergraduate enrollment, including coursework taken at other colleges and universities. In addition to meeting the standard for receiving financial aid, students must also meet the academic standards of Rice University.

Satisfactory academic progress is comprised of three areas as required by federal regulations. A student must complete their degree within a specified period that does not exceed 150% of the published length of the program, demonstrate they are making progress towards the completion of their degree by successfully completing 67% percent of all attempted courses, and maintain a cumulative 1.67 GPA, which is consistent with meeting graduation requirements. This regulation applies to each financial aid applicant, whether a previous recipient or not.

Credits counted in the maximum time are all attempted credits (even when not a financial aid recipient). Attempted credits include:
- Earned credits – Passed (A+ through D), Satisfactory (S)
- Repeated courses
- Withdrawal
- Failures – Failed (F), Unsatisfactory (U)
- Incomplete
- All accepted transfer credits (including Study Abroad courses) toward the degree program

If a student fails to meet the satisfactory academic progress standards by the end of the academic year, the student will be placed on Financial Aid Suspension and will not be eligible for aid until the satisfactory academic progress standards are met.

Appeal
Students are allowed to appeal their Financial Aid Suspension in cases of the death of a relative, an injury or illness of the student, or other special circumstances. Students must submit a letter discussing why the student failed to make satisfactory academic progress, and what has changed in the student’s situation that will allow the student to demonstrate satisfactory academic progress at the next evaluation. Supporting documentation (doctor’s letter or academic plan) must accompany the appeal letter and must be submitted to the Office of Financial Aid prior to the beginning of the subsequent term. The Appeals Committee will review appeals on a case-by-case basis.

If an appeal is approved by the Appeals Committee, the student will be placed on financial aid probation and may receive financial aid for one probationary semester. At the end of the probationary term, the student must meet the satisfactory academic progress standards or meet the requirements of an approved academic plan developed by the student’s academic department(s).

Financial Aid after Academic Suspension
Students who have been suspended by the university for academic reasons need to be aware that if they are readmitted by the Committee on Examinations and Standing, they may not be eligible for financial aid based on their prior academic performance. Students who are petitioning for readmission are advised to contact the Office of Financial Aid to determine their aid eligibility.

Return of Title IV Funds
Students who receive federal funds as part of their aid packages and do not complete the academic term may be subject to returning a portion of those funds. Contact the Office of Financial Aid for information about “Return of Title IV Funds” policies and procedures.

Health, Counseling, Wellbeing, and Safety
Health and Wellness Support Services Fee
By paying an annual student Health and Wellness Support Services Fee, all students gain access to the Student Health Services (https://
Student Health Services

Student Health Services, an outpatient medical clinic, is located in the Morton L. Rich Health Center. The clinic is staffed by primary care physicians, nurses, and ancillary support staff. More information can be found at [https://health.rice.edu](https://health.rice.edu). Clinic hours are from 8:00 a.m. to 5:00 p.m., Monday through Friday, during fall and spring semesters. For after-hours and weekend medical care, students may choose among a number of local clinics and hospitals (guidance on self-care as well as local healthcare options can be found on the website). The clinic is open full-time from the first day of Orientation Week until the day before commencement. It is closed during Thanksgiving and the winter break. The clinic also is open for reduced hours during the summer months. Visits to the clinic are covered by the services fee, however, students must pay for all medical care outside the clinic's purview, including blood tests, x-rays, and outside physician consultations. Should such medical care be necessary, students are urged to review their insurance coverage and pick the best available option.

Care at the clinic is arranged through appointment at 713-348-4966. In emergencies, students should call the Rice University Police Department ([https://rupd.rice.edu](https://rupd.rice.edu)) at 713-348-6000.

The Student Health Service provides the following:

- Medical care for illness and injury with referrals to specialists when needed
- Maintenance of health records for all students
- Immunizations and other preventive services
- General information for all students
- Contraceptive counseling and routine Pap smears
- Physical examinations

Confidentiality for Health Services

The Student Health Service physician–patient relationship is a confidential one. Medical records will be released only on receipt of written authorization from the student or as required by law or when the patient poses a significant risk to herself or himself or another person. Physicians with Student Health Services are considered confidential employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with a physician, the student's information is confidential and will not be released without the student's written consent. The only exception is for students under the age of 18.

Health Insurance

All registered, degree-seeking students are required to maintain health insurance coverage while enrolled at Rice University. Students are required to either enroll in the Rice student health insurance plan administered by Aetna Student Health, or complete an online waiver application demonstrating comparable insurance coverage ([https://studenthealthinsurance.rice.edu/about/waiver-requirements/](https://studenthealthinsurance.rice.edu/about/waiver-requirements/)). Every eligible student will have the insurance premium fee placed on their student account until they have actively enrolled in insurance coverage or submitted a waiver. The student's tuition bill will be updated based on successful completion of enrollment or an approved waiver application. Insurance and waiver information, as well as specific dates for enrolling, frequently asked questions, and more can be found on the Rice Student Insurance website: [https://studenthealthinsurance.rice.edu/](https://studenthealthinsurance.rice.edu/).

The fall student insurance open enrollment period will begin on July 1, 2021, and end on August 27, 2021. The spring student insurance open enrollment period will begin on December 10, 2021, and end on January 14, 2022. Please note that students have until August 27, 2021, (Fall) or January 14, 2022, (Spring) to remove the student insurance charge by submitting a successful waiver application. All students who have not taken action to enroll in or waive coverage by the open enrollment deadlines will be automatically enrolled in the student insurance annual plan. The premium amount will not be prorated. Once enrolled in coverage, students are unable to cancel coverage for any reason. Please note the automatic enrollment process does require additional processing time. You may have to pay out of pocket for medical services until your enrollment has been processed. Once processed, you will be able to file a claim for reimbursement. To avoid this inconvenience, please submit your enrollment application as early as possible.

For questions concerning the Rice plan, please contact studentinsurance@rice.edu or call (713) 348-5544.

Note: Students may enroll in an annual plan or by semester only. If you waive coverage in the fall open enrollment period, you are still expected to have insurance coverage for the spring. If you enroll in the fall only plan, you may enroll or submit a waiver for the spring semester plan. If you are auto-enrolled in the fall, you will be enrolled in the annual plan and will not be able to waive spring coverage. If you experience a qualifying life event ([https://studenthealthinsurance.rice.edu/about/qualifying-life-events/](https://studenthealthinsurance.rice.edu/about/qualifying-life-events/)) and need to enroll in coverage mid-year, please email studentinsurance@rice.edu.

International students that have an F1 or J1 visa are subject to the Rice University International Student Health Insurance Policy. For more information on the policy, please visit the OISS website ([https://oiss.rice.edu/](https://oiss.rice.edu/)). Students can review detailed information concerning the approved alternative insurance option through Student Assurance Services (SAS), as well as enrollment application and rate information.

Wellbeing and Counseling Center Services

Center Contact Information

The Wellbeing and Counseling Center provides confidential counseling treatment, as well as wellbeing case management services for graduate and undergraduate students. The Center also provides mental health and wellbeing related education for the student body. The Wellbeing and Counseling Center is located in the Barbara and David Gibbs Recreation and Wellness Center. The Center is open Monday - Friday from 9:00 a.m. to 5:00 p.m. Walk-ins are available during business hours. For appointments contact the Wellbeing and Counseling Center at 713-348-3311 (24/7) or visit [https://wellbeing.rice.edu/](https://wellbeing.rice.edu/) for more information. In emergencies, students should call the Rice University Police Department ([https://rupd.rice.edu/](https://rupd.rice.edu/)) at 713-348-6000.

Rice Counseling Center

Rice Counseling Center addresses students’ psychological needs with various programs and services. Typically, students who use the counseling services bring with them very common concerns: roommate problems, breakup of a relationship, academic and/or interpersonal
anxiety, family problems, difficulties adjusting to Rice, or confusion about personal goals, values, and identity. Counselors are equipped to handle a variety of issues, including substance use, eating concerns, sexual assault and relationship violence, depression, and the coming-out process. Rice Counseling Center offers both individual and group counseling, as well as educational workshops and programs.

When students need long term or specialized counseling or treatment, counselors refer them to an outside provider. The students, or their health insurance, must pick up these costs. All students who have paid the Health and Wellness Support Services Fee are eligible for initial assessment sessions, consultations, crisis intervention, and educational programming. Students who have worked with a mental health professional prior to enrolling at Rice are encouraged to make contact with the Rice Counseling Center prior to coming to Rice. This will allow the student to make arrangements for a continued care plan. This plan may involve working with the Rice Counseling Center or working with the center to find a suitable off-campus provider.

The Rice Counseling Center can be contacted at 713-348-3311 or at https://wellbeing.rice.edu/. The Rice Counseling Center provides the following services:

- Psychological crisis intervention, on a walk-in emergency basis during regular office hours or by phone at any time, 24 hours a day, by calling 713-348-3311. This includes after hours and weekends.
- Initial intake to assess needs and assignment to an appropriate level of care
- Short-term individual and couples counseling
- Group therapy and support groups
- Medication consultations with the center’s psychiatrist for students in counseling at the center
- Other consultations (e.g., how to make a referral or how to respond to a friend in distress)
- Educational programming (e.g., various presentations on mental health issues)

Confidentiality for Counseling

Rice Counseling Center services are confidential; information about a student is not released without the student’s written consent except as required by Texas state law. Before entering a therapeutic relationship with a counselor, students may review and discuss confidentiality with their counselor, ask all necessary questions, and be certain they understand how confidentiality will be applied in their case. As detailed in RCC’s treatment agreements, state law does not extend confidentiality to several circumstances, including where:

1. there is risk of imminent harm to the student or others;
2. the counselor has reason to believe that a child or an elderly or handicapped person is, or is in danger of, being abused or neglected;
3. a court order is issued to release information; or
4. the counselor suspects that the student has been the victim of sexual exploitation by a former health care provider during the course of treatment with that provider.

In addition, RCC sometimes provides de-identified information to administrative officials who are in a need-to-know capacity. In some cases the terms of the treatment engagement with RCC may require a student to share assessments, diagnoses, or treatment plans from non-Rice treating professionals with Rice counselors.

Therapists with Rice Counseling Services are considered “confidential” employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their therapist, their information is confidential and will not be released without the student’s written consent. The only exception to this is for students under the age of 18.

Student Wellbeing Office

The Student Wellbeing Office provides wellbeing advising, case management and educational outreach programs to support students who have experienced wellbeing challenges that may be impacting their personal or academic goals and overall success at Rice. Students talk to a wellbeing advisor about solutions to their wellbeing concerns such as conflicts in relationships, difficulty making decisions, struggling with identity, stress management or problems that are more serious in nature. If students decide to take time off to focus on their wellbeing needs, wellbeing advisors work with them and serve as liaisons to the medical readmission process when students are ready to return.

For more information, please visit https://wellbeing.rice.edu/studentwellbeing (https://wellbeing.rice.edu/studentwellbeing/) or contact the office at 713-348-3311 or wellbeing@rice.edu.

The SAFE Office: Interpersonal Misconduct Prevention and Support

Rice encourages any student who has experienced an incident of sexual, relationship, or another form of interpersonal violence, harassment, or gender discrimination to seek support. There are many options available both on and off campus for all students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone unaffiliated with the university. Through the SAFE Office, students have access to a resource navigator who will assist them in determining the best path for them. Furthermore, students who have been accused of committing interpersonal violence or harassment can also seek support under Title IX through the SAFE Office.

Students should be aware, when seeking support on campus, that most employees are deemed "responsible," and thus are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. Rice prioritizes student privacy and safety, and only shares disclosed information on a need-to-know basis. The SAFE Office will reach out to the student and offer services, and it is up to the student as to whether they want to engage in services and what level of support they choose.

The therapists at the Rice Counseling Center and the doctors at Student Health are "confidential" employees, meaning that Rice Title IX staff will not be informed about the incident if a student discloses it to one of these staff members.

The SAFE Office is located in the Morton L. Rich Health Center. The office is located is open Monday - Friday from 9:00 a.m. to 5:00 p.m. Walk-ins are available during business hours. For more information, including how to access The SAFE Office, please call 713-348-3311 (24/7), visit https://safe.rice.edu (https://safe.rice.edu/) or email titleixsupport@rice.edu. In emergencies, students should call the Rice University Police Department at 713-348-6000.
Student Government

All undergraduate students are members of the Rice Student Association (SA) (https://sa.rice.edu/), which is governed through the Student Senate. The senate includes the president, two vice presidents, the secretary, the treasurer, the eleven college presidents, and eleven college senators. Each year committees are appointed within the SA to work on immediate projects. The SA strives to communicate with the Rice administration, faculty, and staff to implement changes benefiting the Rice community and to collaborate with the eleven colleges to establish a Rice identity. The SA is also the umbrella organization for all registered undergraduate student clubs and is a constant resource for any student. Please visit https://sa.rice.edu (https://sa.rice.edu/) for more information about the SA.

Award Presentations

The Rice Student Association presents three coveted awards annually, two to students and one to a faculty or staff member. The Rice Outstanding Senior Awards are presented to graduating seniors who have contributed the most to excellence throughout their time at Rice. The Rice Service Award, a memorial to Hugh Scott Cameron, first dean of students at Rice, is awarded to students who have rendered distinguished service to the student body. The Mentor Recognition Award recognizes extraordinary service to the student body by a current member of the faculty or staff. Student committees appointed by the association make the selections.

Tuition, Fees and Expenses

The following costs apply to undergraduates in the 2021-2022 school year.

Tuition & Fees

<table>
<thead>
<tr>
<th>Tuition</th>
<th>Hour</th>
<th>Semester</th>
<th>Annual</th>
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</thead>
<tbody>
<tr>
<td>Undergraduate Tuition (Entering and Continuing)</td>
<td>$2,170</td>
<td>$26,035</td>
<td>$52,070</td>
</tr>
</tbody>
</table>

1 Individual pricing may apply based on the following:
Part-Time Enrollment refers to enrollment of less than 12 credit hours during a semester. Students seeking part-time enrollment must obtain approval from the Office (https://dou.rice.edu/reduced-course-load-requests/) of Academic Advising (https://oaa.rice.edu/policies-and-procedures/overloads-and-reduced-course-loads/) and adjust their schedule accordingly within the first two weeks of the semester. Part-time enrollment tuition is calculated on the per-credit rate. Students are also assessed a one-time per semester part-time enrollment fee. Students not approved for part-time enrollment or students with approval who fail to adjust their schedule before the end of the second week of classes will be assessed the full-time enrollment tuition charge.

<table>
<thead>
<tr>
<th>Required Fees</th>
<th>Fall</th>
<th>Spring</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Activity Fee 2</td>
<td>$59</td>
<td>$59</td>
<td>$118</td>
</tr>
<tr>
<td>Student Recreation Center Fee</td>
<td>$54.50</td>
<td>$54.50</td>
<td>$109</td>
</tr>
<tr>
<td>Health and Wellness Support Services Fee</td>
<td>$299</td>
<td>$299</td>
<td>$598</td>
</tr>
</tbody>
</table>

Health Insurance
- Student Premium only 3
  - Fall $1,127
  - $1,557
  - $2,684

2 Fifth-year students in professional degree programs and students working toward a second bachelor’s degree pay a reduced student activities fee of $6.85 per semester, which covers the Student Association, Student Organizations Activity, University Court, and Honor Council portions of the Student Activity Fee.

3 All students must also have health insurance. For more information, see Health Insurance (https://ga.rice.edu/undergraduate-students/student-services-organizations/health-counseling-wellbeing/) on this page or visit https://studenthealthinsurance.rice.edu/current-rates (https://studenthealthinsurance.rice.edu/current-rates/).

Orientation Week Fees

<table>
<thead>
<tr>
<th>Orientation Week Fees (Incoming International Students)</th>
<th>Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-Week Activity Fee – Freshmen/Transfers</td>
<td>$325</td>
</tr>
<tr>
<td>O-Week Room &amp; Board – Freshmen/Transfers</td>
<td>$400</td>
</tr>
<tr>
<td>O-Week Room &amp; Board – Coordinators</td>
<td>$200</td>
</tr>
<tr>
<td>Undergraduate International Orientation Fee</td>
<td>$150</td>
</tr>
</tbody>
</table>

Course Fees

Courses having additional charges are provided on the Course Schedule. In some cases the associated charges may be in lieu of Rice tuition and/or required fees.

Other Optional Fees

The following charges are separate from the regular fees. Charges due to late registration or course changes made after the deadline are described in the Registration (p. 34) section.

| Application Fee                                      | $75  |
| Audit Fee - Rice Alumni (per course)                 | $500 |
| Audit Fee - Visitors (per course)                     | $1,000|
| College Withdrawal (breach of housing agreement)     | $1,000|
| Diploma Fee: Facsimile (8x10, mini-diploma)          | $25  |
| Diploma Fee: Parchment (17x23, official diploma)     | $50  |
| Diploma Mailing Fee: Domestic                        | $30  |
| Diploma Mailing Fee: International                    | $50  |
| Enrollment Verification                               | $10  |
| Late Application for Graduation                       | $100 |
| Late Course Change Fee (Add/Drop)                    | $100 |
| Late Payment Fee (calculated on amount past due)     | 1.5% |
| Late Registration Fee (Week 1-3)                     | $75  |
| Late Registration Fee (after Week 3)                  | $125 |
| Letter of Standing                                   | $10  |
| Payment Plan Fee                                     | $75  |
| Preceptorship per semester                            | $350 |
Readmission fee $375
Recreation Center Membership fees $109 (Annual)
Recreation Center Membership fees $36 (Summer)
Reinstatement Fee $150
Replacement Diploma Fee $50
Replacement Rice ID $10
Returned Payment Fee $30
Study Abroad Fee for Summer $228
Summer Health and Wellness Support Services Fee (Early Fall Matriculants) $159
Transcript Fee $10
Transcript Express Delivery Fee $30

Rates for Students Studying Abroad

<table>
<thead>
<tr>
<th>Tuition and Fees</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsoring Institution Agreement - Tuition Paid at Rice</td>
<td></td>
</tr>
<tr>
<td>Rice University Tuition</td>
<td>$25,035</td>
</tr>
<tr>
<td>Required Fees</td>
<td></td>
</tr>
<tr>
<td>Student Activity Fee</td>
<td>$59</td>
</tr>
<tr>
<td>Sponsoring Institution Agreement - Tuition Paid at Sponsoring Institution</td>
<td></td>
</tr>
<tr>
<td>Rice University Tuition</td>
<td>-</td>
</tr>
<tr>
<td>Required Fees</td>
<td></td>
</tr>
<tr>
<td>Enrollment Continuance Fee</td>
<td>$456</td>
</tr>
<tr>
<td>Student Activity Fee</td>
<td>$59</td>
</tr>
</tbody>
</table>

Billing Information

Rice University uses an electronic billing system, commonly referred to as eBill. Each month, current term enrolled students will receive an email notification from Rice_Cashier@rice.edu, informing them of a newly published statement, along with instructions on how to view the statement within Esther.

Term payments are due in full based on the following schedule. Students may enroll in a deferred payment plan where the first installment is due on the following schedule:

- Fall Semester September 10
- Spring Semester February 10
- Summer Sessions June 10

Late Payments

Student accounts not paid in full (or whose payment plan is not current) by the billing due date will be subject to a 1.5% late fee. Late fees are calculated based on the amount past due. Students experiencing difficulty paying their balance should contact the Cashier’s Office promptly to discuss payment options.

Delinquent Accounts

Rice University reserves the right to block or cancel the registration of any student who fails to pay, when due, any indebtedness to the institution.

Academic credits, transcripts, and diplomas will be withheld until all financial obligations are paid in full.

Student Financial Responsibility Agreement

Before enrollment for a new semester can occur, students must consent to a Student Financial Responsibility Agreement (https://cashier.rice.edu/student-financial-responsibility-agreement/).

Tuition Adjustments and Credit Balances

Tuition and Fee Reversals for Withdrawals and Drops

University Withdrawals

Students officially withdrawing from all courses or dropping one or more course(s) are eligible for a 100% refund of tuition and fees through the deadlines listed on the Academic Calendar (https://registrar.rice.edu/calendars/) by semester.

Students officially withdrawing from all courses after the 100% reversal of tuition and fee deadline are eligible for a partial reversal of tuition. Fees are not reversed. Consult the Academic Calendar (https://registrar.rice.edu/calendars/) for specific tuition refund prorations based on the date of withdrawal.

Dropped Courses

Students dropping individual course(s) after the 100% tuition reversal period will not be eligible for a refund and will remain liable for payment of full tuition and fee charges though certain exceptions may apply, outlined in the Registration Drop/Add (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/registration/#text) section. Non-attendance does not constitute an official course drop or withdrawal.

All charges due to Rice University must be paid before refunds or adjustments will be permitted.

In cases of academic or disciplinary suspension, eligibility for tuition refunds and adjustments will depend on the conditions of the suspension and will be entirely at the option of the institution. Should circumstances beyond the reasonable control of Rice University result in curtailed classes, moving classes online, closing residence facilities, or otherwise withdrawing services that are a normal function of the institution, refunds of any nature will be at the discretion of university administration.

Financial Aid

In addition to the university’s reversal schedule and in accordance with the Higher Education Amendments of 1992, if a student completely withdraws from the university and has utilized Federal Title IV funds (e.g. Federal Pell Grant, Federal Supplemental Educational Opportunity Grant [SEOG], Academic Competitiveness Grant, National SMART Grant, Federal Perkins Loan, Federal Direct Stafford Student Loan, Federal Direct PLUS, Federal Direct Graduate PLUS), during the semester in which they withdraw, the university will observe the federally mandated process in determining what, if any amount of money must be returned to the federal program(s).

The calculation of the return of funds may result in the student owing a balance to the university and/or the Department of Education.

Credit Balance Refunds

Student account credits resulting from excess Federal Financial Aid payments, scholarship payments, and loan payments are automatically refunded by the Cashier’s Office; however, there may be certain circumstances where credits on student accounts occur that may not
be automatically refunded. Reversed charges, over payments, tuition waivers, and other varying factors may lead to a credit balance on a student account.

For those credits not automatically refunded, students may request disbursement of the credit balance through email to cashier@rice.edu.

Credit Balance Refund Delivery

Refunds are issued daily to students that are enrolled in Electronic Refunds (https://cashier.rice.edu/general-refund-information/). For students not enrolled in Electronic Refunds (https://cashier.rice.edu/general-refund-information/), refund checks are issued weekly and are mailed directly from JP Morgan Chase to the student mailing address on record.

Health Insurance

All students, full-time or part-time—including those on away status—must have appropriate health insurance. For information about health insurance, visit Health, Counseling and Wellbeing (p. 42). For current premium rates for university-provided student health insurance, see the Student Health Insurance (https://studenthealthinsurance.rice.edu/current-rates/) website.

Living Expenses

Residence fees cover dining hall costs and residence maintenance. They are established each year as needs dictate. For 2021-22, the annual room and board charge for residence in a residential college is $14,800.

<table>
<thead>
<tr>
<th>Room and Board</th>
<th>Semester</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room</td>
<td>$5,050</td>
<td>$10,100</td>
</tr>
<tr>
<td>On Campus Meal Plan - Option A</td>
<td>$2,350</td>
<td>$4,700</td>
</tr>
<tr>
<td>Off Campus Meal Plan - Option B</td>
<td>$750</td>
<td>$1,500</td>
</tr>
<tr>
<td>Off Campus Meal Plan - Option C</td>
<td>$1,400</td>
<td>$2,800</td>
</tr>
<tr>
<td>Off Campus Meal Plan - Option F</td>
<td>$550</td>
<td>$1,100</td>
</tr>
</tbody>
</table>

Housing

An electronic housing agreement must be signed in Esther no later than April 30 for students to receive residential room assignments. New students are required to submit a $100, non-refundable housing deposit no later than April 30, which will be applied to that semester’s room and board charges. For more information about housing, see Undergraduate Student Life (https://ga.rice.edu/undergraduate-students/student-services-organizations/life/).

Meal Plans

College Dining provides all-you-care-to-eat meals with the purchase of the meal plan. All students living on campus must purchase a meal plan. It is recommended that students living off campus also purchase a meal plan. More information is available at http://dining.rice.edu/.

Refunds for Housing and Meal Plans

Students who move out of their college may receive a prorated credit to their student account, equal to the difference between the payments received and the reduced room and board charges. A termination fee will be applied. Exceptions for academic suspension, Rice-sponsored study abroad, family emergencies, and other isolated incidents will be considered on a case-by-case basis.

Undergraduate Student Life

Residential Colleges

Each undergraduate student at Rice, whether living on campus or not, is a member of one of 11 residential colleges. All colleges are sex and gender neutral.

Each college has faculty magisters who live in a house next to the college. Reporting to the dean of undergraduates, the magisters have overall responsibility for all aspects of student life in the college, especially for encouraging broad cultural and intellectual interests and for promoting self-discipline and effective self-government within the college. Upon agreement, the students and magisters invite other members of the Rice faculty to become resident and nonresident associates of the college. Faculty associates act as advisors to the students and participate in the various activities of the college. Colleges also have nonfaculty university associates and community associates drawn from various professions in the Houston area.

Each college exists as a self-governing group of students. The elected officers and representatives are responsible to the magisters and to the college membership for:

- Directing the college's academic, cultural, social, and athletic activities
- Expenditure of college funds
- Maintaining order in the college

While uniformity among the colleges has never been sought and each college has developed its own particular interests and character, all seek to foster fellowship among their members and a mature sense of honor, responsibility, and sound judgment.

College Assignment

Each undergraduate, upon acceptance by the university, is designated a member of one of the colleges. Two students entering Rice for the first time may request assignment to the same college, but they may not designate which college. New students also may request membership in the same college as an immediate family member (mother, father, sister, or brother). Except for these cases, students have no individual choice of college.

Housing

College buildings include a dining hall and public rooms, which are available to both resident and nonresident members, and living quarters for resident students from all classes and all academic disciplines.

The university guarantees housing for all incoming students. Information about the residential colleges and room application forms accompany the notice of admission sent to each new undergraduate. Room reservations cannot be made before notification of admission. Registered sex offenders may not live in campus housing.

About 75 percent of Rice undergraduates live in the on-campus residential colleges. On-campus housing is not guaranteed beyond the first year at Rice. Although most of the students who want to live in the colleges can be accommodated, demand usually exceeds the available number of rooms. The determination of housing for sophomores,
 juniors, and seniors is made by their residential college government. Sophomores, juniors, and seniors draw for rooms according to the priority system of their residential college. Some students, while remaining full members of the college, choose voluntarily to live off campus for one or more years. No student is required to live on campus; however, those members of the colleges who live off campus are encouraged to eat in their colleges and to participate in college activities. Further information on housing in the residential colleges is available from the Office of the Dean of Undergraduates, and information on off-campus housing is available from the Student Center Administration Office.

For more information on room and board, see Tuition, Fees and Expenses (p. 45).

Meal Plans
College Dining provides all-you-care-to-eat meals with the purchase of the meal plan. All students living on campus must purchase meal plan A. It is recommended that students living off campus also purchase a meal plan. Its other services include:

- Assistance with food allergies confirmed and clearly diagnosed by a physician
- Sack lunches for students who must miss a meal due to a job conflict
- Sick trays for students when requested by the Student Health Service
- Alternate menu entrées, whenever possible, to accommodate students’ religious practices

Meals are served cafeteria style. The colleges provide three meals per day Monday through Sunday. Meals are not served during the winter break.

College Courses
One of the colleges’ important activities is their sponsorship of courses and workshops open to all students. By expanding course offerings outside the traditional departments, college courses promote the academic involvement of the colleges while introducing students to interdisciplinary topics of particular interest.

For more information, see the College Courses (p. 2334) listing.

Rice Student Center
The Student Center provides services and developmental opportunities to build community and enrich the Rice experience through facilities, events, student run businesses, and student activities. It houses a variety of retail and dining operations including the campus store, Sammy’s, 4.Tac0, and Ambassador Cafe. The Graduate Student Lounge, Student Resource Center and the Clubs offices are all located in the basement with other student life offices throughout the building, including meeting rooms for departments, clubs, and organizations. Visitors can also make use of an ATM located outside the store and ask questions of the Information Desk staff located near the circle drive. Students and visitors alike can enjoy a beverage of their choice and fellowship with their peers at the Rice Coffeehouse (https://coffeehouse.rice.edu/), purchase a late night snack from the Hoot (https://thehoot.rice.edu/), or visit the new Rice Bikes (https://bikes.rice.edu/) location in the Multicultural Center Garage located on the inner loop to rent a bicycle or get repairs.

For more information on the Rice University Student Center, go to https://studentcenter.rice.edu (https://studentcenter.rice.edu/).

Rights and Responsibilities

- Access to Student Records (p. 48)
- Code of Student Conduct (p. 50)
- Honor System (p. 50)
- Student Responsibility (p. 50)

Access to Student Records

Notification of Rights under the Family Educational Rights and Privacy Act (FERPA)
The Family Educational Rights and Privacy Act (“FERPA”) is a federal law that protects the privacy of, and limits access to, student education records. The law affords students the following rights with respect to their education records:

1. the right to inspect and review the student’s education records within 45 days after the date Rice University ("Rice") receives a request for access;
2. the right to seek amendment of the student’s education records that the student believes are inaccurate, misleading, or otherwise in violation of the student’s privacy rights under FERPA;
3. the right to provide written consent to disclosures of personally identifiable information ("PII," as defined by law) contained in the student's education records, except to the extent FERPA authorizes disclosure without consent;
4. the right to file a complaint with the U.S. Department of Education concerning alleged failures by Rice to comply with the requirements of FERPA. The name and address of the federal office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Ave., S.W.
Washington, DC 20202

Inspect and Review Records
A student should make written request to any offices that maintain student education records, identifying the record(s) the student wishes to inspect. Though not exhaustive, as a guide for students, this is a list of the primary offices that maintain student education records: Office of the Registrar, Office of the Dean of Undergraduates, Office of Graduate and Postdoctoral Studies, Office of Student Judicial Programs, Office of Admission, Office of Financial Aid, Center for Career Development, Office of Student Activities, Office of Academic Advising, Office of International Students and Scholars, Cashier’s Office, and departmental offices. The appropriate Rice official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Rice official to whom the request is submitted, that Rice official will advise the student of the correct official to whom the request should be addressed.

Amendment of Records
Any questions, problems, or written requests for amendment of records should be submitted to the Office of the Registrar. A student requesting to amend a record should clearly identify the part of the record the student wants changed and specify why it should be changed. If Rice decides not to amend the record as requested, Rice will notify the student...
in writing of the decision and of the student’s right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when the student is notified of the right to a hearing.

**Disclosure of Information**

As permitted by FERPA, Rice reserves the right to publish or release the following directory information without prior consent:

1. Name; permanent, local, mailing, and campus address; Rice employment (job title[s], teaching appointment[s], employing department[s], and dates of employment) and work location(s); residential college affiliation; telephone and mobile number(s); campus email address(es); and Net ID
2. Date and place of birth
3. Classification, degrees or programs, and majors and minors
4. Participation in officially recognized activities and sports
5. Weight and height of members of athletic teams
6. Dates of attendance, degrees, honors, and awards received
7. The most recent previous educational agency or institution attended by the student
8. Photograph

Students who would like Rice to withhold this directory information may do so by logging in to ESTHER, clicking Personal Information, clicking Release or Withhold Directory Information, and indicating that the information should be withheld. Thereafter, Rice will withhold access to, and release of, the student’s directory information until further written instruction is received from the student. For more information regarding FERPA, please visit the U.S. Department of Education’s website (https://www2.ed.gov/policy/gen/guid/fpco/ferpa/).

FERPA permits the disclosure of PII from students’ education records, without consent of the student, if the disclosure meets certain conditions found in 34 C.F.R. §99.31 of the FERPA regulations. Except for disclosures to school officials, disclosures related to some judicial orders or lawfully issued subpoenas, disclosures of directory information, and disclosures to the student, Section 99.32 of the FERPA regulations requires the institution to record the disclosure. Eligible students have a right to inspect and review the record of disclosures. A postsecondary institution may disclose PII from the education records without obtaining prior written consent of the student –

- To other school officials, whom Rice has determined have legitimate educational interests and require this information in order to perform instructional, supervisory, advisory, administrative, or other duties for Rice. These school officials include faculty, research personnel, staff (including law enforcement unit personnel and health staff), trustees, or students serving on official committees (such as disciplinary or grievance committees) or assisting another school official. School officials have a legitimate educational interest if the officials need to review an educational record in order to fulfill their professional responsibility to Rice. This includes contractors, consultants, auditors, attorneys, collection agents, volunteers, or other parties to whom Rice has outsourced institutional services or functions, provided that the conditions listed in §99.31(a)(1)(i)(B)(7) - (a)(1)(i)(B)(3) are met. (§99.31(a)(1))
- To officials of another school where the student seeks or intends to enroll, or where the student is already enrolled if the disclosure is for purposes related to the student’s enrollment or transfer, subject to the requirements of §99.34. (§99.31(a)(2))
- To authorized representatives of the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or State and local educational authorities, such as a State postsecondary authority that is responsible for supervising the university’s State-supported education programs. Disclosures under this provision may be made, subject to the requirements of §99.35, in connection with an audit or evaluation of Federal- or State-supported education programs, or for the enforcement of, or compliance with, Federal legal requirements that relate to those programs. These entities may make further disclosures of PII to outside entities that are designated by them as their authorized representatives to conduct any audit, evaluation, or enforcement or compliance activity on their behalf. (§§99.31(a)(3) and 99.35)
- In connection with financial aid for which the student has applied or which the student has received, if the information is necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditions of the aid, or enforce the terms and conditions of the aid. (§99.31(a)(4))
- To organizations conducting studies for, or on behalf of, the school, in order to: (a) develop, validate, or administer predictive tests; (b) administer student aid programs; or (c) improve instruction. (§99.31(a)(6))
- To accrediting organizations to carry out their accrediting functions. (§99.31(a)(7))
- To parents of an eligible student if the student is a dependent for IRS tax purposes, though Rice generally limits such information to financial details of the student’s enrollment. (§99.31(a)(8))
- To comply with a judicial order or lawfully issued subpoena. (§99.31(a)(9))
- To appropriate individuals in connection with a health or safety emergency, subject to §99.36. (§99.31(a)(10))
- Information the school has designated as “directory information” above and pursuant to §99.37. (§99.31(a)(11))
- To a victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense, subject to the requirements of §99.39. The disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding. (§99.31(a)(13))
- To the general public, the final results of a disciplinary proceeding, subject to the requirements of §99.39, if the school determines the student is an alleged perpetrator of a crime of violence or non-forcible sex offense and the student has committed a violation of the school’s rules or policies with respect to the allegation made against him or her. (§99.31(a)(14))
- To parents of a student regarding the student’s violation of any Federal, State, or local law, or of any rule or policy of the school, governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21. (§99.31(a)(15))

For further information regarding Rice’s policy on student education records, please contact the Office of the Registrar.

Rice University
Office of the Registrar—MS 57
6100 Main Street
Houston, TX 77005-1892
Email: registrar@rice.edu

Rice University Privacy Notice
Additionally, you may also wish to consult privacy rights and practices discussed at https://privacy.rice.edu/ and https://privacy.rice.edu/GDPR (https://privacy.rice.edu/GDPR/).

**Code of Student Conduct**

The Office of Student Judicial Programs oversees the judicial system, enforces the Code of Student Conduct (which governs the administration of student order and discipline), and may participate in Title IX investigations. The Code of Student Conduct applies to all students, including: undergraduate, graduate, and those enrolled in professional and Continuing Studies programs, visiting students (including online students), visiting post baccalaureates, second degree students, and auditors. For students who attend class on campus, the Code of Student Conduct applies from the time they arrive on campus for orientation or other activities related to their student status. For online students, the Code of Student Conduct applies from the time they begin engaging with the university as a student, including participating in any activities related to their student status. Organizations also are subject to this Code. All enrolled students also are subject to Rice University policies and rules.

Alleged violations of university policies or rules are handled in accordance with the Code of Student Conduct. Students may appeal decisions as described in the Code of Student Conduct. Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and wellbeing of members of the university community. The Code is not intended to—and does not—confer any contractual rights on any individuals involved. Procedures for students who are entirely online students may differ.

The Code of Student Conduct can be found on the [Student Judicial Programs website](https://sjp.rice.edu/code-of-student-conduct/).

After Rice's grievance process has been exhausted and documented, students may also pursue an external complaints process (p. 3044).

**Honor System**

Students take all written examinations and complete any specifically designated assignments under the honor system. By committing themselves to the honor system, all students accept responsibility for assuring the integrity of the examinations and assignments conducted under it. The Honor Council is responsible for investigating reported violations and for conducting a hearing when the facts warrant. The Office of Student Judicial Programs, which advises the Honor Council, works with relevant offices to implement the Council's penalties. Procedures for accusations arising out of summer classes or Rice Online classes may differ.

The Honor Council conducts an ongoing program to acquaint new students and faculty with the honor system. The Honor Code and other related information and resources are located at the homepage of the Honor Council: [https://honor.rice.edu/](https://honor.rice.edu/).

**Student Responsibility**

The university expects all Rice students to exercise personal responsibility over their actions. Their behavior should reflect a respect for the law and for their contractual obligations, a consideration for the rights of others, and shared standards of considerate and ethical behavior.

Students are responsible for knowing and following all information, policies, and procedures listed in this General Announcements. Questions should be directed to the appropriate office or administrator.

Rice utilizes email as an official form of communication and sends correspondence to a student's Rice email address. Students should frequently check and maintain their Rice email inbox. Failure to do so does not relieve students of the responsibility to act or respond in a timely manner to official notices sent via email.

Rice encourages self-discipline, recognizing that effective student government, including judicial processes, and the integrity of the honor system depend on the willingness of all students to meet community standards of conduct.

The university, however, reserves the right to insist on the withdrawal of any student whose conduct it judges to be clearly detrimental to the best interests of either the student or the university. The appropriate authorities take such action only after careful consideration.

No individual or group may use the name of the university or one of its colleges without prior approval of the university or the college.

**Honors and Distinctions**

- Academic Honor Societies (p. 50)
- Honors Programs (p. 51)
- President's Honor Roll (p. 51)
- University Honors (p. 51)

**Academic Honor Societies**

Honor societies at Rice include the following:

**AGLSP National Honor Society**

The Association of Graduate Liberal Studies Program (AGLSP) National Honor Society serves to recognize the scholarly achievement of graduate students and scholars in liberal studies programs across the U.S. and Canada. Students are selected, approved and invited to join the Honor Society three times annually. (Rice chapter: 2015)

**Chi Epsilon**

The Civil Engineering Honor Society. It serves to recognize students of high scholarship, character, practicality, and sociability. Students are inducted into the society once or twice annually and are selected from the pool of upper division level civil engineering students. (Rice chapter: 1995).

**Delta Phi Alpha**

To promote an interest in the German language and literature (Gamma Xi chapter at Rice: April 1949).

**Eta Kappa Nu**

Founded in 1904 at the University of Illinois for electrical engineering students to stimulate and reward scholarship as well as assist and encourage its members to grow professionally throughout their lives (Rice chapter: January 1981).
**Omega Psi**
Omega Pi unifies members of the Cognitive Science program on campus through an affiliation with its national chapter (Rice chapter: October 2017).

**Omicron Delta Epsilon**
To promote study in economics (Rice chapter: 1981).

**Phi Beta Kappa**
Founded in 1776 at the College of William and Mary to recognize intellectual achievement and the love of learning among students in the liberal arts and sciences (Rice chapter: March 1, 1929).

**Phi Lambda Upsilon**
National honorary chemical society promoting high scholarship and original investigation in all branches of pure and applied chemistry (Rice chapter: 1926).

**Pi Delta Phi**
Organized to interest French students in competing for high standing in scholarship (Theta chapter at Rice: May 1930).

**Pi Sigma Alpha**
The National Political Science Honor Society. It aims to provide networking opportunities for political science students and to promote campus interest in political science (Rice chapter: 2008).

**Psi Chi**
Founded in 1929 at Yale University to encourage, stimulate, and maintain excellence in scholarship and to advance the science of psychology (Rice chapter: April 23, 1990).

**Sigma Delta Pi**
To promote an interest in the Spanish language and literature (Rice chapter May 14, 1953).

**Sigma Xi**
For the promotion of research in science (Beta of Texas chapter at Rice: March 23, 1938).

**Tau Beta Pi Association**
Organized to interest engineering students in competing for high standing in scholarship (Gamma of Texas chapter at Rice: December 18, 1940).

**Tau Sigma Delta**
National honor society in architecture and applied arts (Tau chapter at Rice: May 7, 1961).

For more information on these honor societies, please visit the Rice Club Listings page (https://studentcenter.rice.edu/student-activities/group/clubs/club-listings/) or the department associated with the Honor Society.

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**Honors Programs**
To enroll in the two semester Rice Undergraduate Scholars Program (https://ouri.rice.edu/rusp/), students register for HONS 470 and HONS 471. This program is for juniors and seniors in all disciplines who are considering graduate study and an academic career after graduation. Students enroll in the program plan and execute independent research under the supervision of a sponsoring faculty member (they may apply for funding to cover expenses related to their projects). They meet once a week to discuss each other's work and to hear a range of presentations on life in academia. Students may apply in the spring of each year. For more information, contact the program's faculty co-director.

Individual departments may offer undergraduates the option of honors program enrollment. These programs enable students to receive advanced training or to deepen their understanding of a given discipline through an intensive program of independent supervised research. Customary procedure is for students to submit a proposed project to their department's Undergraduate Committee, which helps them rework it, as needed, into a substantial but feasible proposal. Once accepted, students are assigned a faculty advisor to guide their research. The project concludes in an honors thesis, which the advisor and two readers evaluate, and an oral examination. Departments also use honors programs to recognize formally students who have shown outstanding work through the individual projects. Acceptance into a departmental honors program is at the discretion of the faculty. For specific requirements and procedures, students should contact the individual departments.

**President’s Honor Roll**
The President’s Honor Roll, published each semester, recognizes outstanding students. To be eligible, students must have earned grades in a total of 12 or more semester hours without receiving a grade of F. Courses taken as Pass/Fail may not be counted for the purposes of this rule. Approximately the top 30 percent of undergraduates receive recognition each semester. While undergraduates enrolled in a four-year bachelor's degree program are always eligible for the President's Honor Roll, students enrolled in five-year bachelor's or master's programs are eligible only during their first eight semesters.

**University Honors**

**Latin Honors**
Unlike the President's Honor Roll, which recognizes academic excellence achieved over a single semester, eligibility for the three categories of Latin Honors (summa cum laude, magna cum laude, and cum laude) are based on the cumulative grade point average for all undergraduate work at Rice. Recipients are determined at the end of the spring semester and after receipt of all grades. The grade point average within the highest five percent of the year's graduating majors within each school is recommended for the summa cum laude honor. The grade point average included within the next highest 10 percent is used to determine those eligible to graduate with the magna cum laude honor. Finally, the grade point average included within the next 15 percent is used to determine those majors eligible to graduate with the cum laude honor. Thus, approximately 30 percent of each graduating class, distributed approximately evenly across all schools, receives Latin Honors on graduation.
**Distinction in Research and Creative Work**

Distinction in Research and Creative Work is a university award for select undergraduates, granted at Commencement, which appears on the transcript and diploma. Students must apply to be considered for the award, and the application must be supported by a letter from a faculty member (or center director). The most common path of application would be to the student’s major department. A student whose research or other creative project is in a field outside of their major should submit an application to the academic department or program most closely associated with the subject matter of their project.

Eligibility for the award extends widely to include a variety of research, design, and other creative projects, as well as persistent dedication to research. Projects completed in part or entirely at other institutions or with community partners will be eligible for consideration.

Applicants must be in good academic standing at Rice at the time of their graduation. The award will be granted only to projects that produce a concrete outcome—e.g. an essay, invention, design, musical composition—and demonstrate commitment and/or achievement above and beyond the norm. Students who complete senior theses, senior design projects, or other required senior capstone projects are eligible and may submit their thesis or capstone project for consideration; however, these students do not qualify automatically for consideration for this university distinction.

Responsibility for judging applications and determining those that merit the distinction award rests with the undergraduate degree programs or departments. Annually, departments and degree granting programs publish clear expectations and criteria for the research and design projects that will be considered for the award, as well as guidelines for what constitutes research or creative work above and beyond the norm within their respective fields. Departments may designate additional requirements as well, such as completion of a research seminar or oral defense.
GRADUATE STUDENTS

Since Rice opened in 1912, the university has recognized the importance of graduate study and research as a principal means of advancing knowledge. The first doctor of philosophy degree was awarded in 1918 in mathematics. Since that time, graduate study has expanded to encompass the schools of architecture, business, continuing studies, engineering, humanities, music, natural sciences, and social sciences, as well as interdepartmental programs.

Graduate programs lead to either research or non-thesis degrees. Research programs require the completion of a publishable thesis that represents an original and significant contribution to the particular field of study. Research degrees include the doctor of philosophy (PhD), master of arts (MA), and master of science (MS).

Non-thesis programs provide advanced course work in several disciplines but do not generally include independent research.

All degrees conferred by the university are awarded solely in recognition of educational attainments and not as warranty of future employment or admission to other programs of higher education.

For additional information on graduate programs and requirements, please go to Academic Policies and Procedures (p. 59) for university degree requirements and to Programs of Study (p. 99) for educational opportunities and graduate program specific degree requirements. For admissions information please review the Admission (p. 59) page in the General Announcements.

Academic Opportunities

- Auditing Courses (p. 53)
- Certificates: Graduate-Level (p. 53)
- Degree Chart: Graduate-Level (p. 54)
- Degrees: Graduate-Level (p. 57)
- Graduate Program Major Concentrations (p. 59)
- Non-Traditional Coursework (p. 59)
- Online-Distance Education (p. 59)

Auditing Courses

During the fall and spring semesters, currently enrolled degree-seeking Rice students, who are registered for at least one course for credit, may audit one or more courses at Rice without charge by securing permission of the instructor and by registering as an auditor with the Office of the Registrar. During the summer sessions, enrolled Rice students may audit one or more courses at Rice at the cost of the auditor fee for Rice alumni (see Cashier’s website (https://cashier.rice.edu/)).

Upon completion, the audited course will appear on the student’s transcript with a grade of either “AUD” or “NC.” As noted in Grades (p. 27), instructors report the AUD (“Audit”) grade in those instances where the auditing student has met the audit requirements of the course as defined by the instructor. A grade of NC (“No Credit”) is reported in instances where the auditing student has not met the audit requirements of the course as defined by the instructor.

There are no credit hours associated with audited courses, and auditing a course does not affect a student’s GPA. Requests to audit a class or to change from audit to credit or vice versa must be done by the dates and deadlines documented in the posted Academic Calendar (see Academic Calendar (https://registrar.rice.edu/calendars/)).

Certificates: Graduate-Level

Graduate certificate programs at Rice are post-bachelor’s degree academic credential programs.

Graduate Certificate programs may be (1) restricted to Rice degree-seeking graduate students, (2) restricted to non-degree-seeking post-baccalaureate students, or (3) open to both Rice degree-seeking graduate students and graduate certificate students.

Degree-seeking Rice graduate students may apply for a certificate program, through the certificate program. No formal application is required. Students must declare the graduate certificate using the Graduate Declaration and Change of University Certificate Form (https://rice.app.box.com/s/nfwrddgyzgfpus4uw81mkxt3hunjn024/) available from the Office of the Registrar (https://registrar.rice.edu). Declaration of the certificate requires the student to obtain the approval of their director of graduate studies (in the degree program to which they have been admitted) as well as approval from the appropriate certificate advisor for the university certificate program. Students may complete and acquire more than one certificate, provided that the student meets any and all of the requirements for each certificate program. The certificate is awarded at the same time as the conferral of the student’s terminal Rice degree, and is included on the academic transcript.

Non-degree-seeking post-baccalaureate students must apply formally for the graduate certificate program via the online application. Minimum requirements for admission are consistent with standards for degree seeking students. Please see Admission (p. 59). Non-degree-seeking graduate certificate students are limited to coursework and opportunities within the requirements of the graduate certificate.

In certain situations, students completing a Rice graduate certificate credential may use credits earned toward the graduate certificate credential toward a Rice graduate degree.

Graduate certificate programs are intended to recognize students who have achieved a defined level of competence, skill or professional expertise, as well as to encourage students to pursue additional areas of interest in a particular area or field that may complement their coursework in the graduate degree-granting program to which they have been admitted. The certificate must include, but not be limited to, the following:

- A minimum of 4 courses (12 credit hours) of graduate semester credit hours (coursework taken at the 500-level or above) to satisfy certificate requirements, or
- A minimum of 3 courses (9 credit hours) of graduate semester credit hours (coursework taken at the 500-level or above) and a graduate-level internship or other experiential learning opportunity.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B-(2.67 grade points) in each course.*
- All coursework taken to satisfy certificate requirements with the standard letter grade earned (not on a Pass/Fail basis), with no more than one-third of the coursework taken to meet certificate requirements on a Satisfactory/Unsatisfactory basis and no
more than one-third of the coursework taken to meet certificate requirements earned through transfer credit.

- All requirements for the graduate degree-granting program in which the student is enrolled.

Note: Graduate Certificate programs may identify and define in their program's General Announcements Requirements tab stricter minimum requirements to satisfy their program requirements. With approval from the dean of graduate and postdoctoral studies, graduate programs may substitute but not waive local degree requirements.

**Degree Chart: Graduate-Level**

**The School of Architecture**

- Master of Architecture (MArch) Degree (p. 201)
- Master of Science (MS) Degree in the field of Architecture (p. 205)

**The Glasscock School of Continuing Studies**

- Certificate in Dual Credit Teacher Credentialing - English (p. 790)
- Certificate in Dual Credit Teacher Credentialing - History (p. 791)

**Education**

- Master of Arts in Teaching (MAT) Degree, for Current Rice Undergraduates (p. 869)
- Master of Arts in Teaching (MAT) Degree, for Experienced Teachers (p. 871)
- Master of Arts in Teaching (MAT) Degree, for Experienced Teachers with Principal Certification (p. 873)
- Master of Arts in Teaching (MAT) Degree, for New Teachers (p. 874)

**School of Continuing Studies**

- Master of Liberal Studies (MLS) Degree (p. 1322)
- Diploma in Liberal Studies (DLS) (p. 1320)

**The George R. Brown School of Engineering**

**Applied Physics**

- Master of Science (MS) Degree in the field of Applied Physics* (p. 174)
- Doctor of Philosophy (PhD) Degree in the field of Applied Physics* (p. 174)

**Bioengineering**

- Master of Bioengineering (MBE) Degree (p. 310)
- Master of Science (MS) Degree in the field of Bioengineering* (p. 308)
- Doctor of Philosophy (PhD) Degree in the field of Bioengineering (p. 310)
- Doctor of Philosophy (PhD) Degree in the field of Bioengineering / Doctor of Medicine (MD) Degree with Baylor College of Medicine (p. 310)

**Chemical and Biomolecular Engineering**

- Master of Chemical Engineering (MChE) Degree (p. 577)
- Master of Chemical Engineering (MChE) Degree / Master of Business Administration (MBA) Degree (p. 578)
- Master of Science (MS) Degree in the field of Chemical Engineering* (p. 576)
- Doctor of Philosophy (PhD) Degree in the field of Chemical Engineering (p. 576)

**Civil and Environmental Engineering**

- Master of Civil and Environmental Engineering (MCEE) Degree in the field of Civil Engineering (p. 647)
- Master of Civil and Environmental Engineering (MCEE) Degree in the field of Environmental Engineering (p. 649)
- Master of Science (MS) Degree in the field of Civil Engineering (p. 652)
- Master of Science (MS) Degree in the field of Environmental Engineering (p. 653)
- Doctor of Philosophy (PhD) Degree in the field of Civil Engineering (p. 644)
- Doctor of Philosophy (PhD) Degree in the field of Environmental Engineering (p. 645)

**Computational Science and Engineering**

- Master of Computational Science and Engineering (MCSE) Degree (p. 718)

**Computational and Applied Mathematics**

- Master of Arts (MA) Degree in the field of Computational and Applied Mathematics* (p. 713)
- Master of Computational and Applied Mathematics (MCAAM) Degree (p. 714)
- Doctor of Philosophy (PhD) Degree in the field of Computational and Applied Mathematics (p. 712)

**Computer Science**

- Master of Computer Science (MCS) Degree (p. 756)
- Master of Computer Science (MCS) Degree / Master of Business Administration (MBA) Degree (p. 760)
- Master of Computer Science (MCS) Degree, Online Program (p. 761)
- Master of Data Science (MDS) Degree (p. 768)
- Master of Data Science (MDS) Degree, Online Program (p. 771)
- Master of Science (MS) Degree in the field of Computer Science (p. 762)
- Doctor of Philosophy (PhD) Degree in the field of Computer Science (p. 755)

**Electrical and Computer Engineering**

- Master of Electrical and Computer Engineering (MECE) Degree (p. 918)
- Master of Science (MS) Degree in the field of Electrical and Computer Engineering* (p. 917)

**Industrial Engineering**

- Master of Industrial Engineering (MIE) Degree (p. 1195)
- Master of Industrial Engineering (MIE) Degree / Master of Business Administration (MBA) Degree (p. 1197)

**Materials Science and Nanoengineering**

- Master of Materials Science and NanoEngineering (MMSNE) Degree (p. 1362)
- Master of Materials Science and NanoEngineering (MMSNE) Degree / Master of Business Administration (MBA) Degree (p. 1364)
- Master of Science (MS) Degree in the field of Materials Science and NanoEngineering (p. 1366)
- Doctor of Philosophy (PhD) Degree in the field of Materials Science and NanoEngineering (p. 1361)

**Mechanical Engineering**

- Master of Mechanical Engineering (MME) Degree (p. 1434)
Master of Mechanical Engineering (MME) Degree / Master of Business Administration (MBA) Degree (p. 1436)
Master of Science (MS) Degree in the field of Mechanical Engineering (p. 1437)
Doctor of Philosophy (PhD) Degree in the field of Mechanical Engineering (p. 1433)

Rice Center for Engineering Leadership
Master of Engineering Management and Leadership (MEML) Degree (p. 952)
Master of Engineering Management and Leadership (MEML) Degree, Online Program (p. 955)

Statistics
Master of Arts (MA) Degree in the field of Statistics (p. 2028)
Master of Statistics (MStat) Degree / Master of Business Administration (MBA) Degree (p. 2031)
Doctor of Philosophy (PhD) Degree in the field of Statistics (p. 2027)

Systems, Synthetic, and Physical Biology
Master of Science (MS) Degree in the field of Systems, Synthetic and Physical Biology (p. 2059)
Doctor of Philosophy (PhD) Degree in the field of Systems, Synthetic and Physical Biology (p. 2059)

The School of Humanities
African and African American Studies
Certificate in African and African American Studies (p. 118)

Art History
Master of Arts (MA) Degree in the field of Art History (p. 258)
Doctor of Philosophy (PhD) Degree in the field of Art History (p. 258)

Center for Critical and Cultural Theory
Certificate in Critical and Cultural Theory (p. 764)

English
Master of Arts (MA) Degree in the field of English (p. 992)
Doctor of Philosophy (PhD) Degree in the field of English (p. 992)

History
Master of Arts (MA) Degree in the field of History (p. 1161)
Dual Doctor of Philosophy (PhD) Degree in the field of History, with Instituto Mora, in Mexico (p. 1163)
Dual Doctor of Philosophy (PhD) Degree in the field of History with Universidade Estadual de Campinas (UNICAMP), in Brazil (p. 1163)

Philosophy
Master of Arts (MA) Degree in the field of Philosophy (p. 1771)
Doctor of Philosophy (PhD) Degree in the field of Philosophy (p. 1771)

Religion
Master of Arts (MA) Degree in the field of Religion (p. 1922)
Master of Arts (MA) Degree in the field of Religion (Candidacy) (p. 1921)
Doctor of Philosophy (PhD) Degree in the field of Religion (p. 1921)
Certificate in Gnosticism, Esotericism and Mysticism (p. 1103)

Study of Women, Gender and Sexuality
Certificate in the Study of Women, Gender and Sexuality (p. 2049)

The Jones Graduate School of Business
Management
Master of Accounting (MAcc) Degree (p. 113)
Master of Arts (MA) Degree in the field of Business (p. 490)
Master of Business Administration (MBA) Degree / Doctor of Philosophy (MD) Degree with Baylor College of Medicine (p. 469)
Master of Business Administration (MBA) Degree / Master of Chemical Engineering (MCHE) Degree (p. 469)
Master of Business Administration (MBA) Degree / Master of Computational and Applied Mathematics (MCAAM) Degree (p. 471)
Master of Business Administration (MBA) Degree / Master of Computer Science (MCS) Degree (p. 473)
Master of Business Administration (MBA) Degree / Master of Industrial Engineering (MIE) Degree (p. 474)
Master of Business Administration (MBA) Degree / Master of Materials Science and Nanoengineering (MMSNE) Degree (p. 476)
Master of Business Administration (MBA) Degree / Master of Mechanical Engineering (MME) Degree (p. 477)
Master of Business Administration (MBA) Degree / Master of Science in Bioscience and Health Policy (MBSHP) Degree (p. 479)
Master of Business Administration (MBA) Degree / Master of Science in Environmental Analysis (MSEA) Degree (p. 480)
Master of Business Administration (MBA) Degree / Master of Science in Space Studies (MSSpS) Degree (p. 482)
Master of Business Administration (MBA) Degree / Master of Science in Subsurface Geoscience (MSSG) Degree (p. 483)
Master of Business Administration (MBA) Degree / Master of Statistics (MStat) Degree (p. 485)
Master of Business Administration (MBA) Degree, Executive Program (p. 486)
Master of Business Administration (MBA) Degree, Full-Time Program (p. 490)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Accounting (p. 495)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Energy (p. 500)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Entrepreneurship (p. 505)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Finance (p. 509)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Health Care (p. 514)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Marketing (p. 518)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Operations Management (p. 523)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Real Estate (p. 527)
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Strategic Management (p. 532)
Master of Business Administration (MBA) Degree, Online Program (p. 536)
Master of Business Administration (MBA) Degree, Professional Program (Evening, Evening Extended) (p. 545)
Master of Business Administration (MBA) Degree, Professional Program (Weekend) (p. 549)
Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Accounting (p. 462)
Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Finance (p. 464)
Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Marketing (p. 465)
Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Strategic Management (p. 467)

The Shepherd School of Music

Music

Master of Music (MMus) Degree in the field of Bassoon Performance (p. 1655)
Master of Music (MMus) Degree in the field of Cello Performance (p. 1658)
Master of Music (MMus) Degree in the field of Clarinet Performance (p. 1661)
Master of Music (MMus) Degree in the field of Composition (p. 1665)
Master of Music (MMus) Degree in the field of Double Bass Performance (p. 1668)
Master of Music (MMus) Degree in the field of Flute Performance (p. 1671)
Master of Music (MMus) Degree in the field of Harp Performance (p. 1674)
Master of Music (MMus) Degree in the field of Horn Performance (p. 1677)
Master of Music (MMus) Degree in the field of Musicology (p. 1680)
Master of Music (MMus) Degree in the field of Oboe Performance (p. 1683)
Master of Music (MMus) Degree in the field of Orchestral Conducting (p. 1687)
Master of Music (MMus) Degree in the field of Organ Performance (p. 1690)
Master of Music (MMus) Degree in the field of Percussion Performance (p. 1693)
Master of Music (MMus) Degree in the field of Piano Chamber Music and Accompanying (p. 1696)
Master of Music (MMus) Degree in the field of Piano Performance (p. 1699)
Master of Music (MMus) Degree in the field of String Quartet Performance (p. 1702)
Master of Music (MMus) Degree in the field of Trombone Performance (p. 1705)
Master of Music (MMus) Degree in the field of Trumpet Performance (p. 1708)
Master of Music (MMus) Degree in the field of Tuba Performance (p. 1711)
Master of Music (MMus) Degree in the field of Viola Performance (p. 1714)
Master of Music (MMus) Degree in the field of Violin Performance (p. 1717)
Master of Music (MMus) Degree in the field of Vocal Performance (p. 1720)
Artist Diploma (AD) in the field of Bassoon Performance (p. 1545)
Artist Diploma (AD) in the field of Cello Performance (p. 1547)
Artist Diploma (AD) in the field of Clarinet Performance (p. 1549)

Artist Diploma (AD) in the field of Double Bass Performance (p. 1551)
Artist Diploma (AD) in the field of Flute Performance (p. 1552)
Artist Diploma (AD) in the field of Harp Performance (p. 1554)
Artist Diploma (AD) in the field of Horn Performance (p. 1556)
Artist Diploma (AD) in the field of Oboe Performance (p. 1558)
Artist Diploma (AD) in the field of Opera Performance (p. 1560)
Artist Diploma (AD) in the field of Orchestral Conducting (p. 1562)
Artist Diploma (AD) in the field of Organ Performance (p. 1563)
Artist Diploma (AD) in the field of Percussion Performance (p. 1565)
Artist Diploma (AD) in the field of Piano Performance (p. 1567)
Artist Diploma (AD) in the field of Trombone Performance (p. 1569)
Artist Diploma (AD) in the field of Trumpet Performance (p. 1571)
Artist Diploma (AD) in the field of Tuba Performance (p. 1573)
Artist Diploma (AD) in the field of Viola Performance (p. 1574)
Artist Diploma (AD) in the field of Violin Performance (p. 1576)
Doctor of Musical Arts (DMA) Degree in the field of Cello Performance (p. 1627)
Doctor of Musical Arts (DMA) Degree in the field of Clarinet Performance (p. 1629)
Doctor of Musical Arts (DMA) Degree in the field of Composition (p. 1632)
Doctor of Musical Arts (DMA) Degree in the field of Double Bass Performance (p. 1634)
Doctor of Musical Arts (DMA) Degree in the field of Flute Performance (p. 1636)
Doctor of Musical Arts (DMA) Degree in the field of Oboe Performance (p. 1639)
Doctor of Musical Arts (DMA) Degree in the field of Organ Performance (p. 1641)
Doctor of Musical Arts (DMA) Degree in the field of Percussion Performance (p. 1643)
Doctor of Musical Arts (DMA) Degree in the field of Piano Performance (p. 1646)
Doctor of Musical Arts (DMA) Degree in the field of Viola Performance (p. 1648)
Doctor of Musical Arts (DMA) Degree in the field of Violin Performance (p. 1651)
Doctor of Musical Arts (DMA) Degree in the field of Vocal Performance (p. 1653)

The Wiess School of Natural Sciences

Applied Physics

Master of Science (MS) Degree in the field of Applied Physics* (p. 174)
Doctor of Philosophy (PhD) Degree in the field of Applied Physics (p. 174)

Biosciences

Master of Science (MS) Degree in the field of Biochemistry and Cell Biology (p. 373)
Master of Science (MS) Degree in the field of Ecology and Evolutionary Biology (p. 375)
Master of Science in Bioscience and Health Policy (MSBHP) Degree (p. 381)
Master of Science in Bioscience and Health Policy (MSBHP) Degree / Master of Business Administration (MBA) Degree (p. 383)
Master of Science in Environmental Analysis (MSEA) Degree (p. 996)
Master of Science in Environmental Analysis (MSEA) Degree / Master of Business Administration (MBA) Degree (p. 999)
Bachelor of Arts (BA) Degree / Master of Science (MS) Degree / Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology (p. 345)
Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology (p. 370)
Doctor of Philosophy (PhD) Degree in the field of Ecology and Evolutionary Biology (p. 372)

Chemistry
Master of Arts (MA) Degree in the field of Chemistry (p. 603)
Master of Science in Applied Chemical Sciences (MSACS) Degree (p. 170)
Doctor of Philosophy (PhD) Degree in the field of Chemistry (p. 603)

Earth, Environmental and Planetary Sciences
Master of Science (MS) Degree in the field of Earth Science (p. 830)
Master of Science in Subsurface Geoscience (MSSG) Degree (p. 2052)
Master of Science in Subsurface Geoscience (MSSG) Degree / Master of Business Administration (MBA) Degree (p. 2055)
Doctor of Philosophy (PhD) Degree in the field of Earth Science (p. 829)

Mathematics
Master of Arts (MA) Degree in the field of Mathematics (p. 1406)
Doctor of Philosophy (PhD) Degree in the field of Mathematics (p. 1406)

Physics and Astronomy
Master of Science (MS) Degree in the field of Physics (p. 1927)
Master of Science in Space Studies (MSSpS) Degree (p. 1963)
Master of Science in Space Studies (MSSpS) Degree / Master of Business Administration (MBA) Degree (p. 1966)
Doctor of Philosophy (PhD) Degree in the field of Physics (p. 1800)

The School of Social Sciences
Anthropology
Master of Arts (MA) Degree in the field of Anthropology (p. 166)
Doctor of Philosophy (PhD) Degree in the field of Anthropology (p. 166)

Economics
Master of Arts (MA) Degree in the field of Economics (p. 852)
Doctor of Philosophy (PhD) Degree in the field of Economics (p. 852)

Doctor of Philosophy (PhD) Degree in the field of Economics and a Major Concentration in Econometrics and Quantitative Economics (p. 855)
Doctor of Philosophy (PhD) Degree in the field of Economics and a Major Concentration in Economics and Finance (p. 855)

Energy Economics
Master of Energy Economics (MEEcon) Degree (p. 941)

Global Affairs
Master of Global Affairs (MGA) Degree (p. 1063)

Political Science
Master of Arts (MA) Degree in the field of Political Science (p. 1824)
Doctor of Philosophy (PhD) Degree in the field of Political Science (p. 1824)

Psychological Sciences
Master of Arts (MA) Degree in the field of Psychology (p. 1190)
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Cognitive and Affective Neuroscience (p. 1878)
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Health Psychology and Behavioral Medicine Research (p. 1880)
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology (p. 1883)
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Psychometrics and Quantitative Psychology (p. 1884)

Social Policy Evaluation
Master of Social Policy Evaluation (MSPE) Degree (p. 1935)

Sociology
Master of Arts (MA) Degree in the field of Sociology (p. 1960)
Doctor of Philosophy (PhD) Degree in the field of Sociology (p. 1960)

The Dean of Undergraduates
Center for Teaching Excellence
Certificate in Teaching and Learning (p. 2068)

* Although students are not normally admitted to this degree program, graduate students may earn this degree as they work towards the PhD.

Degrees: Graduate-Level

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

Research Degrees

Research degrees are offered in seven of the eight schools at Rice, with some degrees combining studies in more than one school. Specific requirements for advanced research degrees in each field of study appear in the appropriate departmental pages (see Departments and Programs (p. 100)). Students seeking additional material should contact the appropriate department (see Graduate Degree Chart (p. 54)).

Doctoral Programs

The PhD degree is awarded for original studies in the departments listed in the Graduate Degree Chart (p. 54); in music, the equivalent degree is the DMA. Candidates receive a PhD degree after successfully completing at least 90 semester credit hours of graduate study.
(coursework and research at the 500-level and above) and concluding an original investigation that is formalized in an approved thesis. As final evidence of preparation for this degree, the candidate must pass a public oral examination and submit the approved thesis to the Office of Graduate and Postdoctoral Studies. (See also R (p. 72) Regulations and Procedures for Doctoral Degrees (p. 72).) The residency requirement for the doctorate is four semesters of full-time graduate study at Rice University. A minimum of one-third of the required credit hours must be completed at Rice.

**Thesis Master's Programs**

The MA and MS degrees are available in the departments and graduate programs listed in the Graduate Degree Chart (p. 54), including certain scientific fields of study. Candidates may undertake the MArch and MMus degrees as research degrees by adopting the thesis option. Candidates receive a master's degree after completing program-specific degree requirements in addition to meeting university degree requirements (See also Regulations and Procedures for Thesis Master's Graduate Degrees (p. 75)):

- A minimum of 30 graduate semester credit hours of coursework taken at the 500-level or above (including thesis credit hours).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the thesis master's degree.*
- All courses must be taken in the relevant field.
- Original work reported in an approved public oral examination and thesis submitted to the Office of Graduate and Postdoctoral Studies.

Some doctoral programs offer a thesis master's degree opportunity as part of the doctoral program. If available, these opportunities are outlined in the Programs of Study (p. 100) sections for each program.

Notes:

*Credit hours from courses classified as independent study, research, directed reading, teaching experience, internships, practica and similar may not count toward this minimum requirement.

**Departments or programs may identify and define in their program's General Announcements Requirements tab stricter minimum requirements to satisfy their academic program requirements. With approval from the dean of graduate and postdoctoral studies, graduate programs may substitute but not waive local degree requirements. In some graduate programs, students may receive a master's degree when they achieve candidacy for the doctoral degree. Students seeking a master's degree in this manner must submit a petition for the degree, signed by their department chair, to the Office of Graduate and Postdoctoral Studies by the deadline specified in the official Academic Calendar (http://registrar.rice.edu/calendars/) for degree conferral in the year in which the degree is to be awarded.

**Diploma Programs**

Diploma programs at Rice are post-master's degree academic credential programs. Diploma candidates in these programs may be awarded this academic credential after completing (See also: Regulations and Procedures for Diploma Programs):

- A minimum of 30 graduate semester credit hours of coursework taken at the 500-level or above.
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University. Some diploma programs may require full-time residency or additional semesters of residency.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.*
- All courses taken must be in the relevant field.

Notes: Departments or programs may identify and define in their program's General Announcements Requirements tab stricter standards than the minimum GPA for coursework that satisfies their academic program requirements. With approval from the dean of graduate and postdoctoral studies, graduate programs may substitute but not waive local degree requirements.
Graduate Program Major Concentrations

A graduate program concentration, otherwise known as a major concentration, is a formally recognized subfield of study within a discipline offered in a graduate program (master's or doctoral-level), and it represents a coordinated set of courses which emphasize a subfield within the graduate program. The major concentration indicates the student's focus according to research interests and/or professional goals.

Students must apply for and obtain the approval of their departmental Director of Graduate Studies or Department Chair to declare a major concentration. With departmental permission, students may apply for more than one major concentration for each graduate degree earned, assuming the program has multiple concentrations. A major concentration is available only to students in the graduate program within which the concentration is administered. For those programs with approved concentrations, the major concentration is listed on the student's academic transcript as an element of the official curriculum.

Additionally, some programs allow for areas of specialization. Areas of specialization are pre-specified collections of elective courses that, when taken together, cover particular areas of specialization within a field of study. These can be viewed as an advising strategy to assist students in choosing electives. An area of specialization is not an academic credential and is not listed on the student's academic transcript.

Non-Traditional Coursework

Courses tailored for individual students provide a valuable opportunity for them to pursue an academic or professional interest under the supervision of a Rice faculty member. Such courses are typically titled as independent study or research, directed reading, internships, or are described as a teaching experience. Although the organization of these courses is quite variable, they are subject to the same basic requirements as other course offerings. In particular:

- The subject matter and intellectual level of the course must be appropriate for Rice.
- The instructor of record must hold a regular faculty appointment at Rice. This instructor is responsible for submitting the final grade, in consultation with the student’s immediate supervisor, if appropriate.
- The course must have a written syllabus that meets published Rice Syllabus Standards (p. 98). In addition, the syllabus must include a description of anticipated activities and topical content.
- Credit hours assigned are subject to the same amount-of-work considerations as other courses. Credit hours will be awarded in accordance with the Rice credit hour guidelines (https://registrar.rice.edu/facstaff/contact_hours/) and fixed at the time of registration.
- All Academic Calendar (https://registrar.rice.edu/calendars/) (or Registrar) deadlines for registration, add/drop, completion of coursework, and grade submission must be met.

Online-Distance Education

Rice University provides online-distance education courses and programs to extend its academic reach and enhance classroom instruction. Such courses are available for credit to degree-seeking students. These courses provide the same high quality as face-to-face instruction, as governed by the regulations and principles of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Please see University Policy 846, Distance and Online Education (https://policy.rice.edu/846/), for further details.

Rice Online for-credit Courses

Each academic year Rice offers a number of for-credit courses online. These courses use the online method of instruction, indicating that the majority of the class time instruction is occurring when and where students and instructors are not in the same place. These online course offerings can be found in the official Rice Course Schedule (https://courses.rice.edu/admweb/swkscat.main) by querying by method of instruction.

Academic Policies and Procedures

- Academic Calendar (https://registrar.rice.edu/calendars/)
- Admission (p. 59)
- All Graduate Students (p. 60)
- Doctoral Degrees (p. 72)
- Diploma Degree Programs (p. 74)
- Non-Thesis Master's Degrees (p. 75)
- Thesis Master's Degrees (p. 75)

Admission

Graduate study is open to a limited number of extremely well-qualified students with a substantial background in their proposed field of study. Each graduate program determines whether applicants have enough preparation to enter a given program, emphasizing the quality of their preparation rather than the particular academic program they completed or the credits they earned.

Admittance to a Rice University graduate-degree program, with the exception of those in the School of Music, requires a baccalaureate degree from a regionally accredited U.S. institution or an international institution officially recognized by that country's Ministry of Education or its equivalent as determined by the Office of Graduate and Postdoctoral Studies. For the Shepherd School of Music, the equivalent to the baccalaureate degree will be determined by the school's graduate committee.

Admittance to a Rice University graduate certificate (i.e., a non-degree credential) program also requires a baccalaureate degree from a regionally accredited U.S. institution or an international institution officially recognized by that country's Ministry of Education or its equivalent as determined by the Office of Graduate and Postdoctoral Studies. Applicants must meet the minimum admissions qualifications for graduate student study, as articulated below.

Applicants for admission to graduate study should either contact the appropriate department for application forms and relevant information about the program or visit the department’s website for online application information. The Graduate and Postdoctoral Studies website (https://graduate.rice.edu/) also has links to the graduate departments’ websites.

Application Requirements and Process

An application for graduate study should include the completed application form, the application fee, transcript(s), recommendations, and writing samples, if required. Some departments require scores on the aptitude portion of the Graduate Record Examination (GRE) or the
Graduate Management Admission Test (GMAT) and an appropriate advanced test. The ETS school code for Rice is 6609; in addition, applicants should send their test scores directly to the admitting department. See individual departmental listings for specific requirement information.

To make sure scores are available when admission decisions normally are made, applicants should take the GRE by the December before the fall for which they are applying. Application deadlines vary by department and degree program. In general, these occur between December and February for fall semester admission, and departments may occasionally consider late applications. Some departments will also accept spring applications. See individual departmental websites for specific information regarding application deadlines.

Admission depends on students’ previous academic records, available test scores, and letters of reference from scholars under whom they have studied. Writing samples, portfolios, statements of purpose, and work experience may be evaluated as part of the admissions decision. In general, applicants should have at least a 3.00 (B) grade point average, or the equivalent, in undergraduate work. Applicants who are foreign nationals or whose native language is not English must take either the TOEFL or IELTS test and must score at least 90 on the iBT TOEFL or at least 60 on the paper-based TOEFL. For those students who choose to take the IELTS in lieu of TOEFL, the minimum score is 7. The TOEFL school code for Rice is 6609. The TOEFL and IELTS are not necessary for an international student who has received a degree from a university in which English is the official language of communication. If a student does not meet the minimum English language requirement but the degree program considers the student’s English communication skills to be adequate to succeed, the department chair or director of graduate study can pursue a waiver by submitting a petition to the dean of graduate and postdoctoral studies through the application system.

Offers of admission and financial aid are delivered to the student directly via their applicant portal.

Graduate students seeking to transfer to another graduate department at Rice may do so after being admitted to the new degree program and being released from their current department. A student is not eligible to return to any Rice graduate program following a dismissal. Students who had ever previously been on probation must petition the dean of graduate and postdoctoral studies for admission into any graduate program, regardless of their current enrollment status.

Graduate students with a cumulative or overall grade point average below 2.00 may be dismissed by the Office of Graduate and Postdoctoral Studies without a probationary period.

Additionally, students with two unsatisfactory grades in research during their graduate student tenure at Rice may also be dismissed by the dean of graduate and postdoctoral studies without further warning.

As a courtesy, students will be notified of their probationary status once final grades have been received and posted to their records.

S/U grades cannot be used to end probationary status for low overall grade point average.

Departments or programs may identify and define in their General Announcements Requirements tab stricter standards than the minimum grade point average for coursework that satisfies their academic program requirements. A program can dismiss a student without a probationary semester by vote of the faculty in the department or degree program. Please also see Dismissal (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#text).

**Deadlines**

Students and faculty must observe all deadlines listed in the Academic Calendar (https://registrar.rice.edu/calendars/) and the General Announcements.

**Program Requirements and Written Assessment**

Graduate programs must provide students upon entry to the program with detailed requirements, deadlines, and other program policies. Students are then responsible for meeting program and university requirements in their program of education.

Both thesis and non-thesis graduate programs must establish mechanisms for tracking, reviewing, and documenting academic progress of graduate students on an ongoing basis. Graduate programs must provide graduate students a written assessment of their academic progress at least annually. In some graduate programs, this ongoing progress review is carried out by a student’s thesis committee, while in others it is carried out by a standing faculty committee. Although a student’s advisor plays an important role in reviewing the student’s academic progress, the responsibility for conducting the review process lies with the program and requires the involvement of additional faculty members in the program.

For graduate students who are primarily engaged in coursework, for example, non-thesis master’s students, the transcript is an adequate form of written assessment.

**Inadequate Academic Progress**

The two most common grounds for dismissal of a graduate student by the graduate program are (1) inadequate academic progress and (2) a disciplinary violation. The latter is discussed in detail under Disciplinary Probation, Suspension and Expulsion (p. 61). The following relates to academic progress.

A student who is failing to meet written graduate program or university requirements, such as failing to meet grade requirements, failing to pass required examinations by the required time, or failing to advance to candidacy or defend her or his thesis within the required time, is subject to dismissal without further warning.

When a student is judged not to be making adequate academic progress, the student must be warned in writing of the possibility of dismissal.
and given clear information about what must be done within a specified and adequate time period to address and alleviate the problem. These expectations must be reasonable and consistent with expectations held for all students similarly situated in the program. If the student does not meet the stated requirements within the time frame specified, the student will be dismissed by the graduate program.

It is difficult to give a precise and general definition of “adequate academic progress” for graduate students, due to the variation in values and expectations among different graduate programs. Nevertheless, some general principles do apply. For example, most research-based graduate programs consist of two stages. The first stage, preceding candidacy, typically consists of explicit requirements and milestones, such as course requirements, exams, research projects, and the like. In this stage, adequate academic progress typically means compliance with the requirements and milestones of the program, as well as research progress when applicable. In the second stage, post-candidacy, graduate students are expected to conduct research and write and defend their theses. As the second stage typically has fewer explicit intermediate milestones, it is harder to define academic progress during this stage. It is extremely important, therefore, for graduate programs and faculty advisors to make their expectations explicit for post-candidacy graduate students.

**Dismissal**

Dismissal of any graduate student, whether non-thesis or thesis, for (1) failing to meet a minimum grade point average requirement, (2) failing to make academic progress or (3) for a disciplinary violation, requires that the student be notified of the dismissal from the graduate program. Such a notice is distinct from any earlier warning, which lets the student know of the possibility of dismissal. All dismissal notices, as well as warnings of possible dismissal, must be in writing, with a copy sent to the Office of Graduate and Postdoctoral Studies. Email communication is considered to be “in writing”. (Academic units should archive copies of all email communications pertaining to student dismissal.) A student is not eligible to return to Rice following a dismissal.

Because of the serious consequences of dismissal from a graduate program, dismissed students must receive a 15-day notice prior to the dismissal. Such a notice may precede the trigger for the dismissal or be included in the General Announcements or graduate program handbooks linked in the General Announcements. For example, a program can notify a student 15 days before an examination that failure to pass the examination with a certain minimal grade would result in dismissal. Published notice in the handbook that failure would have this consequence is sufficient notice. In general, dismissal should not take effect during a semester in which the student is enrolled. Dismissals that take effect during a semester are exceptional and must be approved by the dean of graduate and postdoctoral studies. A dismissal will be held in abeyance until the petition and appeal process is concluded, as students may petition for a dismissal to be revoked as described in the Dispute Resolution section (p. 90).

**Disciplinary Probation, Suspension and Expulsion**

The Code of Student Conduct (https://sjp.rice.edu/code-of-student-conduct/) applies to all Rice students and applies to conduct both on and off campus. The Office of Student Judicial Programs may sanction students, including implementing disciplinary probation or suspension or expulsion for violations of the Code of Student Conduct or the Honor Code. Students who have been expelled, who are serving a suspension, who are under investigation for disciplinary violations, or who have Code of Conduct or Honor Code proceedings pending against them may not receive their degree even if they have met all academic requirements for graduation. Students who are suspended or expelled must leave the university within the time frame specified by Student Judicial Programs, generally 48 hours of being informed of the decision, though in cases of unusual hardship, Student Judicial Programs may extend the deadline. Any tuition refund will be calculated from the official date of suspension or expulsion based on the refund schedule noted in the Academic Calendar (https://registrar.rice.edu/calendars/), published by the Office of the Registrar. A grade of “W” will be assigned to all enrolled courses regardless of when the suspension or expulsion began. Expelled students will have the expulsion noted on their transcript.

While on disciplinary probation or suspension, students may not run for or hold any elective or appointed office in any official Rice organization. Participation in student activities on and off campus and use of Rice facilities, including, but not limited to, the student center, the colleges, the playing field, the recreation center, and the computer labs, are limited to enrolled students.

Students seeking readmission after a suspension for Honor Code or Code of Conduct violations or other nonacademic action should submit a petition in writing to the Office of Student Judicial Programs by emailing SJP@rice.edu. That petition should include information on what the student did while away from Rice, including any schooling or employment; how the student met any requirements described by Rice at the time of separation; what the student did to address any issues leading to the separation; and what the student learned from the separation. Once approved by Student Judicial Programs, the petition is forwarded to the dean of undergraduates (for undergraduate students) or to the dean of graduate and postdoctoral studies (for graduate students) for final readmission approval and action.

Due to the nature of graduate programs, reinstated students may not be able to return to the same advisor or secure the same level or source of financial aid.

**Termination or Reduction of Financial Support**

Graduate students often receive financial support in the form of graduate stipend and associated tuition waivers. The termination or reduction of financial support to a graduate student, while not equivalent to dismissal, is a serious action that could deprive students of their financial ability to continue graduate studies, and, for international students may compromise their visa. Consequently, the procedure to terminate or reduce a student's financial support before the end of the financial-sponsorship period should be analogous to those for dismissal as described above. Therefore, termination or reduction of financial support of a graduate student requires that the student be notified of the termination or reduction 15 days prior to the cancellation of support and requires the approval of the department chair. Such a notice is distinct from any earlier warning, which lets the student know of the possibility of support termination or stipend reduction. All termination or reduction of support notices, as well as warnings of possible termination, must be in writing, with a copy sent to the Office of Graduate and Postdoctoral Studies.

Active participation in required academic activities (for example, laboratory work in certain science and engineering programs) is a basic condition for continued financial support. Students who are absent from such required activities for two weeks without permission and without mitigating circumstances may be subject to termination of financial support and/or dismissal. In addition, they may be judged not to be making adequate academic progress. Thus, if absences have to occur, they must be prearranged with the student’s supervisor,
except for medical and family emergencies, in which cases timely notification is required. Graduate advisers and programs should be aware of unexplained student absences and must provide immediate written warnings when students are not present and carrying out required academic activities for more than one week.

When the source of a graduate stipend is an externally sponsored research grant, the principal investigator is responsible for certifying that compensation paid to those who are supported by the grant faithfully corresponds to actual effort in carrying out the sponsored research. This process is referred to as “effort certification.” The requirements above to give students warnings and notices before dismissal or termination of stipend are separate and independent of the effort-certification requirement. If a principal investigator determines that a graduate student is not contributing to the sponsored project that is the source of the student’s stipend, then the charge for the affected pay period must be reallocated to another fund by the program.

Degree Revocation

Rice University reserves the right to revoke any degrees granted. A degree awarded may be revoked if the university becomes aware that the degree should not have been granted, such as a degree that was obtained by violating the Honor Code or Code of Student Conduct or by deception, misrepresentation, falsification of records, academic misconduct, research misconduct, or if the work submitted in fulfillment of — and indispensable to — the requirements for the degree are determined to fail to meet the academic standards that were in effect at the time the degree was awarded. Notification of the date of revocation will appear on the student's transcript, and the student will be asked to return the diploma. The provost receives all recommendations for revocation of degrees and, after consideration and review, forwards to the president any recommendations deemed to be warranted. The provost may also initiate and forward a recommendation for a degree revocation to the president. The president will consider all recommendations forwarded by the provost and effectuate those determined to be warranted. Procedures governing degree revocations may be obtained from the Offices of the Registrar, Provost, or President.

The university also reserves the right to withdraw a degree to correct an administrative error, such as an incorrectly listed degree, or in a situation where it was found that a student had not actually fulfilled all graduation requirements.

Academic Regulations and Good Standing

Good Standing

Graduate students must meet the minimum deadlines and course or grade requirements detailed in this document to remain in good standing and to graduate from the university. Graduate students must meet other requirements specifically mandated as essential for good standing by the graduate student handbook published by the relevant department or program. Failure to remain in good standing may result in probation, separation from the university, or dismissal.

Enrollment Requirements

PhD and DMA students must complete at least four full fall and/or spring semesters in full-time study at Rice University. The minimum enrollment requirements for all thesis master’s programs and non-thesis master’s programs in Business, Architecture, and Music is one fall or spring semester of full-time graduate study. For non-thesis master’s programs outside of Business, Architecture, and Music, programs the minimum enrollment requirement is one fall or spring semester in full-time or part-time graduate study.

Concurrent Enrollment at Another Institution

Doctoral and thesis master’s students must secure written permission from the graduate program, Office of the Dean of Graduate and Postdoctoral Studies to seek concurrently a degree at another institution, regardless of the level or delivery method. Additional permission is not needed for students in inter-institutional dual degree programs listed in the General Announcements. Non-thesis graduate programs may require the approval of the graduate program to seek a concurrent degree. Graduate students seeking two graduate degrees should refer to this section (p. 71) of the General Announcements. Undergraduates seeking graduate degrees should refer here (p. 20). Graduate students seeking multiple graduate degrees at Rice should review the section under "Second Degree Programs at Rice."

Continuous Enrollment

Students must maintain continuous program involvement and enrollment during fall and spring semesters unless granted an official leave of absence. See Leaves, Interruptions of Study and Withdrawals (p. 65) for more information.

Full-Time Study

Semester course load for full-time students on Rice’s three-semester Academic Calendar (https://registrar.rice.edu/calendars/) is nine credit hours or more as required by specific graduate programs for the fall, spring, and summer semesters. Additional registration requirements and limitations can be found under “Registration and Courses.”

Semester course load for full-time students on Rice’s four-term Academic Calendar (https://registrar.rice.edu/calendars/) (e.g. the online MBA, MBA@Rice) is six credit hours or more, as required by specific graduate programs.

Graduate programs at Rice generally require full-time study. For information about dropping below full-time or changing to part-time status, see below.

Part-Time Study

Part-time students must register for at least three credit hours in a semester or term. Students in their final semester who require less than three credit hours to complete their degree may register for less than three credits with permission from the dean of graduate and postdoctoral studies.

All time boundary and degree requirements apply to part-time students. Students who wish to become part-time in the upcoming semester or term must obtain written permission from the graduate department before the semester or term begins. Students who wish to obtain part-time status after the semester or term has started must also obtain the approval of the Office of Graduate and Postdoctoral Studies.

In order for students to receive the per credit hour, part-time tuition rate, they must obtain verification of part-time approval from the Office of the Registrar by the end of the second week of classes. Part-time students are not eligible to receive fellowships, assistantship aid, tuition scholarships, or reduced rate tuition from Rice. See also Financial Aid (p. 79). International students should consult the Office of International Students and Scholars about the possible impact on their visa status of dropping below full-time.
Time to Degree (All Degrees)

PhD and DMA students are required to complete their program, including thesis defense, within 10 years of initial enrollment in the degree program. All master's students are required to complete their program, including thesis defense, within five years of initial enrollment. In both cases, students have a limit of six additional months from the date of defense to submit their theses to the Office of Graduate and Postdoctoral Studies. These time boundaries include any period in which the student was not enrolled or enrolled part-time, for whatever reason. Failure to meet any university time to degree deadline may result in the student not being able to continue in their degree program.

Standard of Conduct

Students are expected to live up to the high standards Rice sets for its community members, as described in the Code of Student Conduct (p. 90). Graduate students should be in compliance with the Code of Student Conduct at all times and not have holds from Student Judicial Programs or other offices.

Research and Scholarly Activities

Research and other scholarly activities of all students must conform to Rice University policies. Students should familiarize themselves with these policies before embarking on research or other scholarly activities. Particularly pertinent to students are policy 324 (Research Misconduct) (http://professor.rice.edu/uploadedFiles/Professor/Independent_Pages/Policies/Rice_University_Policy_324.pdf), policy 326 (Human Research Protection Policy) (http://professor.rice.edu/uploadedFiles/Professor/Independent_Pages/Policies/326.pdf), policy 333 (Patent and Software Policies) (https://policy.rice.edu/333/), and policy 334 (Copyright Policy) (https://policy.rice.edu/334/).

Non-course Training

Within their first semester of enrollment, graduate students are expected to complete some non-course training:

- Orientation – New graduate students are expected to attend all orientation events.
- Preventing Sexual Harassment – New graduate students are required to complete this online training.
- Responsible Conduct of Research – All graduate students are required to complete this online training. Students in the MBA and MLS programs are exempt from this training.
- Lab Safety Training - Lab Safety training is mandatory for all new students in the School of Engineering, in the School of Natural Science, with the exception of the Mathematics department; and any student outside those schools who will be working in a laboratory at Rice. This training is provided through the Office of Environmental Health and Safety (https://safety.rice.edu/).

Applicable Academic Graduation Requirements

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

All graduate students must meet the minimum university requirements for the academic credential, in addition to any program specific requirements. The official certifier of the graduate degree, may petition the dean of graduate and postdoctoral studies, or the delegate to allow substitutions or waivers to the degree requirements when academically appropriate. Graduate programs may not independently allow substitutions or waivers to program specific degree requirements.

Students enrolled in graduate programs at Rice may decide whether to follow the general and degree program requirements for graduation in effect when they first matriculated at Rice or those in effect when they graduate. If a student has been separated from the university due to a voluntary or involuntary withdrawal, students must graduate under the regulations in effect at the time of their last readmission or those in effect when they graduate unless granted an exception by the dean of graduate and postdoctoral studies. An archive of General Announcements is available online here (p. 3050).

Graduate program degree requirements may vary from year to year during the period between a student's matriculation and graduation. The graduate program may, at its discretion, make any of these variations available to a student for completion of the degree requirements. If a new academic credential is created during the student's time at Rice, the new program will be available to the student as if the program appeared in the General Announcements at the time of matriculation.

Application for Degree and Degree Conferral

Students are responsible for making certain that their plan of study meets all degree and program requirements in their field of study.

To graduate from Rice University, all students must submit an Application for Degree Form available in ESTHER (https://esther.rice.edu). This form is required for all students who plan to complete their degree requirements at the end of a fall, spring, or summer semester. A late fee will be assessed for applying after the deadline (please consult the semester-specific Academic Calendar (https://registrar.rice.edu/calendars/) for deadlines). Upon completion of degree requirements, degrees are approved by the faculty and conferred in December, May, and August. Fall and Spring degree recipients may then participate in the annual commencement ceremony, celebrated each year after the conclusion of the spring semester. Summer degree recipients have the option of participating in the following year's annual commencement ceremony.

Grades

See also Faculty Grading Guidelines (p. 97) and Syllabus Standards (p. 98).

Minimum Grade Point Average(s)

Students must achieve a minimum cumulative 2.67 grade point average, both overall and within the program, those courses required for their chosen program of graduate study. Each department or program can identify and define stricter standards than the institutional overall 2.67 grade point average minimum. Where applicable, stricter grade point average standards are communicated in the General Announcements Programs of Study section, in the Requirements tab.

In addition to the minimum graduation requirement, to remain in good standing, graduate students must maintain a minimum overall grade point average of 2.67 and a minimum term grade point average of 2.33. Academic probation is discussed in detail in that section (p. 60).
Pass/Fail Option
Master’s and Diploma students may not take a course as Pass/Fail without explicit approval from the dean of graduate and postdoctoral studies.

Doctoral students may not take a course as Pass/Fail within their graduate degree requirements.

Courses outside of their degree requirements must be designated as Pass/Fail no later than the end of the 10th week of classes; however, a Pass/Fail course may later be converted to a graded course by submitting the proper online form with the Office of the Registrar by the end of the second week of the following semester.

Registration During Summer Sessions
Currently enrolled Rice students should register for summer courses online via ESTHER (https://esther.rice.edu/) as per normal registration processes and procedures. Rice students should be aware that the registration and payment deadlines do differ, depending on the summer session, and should familiarize themselves with the Academic Calendar (https://registrar.rice.edu/calendars/). Summer courses that do not generate enrollments sufficient to cover their costs may be canceled prior to the first day of class. Please see Graduate Student Financial Aid (p. 79) for information regarding course tuition and financial aid.

Pass/Fail During Summer Sessions
Currently enrolled Rice students can designate a summer course as Pass/Fail during the summer sessions, but can do so only by visiting the Office of the Registrar in person and completing a Pass/Fail Designation form. Similarly, conversions of summer Pass/Fail grades can only be done via paper form at the Office of the Registrar. Students should adhere to the applicable Pass/Fail deadlines, as stated in the Academic Calendar (https://registrar.rice.edu/calendars/).

Satisfactory/Unsatisfactory
Satisfactory/unsatisfactory courses are those that do not use traditional grading procedures and instead assign a grade of S or U rather than a letter grade. Such courses or labs are designated by the instructor and are, in most cases, graduate-level courses. With S/U courses, instructors report the S if the student successfully completes the course, or the U if they have not. Students should be aware that while a grade of S or U does not affect their grade point average, no credit will be awarded if a grade of U is received. Courses with a grade of S will count towards total credits earned. Visiting Post Baccalaureates cannot take courses on a satisfactory/unsatisfactory grading basis.

Audit
Students have the option of auditing courses. For auditing students, instructors report either the AUD or the NC grade symbol, AUD if the student met the audit requirements of the class, or the NC if they have not. There are no credit hours associated with audited courses, and auditing a course does not affect a student’s GPA. Request to audit a class or to change from audit to credit or vice versa must be done by the dates and deadlines documented in the posted Academic Calendar (https://registrar.rice.edu/calendars/). (See Grade Designations AUD (p. 64) and NC (p. 64) below.)

Grade Symbols
Instructors are required to report a grade for all students whose names appear on the class roster. They grade their students using the following conventional symbols: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F.

Grade Designations
Under certain circumstances, special designations accompany the student’s grade. These designations do not affect the grade point average. The special designations include the following:

AUD (“Audit”)
This designation is only used for students auditing the course, and specifically where the auditing student has met the audit requirements of the course as defined by the instructor. A grade designation of "NC" (No Credit) is given to students who do not meet the audit requirements. There are no credit hours associated with an AUD grade designation. (See Audit above.)

INC (“Incomplete”)
Instructors report this designation to the Office of the Registrar when a student fails to complete a course because of verified illness or other circumstances beyond the student's control that occur during the semester. Students must provide independent corroboration of their illness or circumstances, and they are expected to coordinate with the instructor prior to final grades being submitted. For an INC received in the fall semester, students must complete the work by the end of the first week of the spring semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the second week. For an INC received in the spring or summer semester, students must complete the work before the start of the fall semester or an earlier date as defined by the instructor, and instructors must submit a revised grade by the end of the first week. If a grade is not submitted by the appropriate deadline, the INC will be automatically converted to a failing grade.

Students with an INC must be certain that tests, papers, and other materials affecting their grade or essential to completing a course requirement are delivered by hand to the appropriate professor or office according to the timeline previously stated, for the instructor to grade the documents and submit the final grade to the Office of the Registrar by the deadline. Loss or lateness because of mail service is not an acceptable excuse for failing to meet academic deadlines. Students also should be aware that they may be placed on probation or suspension when the INC is changed to a grade, either by an instructor or by default.

NC (“No Credit”)
This designation signals that no credit was granted for the course. It is used in situations where a person auditing a course has not met the audit requirements of the course as defined by the instructor. (See Audit above.)

NG (“No Grade”)
This designation signals that no credit was granted for the course. As a non-punitive grade, the NG is applied administratively and used in rare situations.

OT (“Other”)
Instructors report this designation to the Office of the Registrar when a student fails to appear for the final examination after completing all the other required work for the course. An OT received during a fall semester must be resolved and instructors must submit a revised grade by the end of the first week of the spring semester. An OT received during a spring semester must be resolved and instructors must submit a revised grade by the end of the fourth week after Commencement. An OT received during a summer semester must be resolved and instructors must submit a revised grade by the end of the first week of the fall semester. If a grade...
is not submitted by the appropriate deadline, the OT will be automatically converted to a failing grade. Students should be aware that they may be placed on probation or suspension when the OT is changed to a grade, either by an instructor or by default.

SA ("Study Away")
This designation is used for students that participate in a course of study hosted at another institution, such as a Rice-sanctioned Study Abroad program, or an approved Inter-institutional agreement. The grade of SA is awarded for the Rice placeholder course, carries no grade points and there are no credit hours earned for a course which receives a grade of SA. There is corresponding transfer credit that is articulated once an official transcript is received from the host school.

TR ("Transfer Credit")
This designation is used when a student is granted credit for coursework that is transferred into Rice from another institution, or has earned credit by eligible exam (Advanced Placement, etc.), as per Rice’s Transfer Credit policy for undergraduates (p. 37) or for graduates (p. 60). Transferred courses have no effect on a student’s Rice grade point average.

W ("Official Withdrawal from University")
Students who officially withdraw from the university after the designated drop deadline, the seventh week of classes, will receive a final grade of “W” for each course in which they were enrolled at the time of withdrawal.

Students who officially withdraw from the university by the drop deadline will not receive the grade of “W” for any courses in which they were enrolled for that semester. These courses will not be included on the official transcript.

W ("Late Drop with Approval")
An undergraduate student who receives approval from the Committee on Examinations and Standing to drop a course after the designated drop deadline will receive a grade of “W” for that course. A graduate student may petition in writing to the dean of graduate and postdoctoral studies to drop a course after the designated drop deadline. Graduate students who receive approval from the dean of graduate and postdoctoral studies will receive a grade of “W” for that course. When requests for late drops are denied by the committee (for undergraduates) or by the dean of graduate and postdoctoral studies (for graduates), the Office of the Registrar records the submitted grade.

If a student drops a class before the designated drop deadline for the semester, the course will not be included on the official transcript. New undergraduate matriculants in their first semester at Rice may drop a class up until the last day of classes, and through the end of week ten in their second semester, if that is a full-term Spring semester, and the course will not be included on the student’s official transcript. Graduate students are reminded that the rule allowing new matriculants in their first semester at Rice to drop a class up until the last day of classes applies only to undergraduates.

Grade Points
To compute grade point average, letter grades are assigned numeric values as follows:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Numeric Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
</tbody>
</table>

1 Effective Academic Year 2018-2019, the A+ grade is now worth 4.00, not 4.33, in calculating the GPA.

Grade Point Average Calculation
For each course carrying standard letter grades, the credit hours attempted and the points for the grade earned are multiplied. The grade points for each course are added together, and the sum is divided by the total credit hours attempted. Grade point averages are noted each semester on the student’s official transcripts. Courses taken on a S/U or pass/fail basis are excluded from the grade point average calculation.

Employment
Students receiving a stipend may accept employment only with the approval of their graduate program and the dean of graduate and postdoctoral studies. Students working for more than 20 hours per week are not normally eligible for stipend support.

Leaves, Interruptions of Study, and Withdrawals
There are two types of interruptions in study: short-term releases and separations. Both releases and separations may be either voluntary or involuntary. Separations are periods of non-enrollment and require specific reinstatement or readmission processes.

Short-Term Parental Release
Short-term releases can be up to six weeks in length.

If a graduate student cannot fulfill the duties of the appointment due to a medical emergency or the adoption or birth of a child, the student may be temporarily released from their academic responsibilities. In the event more than one parent is a Rice graduate student, each parent is eligible for short-term parental release.

Enrollment and stipend support may be continued for up to six weeks or until the existing appointment expires (whichever occurs first). A student may apply for short-term parental release at any time during the semester. Complete guidelines for obtaining a parental release are available at https://graduate.rice.edu/leaves. Students taking a voluntary short-term release should make arrangements with their advisor and instructors to complete their academic responsibilities in a timely way, though extensions to the normal deadlines may be requested upon the student’s return.

Students returning from a short-term parental release are not required to demonstrate that they are able to return to their educational activities.
Students may not do degree work or work involving Rice faculty or facilities while on short-term medical release.

**Short-Term Medical Release**

If a graduate student cannot fulfill the duties of the appointment due to a medical emergency or the acute need to attend to their mental health, the student may be temporarily released from their academic responsibilities. Such a need must be requested in a timely manner and accompanied by a recommendation from a qualified health provider. The short-term release can be up to six weeks in length.

Students who are having difficulty may wish to consider taking time off for reasons related to their wellbeing and mental health are encouraged to contact the GPS student support specialist and instructors to complete their academic responsibilities in a timely way, though extensions to the normal deadlines for INC grades may be requested upon the student’s return. Requests must be made to the Office of Graduate and Postdoctoral Studies (GPS).

Enrollment and stipend support may be continued for up to six weeks or until the existing appointment expires (whichever occurs first). A student may apply for short-term medical release at any time during the semester. Complete guidelines for obtaining a medical release are available at [https://graduate.rice.edu/leaves](https://graduate.rice.edu/leaves). Students taking a voluntary short-term release should make arrangements with their advisor and instructors to complete their academic responsibilities. Students returning from a medical leave of absence for no more than two consecutive semesters or fewer, the student does not need to petition for readmission. For all other students taking military leave, the students that a student is on leave do not count against the time to candidacy or the time to defense, but do count against time to degree.

Prior to returning to Rice, students are strongly encouraged to consult with the student's advisor, advising committee, or director of graduate studies (depending upon the graduate program's advising structure) about an academic plan.

Students must pay a reinstatement fee on their return from an official leave. This reinstatement fee can be found in the [Tuition, Fees, and Expenses](#) section of the General Announcements.

**Military Separation**

Students who require a leave of absence because of being called to active military duty may request a military leave of absence from the university by submitting their written request to the Office of Graduate and Postdoctoral Studies. If the separation is for two consecutive semesters or fewer, the student does not need to petition for readmission. For students serving a branch of the United States Armed Forces, including the National Guard or Reserve, if the separation is for more than two consecutive semesters but not more than five years, to gain readmission students must notify the Office of Graduate and Postdoctoral Studies of the student's intent to return no later than [August 1](#) for the fall semester, [December 15](#) for the spring semester, or [April 1](#) for the summer semester. Students serving a branch of the United States Armed Forces, including the National Guard or Reserve, will be readmitted in accordance with federal law (20 U.S.C. sec. 1091c; 34 C.F.R. sec. 668.18).

For students serving a branch of the United States Armed Forces, including the National Guard or Reserve, the following rules apply:

- Students must pay a reinstatement fee on their return from a military leave. This reinstatement fee can be found in the [Tuition, Fees, and Expenses](#) section of the General Announcements.
- Students may not do degree work or work involving Rice faculty or facilities while on a military leave of absence.
- Prior to returning to Rice, students are strongly encouraged to consult with the student's advisor, advising committee, or director of graduate studies (depending upon the graduate program's advising structure) about an academic plan.
- Students must pay a reinstatement fee on their return from an official leave. This reinstatement fee can be found in the [Tuition, Fees, and Expenses](#) section of the General Announcements.

**Medical Leave of Absence**

A medical leave of absence allows students to take a semester off from their studies to attend to their health. Students must request a leave within the first two weeks of the academic semester in which the leave is taken, citing the medical need. Medical leave requests do not require the endorsement of the program, but must be received in the Office of Graduate and Postdoctoral Studies prior to the end of the second week of classes. (See [https://graduate.rice.edu/leaves](https://graduate.rice.edu/leaves).) Students may take a medical leave of absence for no more than two consecutive semesters. Students returning from a medical leave of absence due to health reasons may be required to provide documentation demonstrating that the student is likely to be successful in their academic endeavors following their return to Rice. The student may be asked to present documentation that the student has been evaluated and has completed follow-up measures recommended by the student’s treating health care professional. This may include a statement of the health care professional's credentials, a description of their contact with the student, the evaluation method, the diagnosis, the recommended follow-up measures and the student's efforts to complete them. The student's efforts to complete those follow-up measures will be evaluated to determine whether the student used the time away from Rice to address the issues that necessitated the leave of absence and to acquire skills to facilitate a successful return to Rice.
Students may be required to schedule an interview with the director of the Rice Counseling Center (https://wellbeing.rice.edu/counseling-center/about-us/) or Student Health Services (https://health.rice.edu/) or their designees.

Nonmedical Withdrawal and Readmission

Students who wish to withdraw from Rice during the semester, for any nonmedical reason, are to notify the chair of their academic department in writing (see Refund of Tuition and Fees (p. 84)). Failure to register before the end of the fourth week of classes without a leave of absence granted by the Office of Graduate and Postdoctoral Studies constitutes a de facto withdrawal.

In addition, if a student fails to engage in any academic work for two months and is unresponsive to all program communication efforts, the graduate program may initiate a de-facto withdrawal on the students behalf through the Office of Graduate and Postdoctoral Studies. If the student continues to not engage with the graduate program or the Office of Graduate and Postdoctoral Studies for another month beyond the initial notification from the graduate program, the student may be withdrawn without a student request.

Students who later wish to resume study after a voluntary or de facto withdrawal must petition for readmission to the university. Petitions must be submitted to the Office of Graduate and Postdoctoral Studies no later than August 1 for Fall, December 15 for Spring and April 1 for Summer readmissions. International students should apply earlier to ensure enough time to secure a new visa.

• The petition must include an academic plan devised in consultation with the student’s advisor, advising committee, or director of graduate studies (depending upon the graduate program’s advising structure). Academic plan consultations should be initiated at least 3 weeks prior to the petition due date.
• The petition should also include a statement, addressed to the dean of graduate and postdoctoral studies, as to why the student withdrew and would now like to be readmitted.
• Readmission requires the recommendation of the department chair or program director and the approval of the dean of graduate and postdoctoral studies. Therefore the petition should be reviewed by the department chair and a written statement of recommendation should be submitted with the petition or emailed directly to the graduate office (graduate@rice.edu).

The semesters that a student is not enrolled do not count against the time to candidacy or the time to defense. They do, however, count against the time to degree. Readmitted students must pay a readmission fee. This readmission fee can be found in the Tuition, Fees, and Expenses (p. 84) section of the General Announcements.

Further information is available by contacting the Office of Graduate and Postdoctoral Studies (https://graduate.rice.edu/people/).

Medical Withdrawal and Readmission

Graduate students may request a medical withdrawal from the university by applying in writing to the Office of Graduate and Postdoctoral Studies (GPS) at any time during the semester, up until the last day of classes; the withdrawal does not take effect until approved in writing. Email communication is considered to be “in writing.” Students withdrawing from the university will or will not receive grades for current courses based on the Academic calendar.

Students considering taking time off for personal reasons related to their wellbeing and mental health are encouraged to contact the GPS student support specialist to evaluate options, which may include a short-term release, a medical leave of absence, or a medical withdrawal. Students taking a medical withdrawal are encouraged to contact the GPS student support specialist if they wish later to seek readmission. The Student Wellbeing Office (http://wellbeing.rice.edu/) serves as an essential liaison to the medical readmission process, during the separation process, as well as when students are ready to return.

Graduate students who wish to seek readmission following a medical withdrawal must submit to the Office of Graduate and Postdoctoral Studies a written petition for readmission no later than June 1 for the fall semester and November 1 for the spring semester, and April 1 for the summer semester.

• This petition must include documentation demonstrating that the student is medically fit to return to Rice. The student may be asked to present documentation that the student has been evaluated and has completed follow-up measures recommended by the student’s treating health care professional. This may include a statement of the health care professional’s credentials, a description of their contact with the student, the evaluation method, the diagnosis, the recommended follow-up measures and the student’s efforts to complete them. The student’s efforts to complete those follow-up measures will be evaluated to determine whether the student used the time away from Rice to address the issues that necessitated the leave of absence and to acquire skills to facilitate a successful return to Rice. Students may also be required to interview with the director of the Rice Counseling Center (https://wellbeing.rice.edu/counseling-center/about-us/) or Student Health Services (https://health.rice.edu/) or their designees.
• The petition must include a letter to the dean stating why the student feels they are ready to return to the University, actions they have undertaken in the interim that could support their return, and specific plans for their follow up treatment in Houston (if applicable).
• The petition also must include an academic plan devised in consultation with the student’s advisor, advising committee, or director of graduate studies (depending upon the graduate program’s advising structure) and approved by the department chair. Academic plan consultations should be initiated at least three weeks prior to the petition due date.

Students who withdraw for psychological reasons within the last five weeks of a semester are strongly encouraged to focus on their wellbeing needs and will not be eligible to apply for immediate readmission the following semester. Students who withdraw for psychological reasons while enrolled during the summer session are not eligible to apply for immediate readmission in the fall.

The semesters that a student is not enrolled do not count against the time to candidacy or the time to defense. They do, however, count against the time to degree. Readmission requires the approval of the dean of graduate and postdoctoral studies, and readmitted students must pay a readmission fee. This readmission fee can be found in the Tuition, Fees, and Expenses (p. 84) section of the General Announcements.

Further information is available by contacting the Office of Graduate and Postdoctoral Studies (https://graduate.rice.edu/people/).

Involuntary Separation

On rare occasions, the university may insist on a student’s involuntary separation from the university if, based on current medical knowledge...
and the best objective evidence, the dean of graduate and postdoctoral studies or her/his designee determines that:

- The student poses a threat to the safety or welfare of self or other members of the Rice community;
- The student has a serious medical or a psychological condition that the student cannot effectively address while enrolled or that is likely to be severely exacerbated by the Rice academic and/or living environment; or
- The student demonstrates behavior that seriously interferes with the education of other members of the Rice community.

Before placing any student on an involuntary separation for one of the foregoing reasons, Rice will consider if there are alternative measures or reasonable accommodations that would permit the student to remain enrolled while remediating the issues that led to the student being considered for involuntary separation.

Involuntary separations may also occur as a disciplinary sanction when Student Judicial Programs has made a finding that the student violated the Code of Student Conduct, the Honor Code, the Sexual Misconduct Policy, the Weapons Policy, or other relevant policies.

An involuntary separation can be the result of an interim decision or a final decision. An interim decision is usually a summary process that may result in a temporary separation.

A final decision comes after a process that includes notification, opportunity to respond, and opportunity to appeal. It can result in a suspension (i.e., temporary separation) or in an expulsion (i.e., permanent separation), as well as other sanctions.

**Readmission Following Involuntary Separation**

Following an involuntary separation, graduate students who wish to seek readmission must submit a written petition for readmission to the Office of Graduate and Postdoctoral Studies no later than June 1 for the fall semester, November 1 for the spring semester, and April 1 for summer semester.

Students taking time off due to an involuntary withdrawal are encouraged to contact the graduate affairs manager or the Student Wellbeing Office (http://wellbeing.rice.edu/) about the roadmap back to Rice. The Student Wellbeing Office serves as a liaison to the readmission process, during the separation process, as well as when students are ready to return.

- The petition should include a letter to the graduate dean stating why the student feels ready to return to the university and actions they have undertaken in the interim that could support their return.
- Petitions must also include an academic plan devised in consultation with the student’s advisor, advising committee, or director of graduate studies (depending upon the graduate program’s advising structure) and approved by the department chair. Academic plan consultations should be initiated at least three weeks prior to the petition due date.
- Petitions for return following an involuntary medical withdrawal must include documentation demonstrating that the student is medically fit to return to Rice. The student may be asked to present documentation that the student has been evaluated and has completed follow-up measures recommended by the student’s treating health care professional. This may include a statement of the health care professional’s credentials, a description of their contact with the student, the evaluation method, the diagnosis, the recommended follow-up measures and the student’s efforts to complete them. The student’s efforts to complete those follow-up measures will be evaluated to determine whether the student used the time away from Rice to address the issues that necessitated the leave of absence and to acquire skills to facilitate a successful return to Rice. Students may also be required to interview with the director of the Rice Counseling Center (https://wellbeing.rice.edu/ counseling-center/about-us/) or Student Health Services (https://health.rice.edu/) or their designees.
- Students involuntarily separated from the university for violations of the Code of Student Conduct or other disciplinary reasons, including honor code violations, must also submit the petition to the Office of Student Judicial Programs and receive approval prior to returning to the university or for the award of a degree (See Academic and Judicial Discipline (p. 60)). Students should refer to their separation letter for any additional requirements.

Students who are involuntarily separated from the university for psychological reasons within the last 5 weeks of either fall, spring, or summer terms are not be eligible to apply for readmission for the following term.

The semesters that a student does not count against the time to candidacy or the time to defense. They do, however, count against the time to degree. Readmission requires the approval of the dean of graduate and postdoctoral studies, and readmitted students must pay a readmission fee. This readmission fee can be found in the Tuition, Fees, and Expenses (p. 84) section of the General Announcements.

Further information is available by contacting the Office of Graduate and Postdoctoral Studies (https://graduate.rice.edu/people/).

**Resignation**

A student may resign from the university by notifying the dean of graduate and postdoctoral studies in writing. Resignation means the student is withdrawing, is no longer a student at Rice, and will not return to Rice. A resignation becomes effective when accepted by the dean of graduate and postdoctoral studies. In general, if a student is under investigation for a potential Code of Student Conduct (p. 90) violation or has charges pending under the Code, disciplinary proceedings will terminate upon acceptance of the resignation by the dean of graduate and postdoctoral studies. However, this general rule does not apply if the resigning student has been charged with sexual assault, sexual harassment, dating violence, stalking or any other behavior that could result in expulsion. A student who resigns is not eligible to receive a degree from Rice, even if the student has otherwise met all of the requirements for the degree. A notation will appear on the resigned student’s transcript indicating that the student is ineligible to reenroll unrelated to academic or financial reasons.

**Nonenrollment Restrictions**

Students may not do degree work at Rice or work involving Rice faculty or facilities during any period of nonenrollment, except during the period following successful oral defense prior to submission of the final thesis.

All separated students must return their student ID to the Office of Graduate and Postdoctoral Studies. All university keys must be returned to the appropriate offices. Participation in student activities on and off campus and use of Rice facilities, including, but not limited to, the student center, the playing fields, the recreation center, and the computer labs, are limited to enrolled students.

Separated students are expected to be away from Rice during the term of the separation. If the student is employed by Rice at the time of separation, the student must relinquish such employment or petition
the Office of Graduate and Postdoctoral Studies (graduate@rice.edu) for written permission to continue the on-campus employment; separated students may not begin employment with Rice during the separation. Noncompliance with these requirements may delay or prevent readmission.

**Name Changes**

To comply with a number of government agencies’ reporting requirements, the university must record the name of each student who is a U.S. citizen as the student’s name appears on the student’s Social Security card. Students who need to change their names on Rice University records and who are U.S. citizens must notify the Office of the Registrar and present a Social Security card, marriage license, divorce decree or court order, and picture identification when submitting the form. After the change is implemented, the name on the Rice University transcript will read as printed on the supporting document(s).

**Registration and Courses**

See also Academic Regulations (p. 62).

**Drop/Add**

During the first two weeks of classes, students may change their registration, add or drop courses without penalty. After the second week, the following conditions apply for both adding and dropping courses and credits hours. Graduate students:

- May not add courses after the second week of classes, except in extenuating circumstances and with the approval of the Office of Graduate and Postdoctoral Studies (a penalty fee per course will be assessed). The student’s request to add a course first must be supported and approved by the student’s advisor along with the course instructor and then forwarded to the dean of graduate and postdoctoral studies for consideration.
- May not drop courses through the seventh week without penalty.
- May not drop courses after the end of the seventh week of classes, except in extenuating circumstances and with the final approval of the Office of Graduate and Postdoctoral Studies (a penalty fee per course will be assessed). The student’s request to drop a course first must be supported and approved by the student’s advisor, the course instructor, and the director of graduate studies or the department chair. Afterward, it should be forwarded to the dean of graduate and postdoctoral studies for consideration. Students who receive approval to drop a course after the designated drop deadline will receive a grade of “W” for that course.

Graduate students that drop a class after the second week should keep in mind that there is no refund of tuition, assuming the student continues to be enrolled in at least one other class. For additional information and relevant deadlines, please see the Academic Calendar (https://registrar.rice.edu/calendars/).

These penalty fees can be found in the Tuition, Fees, and Expenses (p. 84) section of the General Announcements.

**Course Load**

Graduate students must secure written permission from the dean of graduate and postdoctoral studies or the designee to register for more than 18 credit hours in a semester, including courses taken elsewhere. Graduate programs may set lower course load maximums. Architecture, business, and music students are not held to this credit hour limit due to their unique curricula.

Degree-seeking graduate students must register for at least three credit hours in a semester or term (See also Part-time Study (p. 62)).

**Course Registration**

Currently enrolled students register in April for the fall semester and in November for the spring semester. Students are strongly encouraged to meet with their advisor to discuss their courses for the upcoming semester. Please see the Drop/Add section above for requirements for adding or dropping a course after the semester has begun.

**Course Numbering System**

Courses numbered 100-499 are considered undergraduate-level, with the 100-299 sequence classified as lower-level (freshman/sophomore) and the 300-499 sequence classified as upper-level (junior/senior). Courses numbered 500-and-above are considered to be at the post-baccalaureate or graduate-level. Undergraduate and graduate students may, with departmental approval, take certain courses outside their designated level.

**Holds**

Registration, official transcripts, degree verification, and other administrative processes may be impacted by a hold on a student account. Students may consult the website of the Office of the Registrar (https://registrar.rice.edu/students/holds) to discover why a hold exists and how to resolve the issue. The Office of the Registrar cannot remove holds governed by another office or department.

**Repeated Courses**

Students may repeat courses previously taken; however the record of all attempts and the corresponding earned grades remain on the transcript. Additionally the grades for all attempts are included in both the term and overall grade point average calculations. If students repeat courses previously passed, credit is awarded only for the course with the highest grade. For example, a student took HIST 117 and received a grade of B. The student then repeated HIST 117 and received a grade of A. Both grades—the B and the A—appear on the transcript and are included in the student’s GPA; however, the student only receives three credits toward the degree. On the transcript, a repeated course is indicated by one of the following values:

- I – Included in GPA and earned hours
- A – Included in GPA, but excluded from earned hours
- E – Excluded from both GPA and earned hours

Each course attempt will be included in a student’s academic history. Under no circumstances will repeated course attempts be removed from a student’s academic history or official transcript, nor will a student be retroactively dropped from a course that they completed.

Some Rice University courses may be repeated for credit. They are specifically noted in the Course Offerings (https://courses.rice.edu) each semester. If a course may be repeated for credit, each grade appears on the permanent record and is included in the student’s grade point average.

If students repeat courses for which they have received either advanced placement or transfer credit, the credit will be removed from the transfer or advanced placement credit. Nor can credit be received twice...
for students transferring in courses that repeat courses previously completed at Rice. Likewise, students will not receive transfer credit for courses previously completed at Rice with a passing grade, with the exception of courses designated as repeatable for credit. In extraordinary extenuating circumstances, an exception to the repeat transfer credit rule can be granted by the dean of undergraduates (for undergraduates).

Students may not receive credit twice for cross-listed, equivalent, or graduate/undergraduate equivalency courses taken at the same time. If the course is not repeatable, students may not receive credit for cross-listed, equivalent, or graduate/undergraduate equivalency courses taken in different semesters.

Final Examinations in Graduate Courses
Graduate courses, especially those with significant undergraduate student enrollment, should follow the guidelines for undergraduate courses (see Final Examinations section (p. 26)) regarding scheduling of projects, papers, and finals during the last weeks of classes, reading periods, and final exam periods. However, instructors have the discretion to modify those guidelines as appropriate for their specific courses. Such modifications and the final schedule must be made clear at the beginning of the semester.

Transcript Policies
Rice University provides official hard-copy transcripts and electronic transcripts. Official transcripts are issued only at the request of the student via ESTHER (https://esther.rice.edu/) or via the National Student Clearinghouse (https://www.studentclearinghouse.org/secure_area/Transcript/to_bridge.asp). Official transcript requests should be made at least five working days before the desired date of issue. A fee per transcript must be received before a transcript is issued. Expedited transcripts for express delivery will incur an additional fee. See the Tuition, Fees, and Expenses section of the General Announcements for undergraduate students (p. 45) or for graduate students (p. 84).

Transcripts that have been presented for admission or evaluation of credit become a part of the student’s permanent record and are not reissued. Transcripts from other institutions, if needed, must be sent to Rice University directly from the original issuing institution. For additional information and instructions, visit the Transcript Requests (https://registrar.rice.edu/students/transcripts/) page of the Office of the Registrar’s website.

Transfer Credit
Transfer Credit Guidelines
Courses taken at another accredited college or university are not automatically approved for transfer credit. Transfer credit is only granted with the endorsement of the student’s graduate program and the approval of the student’s major department. Transfer credits are subject to the following restrictions:

• Students must have taken the course at a United States academic institution accredited by a regional accrediting agency, or at a foreign institution accredited by the appropriate agency, such as the government’s Ministry of Education.
• Official transcripts from the transfer credit institution must be sent directly from the institution’s registrar to the graduate program or hand-delivered in an official sealed envelope.
• All coursework must have earned a grade of at least a C- or the equivalent. Some departments or programs may set a higher standard for transfers. Students may not transfer courses taken pass/fail or on a similar basis at other institutions.
• Courses used toward a degree at another institution are not eligible for transfer.
• Courses identified as graduate level equivalents at Rice University must have been taken at the graduate level at the transfer credit institution.
• Students seeking transfer credit must submit a Graduate Request for Transfer Credit form (https://registrar.rice.edu/sites/g/files/bxs3241/files/inline-files/Graduate%20Request%20for%20Transfer%20Credit.pdf) to the graduate program for approval.
• The graduate program must review the credits and identify the comparable course at Rice University and submit a copy of the transcript and the approved Graduate Request for Transfer Credit form to the Office of the Registrar. The Office of the Registrar will submit the transfer request form to the dean of graduate and postdoctoral studies for review and approval.

Non-traditional coursework will not transfer to Rice for credit. This category includes but is not limited to the following: a.) life experience; courses offered by non-collegiate sponsors such as businesses and government agencies, and labor unions, even if evaluated by the American Council on Education (ACE); b.) equivalency examinations (e.g. CLEP); and c.) MOOCs (massive open online courses).

Grades earned for transfer credit are not entered on the Rice transcript, and transferred courses have no effect on a student’s Rice grade point average.

All transferable credits from schools utilizing a system other than the semester hour (such as quarter hours or ECTS credits) will be converted to semester hours. In accordance with university guidelines and based on the external transcript, the Office of the Registrar will determine appropriate transferable credit hours. In no instance will a course transfer in with credit greater than the semester hour equivalent originally earned for the coursework.

International Transfer Credit
Students seeking transfer credit for courses taken prematriculation and postmatriculation at institutions outside the United States must present a professional course-by-course evaluation of the foreign official transcript. The professional evaluation must verify that the foreign institution is equivalent to a regionally accredited U.S. academic institution and must include an explanation of credits earned (including U.S. semester hour equivalents), grade equivalents, and course levels (lower- or upper-level). Two reliable services with course-by-course evaluations that include this required information are:

• SpanTran (https://www.spantran.com/)
• Education Credential Evaluators (https://www.ece.org/)

All professional evaluations should be obtained from one of these two recommended credential services and submitted to the Office of the Registrar (for undergraduate students) or to the degree program (for graduate students). Payment for the professional evaluation is the responsibility of the student.

Coursework Taken While an Undergraduate at Rice
Graduate programs may consider counting graduate courses taken by a student while an undergraduate at Rice as credit toward a graduate degree. The following guidelines must be followed:
• The course to be transferred is designated on the transcript at the 500-level or higher.
• The courses must be chosen from those that normally satisfy requirements for the graduate degree
• No course can be used simultaneously to satisfy both an undergraduate and a graduate degree requirement
• Coursework taken as an undergraduate will not be converted to indicate a graduate level in the student's academic history until after the bachelor’s degree is awarded
• Coursework taken as an undergraduate does not indicate the student's matriculation term for the graduate program—the matriculation term will be the term the student officially enters the program as a graduate student after completing all undergraduate requirements
• Regardless of the number of graduate courses taken at the undergraduate level, a student must meet the residency requirement of the degree as a graduate student

Graduate programs may admit advanced undergraduates to a graduate program to seek concurrently the bachelor's and graduate degrees. For additional information, please review the Undergraduate - Graduate Concurrent Enrollment section (p. 20) of the General Announcements.

**Rice Undergraduates Entering a Graduate Degree Program**

Advanced Rice undergraduate students who wish to enter a Rice graduate program should apply for admission through the normal admissions procedures as they begin to pursue seriously the degree, regardless of the date of their planned undergraduate degree conferral.

While the application material requirements of official transcripts and test scores may be waived in these cases, the authority for the waiver rests with the graduate program. Letters of recommendation are still required for admission.

Graduate programs may count courses taken by the students while an undergraduate as credit towards the degree if the credit was not already counted towards the undergraduate degree.

For additional information, please review the Undergraduate - Graduate Concurrent Enrollment section (p. 20) of the General Announcements.

**Transfer of Graduate Program**

Graduate students at Rice are admitted into a specific graduate program. Admissions criteria are program specific; therefore, students who wish to transfer or add a second degree program must follow the guidelines listed below.

**Transferring from Research/Thesis to a Professional/Non-Thesis Program**

Students who wish to transfer from a thesis program to a professional/non-thesis degree program must petition their department in writing. Upon recommendation of the department, the request is sent to the Office of Graduate and Postdoctoral Studies for consideration and final approval. If approved, students who received tuition waivers while enrolled in the thesis program may be expected to repay some or all of the tuition before their professional degrees are awarded. The graduate program may, at its discretion, allow for courses previously taken toward the unawarded research degree to be applied to the degree requirements for the non-thesis degree.

**Transferring from Non-Thesis to Research/Thesis Program Within the Department**

A student who wishes to discontinue a non-thesis program and enter a thesis program would be transferring, and would apply through standard processes. Upon recommendation of the department, the request for admission is sent to the Office of Graduate and Postdoctoral Studies for consideration and final approval. Some students may become eligible for tuition waivers in subsequent semesters. Tuition waivers will not be awarded retroactively. The graduate program may, at its discretion, allow for courses previously taken toward the unawarded non-thesis degree to be applied to the degree requirements for the research degree. Students who wish to continue graduate study towards another degree after completing a non-thesis degree program must apply for admission into the research/thesis degree program. This is not a transfer; degree programs terminate when the requirements for that degree are completed.

**Transferring to Master's Program (Non-Thesis or Thesis) as a Result of Dismissal from Doctoral Program**

A graduate program may offer a non-thesis or thesis master's opportunity to students who are being dismissed from a doctoral program. If the student accepts the master's opportunity, the graduate program would follow internal procedures and notify the Office of Graduate and Postdoctoral Studies of the change in degree program. Tuition will not be charged retroactively for courses already completed. If the student declines the master's opportunity, the student will be dismissed without a degree awarded. Students who are dismissed from a doctoral program are not eligible for admission to other doctoral programs at Rice.

**Transferring Departments**

Students in good standing and not on academic probation who wish to transfer their graduate program to a graduate program in another department must apply for admission to the new department’s degree program, stating that they are currently a graduate student in another program at Rice. The application must be vetted through the regular admissions process. In addition to admission to the new graduate program, applications for a transfer must also be approved by the dean of graduate and postdoctoral studies.

**Second Degree Programs at Rice**

Graduate students may enroll in a second degree program only after being admitted to the second degree program only with the approval of their home academic department and the dean of graduate and postdoctoral studies. With the exception of coordinated degrees explicitly identified in the General Announcements, no course or credit hour may be used to satisfy the degree requirements of more than one degree. Students enrolled in more than one degree program will only be responsible for tuition for one graduate program, whichever is their primary curriculum. Graduate students seeking concurrent enrollment at another institution should review the section under “ Concurrent Enrollment at Another Institution.”

Students who earn a Rice graduate certificate credential may reuse credits earned toward the graduate certificate credential toward a Rice graduate degree.

**Veterans Information**

Qualified veterans, dependents of deceased or disabled veterans whose death or disability is a direct result of their military service, or dependents in receipt of transferred benefits from a veteran may be eligible for VA
educational benefits under one of the following programs while attending Rice University:

- Chapter 30: Montgomery G.I. Bill® - Active Duty/Discharged
- Chapter 31: Vocational Rehabilitation
- Chapter 32: Veterans Educational Assistance Program (VEAP)
- Chapter 33: Post 9/11 G.I. Bill®
- Chapter 35: Dependents Education Assistance
- Chapter 1606: Montgomery G.I. Bill® - Selected Reserve
- Chapter 1607: Reserve Education Assistance Program (REAP)

Rice University does not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries, or other institutional facilities, or the requirement that a covered individual borrow additional funds, on any covered individual because of the individual's inability to meet student financial obligations to Rice University due to the delayed disbursement funding from VA under Chapter 31 or Chapter 33 (other than those that may be required by the particular aid program itself). Rice University may require additional payment or impose a fee for the amount that is the difference between the amount of the student's financial obligation and the amount of the VA education benefit disbursement. In some cases, the student may be required to submit a Free Application for Federal Student Aid (FAFSA).

If you qualify for state or federal education benefits through military service and payment to the school is delayed, you may be eligible for a 60 day deferment of tuition and fees to avoid late fees and/or being dropped from classes. The deferment request form is available here: https://www.tvc.texas.gov/wp-content/uploads/2017/09/HB-846-Form-Fillable.pdf. Submit the completed form to the Office of the Registrar.

At Rice University, veterans’ benefits are managed through the Office of the Registrar. This office assists all veterans and their dependents who wish to receive Veterans Administration (VA) educational benefits. Please see the Office of the Registrar’s website (https://registrar.rice.edu/students/veterans/) regarding the documentation required to obtain educational allowances from the VA.

Veterans who are planning to attend the university should contact Rice University’s Veterans Affairs Representative (registrar@rice.edu) at least two months before the date of entry. Such time is required to expedite the processing of paperwork for educational allowances from the VA.

For certification of benefits, students should have an enrollment of at least half time (6 credit hours for undergraduates).

For additional information regarding other veterans’ educational programs, contact the Office of the Registrar at 713-348-4999 or registrar@rice.edu.

Regulations and Procedures for Doctoral Degrees

University Graduation Requirements for Doctoral Degrees

Candidates receive the PhD degree after successfully completing:

- A minimum of 90 graduate semester credit hours of study at the 500-level and above (including thesis credit hours).
- A minimum of one-third of the required credit hours must be completed at Rice.
- Doctoral students must complete at least four full fall and/or spring semesters in full-time study at Rice University.
- An original investigation that is formalized in an approved thesis.
- As final evidence of preparation for degree, a public oral examination prior to submitting the approved thesis to the Office of Graduate and Postdoctoral Studies.

Candidacy, Oral Examinations, and Thesis

Time Boundaries for Candidacy and Defense

Time To Candidacy

PhD and DMA students must be approved for candidacy before the beginning of the 9th semester of their enrollment at Rice.

Time to Defense

PhD and DMA students must defend their theses before the end of the 16th semester of their enrollment at Rice.

Time to Thesis Submission

Candidates who successfully pass the oral examination in defense of the thesis must submit the thesis to the Office of Graduate and Postdoctoral Studies no later than six months from the date of the examination. See Candidacy, Oral Examinations and Thesis (p. 73).

Time to Degree

PhD and DMA students are required to complete their program, including thesis defense, within 10 years of initial enrollment in the degree program. This time boundary includes any period in which the student was not enrolled or enrolled part-time, for whatever reason. Failure to meet any university time to degree deadline may result in the student not being able to continue in their degree program.

Approval of Candidacy

Candidacy marks a midpoint in the course of graduate education. Achieving candidacy for the PhD/DMA signals that a graduate student has:

1. completed required coursework,
2. passed required exams to demonstrate comprehensive grasp of the subject area,
3. demonstrated the ability for clear oral and written communication, and
4. shown the ability to carry on scholarly work in the subject area.

Requirements for achieving candidacy for the doctoral degree are determined at the departmental (p. 100) level. The department is also authorized to grant waivers or substitutions of specific course requirements, but not to make exceptions to university requirements.

Students enrolled in research degree programs submit their petitions for candidacy for a doctoral degree through the department chair to the dean of graduate and postdoctoral studies. In the petition sent to the dean, the department chair identifies the student’s thesis director, recommends a thesis committee, certifies that the applicant has fulfilled the departmental requirements, and provides a course transcript as evidence that work completed within the department is of high quality.

PhD/DMA students must be approved for candidacy before the beginning of the ninth semester of their enrollment at Rice. However, in order to
qualify for a given commencement, they must meet the submission deadline for that commencement per the Academic Calendar (https://registrar.rice.edu/calendars/). This date falls at the end of October for December degree conferral and the end of February for May degree conferral.

Students who are unable to meet the university time boundary for candidacy may petition the dean of graduate and postdoctoral studies or the designee for an extension of time to candidacy. Students who exceed their time boundaries without an approved extension request will be charged a fee of $125 for reinstatement to good standing. Students who exceed their time boundaries and do not receive an extension to their time to candidacy are subject to immediate dismissal by the Office of Graduate and Postdoctoral Studies.

### Thesis Committee
The thesis committee administers the oral examination for the student’s thesis defense and has final approval/disapproval authority and responsibility for the written thesis. The thesis committee is subject to the approval of the department chair or the director of graduate studies.

A thesis committee is composed of at least three members. Two, including the committee chair, must be members of the student’s department faculty; in doctoral thesis committees one member must have a primary appointment in another department within the university. At least three members of the committee must meet one of the following requirements:

- Tenured or tenure-track members of the Rice faculty
- Research faculty holding the rank of assistant research professor, associate research professor, or research professor
- Qualified individuals who have been certified as thesis committee members by the dean of graduate and postdoctoral studies

The composition of the thesis committee must always meet the guidelines mentioned above, with the following exceptions:

- Interdisciplinary programs (Applied Physics & SSPB) - The chair of the thesis committee is either the advisor or the host department of the student, and is affiliated with the program. The second member of the committee is affiliated with the program. The third committee member of these programs must not be affiliated with either the student's graduate program or the department where their advisor has their primary appointment. The formal structure of the thesis committee for the programs can be found in the program specific sections of the General Announcements and are regularly reviewed by the Office of Graduate and Postdoctoral Studies.

The thesis director must be a tenured or tenure-track member of the Rice University faculty or a research faculty holding the rank of assistant research professor, associate research professor, or research professor. University professors may, at their discretion, serve as an internal research professor, associate research professor, or research professor. Rice University faculty or a research faculty holding the rank of assistant research professor, associate research professor, or research professor.

Changes to the thesis committee must be approved in writing by the department chair or the director of graduate studies and approved by the dean of graduate and postdoctoral studies prior to the thesis defense. Changes requested after the thesis defense are subject to the approval of the dean of graduate and postdoctoral studies, in some cases a re-defense may be required.

### Announcement of Thesis Defense
Oral examinations for the doctoral degree must be registered and publicly publicized at least 14 days in advance. Oral examination announcements must be registered with the Office of Graduate and Postdoctoral Studies by entering the information into the Graduate Students Thesis Defense Announcement form at https://events.rice.edu/rgs/). Defenses that proceed without timely registration are unofficial and will not meet university degree requirements.

### Oral Examination in Defense of Thesis
The public oral defense of a thesis is intended to be an examination of a completed body of work and should be scheduled only when the thesis is complete. Students may take the final oral examination in defense of their thesis only after the dean of graduate and postdoctoral studies approves their candidacy.

In addition to announcing the planned defense as described above, at least one copy of the thesis must be available in the departmental office not less than two calendar weeks prior to the date of the oral defense. Graduate programs may allow or require the thesis to be submitted and stored in an electronic format.

The length of the oral examination and the subject matter on which the candidate is questioned are left to the judgment of the thesis committee. The defense should be scheduled by the student after consultation with the thesis advisor, who agrees that the thesis is completed and ready to be defended. All oral thesis defenses must take place on the Rice University campus with the candidate and all thesis committee members in physical attendance throughout the entire defense. In exceptional cases, appeals to this in-person requirement can be made in writing to the dean of graduate and postdoctoral studies.

Should a candidate fail, the committee chair may schedule a second examination. Students who fail a second time will be dismissed from the university.

Following their defense, students must submit a copy of their approval of candidacy form, signed by the thesis committee signifying successful defense of the thesis, to the Office of Graduate and Postdoctoral Studies within one week after the oral examination. Instructions to submit
The thesis is the principal record of a student's work for an advanced degree. Instructions for online thesis submission and guidelines for thesis formatting are available at: https://graduate.rice.edu/academics/candidacy-defense-thesis-submission. Candidates who successfully pass the oral examination in defense of the thesis must submit the thesis to the Office of Graduate and Postdoctoral Studies no later than six months from the date of the examination. The original approval of candidacy form must be turned in when the thesis is submitted.

PhD and DMA students must defend their theses before the end of the 16th semester of their enrollment at Rice. Students who are unable to meet the university time boundary for thesis defense may petition the dean of graduate and postdoctoral studies or the dean's designee for an extension of time to defense. Students who exceed their time boundaries without an approved extension request will be charged a fee of $125 for reinstatement to good standing. Students who exceed their time boundaries and do not receive an extension to their time to defense are subject to dismissal by the Office of Graduate and Postdoctoral Studies.

A candidate must be enrolled in the semester in which the oral examination is held. Students who defend during the summer must enroll in the summer session of classes. For the purpose of the oral defense only, enrollment in a semester is considered valid through the Friday of the first week of class of the following semester. Students passing the oral examination on or before the end of the first week of classes of any semester do not have to register for that or any subsequent semester even though they may be continuing to make minor revisions to the final copy of their thesis.

**Thesis Submission Regulations and Procedures**

The thesis is the principal record of a student's work for an advanced degree. Instructions for online thesis submission and guidelines for thesis formatting are available at: https://graduate.rice.edu/academics/candidacy-defense-thesis-submission. A candidate must be enrolled in the semester in which the oral examination is held. Students who defend during the summer must enroll in the summer session of classes. For the purpose of the oral defense only, enrollment in a semester is considered valid through the Friday of the first week of class of the following semester. Students who receive the oral examination results on or before the end of the first week of classes of any semester do not have to register for that or any subsequent semester even though they may be continuing to make minor revisions to the final copy of their thesis.

**Departmental Duties**

In most research degree programs, students must undertake a limited amount of teaching or perform other services as part of their training. Assigned duties should not entail more than 10 hours per week, averaged over the semester, or extend over more than eight semesters. Students must be paid as a teaching assistant, instructor of record, or on an hourly basis for this work, regardless of degree requirements.

**Other Requirements**

There are other additional requirements, regulations and procedures for all graduate programs. They are found under Graduate Students > Academic Policies and Procedures > All Graduate Students, or can be accessed directly here (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/).

**Regulations and Procedures for Diploma Programs**

**University Graduation Requirements for Diploma Programs**

Diploma programs at Rice are post-master's degree academic credential programs. At present there are two diploma programs: the Artist Diploma (p. 1511) offered by the Shepherd School of Music, and the Diploma in Liberal Studies (p. 1320) offered by the Glasscock School of Continuing Studies. Declared Diploma Candidates in these programs may be awarded this academic credential after completing:

- A minimum of 30 graduate semester credit hours of coursework taken at the 500-level or above.
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.*
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University. Some diploma programs may require full-time residency or additional semesters of residency.
- All courses taken must be in the relevant field.

*Note: Departments or programs may identify and define in their program's General Announcements Requirements tab stricter minimum requirements to satisfy their academic program requirements.

**Other Requirements**

Other additional requirements, regulations and procedures for all graduate programs are found under Graduate Students > Academic Policies and Procedures > All Graduate Students, or can be accessed directly here (p. 60).
Regulations and Procedures for Non-Thesis Master's Graduate Degrees

University Graduation Requirements for Non-Thesis Master's Degrees

Students also may pursue a non-thesis master's degree in certain departments. This degree would be based on alternative departmental requirements and would include, but not be limited to, the following:

- A minimum of 30 graduate semester credit hours of coursework taken at the 500-level or above.
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).*
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.**
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University. Some graduate programs may require full-time residency or additional semesters of residency.
- All courses taken must be in the relevant field.

Notes:

*Credit hours from courses classified as independent study, research, directed reading, teaching experience, internships, practica and similar may not count toward this minimum requirement.

**Departments or programs may identify and define in their program's General Announcements Requirements tab stricter minimum requirements to satisfy their academic program requirements. With approval from the dean of graduate and postdoctoral studies, graduate programs may substitute but not waive these degree requirements.

Time to Degree

All master's students are required to complete their program within five years of initial enrollment. This time boundary includes any period in which the student was not enrolled or enrolled part time, for whatever reason. Failure to meet any university time to degree deadline may result in the student not being able to continue in their degree program.

Applicable Academic Graduation Requirements

Non-thesis master's students must meet the minimum university requirement for the academic credential, in addition to any program specific requirements. The official certifier of the graduate program may petition the dean of graduate and postdoctoral studies, or the dean's designee to allow substitutions (but not waivers) to the degree requirements when academically appropriate. Graduate programs may not independently allow substitutions or waivers to program specific degree requirements.

Other Requirements

There are other additional requirements, regulations and procedures for all graduate programs. They are found under Graduate Students > Academic Policies and Procedures > All Graduate Students, or can be accessed directly here (p. 60).

Regulations and Procedures for Thesis Master's Graduate Degrees

University Graduation Requirements for Thesis Master's Degrees

Candidates receive a master's degree after completing:

- A minimum of 30 graduate semester credit hours of coursework taken at the 500-level or above (including thesis credit hours).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the thesis master's degree.*
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- Original work reported in a thesis and a public oral examination, approved and submitted to the Office of Graduate and Postdoctoral Studies.

*Note: Departments or programs may identify and define in their program's General Announcements Requirements tab stricter minimum requirements to satisfy their academic program requirements.

Candidacy, Oral Examinations, and Thesis

Time Boundaries for Candidacy and Defense

Time To Candidacy

Master of Architecture (MArch) students must be approved for candidacy before October 31st prior to their juried defense. Master of Music (MMus) students must be approved for candidacy before beginning the 4th semester of study. All other thesis master's students must be approved for candidacy no later than the beginning of the 5th semester of their enrollment in the degree program at Rice. See Candidacy, Oral Examinations and Thesis (p. 75).

Time to Defense

Master's students must defend the thesis no later than the 8th semester from the date of their enrollment in the degree program at Rice. See Candidacy, Oral Examinations and Thesis (p. 76).

Time to Thesis Submission

Candidates who successfully pass the oral examination in defense of the thesis must submit the thesis to the Office of Graduate and Postdoctoral Studies no later than six months from the date of the examination. See Candidacy, Oral Examinations and Thesis (p. 77).

Time to Degree

All master's students are required to complete their program within five years of initial enrollment. This time boundary includes any period in which the student was not enrolled or enrolled part-time, for whatever reason. Failure to meet any university time to degree deadline may result in the student not being able to continue in their degree program.

Approval of Candidacy

Candidacy marks a midpoint in the course of graduate education. Achieving candidacy for the master's degree signals that a graduate student has:
1. completed required coursework,
2. passed any required exams to demonstrate comprehensive grasp of the subject area,
3. demonstrated the ability for clear oral and written communication, and
4. shown the ability to carry on scholarly work in the subject area.

Requirements for achieving candidacy for the master’s degree are determined at the departmental (p. 100) level. The department is also authorized to grant waivers or substitutions of specific course requirements, but not to make exceptions to university requirements.

Students enrolled in research degree programs submit their petitions for candidacy for a master’s degree through the department chair to the dean of graduate and postdoctoral studies. In the petition sent to the dean, the department chair identifies the student’s thesis director, recommends a thesis committee, certifies that the applicant has fulfilled the departmental requirements, and provides a course transcript as evidence that work completed within the department is of high quality.

Master’s candidacy students must be approved for candidacy before the beginning of the fifth semester of their enrollment at Rice. However, in order to qualify for a given commencement, they must meet the submission deadline for that commencement per the Academic Calendar (https://registrar.rice.edu/calendars/). This date falls at the end of October for December degree conferral and the end of February for May degree conferral.

Students who are unable to meet the university time boundary for candidacy may petition the dean of graduate and postdoctoral studies or the dean’s designee for an extension of time to candidacy. Students who exceed their time boundaries without an approved extension request will be charged a fee of $125 for reinstatement to good standing. Students who exceed their time boundaries and do not receive an extension to their time to candidacy are subject to immediate dismissal by the Office of Graduate and Postdoctoral Studies.

**Thesis Committee**

The thesis committee administers the oral examination for the student’s thesis defense and has final approval/disapproval authority and responsibility for the written thesis. The thesis committee is subject to the approval of the department chair or the director of graduate studies.

A thesis committee is composed of at least three members. Two, including the committee chair, must be members of the student’s department faculty. At least three members of the committee must meet one of the following requirements:

- Tenured or tenure-track members of the Rice faculty
- Research faculty holding the rank of assistant research professor, associate research professor, or research professor
- Qualified individuals who have been certified as thesis committee members by the dean of graduate and postdoctoral studies

The composition of the thesis committee must always meet the guidelines mentioned above, with the following exceptions:

- Interdisciplinary programs (Applied Physics and Systems, Synthetic, and Physical Biology) - The chair of the thesis committee is either the advisor or in the host department of the student, and is affiliated with the program. The second member of the committee is affiliated with the program. The formal structure of the thesis committee for the programs can be found in the program specific sections of the

General Announcements and are regularly reviewed by the Office of Graduate and Postdoctoral Studies.

- Master of Architecture (MArch) - The committee chair must be a tenured or tenure-track faculty member. Other committee members can be tenured, tenure-track, or non-tenure track Rice faculty.

The thesis director must be a tenured or tenure-track member of the Rice University faculty or a research faculty holding the rank of assistant research professor, associate research professor, or research professor. Faculty whose primary appointment is at another institution may serve as thesis director if approved by the dean of graduate and postdoctoral studies. Emeritus professors may not accept new graduate students or be included on newly formed thesis committees without the approval of the dean of graduate and postdoctoral studies and an appointment letter from the school dean.

The committee chair need not be the thesis director. The chair, however, must be either a tenured or tenure-track member of the major department or a research faculty member of the student’s major department. In addition to the three required members, additional members of the committee may be selected with the approval of the department chair.

In the event that a member of a students’ thesis committee leaves their position at Rice University, they may continue to serve on the thesis committee if they continue to have the support of the department chair (or in the case of interdisciplinary programs, the graduate program director) to serve in this capacity.

Candidates are responsible for keeping the members of their committee informed about the nature and progress of their research. They also must establish a schedule for thesis completion and review. The members of the committee, in turn, should review the thesis in a timely manner, approving a preliminary form of the thesis before scheduling the oral examination.

Changes to the thesis committee must be approved in writing by the department chair or the director of graduate studies. All changes must take place and be recorded with Graduate and Postdoctoral Studies prior to the thesis defense. Changes requested after the thesis defense are subject to the approval by the dean of graduate and postdoctoral studies, and in some cases a re-defense may be required.

**Announcement of Thesis Defense**

Oral examinations for the master’s degree must be registered and publicly publicized at least 7 days in advance. Oral examination announcements must be registered with the Office of Graduate and Postdoctoral Studies by entering the information into the Graduate Students Thesis Defense Announcement form at https://events.rice.edu/rgs (https://events.rice.edu/rgs/). Defenses that proceed without timely registration are unofficial and will not meet university degree requirements.

**Oral Examination in Defense of Thesis**

The public oral defense of a thesis is intended to be an examination of a completed body of work and should be scheduled only when the thesis is essentially completed. Students may take the final oral examination in defense of their thesis only after the dean of graduate and postdoctoral studies approves their candidacy.

In addition to announcing the planned defense as described above, at least one copy of the thesis must be available in the departmental office not less than two calendar weeks prior to the date of the oral defense.
Graduate programs may allow or require the thesis to be submitted and stored in an electronic format.

The length of the oral examination and the subject matter on which the candidate is questioned are left to the judgment of the thesis committee. The defense should be scheduled by the student after consultation with the thesis advisor, who agrees that the thesis is completed and ready to be defended. All oral thesis defenses must take place on the Rice University campus with the candidate and all thesis committee members in physical attendance throughout the entire defense. In exceptional cases, appeals to this in-person requirement can be made in writing to the dean of graduate and postdoctoral studies.

Should a candidate fail, the committee chair may schedule a second examination. Students who fail a second time will be dismissed from the university.

Following their defense, students must submit a copy of their approval of candidacy form, signed by the thesis committee, to the Office of Graduate and Postdoctoral Studies within one week after the oral examination. Instructions to submit this form are located online at https://graduate.rice.edu/academics/candidacy-defense-thesis-submission. The original approval of candidacy form must be turned in when the thesis is submitted.

Master's students must defend their theses before the end of the eighth semester of their enrollment at Rice. Students who are unable to meet the university time boundary for thesis defense may petition the dean of graduate and postdoctoral studies or the dean's designee for an extension of time to defense. Students who exceed their time boundaries without an approved extension request will be charged a fee of $125 for reinstatement to good standing. Students who exceed their time boundaries and do not receive an extension to their time to defense are subject to dismissal by the Office of Graduate and Postdoctoral Studies.

A candidate must be enrolled in the semester in which the oral examination is held. Students who defend during the summer must enroll in the summer session of classes. For the purpose of the oral defense only, enrollment in a semester is considered valid through the Friday of the first week of classes of the following semester. Students passing the oral examination on or before the end of the first week of classes of any semester do not have to register for that or any subsequent semester even though they may be continuing to make minor revisions to the final copy of their thesis.

**Thesis Submission Regulations and Procedures**

The thesis is the principal record of a student's work for an advanced degree. Instructions for online thesis submission and guidelines for thesis formatting are available at: https://graduate.rice.edu/academics/candidacy-defense-thesis-submission. Candidates who successfully pass the oral examination in defense of the thesis must submit the thesis to the Office of Graduate and Postdoctoral Studies no later than six months from the date of the examination. If the thesis is not submitted by the end of the six-month period, the “pass” will be revoked and an additional oral defense will need to be scheduled. Applications for an extension without reexamination must be made by the candidate with the unanimous support of the thesis committee, endorsed by the department chair (or in the case of interdisciplinary programs, the graduate program director), and approved by the Office of Graduate and Postdoctoral Studies. Extensions of this six-month period for completion without reexamination will be granted only in rare circumstances. Approved petitions for extension without reexamination received after the six month time boundary expired will be charged a fee of $125 for reinstatement to good standing.

Students must have the original or an electronically certified signature of each member of their thesis committee on two title pages of their thesis. All students submitting theses must complete a ProQuest/University Microfilms International (UMI) publishing contract. Students must pay their thesis submission fee before submitting the thesis to the Office of Graduate and Postdoctoral Studies for degree approval.

All theses are permanently preserved in Rice's Institutional Repository and are available via https://scholarship.rice.edu shortly after the final submission of the thesis. At the time of thesis submission, a student may request an embargo of six months, one year, or two years; embargos beyond this period are subject to the approval of the dean of graduate and postdoctoral studies.

Students have six months from the date of their defense to submit their thesis. However, in order to qualify for a given degree conferral, they must meet the submission deadline for that degree conferral per the Academic Calendar. This date falls on the last day of classes in the fall, spring, and summer semesters.

**Departmental Duties**

In most research degree programs, students must undertake a limited amount of teaching or perform other services as part of their training. Assigned duties should not entail more than 10 hours per week, averaged over the semester, or extend over more than eight semesters. Students must be paid as a Teaching Assistant, Instructor of Record, or on an hourly basis for this work, regardless of degree requirements.

**Other Requirements**

There are other additional requirements, regulations and procedures for all graduate programs. They are found under Graduate Students > Academic Policies and Procedures > All Graduate Students, or can be accessed directly here (p. 60).

**Student Services and Organizations**

- Clubs and Organizations (p. 77)
- Disability Resource Center (p. 78)
- Financial Aid (p. 79)
- Graduate Student Government (p. 81)
- Graduate Student Life (p. 82)
- Health, Counseling, Wellbeing, and Safety (p. 82)
- Tuition, Fees and Expenses (p. 84)

**Clubs and Organizations**

**Office of Student Activities**

The Office of Student Activities, located in the Rice Student Center, oversees the activities of various campus-wide student organizations, student requests for facilities usage, and coordination of various leadership development programs.
In addition to managing the registration process, finances, and general advising for over 300 registered clubs at Rice University, Student Activities provides direct advising to the following organizations:

- **Graduate Student Association (GSA)** ([https://gsa.rice.edu/](https://gsa.rice.edu/)) - Graduate student government with many opportunities for graduate student involvement including a variety of social and professional development events and ways to volunteer
- **Summit Leadership Symposium** ([https://studentcenter.rice.edu/student-activities/leadership/summit/](https://studentcenter.rice.edu/student-activities/leadership/summit/)) - Advanced student leadership development program

The Rice University clubs are divided into eleven genres: Academic/Honorary, Cultural/International, Environmental and Sustainability, Political, Recreational/Sport, Religious/Spiritual, Service, Social Justice, Social/Special Interest, STEM, and Visual/Performing Arts. The full list of registered clubs can be found on OwlNest ([https://owlnest.rice.edu/organizations/](https://owlnest.rice.edu/organizations/)), Rice’s new student engagement platform. Student Activities also provides leadership development opportunities in the form of Lunch and Lead sessions, Summit Leadership Symposium, club development programs, and partnership events through graduate clubs and the GSA.

A large number of student organizations address special student interests, such as the Black Graduate Student Association, Indian Students at Rice, Chinese Students and Scholars Association, and the GSA. There are also numerous sport-related clubs such as sailing, rugby, volleyball, and soccer. Additionally, department level government organizations also provide involvement opportunities for graduate students.

Student Activities also recognizes a number of religious and spiritual organizations. These include, but are not limited to, Chi Alpha Christian Fellowship, the Baptist Student Ministry, Catholic Student Association, Hillel, the Muslim Student Association, and the Rice Interfaith Council. Many of these clubs are assisted by local clergy or staff and form the Joint Campus Ministries ([https://studentcenter.rice.edu/student-activities/club-resources/joint-campus-ministries/](https://studentcenter.rice.edu/student-activities/club-resources/joint-campus-ministries/)).

The Clubs Office is located in the lower level of the Rice Student Center and provides computers, workspace, storage, and a color copier for club convenience.

For more information on the Office of Student Activities, please visit [https://studentactivities.rice.edu](https://studentactivities.rice.edu).

**Rice Student Volunteer Program**

By heightening student awareness of community needs and generally raising social consciousness, the Rice Student Volunteer Program (RSVP) has organized volunteer projects for Rice students, faculty, and staff since 1985. Historically, the most popular event of each semester is Outreach Day, a Saturday when students volunteer with multiple nonprofit agencies throughout the Houston area, learning how to take thoughtful action to build a stronger, more just community. RSVP invites each student’s involvement as an officer, a committee member, a project organizer, or an interested participant in any RSVP event.

For more information on the Rice Student Volunteer Program, please visit [https://www.rsvp.rice.edu/](https://www.rsvp.rice.edu/).

**Intercollegiate Speech and Debate**

Consistently ranked in the top 10 nationally, the George R. Brown Forensic Society sponsors competition in the categories of Individual Events, Lincoln–Douglas, and Parliamentary Debate. The society provides students with the chance to hone their public speaking skills and to qualify for competition both at the American Forensic Association National Individual Events Tournament and at the National Parliamentary Debate Championships. Recognizing the importance of developing strong communication skills, the society has an open admission policy, inviting students with little or no previous experience as well as those with extensive high school backgrounds to become members of one of the most successful teams at Rice.

For more information on speech and debate, please visit: [https://debate.rice.edu](https://debate.rice.edu/).

**Office of Multicultural Affairs**

The Office of Multicultural Affairs (OMA) has, as its primary mission, coordinating and implementing comprehensive educational, cultural, and social programs designed to emphasize inclusiveness, while promoting intercultural dialogue, awareness, and respect for diversity. Through advocacy, cultural programs, and education, OMA also helps students understand and appreciate racial, ethnic, gender, and other differences, while creating opportunities for students to challenge prejudice and expand their cultural knowledge and appreciation.

OMA utilizes its programming and support systems to provide an optimum developmental environment where all members of the University community may develop to the highest level of their potential in an atmosphere free from harassment and bias, thereby ensuring Rice’s standing as an intellectually and culturally vibrant community. Cultural student clubs, such as the Black Student Association, the Hispanic Association for Cultural Enrichment at Rice, and the Rice Native American Student Association, meet regularly with OMA to discuss programming logistics and other issues. OMA also directly advises ADVANCE (Advancing Diversity and the Need for Cultural Exchange), a student club that hosts a weekly discussion on a topical issue, and organizes an annual cultural fair. Other programs for students under OMA include HARAMBE, (Swahili for “working together in unity” or “let’s pull together”), a group that seeks to create a unifying event for entering African-American students, allowing them to build social and academic connections with peers, faculty, and staff, and FRESH, a group dedicated to forming relationships through education, scholarship, and heuristics at Rice.

For more information about the Office of Multicultural Affairs, please visit [https://oma.rice.edu](https://oma.rice.edu/).

**Disability Resource Center**

Located on the first floor of Allen Center, the Disability Resource Center coordinates campus services for individuals with documented disabilities. For academic accommodations, adaptive equipment, or disability-related housing needs, the Disability Resource Center is the campus resource for all students with disabilities. Information is maintained on scholarships, internships, and other programs specific to students with disabilities. Students can schedule an appointment with the director of the Disability Resource Center by calling 713-348-5841. For more information, see the Disability Resource Center website at [https://drc.rice.edu](https://drc.rice.edu).
Section 504/ADA Coordinator

The director of Disability Resource Center also serves as the Section 504/ADA coordinator at Rice University. Please direct any concerns or complaints related to disability issues to our office:

Disability Resource Center
111 Allen Center
713-348-5841

Financial Aid

Fellowships, Scholarships, and Assistantships

A range of fellowships, scholarships, and assistantships are available at Rice. Most graduate students in degree programs requiring a thesis are supported by fellowships or research assistantships.

Rice Graduate Fellowships

Doctoral students with high academic records and strong qualifications receive support through Rice fellowships. In most cases, these fellowships provide a stipend plus tuition for the nine-month academic period. Students must be registered for 9 or more credit hours in order to receive the stipend. Students are expected to participate regularly in the on-campus academic community unless specifically granted permission by their graduate program.

Research and Teaching Assistantships

Usually funded from grants and contracts, research assistantships are available in many graduate programs. Qualified students (usually second-year or later) receive these awards to provide assistance on faculty research projects, work that usually contributes to the student’s own thesis. In some departments, a limited number of teaching assistantships may be available to advanced students. In most cases, these assistantships provide a stipend plus tuition. Students must be registered full-time (a minimum of 9 credit hours) to receive the stipend. Unless their teaching or research leads them elsewhere or they are otherwise specifically granted permission by their graduate program, students are expected to participate regularly in the on-campus academic community.

Fellowship, scholarship, and assistantship recipients are selected by the individual graduate programs, subject to the approval of the Office of Graduate and Postdoctoral Studies. Students should send their applications for such awards directly to the graduate program involved. Financial aid (stipend and tuition waiver) is generally offered at the time of admission or shortly after.

To receive Rice fellowships, graduate tuition scholarships, or assistantship aid, students must be engaged in full-time graduate study; part-time students and students who are not enrolled are not eligible for such aid.

Students receiving stipends from fellowships or assistantships may not accept any paid employment relevant to their research off campus without the explicit permission of their graduate program and the Office of Graduate and Postdoctoral Studies.

Please see the Graduate and Postdoctoral Studies website (https://graduate.rice.edu/admissions/costofstudy/) for more information.

Merit-Based Scholarships

Graduate students admitted to the Full-Time MBA, Professional MBA (PMBA), and Master of Accounting (MAcc) programs as well as the Shepherd School of Music and the School of Architecture may be considered for limited merit-based scholarships. Merit-based scholarships are also available to graduate students in the Brown School of Engineering, the Wiess School of Natural Sciences, the School of Social Sciences, and the School of Humanities. Assessment of eligibility occurs during the admission process; there is no separate application. Recipients are notified of merit scholarships at the time of admission or shortly after.

State Grants

Texas residents may be eligible for a Texas Equalization Grant (TEG). Graduate students may be offered TEG if funds remain after first awarding eligible undergraduate students. Renewal requirements for TEG include a completion rate of 75%, cumulative GPA of 2.5 or higher, and completion of at least 24 credit hours per academic year. If a student encounters difficulty that prevented meeting any or all of these standards, a TEG hardship appeal may be submitted. Additional information is available through the Office of Financial Aid (https://financialaid.rice.edu/types-aid/grant/)

Student Health Insurance

A medical insurance subsidy is available to doctoral students that meet all eligibility requirements:

- Full-time doctoral student
- Within first eight years of graduate study at Rice University
- Enrolled in the Rice medical insurance plan
- Insurance costs are not covered by a third party or an outside fellowship

Please see Health, Counseling, Wellbeing, and Safety (p. 82) for more information regarding insurance requirements and student health and wellbeing support.

Summer Assistance

Graduate students may register for summer research hours. Student accounts will be charged based on the summer rates listed on the Tuition & Fees (https://cashier.rice.edu/tuition_fee_rates/) page of the Cashier’s website. A waiver will be applied to cover the cost of the research hours.

However, with limited exception, tuition is charged for all other courses offered in the summer semester. As with fall and spring, the Office of the Registrar manages the summer course schedule, and any questions on course offerings should be directed to that office. Tuition waivers are not available for summer classes, even for students who receive full tuition waivers during the fall and spring semesters.

Graduate students are eligible to apply for federal, state, and private educational loans if they are registered during the summer semester.

Loans

In addition to fellowships, scholarships, and assistantships, the Office of Financial Aid (https://financialaid.rice.edu/) offers assistance in the form of loans. Interested students must file a Free Application for Federal Student Aid (https://studentaid.gov/h/apply-for-aid/fafsa/) (FAFSA). If selected for federal verification, students may also be required to submit
copies of income tax transcripts and W-2's. The priority deadline to apply is May 15.

To be eligible to apply for loans, graduate students must maintain satisfactory academic progress as defined by their graduate program. Should a graduate student fail to make satisfactory academic progress, the student’s aid eligibility will be suspended. Graduate students who enroll for less than half-time in a semester or term will not be eligible for financial aid. Half-time is 4.5 credit hours for students in programs that use Rice's three-semester Academic Calendar (https://registrar.rice.edu/calendars/). Half-time is 3 credit hours for students in programs that use the four-quadmester Academic Calendar (https://registrar.rice.edu/calendars/) (e.g. MBA@Rice).

Loans cannot exceed the student's cost of education, as determined by Rice, minus other resources. Loans may be adjusted or canceled due to changes in eligibility or other resources.

A summary listing of student consumer information is available through the Office of Financial Aid (https://financialaid.rice.edu/consumer-information/).

**Federal Student Loans**

These are loans made to students attending the university at least half-time. Federal Direct Unsubsidized Loans and PLUS Loans are available to degree-seeking students meeting Federal Student Aid eligibility requirements regardless of need. Loan eligibility is subject to annual and lifetime borrowing limits; Federal Direct PLUS Loans require a satisfactory credit check. In addition, loans cannot exceed the student’s cost of education, as determined by Rice, minus other resources.

**Loan Counseling**

Students who are recipients of federal student loans will be required to complete online loan entrance counseling before funds will be credited to student accounts. Students also will be required to complete online exit counseling at the completion of a program of study, enrollment of less than half-time, or withdrawal from Rice. Failure to complete online exit counseling will result in a transcript hold.

**Private Loan Programs**

Private loans are available to graduate and MBA students. These loans are not based on need but do require credit approval from the lender and cannot exceed the student’s cost of education, as determined by Rice, minus other resources.

**Disbursements**

Financial aid awards during the academic year occur in two equal disbursements (Fall and Spring) for on campus programs and in three equal disbursements (quadmester 1, 2, and 3) for MBA@Rice. The scheduled disbursements are credited to the student’s account each term by the third day of class or upon completion of financial aid requirements, whichever is later. Missing requirements may be reviewed through the financial aid tab in Esther. Additional disbursement information is available on the Office of Financial Aid (https://financialaid.rice.edu/) website.

**Special Loan Programs**

A Gulf Oil Corporation Foundation Loan Fund and the Benjamin S. Lindsey and Veola Noble Lindsey Memorial Loan Fund are available to help students working toward a degree meet their educational expenses. The funds are limited, between $500 to $2000. Interested students may contact the Office of Financial Aid (https://financialaid.rice.edu/).

**The Mary Lyn and Niles Moseley Loan Fund and the Professor John A. S. Adams, Sr., Memorial Graduate Student Loan Fund**

The Adams and Moseley Graduate Student Loan Funds provide financial assistance, in the form of loans, to all full-time doctoral students, and to full-time Master’s students in the Schools of Architecture, Engineering, Humanities, Music, Natural Sciences, and Social Sciences at Rice University. Adams-Moseley Loans are not available to pay tuition or fees payable to Rice University. Students wishing to apply for such a loan should obtain an application from the Office of Student Financial Services. Guidelines for the program are:

- Individual loans are made for an amount not to exceed $2,000.
- Loans are made for a period of up to one year and, upon request, may be renewable annually.
- The interest rate applicable to these loans is determined by the university.
- Graduate students must be enrolled on a full-time basis to be eligible to apply for a loan and must maintain full-time enrollment during the full term of the loan.
- Upon completion, applications are submitted to the Office of Graduate and Postdoctoral Studies (https://gps.rice.edu/) for approval.
- Loans are available during the full course of the academic year.
- Loans must be repaid in full before graduation.
- Registration, transcripts, and diplomas will be held for students and former students who are in arrears on these loans.

For more information, visit https://graduate.rice.edu/moseleyadams (https://graduate.rice.edu/moseleyadams/).

**Emergency Loan Fund**

Established through gifts from the Graduate Wives Club of 1972–73, the Graduate Student Association, and various faculty members, this fund makes available emergency loans to help graduate students at Rice with short-term needs. Loans are limited to $500 and must be repaid within 90 days. In lieu of interest, a charge of 2% of the principal loan is assessed to maintain the fund.

**Student On Campus Employment**

Opportunities for employment are available to students during the academic year. Students are eligible to work under either the Federal Work-Study Program or the Rice Work Program. Students interested in employment should access the Office of Financial Aid (https://financialaid.rice.edu/) webpage.

**Deferred Payment Plan**

Rice offers a deferred payment plan to finance students’ educational costs. This plan divides each semester’s charge over four installments. Details are available to eligible students each semester at the time of billing. Students arrange for deferred payment through the Cashier’s Office (https://cashier.rice.edu/).

**Satisfactory Academic Progress**

Federal regulations (CRF § 668.34) require that graduate students demonstrate satisfactory academic progress toward completion.
of their degree to continue to receive federal and state financial aid. In addition to meeting the standard for receiving financial aid, students must also meet the academic standards of Rice University.

Satisfactory academic progress is comprised of three areas as required by federal regulations. A student must complete their degree within a specified period that does not exceed 150% of the published length of the program, demonstrate they are making progress towards the completion of their degree by successfully completing 67% percent of all attempted courses, and maintain at least the minimum cumulative GPA requirement for the program in which they are enrolled. This regulation applies to each financial aid applicant, whether a previous recipient or not.

Credits counted in the maximum time are all attempted credits (even when not a financial aid recipient). Attempted credits include:

- Earned credits – Passed (A+ through D-), Satisfactory (S)
- Repeated courses
- Withdrawal
- Failures – Failed (F), Unsatisfactory (U)
- Complete
- All accepted transfer credits toward the degree program

If a student fails to meet the satisfactory academic progress standards by the end of the academic year, the student will be placed on Financial Aid Suspension and will not be eligible for aid until the satisfactory academic progress standards are met.

Appeal

Students are allowed to appeal their Financial Aid Suspension in cases of the death of a relative, an injury or illness of the student, or other special circumstances. Students must submit a letter discussing why the student failed to make satisfactory academic progress, and what has changed in the student's situation that will allow the student to demonstrate satisfactory academic progress at the next evaluation. Supporting documentation (doctor's letter or academic plan) must accompany the appeal letter and must be submitted to the Office of Financial Aid (https://financialaid.rice.edu/) prior to the beginning of the subsequent term. The Appeals Committee will review appeals on a case-by-case basis.

If an appeal is approved by the Appeals Committee, the student will be placed on financial aid probation and may receive financial aid for one probationary semester. At the end of the probationary semester, the student must meet the satisfactory academic progress standards or meet the requirements of an approved academic plan developed by the student's department or program.

Financial Aid after Academic Suspension

Students who have been suspended by the university for academic reasons need to be aware that if they are readmitted, they may not be eligible for financial aid based on their prior academic performance. Students who are petitioning for readmission are advised to contact the Office of Financial Aid (https://financialaid.rice.edu/) to determine their aid eligibility.

Return of Title IV Funds

Students who receive federal funds as part of their aid packages and do not complete the academic term may be subject to returning a portion of those funds. Contact the Office of Financial Aid (https://financialaid.rice.edu/) for information about policies and procedures regarding the return of Title IV funds.

Other Fellowships, Honors, and Prizes

Provisions are made for a variety of fellowships, scholarships, and prizes available to graduates of this and other universities. Memorial fellowships that have been founded and endowed by gift or bequest on the part of friends of Rice University provide stipends enabling the holders to devote their time to study and research in their chosen fields. There also are several industrial fellowships maintained by companies interested in the development of technical fields and the training of competent scientists, engineers, and business executives.

Persons desiring consideration for appointment as fellows should consult with the graduate program in which they wish to do research. However, not all fellowships are available every year.

Graduate Student Government

Graduate Student Association

All full-time students in graduate programs are members of the Graduate Student Association (GSA) (https://gsa.rice.edu/). The mission of the GSA is to enrich the graduate student experience and to represent, support, and promote graduate student interests and values. An integral and essential part of the Rice community, the GSA provides programs and services aiding in recruitment and retention of graduate students, represents graduate student interests to the University administration, and builds a strong sense of community both on and off campus.

The GSA represents all graduate students and is comprised of two branches: the Council and the Executive. The Council consists of representatives from all departments who serve as the voting body for the graduate students. The Executive is led by the president, internal vice president, external vice president, secretary, and treasurer, and these positions are elected by the Council. Graduate students also participate in university affairs through their representatives on many standing and ad hoc university committees, such as the Graduate Council, the Research Council, and various department committees.

One function of the GSA is to promote academic, professional, and personal development of graduate students. The association accomplishes this by supporting professional development opportunities, alumni networking, and well-being programs for students. Another function of the GSA is to encourage social interaction among graduate students from different departments and cultures. To that end, the association organizes a variety of social activities, including picnics, intramural sports, and volunteer opportunities, that are open to all members of the graduate student body. For more information on the Graduate Student Association, see https://gsa.rice.edu/.

School and Department Graduate Student Associations

A second strata of graduate student governance on campus are the specific GSAs of schools and departments who represent particular concerns and interests of students to the deans, to the chairs, and to the larger GSA. Each school and/or department is encouraged to develop its own governing structure to advocate for graduate concerns and initiatives at Rice.
Graduate Student Life

Housing for Graduate Students

Graduate students have three different housing facilities: Rice Graduate Apartments, Rice Village Apartments, and Rice Village Townhomes. All properties are within walking distance from the campus, and also provide easy transportation to and from campus and all shopping needs on the weekend through a shuttle service. They also provide social activities and events to help students take a break from their studies. Each community is unique in its own way and provides a broad living environment. For all property information, please visit https://graduate.rice.edu/housing/.

Rice Graduate Apartments is a garden style complex located just north of campus on Bissonnet. The community includes quick and easy access to campus, study rooms, laundry facilities, bike rooms, two courtyards, and recreational areas. Electronically controlled access gates for pedestrian and vehicular paths are provided. ADA accessible units are available to students requesting reasonable accommodations. Each apartment is furnished with a bed, desk, desk chair, night stand, chest of drawers, and a bookshelf. In addition, each unit includes basic cable, water, and Wi-Fi Internet. Housing is assigned through a lottery, with a high placement rate given to incoming graduate students. For further information, visit the website above, call 713-348-4050, or email gradapts@rice.edu.

The Rice Village Apartments is a four-story contemporary style community located on Shakespeare Street within a short walk of the Village. It offers four ADA accessible units for students requesting reasonable accommodations, and also offers family housing. Each unit offers appliances equipped with Energy Star efficiency to conserve energy and protect the environment. In addition, it is furnished with a dresser, nightstand, desk, chair, and bed. Basic cable, Wi-Fi Internet, and water also are included. The laundry facility has a system that can email alert you when your laundry is done. Other amenities include common areas, study rooms, a recreational area, bike room, and a community herb garden. Controlled security access is provided by a keyless front door using either a biometric fingerprint or a key fob system. Housing is assigned through a lottery, with a high placement rate given to incoming graduate students. For more information, call 713-348-GRAD (4723), or email gradapts@rice.edu.

The Rice Village Townhomes is a newly built modern three-story - 20 townhome community located south of the Rice Village Apartments on Shakespeare Street. It offers one ADA accessible unit with an elevator for students requesting reasonable accommodations, as well as family housing. Each unit is fully equipped with wireless internet, an individual washer and dryer unit, couch, coffee table, end table, entertainment stand, kitchen tables with four chairs, full size bed, desk, chair, night stand, and chest of drawers. Each townhome has 2 bedrooms and 2 ½ bath with a parking garage for two cars and garage door opener. Housing is assigned through a lottery, with a high placement rate given to incoming graduate students. For more information, call 713-348-4050, or email rvapt@rice.edu (https://ga.rice.edu/graduate-students/student-services-organizations/graduate-life/rvapt@rice.edu).

Rice Student Center

The Student Center provides services and developmental opportunities to build community and enrich the Rice experience through facilities, events, student run businesses, and student activities. It houses a variety of retail and dining operations including the campus store, Sammy’s, 4, Tac0, and Ambassador Cafe. The Graduate Student Lounge and the Clubs offices are located in the basement, with other student life offices throughout the building, including meeting rooms for departments, clubs, and organizations. Visitors can also make use of an ATM located outside the store and ask questions of the Information Desk staff located near the circle drive. Students and visitors alike can enjoy a beverage of their choice and fellowship with their peers at the Rice Coffeehouse (http://coffeeshouse.rice.edu/), purchase a late night snack from the Hoot (http://thehoot.rice.edu/), or visit the new Rice Bikes (http://bikes.rice.edu/) location in the Multicultural Center Garage located on the inner loop to rent a bicycle or get repairs.

For more information on the Student Center, visit https://studentcenter.rice.edu.

For information regarding services and resources for graduate students, please visit https://graduate.rice.edu/lifeatrice (https://graduate.rice.edu/lifeatrice/).

Health, Counseling, Wellbeing, and Safety

Health and Wellness Support Services Fee

By paying an annual Health and Wellness Support Services Fee, all students gain access to the Student Health Services (https://health.rice.edu/), Rice Counseling Center (https://wellbeing.rice.edu/) and the Student Wellbeing Office (https://wellbeing.rice.edu/). Detailed information on the care and services each provide is available from these centers. The Health and Wellness Support Services Fee is a required fee for all enrolled students, except those in “away” status. See Away Status (p. 84) for more information.

Student Health Services

Student Health Services, an outpatient medical clinic, is located in the Morton L. Rich Health Center. The clinic is staffed by primary care physicians, nurses, and ancillary support staff. More information can be found at https://health.rice.edu (https://health.rice.edu/).

Clinic hours are from 8:00 a.m. to 5:00 p.m., Monday through Friday, during fall and spring semesters. For after-hours and weekend medical care, students may choose among a number of local clinics and hospitals (guidance on self-care as well as local healthcare options can be found on the website). The clinic is open full-time from the first day of Orientation Week until the day before commencement. It is closed during Thanksgiving and the winter recess. The clinic also is open for reduced hours during the summer months. Visits to the clinic are covered by the services fee, however, students must pay for all medical care outside the clinic’s purview, including blood tests, X-rays, and outside physician consultations. Should such medical care be necessary, students are urged to review their insurance coverage and pick the best available option.

Care at the clinic is arranged through appointment at 713-348-4966. In emergencies, students should call the Rice University Police Department (https://rupd.rice.edu/) at 713-348-6000.

The Student Health Service provides the following:

• Medical care for illness and injury with referrals to specialists when needed
• Maintenance of health records for all students
• Immunizations and other preventive services
• General information for all students
• Contraceptive counseling and routine Pap smears
• Physical examinations

Confidentiality for Health Services
The Student Health Service physician–patient relationship is a confidential one. Medical records will be released only on receipt of written authorization from the student or as required by law or when the patient poses a significant risk to herself or himself or another person. Physicians with Student Health Services are considered confidential employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with a physician, the student’s information is confidential and will not be released without their expressed written consent. The only exception to this is for students under the age of 18.

Health Insurance
All registered students are required to maintain health insurance coverage while enrolled at Rice University with the exception of visiting students, auditors, students enrolled in the Glasscock School of Continuing Studies (excluding full-time MAT for new teachers) and all students enrolled in traditional online programs.

Students are required to either enroll in the Rice student health insurance plan administered by Aetna Student Health, or complete an online waiver application demonstrating comparable insurance coverage (https://studenthealthinsurance.rice.edu/about/waiver-requirements/). Every eligible student will have the insurance premium fee placed on their account until they have actively enrolled in insurance coverage or submitted a waiver. The student's tuition bill will be updated based on successful completion of enrollment or an approved waiver application. Insurance and waiver information, as well as specific dates for enrolling, frequently asked questions, and more can be found on the Rice Student Insurance website: https://studenthealthinsurance.rice.edu.

The fall student insurance open enrollment period will begin on July 1, 2021, and end on August 27, 2021. The spring student insurance open enrollment period will begin on December 10, 2021, and end on January 14, 2022. Please note that students have until August 27, 2021, (Fall) or January 14, 2022, (Spring) to remove the student insurance charge by submitting a successful waiver application. All students who have not taken action to enroll in or waive coverage by the open enrollment deadlines will be automatically enrolled in the student insurance annual plan. The premium amount will not be prorated. Once enrolled in coverage, students are unable to cancel coverage for any reason.

Please note the automatic enrollment process does require additional processing time. You may have to pay out of pocket for medical services until your enrollment has been processed. Once processed, you will be able to file a claim for reimbursement. To avoid this inconvenience, please submit your enrollment application online as early as possible.

For questions concerning the Rice plan, please contact studentinsurance@rice.edu or call (713) 348-5544.

NOTE: Students may enroll in an annual plan or by semester only. If you waive coverage in the fall open enrollment period, you are still expected to have insurance coverage for the spring. If you enroll in the fall only plan, you may enroll or submit a waiver for the spring semester plan. If you are auto-enrolled in the fall, you will be enrolled in the annual plan and will not be able to waive spring coverage. If you experience a qualifying life event (https://studenthealthinsurance.rice.edu/about/qualifying-life-events/) and need to enroll in coverage mid-year, please email studentinsurance@rice.edu.

International students that have an F1 or J1 visa are subject to the Rice University International Student Health Insurance Policy. For more information on the policy, please visit the OISS website (https://oiss.rice.edu/). Students can review detailed information concerning the approved alternative insurance option through Student Assurance Services (SAS), as well as the enrollment application and rate information.

Wellbeing and Counseling Center Services
Center Contact Information
The Wellbeing and Counseling Center provides confidential counseling treatment as well as wellbeing case management services for graduate and undergraduate students. The Center also provides mental health and wellbeing related education for the student body. The Wellbeing and Counseling Center is located in the Barbara and David Gibbs Recreation and Wellness Center. The Center is open Monday - Friday from 9:00a.m. to 5:00p.m. Walk-ins are available during business hours. For appointments contact the Wellbeing and Counseling Center at 713-348-3311 (24/7) or visit https://wellbeing.rice.edu/ for more information. In emergencies, students should call the Rice University Police Department (https://rupd.rice.edu/) at 713-348-6000.

Rice Counseling Center
The Rice Counseling Center addresses students’ psychological needs with various programs and services. Services are confidential. Student information is not released to anyone without the student's written consent. There are no costs for Counseling Center services.

Typically, students who use the counseling services bring with them very common concerns: roommate problems, breakup of a relationship, academic and/or interpersonal anxiety, family problems, difficulties adjusting to Rice, or confusion about personal goals, values, and identity. Counselors are equipped to handle a variety of issues, including substance use, eating concerns, sexual assault and relationship violence, depression, and the coming-out process. Rice Counseling Center offers both individual and group counseling, as well as educational workshops and programs.

When students need long term or specialized counseling or treatment, counselors refer them to an outside provider. The students, or their health insurance, must pick up these costs. All students who have paid the Health and Wellness Support Services Fee are eligible for initial assessment sessions, consultations, crisis intervention, and educational programming. Individual or group counseling may also be available, if appropriate.

Students who have worked with a mental health professional prior to enrolling at Rice are encouraged to make contact with the Rice Counseling Center prior to coming to Rice. This will allow the student to make arrangements for a continued care plan. This plan may involve working with the Rice Counseling Center or working with the center to find a suitable off-campus provider.

The Rice Counseling Center can be contacted at 713-348-3311 or at https://wellbeing.rice.edu/. The Rice Counseling Center provides the following services:
• Psychological crisis intervention, on a walk-in emergency basis during regular office hours, or by phone at any time, 24 hours a day, by calling 713-348-3311. This includes after hours and weekends.
• Initial intake to assess needs and assignment to an appropriate level of care
• Short-term individual and couples counseling
• Group therapy and support groups
• Medication consultations with the center’s psychiatrist for students in counseling at the center
• Other consultations (e.g., how to make a referral or how to respond to a friend in distress)
• Educational programming (e.g., various presentations on mental health issues)

Confidentiality for Counseling
Rice Counseling Center services are confidential; information about a student is not released without the student’s written consent. Before entering a therapeutic relationship with a counselor, students may review and discuss confidentiality with their counselor, ask all necessary questions, and be certain they understand how confidentiality will be applied in their case. As detailed in RCC’s treatment agreements, state law does not extend confidentiality to several circumstances, including where:

1. there is risk of imminent harm to the student or others;
2. the counselor has reason to believe that a child or an elderly or handicapped person is, or is in danger of, being abused or neglected;
3. a court order is issued to release information; or
4. the counselor suspects that the student has been the victim of sexual exploitation by a former health care provider during the course of treatment with that provider.

In addition, RCC sometimes provides de-identified information to administrative officials who are in a need-to-know capacity. In some cases the terms of the treatment engagement with RCC may require a student to share assessments, diagnoses, or treatment plans from non-Rice treating professionals with Rice counselors.

Therapists with Rice Counseling Services are considered “confidential” employees under Title IX, meaning that should a student wish to speak about domestic or sexual violence or stalking with their therapist, their information is confidential and will not be released without the student’s written consent. The only exception to this is for students under the age of 18.

Student Wellbeing Office
The Student Wellbeing Office provides wellbeing advising, case management and educational outreach programs to support students who have experienced wellbeing challenges that may be impacting their personal or academic goals and overall success at Rice. Students talk to a wellbeing advisor about solutions to their wellbeing concerns such as conflicts in relationships, difficulty in making decisions, struggling with identity, stress management or problems that are more serious in nature. If students decide to take time off to focus on their wellbeing needs, Wellbeing advisors work with them and serve as liaisons to the medical readmission process when students are ready to return.

For more information, please visit https://wellbeing.rice.edu/studentwellbeing or contact the office at 713-348-3311 or wellbeing@rice.edu.

The SAFE Office: Interpersonal Misconduct Prevention and Support
Rice encourages any student who has experienced an incident of sexual, relationship, or another form of interpersonal violence, harassment, or gender discrimination to seek support. There are many options available both on and off campus for all students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone unaffiliated with the university. Through the SAFE Office, students have access to a resource navigator who will assist them in determining the best path for them. Furthermore, students who have been accused of committing interpersonal violence or harassment can also seek support under Title IX through The SAFE Office.

Students should be aware, when seeking support on campus, that most employees are deemed "responsible," and thus are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. Rice prioritizes student privacy and safety, and only shares disclosed information on a need-to-know basis. The SAFE Office will reach out to the student and offer services, and it is up to the student as to whether they want to engage in services and what level of support they choose.

The therapists at the Rice Counseling Center and the doctors at Student Health Services are "confidential" employees, meaning that Rice Title IX staff will not be informed about the incident if a student discloses it to one of these staff members.

The SAFE Office is located in the Morton L. Rich Health Center. The office is open Monday - Friday from 9:00 a.m. to 5:00 p.m. Walk-ins are available during business hours. For more information, including how to access The SAFE Office, please call 713-348-3311 (24/7), visit https://safe.rice.edu or email titleixsupport@rice.edu. In emergencies, students should call the Rice University Police Department at 713-348-6000.

Tuition, Fees and Expenses
Tuition and fees for all graduate students for academic year 2021-2022:

<table>
<thead>
<tr>
<th>Tuition &amp; Fees</th>
<th>Graduate Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>The School of Architecture</td>
</tr>
<tr>
<td>Master of Architecture</td>
<td></td>
</tr>
<tr>
<td>Tuition - Students entering 2021</td>
<td>$1,945</td>
</tr>
<tr>
<td></td>
<td>$17,500 / $972.50</td>
</tr>
<tr>
<td></td>
<td>$35,000 / $1,945</td>
</tr>
<tr>
<td>Tuition - Continuing Students</td>
<td>$1,833</td>
</tr>
<tr>
<td></td>
<td>$16,500 / $916.50</td>
</tr>
<tr>
<td></td>
<td>$33,000 / $1,833</td>
</tr>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
</tr>
<tr>
<td></td>
<td>$45</td>
</tr>
<tr>
<td>Student Organization Fee</td>
<td>$4</td>
</tr>
<tr>
<td></td>
<td>$8</td>
</tr>
<tr>
<td>Honor Council Fee</td>
<td>$1</td>
</tr>
<tr>
<td></td>
<td>$2</td>
</tr>
<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
</tr>
<tr>
<td></td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
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<tr>
<td></td>
<td>TBA</td>
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<tr>
<td>Architecture Preceptor</td>
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</tr>
<tr>
<td>Preceptor Fee</td>
<td>$350</td>
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<tr>
<td></td>
<td>$350</td>
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<tr>
<td>Health Insurance</td>
<td>TBA</td>
</tr>
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<td></td>
<td>TBA</td>
</tr>
</tbody>
</table>

For more information, please visit the Rice University website or contact the Office of Student Affairs at 713-348-3311.
### Architecture Option 3 Extension

| Tuition - Students entering 2021 | $1,945 |
| Tuition - Continuing Students | $1,833 |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Organization Fee | $4 | $8 |
| Honor Council Fee | $1 | $2 |
| Health & Wellness Support Fee | $299 | $598 |
| Health Insurance (3) | TBA | TBA |

### Business - Jones Graduate School of Business

#### MBA Degree, Full-Time Program

| Tuition | $31,750 | $63,500 |
| MBA Activity Fee | $200 | $400 |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Organization Fee | $4 | $8 |
| Honor Council Fee | $1 | $2 |
| Health & Wellness Support Fee | $299 | $598 |
| Health Insurance (3) | TBA | TBA |

#### MBA Degree, Professional Program (Weekend)

| Tuition | $28,762.50 | $57,525 |
| MBA Activity Fee | $100 | $200 |
| Residency Fee (Optional) | $1,500 | $3,000 |
| Health Insurance (3) | TBA | TBA |

#### MBA Degree, Professional Program (Evening)

| Tuition | $27,482.50 | $54,965 |
| MBA Activity Fee | $100 | $200 |
| Residency Fee (Optional) | $1,500 | $3,000 |
| Health Insurance (3) | TBA | TBA |

#### MBA Degree, Professional Program (Evening Extended)

| Tuition - Students entering 2001 | $2,035.74 |
| Tuition - Students entering 2020 | $2,035.74 |
| Tuition - Students entering 2019 | $1,995.37 |
| Tuition - Students entering 2018 | $1,935.19 |
| Tuition - Students entering 2017 | $1,880.00 |
| MBA Activity Fee | $100 | $200 |
| Residency Fee (Optional) | $1,500 | $3,000 |
| Health Insurance (3) | TBA | TBA |

#### MBA Degree, Executive Program

| Tuition | $32,907.50 | $65,815 |
| Residency Fee (Optional) | $1,500 | $3,000 |
| Health Insurance (3) | TBA | TBA |

#### MBA Degree, Online Program (MBA@Rice)

| Tuition - Students entering 2021 | $2,035.74 |
| Tuition - Students entering 2020 | $2,035.74 |
| Tuition - Students entering 2019 | $1,995.37 |
| Tuition - Students entering 2018 | $1,935.19 |
| Tuition - Students entering 2017 | $1,880.00 |
| Intensive Learning Experience (as applicable) | $400 | $200 |

### Global Field Experience Fee (as applicable)

| $1,600 | $1,600 |

### PhD in the field of Business

| Tuition | $26,035 | $52,070 | $1,446.50 | $2,893 |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Organization Fee | $4 | $8 |
| Honor Council Fee | $1 | $2 |
| Health & Wellness Support Fee | $299 | $598 |
| Health Insurance (3) | TBA | TBA |

### Master of Accounting

| Tuition | $27,812.50 | $55,625 |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Organization Fee | $4 | $8 |
| Honor Council Fee | $1 | $2 |
| Health & Wellness Support Fee | $299 | $598 |
| Health Insurance (3) | TBA | TBA |

### Continuing Studies - Glasscock School of Continuing Studies

#### Master of Arts in Teaching

| Tuition | $670 per credit |
| Discounted Tuition | $335 per credit |
| Audited Courses | $900 per course |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Activity Fee | $52 | $104 |
| Health & Wellness Support Fee (Students enrolled in 9+ credits) | $299 | $598 |

#### Master of Liberal Studies

| Tuition | $1,042 per credit |
| Discounted Tuition | $521 per credit |
| Audited Courses | $900 per course |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Activity Fee | $52 | $104 |
| Health & Wellness Support Fee (Students enrolled in 9+ credits) | $299 | $598 |

#### Diploma in Liberal Studies

| Tuition | $1,083 per credit |
| Discounted Tuition | $542 per credit |
| Audited Courses | $900 per course |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Activity Fee | $52 | $104 |
| Health & Wellness Support Fee (Students enrolled in 9+ credits) | $299 | $598 |

### Engineering - George R. Brown School of Engineering

| Tuition - Students entering 2021 | $2,035.74 |
| Tuition - Students entering 2020 | $2,035.74 |
| Tuition - Students entering 2019 | $1,995.37 |
| Tuition - Students entering 2018 | $1,935.19 |
| Tuition - Students entering 2017 | $1,880.00 |
| Intensive Learning Experience (as applicable) | $400 | $200 |
| Global Field Experience Fee (as applicable) | $1,600 | $1,600 |

### Master of Arts in Teaching

| Tuition | $670 per credit |
| Discounted Tuition | $335 per credit |
| Audited Courses | $900 per course |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Activity Fee | $52 | $104 |
| Health & Wellness Support Fee (Students enrolled in 9+ credits) | $299 | $598 |

### Master of Liberal Studies

| Tuition | $1,042 per credit |
| Discounted Tuition | $521 per credit |
| Audited Courses | $900 per course |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Activity Fee | $52 | $104 |
| Health & Wellness Support Fee (Students enrolled in 9+ credits) | $299 | $598 |

### Diploma in Liberal Studies

| Tuition | $1,083 per credit |
| Discounted Tuition | $542 per credit |
| Audited Courses | $900 per course |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Activity Fee | $52 | $104 |
| Health & Wellness Support Fee (Students enrolled in 9+ credits) | $299 | $598 |
## Master's & PhD Programs

**Tuition**
- $2,893
- $26,035 / $52,070 / $1,446.50 / $2,893

**Graduate Student Association Fee**
- $22.50 / $45

**Student Organization Fee**
- $4 / $8

**Honor Council Fee**
- $1 / $2

**Health & Wellness Support Fee**
- $299 / $598

**Health Insurance (3)**
- TBA / TBA

**Professional Master's in Engineering**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$2,893</th>
<th>$26,035 / $52,070 / $1,446.50 / $2,893</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
<td>$45</td>
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<tr>
<td>Student Organization Fee</td>
<td>$4</td>
<td>$8</td>
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<td>Honor Council Fee</td>
<td>$1</td>
<td>$2</td>
</tr>
<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
<td>TBA</td>
<td>TBA</td>
</tr>
</tbody>
</table>

**Master of Computer Science, Online Program**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$1,667</th>
</tr>
</thead>
</table>

**Master of Data Science, Online Program**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$1,667</th>
</tr>
</thead>
</table>

## Humanities - School of Humanities

**Master's & PhD Programs**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$2,893</th>
<th>$26,035 / $52,070 / $1,446.50 / $2,893</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
<td>$45</td>
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<tr>
<td>Student Organization Fee</td>
<td>$4</td>
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<tr>
<td>Honor Council Fee</td>
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<td>$2</td>
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<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
<td>TBA</td>
<td>TBA</td>
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</tbody>
</table>

**Master of Arts in the field of Religion**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$10,000</th>
<th>$20,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
<td>$45</td>
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<tr>
<td>Student Organization Fee</td>
<td>$4</td>
<td>$8</td>
</tr>
<tr>
<td>Honor Council Fee</td>
<td>$1</td>
<td>$2</td>
</tr>
<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Humanities Grad Association Fee</td>
<td>$2.50</td>
<td>$5</td>
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<tr>
<td>Health Insurance (3)</td>
<td>TBA</td>
<td>TBA</td>
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</table>

## Music - Shepherd School of Music

**Master of Music, Artist Diploma, Doctor of Musical Arts**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$1,639</th>
<th>$14,750 / $29,500 / $819.50 / $1,639</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
<td>$45</td>
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<td>Student Organization Fee</td>
<td>$4</td>
<td>$8</td>
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<tr>
<td>Honor Council Fee</td>
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<td>$2</td>
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<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
<td>TBA</td>
<td>TBA</td>
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</table>

## Natural Sciences - Wiess School of Natural Sciences

**Master's & PhD Programs**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$2,893</th>
<th>$26,035 / $52,070 / $1,446.50 / $2,893</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
<td>$45</td>
</tr>
<tr>
<td>Student Organization Fee</td>
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<td>$8</td>
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<tr>
<td>Honor Council Fee</td>
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<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
<td>TBA</td>
<td>TBA</td>
</tr>
</tbody>
</table>

**Professional Master's in Natural Sciences**

| Tuition - Students entering 2021 | $1,500 | $19,250 / $38,500 |
| Tuition - Continuing Students | $1,472 | $19,125 / $38,250 |
| Graduate Student Association Fee | $22.50 | $45 |
| Student Organization Fee | $4 | $8 |
| Honor Council Fee | $1 | $2 |
| Health & Wellness Support Fee | $299 | $598 |
| Health Insurance (3) | TBA | TBA |

**Wiess Internship**

| Preceptor Fee | $350 | $700 |
| Health Insurance | TBA | TBA |

## Social Sciences - School of Social Sciences

**Master's & PhD Programs**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$2,893</th>
<th>$26,035 / $52,070 / $1,446.50 / $2,893</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
<td>$22.50</td>
<td>$45</td>
</tr>
<tr>
<td>Student Organization Fee</td>
<td>$4</td>
<td>$8</td>
</tr>
<tr>
<td>Honor Council Fee</td>
<td>$1</td>
<td>$2</td>
</tr>
<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
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<td>TBA</td>
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</table>

**Master of Human-Computer Interaction and Human Factors**

<table>
<thead>
<tr>
<th>Tuition</th>
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<th>$35,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
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<tr>
<td>Student Organization Fee</td>
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<td>$8</td>
</tr>
<tr>
<td>Honor Council Fee</td>
<td>$1</td>
<td>$2</td>
</tr>
<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
</tr>
<tr>
<td>Health Insurance (3)</td>
<td>TBA</td>
<td>TBA</td>
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</tbody>
</table>

**Master of Industrial-Organizational Psychology**

<table>
<thead>
<tr>
<th>Tuition</th>
<th>$17,500</th>
<th>$35,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Association Fee</td>
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<tr>
<td>Student Organization Fee</td>
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<tr>
<td>Honor Council Fee</td>
<td>$1</td>
<td>$2</td>
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<tr>
<td>Health &amp; Wellness Support Fee</td>
<td>$299</td>
<td>$598</td>
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<tr>
<td>Health Insurance (3)</td>
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</table>

## Master of Energy Economics

<table>
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<th>$58,000</th>
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<tbody>
<tr>
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<td>Student Organization Fee</td>
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<td>$8</td>
</tr>
<tr>
<td>Honor Council Fee</td>
<td>$1</td>
<td>$2</td>
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</tbody>
</table>
### Part-Time Students

Part-time enrollment refers to enrollment of less than 9 credits during a semester. Students seeking part-time enrollment must obtain approval from the Office of Graduate and Post-Doctoral Studies. Part-time enrollment tuition is calculated on the per-credit rate. Students not approved for part-time enrollment will be assessed the full-time enrollment tuition charge.

### Rates for Students Studying Abroad

<table>
<thead>
<tr>
<th>Tuition and Fees</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sponsoring Institution Agreement - Tuition Paid at Rice</strong></td>
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<tr>
<td>Rice University Tuition</td>
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</tr>
<tr>
<td><strong>Required Fees</strong></td>
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</tr>
<tr>
<td>Student Activity Fee</td>
<td>$22.50</td>
</tr>
<tr>
<td><strong>Sponsoring Institution Agreement - Tuition Paid at Sponsoring Institution</strong></td>
<td></td>
</tr>
<tr>
<td>Rice University Tuition</td>
<td>--</td>
</tr>
<tr>
<td><strong>Required Fees</strong></td>
<td></td>
</tr>
<tr>
<td>Enrollment Continuance Fee</td>
<td>$456</td>
</tr>
<tr>
<td>Student Activity Fee</td>
<td>$22.50</td>
</tr>
</tbody>
</table>

### Course Fees

Courses with additional charges are provided in the [Course Schedule](https://courses.rice.edu/admweb/swkscat.main). In some cases, the associated charges may be in lieu of Rice tuition and/or required fees.

### Other Optional Fees

The following charges are separate from the regular fees. Charges due to late registration or course changes made after the deadline are described in the Registration (p. 60) section.

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Fee: Rice Alumni (per course)</td>
<td>$500</td>
</tr>
<tr>
<td>Audit Fee: Visitors (per course)</td>
<td>$1,000</td>
</tr>
<tr>
<td>Application Fee</td>
<td>$85</td>
</tr>
<tr>
<td>JGSB Application Fee–all MBA programs</td>
<td>$200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>JGSB Application Fee–Master of Accounting</td>
<td>$40</td>
</tr>
<tr>
<td>JGSB Application Fee–PhD Programs</td>
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</tr>
<tr>
<td>Diploma Fee: Facsimile (8x10, mini-diploma)</td>
<td>$25</td>
</tr>
<tr>
<td>Diploma Fee: Parchment (17x23, official diploma)</td>
<td>$50</td>
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<tr>
<td>Diploma Mailing Fee: Domestic</td>
<td>$30</td>
</tr>
<tr>
<td>Diploma Mailing Fee: International</td>
<td>$50</td>
</tr>
</tbody>
</table>

### Billing Information

Rice University uses an electronic billing system, commonly referred to as eBILL. Each month, current term enrolled students will receive an email notification from Rice_Cashier@rice.edu, informing them of a newly published statement, along with instructions on how to view the statement within [ESTHER](https://esther.rice.edu).

Term payments are due in full based on the following schedule. Students may enroll in a deferred payment plan where the first installment is due on the following schedule:

- **Summer Quadmester**
  - July 10
- **Fall Semester**
  - September 10
- **Fall Quadmester**
  - October 10
- **Winter Quadmester**
  - January 10
- **Spring Semester**
  - February 10
- **Spring Quadmester**
  - April 10
- **Summer Sessions**
  - June 10

1. The four quadmester academic calendar is presently in use for the MBA@Rice (online MBA) degree program.

### Late Payments

Student accounts not paid in full (or whose payment plan is not current) by the billing due date will be subject to a 1.5% late fee. Late fees are calculated based on the amount past due. Students experiencing...
difficulty with paying their balance should contact the Cashier's Office (https://cashier.rice.edu/) promptly to discuss payment options.

**Delinquent Accounts**

Rice University reserves the right to block or cancel the registration of any student who fails to pay, when due, any indebtedness to the institution.

Academic credits, transcripts, and diplomas will be withheld until all financial obligations are paid in full.

**Tuition Adjustments & Credit Balances**

**Tuition and Fee Reversal for Withdrawals and Drops**

**University Withdrawals**

Students officially withdrawing from all courses or dropping one or more course(s) are eligible for a 100% reversal of tuition and fees through the deadlines listed on the Academic Calendar (https://registrar.rice.edu/calendars/) by semester.

Students officially withdrawing from all courses after the 100% reversal of tuition and fee deadline are eligible for a partial reversal of tuition. Fees are not reversed. Consult the Academic Calendar (https://registrar.rice.edu/calendars/) for specific tuition refund prorations based on the date of withdrawal.

**Dropped Courses**

Students withdrawing from one or more individual course(s) after the 100% tuition reversal period will not be eligible for a refund and will remain liable for payment of full tuition and fee charges though certain exceptions may apply, outlined in the Registration Drop/Add section (p. 60). Non-attendance does not constitute an official course drop or withdrawal. All charges due to Rice University must be paid before refunds or adjustments will be permitted.

In cases of academic or disciplinary suspension, eligibility for tuition refunds and adjustments will depend on the conditions of the suspension and will be entirely at the option of the institution. Should circumstances beyond the reasonable control of Rice University result in curtailing classes, moving classes online, closing residence facilities, or otherwise withdrawing services that are a normal function of the institution, refunds of any nature will be at the discretion of university administration.

**Financial Aid**

In addition to the university’s reversal schedule and in accordance with the Higher Education Amendments of 1992, if a student completely withdraws from the university and has utilized Federal Title IV funds (e.g. Federal Pell Grant, Federal Supplemental Educational Opportunity Grant [SEOG], Academic Competitiveness Grant, National SMART Grant, Federal Perkins Loan, Federal Direct Stafford Student Loan, Federal Direct PLUS, Federal Direct Graduate PLUS) during the semester in which they withdraw, the university will observe the federally mandated process in determining what, if any amount of money must be returned to the federal program(s).

The calculation of the return of funds may result in the student owing a balance to the university and/or the Department of Education.

**Credit Balance Refunds**

Student account credits resulting from excess Federal Financial Aid payments, scholarship payments, and loan payments are automatically refunded by the Cashier’s Office; however, there may be certain circumstances where credits on student accounts occur that may not be automatically refunded. Reversed charges, over payments, tuition waivers, and other varying factors may lead to a credit balance on a student account.

For those credits not automatically refunded, students may request disbursement of the credit balance through email to cashier@rice.edu.

**Credit Balance Refund Delivery**

Refunds are issued daily to students that are enrolled in Electronic Refunds (https://cashier.rice.edu/general-refund-information/). For students not enrolled in Electronic Refunds (https://cashier.rice.edu/general-refund-information/), refund checks are issued weekly and are mailed directly from JP Morgan Chase to the student mailing address on record.

**Student Financial Responsibility Agreement**

Before enrollment for a new semester can occur, students must consent to a Student Financial Responsibility Agreement (https://cashier.rice.edu/student-financial-responsibility-agreement/).

**Rights and Responsibilities**

See also Faculty Grading Guidelines (p. 97).

Graduate students are entitled to at least one formal progress review (p. 97) with written feedback per year.

- Access to Student Records (p. 88)
- Code of Student Conduct (p. 90)
- Dispute Resolution (p. 90)
- Honor System (p. 92)
- Student Responsibility (p. 92)

**Access to Student Records**

Notification of Rights under the Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (“FERPA”) is a federal law that protects the privacy of, and limits access to, student education records. The law affords students the following rights with respect to their education records:

1. the right to inspect and review the student’s education records within 45 days after the date Rice University ("Rice") receives a request for access;
2. the right to seek amendment of the student’s education records that the student believes are inaccurate, misleading, or otherwise in violation of the student’s privacy rights under FERPA;
3. the right to provide written consent to disclosures of personally identifiable information (“PII,” as defined by law) contained in the student’s education records, except to the extent FERPA authorizes disclosure without consent;
4. the right to file a complaint with the U.S. Department of Education concerning alleged failures by Rice to comply with the requirements of FERPA. The name and address of the federal office that administers FERPA is:
Inspect and Review Records
A student should make written request to any offices that maintain student education records, identifying the record(s) the student wishes to inspect. Though not exhaustive, as a guide for students, this is a list of the primary offices that maintain student education records: Office of the Registrar, Office of the Dean of Undergraduates, Office of Graduate and Postdoctoral Studies, Office of Student Judicial Programs, Office of Admission, Office of Financial Aid, Center for Career Development, Office of Student Activities, Office of Academic Advising, Office of International Students and Scholars, Cashier’s Office, and departmental offices. The appropriate Rice official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Rice official to whom the request is submitted, that Rice official will advise the student of the correct official to whom the request should be addressed.

Amendment of Records
Any questions, problems, or written requests for amendment of records should be submitted to the Office of the Registrar. A student requesting to amend a record should clearly identify the part of the record the student wants changed and specify why it should be changed. If Rice decides not to amend the record as requested, Rice will notify the student in writing of the decision and of the student’s right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when the student is notified of the right to a hearing.

Disclosure of Information
As permitted by FERPA, Rice reserves the right to publish or release the following directory information without prior consent:

1. Name; permanent, local, mailing, and campus address; Rice employment (job title[s], teaching appointment[s], employing department[s], and dates of employment) and work location(s); residential college affiliation; telephone and mobile number(s); campus email address(es); and Net ID
2. Date and place of birth
3. Classification, degrees or programs, and majors and minors
4. Participation in officially recognized activities and sports
5. Weight and height of members of athletic teams
6. Dates of attendance, degrees, honors, and awards received
7. The most recent previous educational agency or institution attended by the student
8. Photograph

Students who would like Rice to withhold this directory information may do so by logging in to ESTHER, clicking Personal Information, clicking Release or Withhold Directory Information, and indicating that the information should be withheld. Thereafter, Rice will withhold access to, and release of, the student’s directory information until further written instruction is received from the student. For more information regarding FERPA, please visit the U.S. Department of Education’s website (https://www2.ed.gov/policy/gen/guid/fpco/ferpa/).

FERPA permits the disclosure of PII from students’ education records, without consent of the student, if the disclosure meets certain conditions found in 34 C.F.R. §99.31 of the FERPA regulations. Except for disclosures to school officials, disclosures related to some judicial orders or lawfully issued subpoenas, disclosures of directory information, and disclosures to the student, Section 99.32 of the FERPA regulations requires the institution to record the disclosure. Eligible students have a right to inspect and review the record of disclosures. A postsecondary institution may disclose PII from the education records without obtaining prior written consent of the student –

• To other school officials, whom Rice has determined have legitimate educational interests and require this information in order to perform instructional, supervisory, advisory, administrative, or other duties for Rice. These school officials include faculty, research personnel, staff (including law enforcement unit personnel and health staff), trustees, or students serving on official committees (such as disciplinary or grievance committees) or assisting another school official. School officials have a legitimate educational interest if the officials need to review an educational record in order to fulfill their professional responsibility to Rice. This includes contractors, consultants, auditors, attorneys, collection agents, volunteers, or other parties to whom Rice has outsourced institutional services or functions, provided that the conditions listed in §99.31(a)(1)(i)(B) (1) · (a)(1)(i)(B) (3) are met. (§99.31(a)(1))
• To officials of another school where the student seeks or intends to enroll, or where the student is already enrolled if the disclosure is for purposes related to the student’s enrollment or transfer, subject to the requirements of §99.34. (§99.31(a)(2))
• To authorized representatives of the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or State and local educational authorities, such as a State postsecondary authority that is responsible for supervising the university’s State-supported education programs. Disclosures under this provision may be made, subject to the requirements of §99.35, in connection with an audit or evaluation of Federal- or State-supported education programs, or for the enforcement of, or compliance with, Federal legal requirements that relate to those programs. These entities may make further disclosures of PII to outside entities that are designated by them as their authorized representatives to conduct any audit, evaluation, or enforcement or compliance activity on their behalf. (§§99.31(a)(3) and 99.35)
• In connection with financial aid for which the student has applied or which the student has received, if the information is necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditions of the aid, or enforce the terms and conditions of the aid. (§99.31(a)(4))
• To organizations conducting studies for, or on behalf of, the school, in order to: (a) develop, validate, or administer predictive tests; (b) administer student aid programs; or (c) improve instruction. (§99.31(a)(6))
• To accrediting organizations to carry out their accrediting functions. (§99.31(a)(7))
• To parents of an eligible student if the student is a dependent for IRS tax purposes, though Rice generally limits such information to financial details of the student’s enrollment. (§99.31(a)(8))
• To comply with a judicial order or lawfully issued subpoena. (§99.31(a)(9))
• To appropriate individuals in connection with a health or safety emergency, subject to §99.36. (§99.31(a)(10))
• Information the school has designated as “directory information” above and pursuant to §99.37. (§99.31(a)(11))
• To a victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense, subject to the requirements of §99.39. The disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding. (§99.31(a)(13))
• To the general public, the final results of a disciplinary proceeding, subject to the requirements of §99.39, if the school determines the student is an alleged perpetrator of a crime of violence or non-forcible sex offense and the student has committed a violation of the school’s rules or policies with respect to the allegation made against him or her. (§99.31(a)(14))
• To parents of a student regarding the student’s violation of any Federal, State, or local law, or of any rule or policy of the school, governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21. (§99.31(a)(15))

For further information regarding Rice’s policy on student education records, please contact the Office of the Registrar.

Rice University
Office of the Registrar–MS 57
6100 Main Street
Houston, TX 77005-1892
Email: registrar@rice.edu

Rice University Privacy Notice

Additionally, you may also wish to consult privacy rights and practices discussed at [https://privacy.rice.edu/](https://privacy.rice.edu/) and [https://privacy.rice.edu/GDPR](https://privacy.rice.edu/GDPR/).

Code of Student Conduct

The Office of Student Judicial Programs oversees the judicial system, enforces the Code of Student Conduct (which governs the administration of student order and discipline), and may participate in Title IX investigations. The Code of Student Conduct applies to all students, including: undergraduate, graduate, and those enrolled in professional and Continuing Studies programs, visiting students (including online students), visiting post baccalaureates, second degree students, and auditors. For students who attend class on campus, the Code of Student Conduct applies from the time they arrive on campus for orientation or other activities related to their student status. For online students, the Code of Student Conduct applies from the time they begin engaging with the university as a student, including participating in any activities related to their student status. Organizations also are subject to this Code. All enrolled students also are subject to Rice University policies and rules.

Alleged violations of university policies or rules are handled in accordance with the Code of Student Conduct. Students may appeal decisions as described in the Code of Student Conduct. Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and wellbeing of members of the university community. The Code is not intended to—and does not—confer any contractual rights on any individuals involved. Procedures for students who are entirely online students may differ.

The Code of Student Conduct can be found on the Student Judicial Programs website ([https://sjp.rice.edu/code-of-student-conduct/](https://sjp.rice.edu/code-of-student-conduct/)).

After Rice’s grievance process has been exhausted and documented, students may also pursue an external complaints process (p. 3044).

Dispute Resolution

Petitions and Appeals

Graduate students may petition for exceptions to academic requirements, regulations, and judgments. A course requirement is an example of an academic requirement. Allowed time to degree is an example of an academic regulation. Course grades and dismissals from programs are examples of academic judgments. If a petition is denied, one level of appeal is allowed.

Petitions

Petitions should include the circumstances that may qualify the student for an exception as well any supporting documentation or endorsements. In general, petitions will be handled at the lowest appropriate level.

• A petition regarding requirements, regulations, deadline extensions, or judgments of a graduate program will be handled at that level, that is, by the program. Such petitions need to follow procedures established by these programs.
• A petition regarding University requirements, regulations, deadline extensions, or judgment must be submitted to the Office of Graduate and Postdoctoral Studies; such a petition must be accompanied by a recommendation from the program.
• When the program’s recommendation is negative, or when the petition requests a major exception—for example, an extension of allowed time to degree by more than 1/2 semester—the Office of Graduate and Postdoctoral Studies may also obtain the recommendation of the school overseeing the program (when relevant) and the Graduate Council with regard to such petitions.

Petitions for exceptions to academic requirements, regulations, and judgments should be viewed as unusual, rather than typical. Extensions of various time limits, such as time to candidacy or time to defense, will not be granted routinely. See Candidacy, Oral Examinations and Thesis (p. 72). Students requesting such extensions have to document the unusual circumstances justifying their request, demonstrate their academic progress towards the goal, and provide a concrete plan for meeting the goal within the requested extension.

Petitions regarding academic decisions must be submitted in writing within 15 days from the time that the student knew or should reasonably have known of the decision being petitioned, or within 15 days after an informal effort to resolve the situation has not been successful.

Petitions seeking exceptions to academic requirements or regulations should be submitted in writing at least 30 days before the requirement or regulation takes effect. For example, a petition to extend allowed time to degree should be submitted at least 30 days before the deadline in effect. Late petitions may be dismissed, except for unusual situations when a delay is found justifiable by the unit receiving the petition. Petitions must be acknowledged in writing immediately upon their receipt by the receiving unit. Email communication is considered to be “in writing.”
Appeals

If a petition is denied, a student (or other parties affected by the decision) is allowed only one level of appeal. In general, the appeal process will be resolved at the lowest level possible.

- When the petition is decided at the graduate program or department level, the appeal must be submitted to the Office of Graduate and Postdoctoral Studies.
- When the petition is decided at a school level, the appeal must be handled by the Office of Graduate and Postdoctoral Studies.
- When the petition is decided by the Office of Graduate and Postdoctoral Studies, the appellant may submit an appeal to the Provost.

An appeal must be submitted within 15 days from receipt of the decision that is being appealed. Late appeals will be dismissed, except for unusual situations when a delay is justified. Appeals must be acknowledged in writing immediately upon their receipt by the receiving unit. Email communication is considered to be “in writing.”

Guidelines Regarding Petitions and Appeals

- Grounds for a petition/appeal could be procedural errors by academic or administrative personnel or special circumstances found to be mitigating by the unit receiving the petition/appeal. Disagreement over evaluation of academic quality (i.e. grade dispute) will not be considered as an appropriate basis for petitions/appeals unless the evaluation is found to be patently unreasonable or in conflict with the Faculty Grading Guidelines by the unit receiving the petition/appeal.
- All petitions and appeals should indicate the requirement, regulation, or judgment that is the subject of the petition/appeal, the specific exception requested, and the grounds for the request.
- Additionally, an appeal must indicate why the decision involving the earlier petition was incorrectly decided.

Petitions involving a violation of University policy or improper conduct by University personnel will be handled as grievances (see Grievances below).

Petitions and appeals should be resolved within 30 days of their submission. When such resolution cannot be achieved within 30 days, students will be informed of the delay before the 30 days are over. A resolution of the petition or appeal must be achieved within 60 days. A lack of resolution of a petition within 60 days is an acceptable cause for an appeal.

An academic program directly managing graduate students must establish a standing Petitions, Appeals, and Grievances Committee. A petition concerning a graduate program regulation by a student will be handled by a committee consisting of at least three faculty members. The committee must be independent of the cause for the petition. Members of a student's thesis committee must not participate in the handling of a petition by the student. (The department chair or dean may appoint ad-hoc members to the committee to ensure independence of the committee.) The committee will conduct an investigation of the circumstances and reach a decision regarding the petition. Their written report to the graduate director, and the chair (or dean) will describe the circumstances, the decision, and the rationale for the decision. The graduate director or chair (or dean) will convey the final decision to the student and include the committee report. (Redaction from the report is allowed to protect the privacy of other students.) In case of decisions by the faculty members of a graduate program acting as a committee of the whole, petitions will also be considered by the Petitions, Appeals, and Grievances Committee, which will reconsider the decision in view of the information provided in the petition. This committee may choose to bring the matter back for consideration by the faculty members of the academic program, acting as a committee of the whole. Petitions regarding University requirements, regulations, or judgments submitted to the Office of Graduate and Postdoctoral Studies may be handled by the dean or the dean’s designee.

An appeal handled by the Office of Graduate and Postdoctoral Studies may be referred to a subcommittee of the Graduate Council, composed of three faculty members (representing diverse disciplines within the university) and a graduate student. Such committees must be independent of the cause for the petition. In general, officers or committees handling the appeal should not try to substitute their judgment for that of the unit handling the petition. Rather, their task is to consider whether the petition was handled appropriately, whether all relevant circumstances have been considered, and whether University policy has been appropriately interpreted and applied. Nevertheless, a petition decision may be overturned if the officer or committee handling the appeal finds the petition decision to be patently unreasonable.

All time frames in this procedure refer to Academic Calendar (https://registrar.rice.edu/calendars/) days, and exclude mid-term, inter-term, and summer recesses. This exclusion does not apply to a student who is enrolled during the summer. All petitions and appeals, as well as responses to petitions and appeals, must be in writing. Email communication is considered to be “in writing.” Academic units should archive copies of all email communications pertaining to petitions and appeals.

Grievances

Grievances are different from petitions and appeals. Petitions and appeals involve exceptions to academic requirements, regulations, and judgments. A grievance is a complaint regarding inappropriate conduct by other students, faculty members, or staff. Inappropriate conduct encompasses both inappropriate personal conduct, such as sexual harassment, as well as inappropriate official conduct, such as violation of University policies. Specific policies exist to address grievances based on discrimination or sexual harassment and these policies must be followed in situations involving these issues. Grievances against another student may be raised with the director of student judicial programs and addressed under the Code of Student Conduct. In other cases, a student may present a grievance in writing at the lowest appropriate level, typically the graduate program or school. If a satisfactory resolution is not obtained at that level, the student may appeal the outcome of the grievance by presenting the problem at the next administrative level: the Office of Graduate and Postdoctoral Studies, followed by the provost, or president. Grievances against non-faculty staff members may also be brought to the employee relations director in Rice’s Human Resources office (https://people.rice.edu/).

The procedures for handling grievances are analogous to those for handling petitions and appeals. Students submitting grievances must so indicate in their submissions.

Problem Resolution

It is the responsibility of the graduate program to provide an appropriate educational environment for all graduate students. During the course of graduate studies, problems that do not fall under the category of grievances, described above, may arise in the relationship between a graduate student and the student’s program or advisor. Students should attempt to resolve such problems by informing the appropriate faculty...
members and working together to resolve the problem. When attempts to resolve the problem informally are unsuccessful, the following problem-resolution procedure will be used:

1. The student will submit the problem in writing to the director of graduate studies, who will then attempt to resolve it.
2. If the student remains unsatisfied, the problem will be presented to a committee of the program for resolution. This committee will be a standing committee and not the student’s own thesis committee. Both the student and the program chair will submit a written record of their views to this committee.
3. If the student remains unsatisfied, the problem will be referred to the Office of Graduate and Postdoctoral Studies. A written report of proceedings at stage 2 will be presented to the dean of graduate and postdoctoral studies, along with all other written materials generated during the investigation. The dean may, at personal discretion, handle these in a similar manner by enlisting the assistance of a subcommittee of the Graduate Council, which will submit its report to the chair of the Council and to the dean of graduate and postdoctoral studies. The decision of the dean of graduate and postdoctoral studies is final.

The time frame for handling problem resolution is similar to that for handling petitions, appeals, and grievances. Students may seek guidance on any of these procedures through discussions with the Office of Graduate and Postdoctoral Studies (http://graduate.rice.edu/).

After Rice’s grievance process has been exhausted and documented, students may also pursue an external complaints process (p. 3044).

**Honor System**

Students take all written examinations and complete any specifically designated assignments under the honor system. By committing themselves to the honor system, all students accept responsibility for assuring the integrity of the examinations and assignments conducted under it. The Graduate Honor Council (GHC) is responsible for investigating reported violations and for conducting a hearing when the facts warrant. The Office of Student Judicial Programs works with the relevant offices on campus to implement the penalties of the GHC. Procedures for accusations arising out of summer classes or Rice Online classes may differ.

The Honor Code and other related information and resources are located at the homepage of the Graduate Honor Council: https://gradhonor.rice.edu/.

**Student Responsibility**

The university expects all Rice students to exercise personal responsibility over their actions. Their behavior should reflect a respect for the law and for their contractual obligations, a consideration for the rights of others, and shared standards of considerate and ethical behavior.

Students are responsible for knowing and following all information, policies, and procedures listed in this General Announcements. Questions should be directed to the appropriate office or administrator.

Rice utilizes email as an official form of communication and sends correspondence to a student’s Rice email address. Students should frequently check and maintain their Rice email inbox. Failure to do so does not relieve students of the responsibility to act or respond in a timely manner to official notices sent via email.

Rice encourages self-discipline, recognizing that effective student government, including judicial processes, and the integrity of the honor system depend on the willingness of all students to meet community standards of conduct.

The university, however, reserves the right to insist on the withdrawal of any student whose conduct it judges to be clearly detrimental to the best interests of either the student or the university. The appropriate authorities take such action only after careful consideration.

No individual or group may use the name of the university or one of its colleges without prior approval of the university or the college.

**Teaching Assistant Responsibility**

Individuals appointed as teaching assistants must abide by the policies stated below.

**TA Policy**

Teaching assistants are graduate students who help faculty with the delivery of courses. Services provided by teaching assistants include, but are not limited to, grading, monitoring, leading labs and/or discussion sessions, offering office hour assistance to students, and performing clerical tasks associated with course instruction.

Teaching assistants are supervised by the course instructor of record and are subject to established departmental policy.

Although they are not members of the faculty, teaching assistants are expected to conform to the same standards of conduct in the performance of their academic duties as are members of the faculty and shall respect the rights and opinions of students and uphold the academic standards of the University.

Teaching assistants are subject to the guidelines stated in the Consensual Sexual or Romantic Relationships in the Educational or Workplace Environment Policy (https://policy.rice.edu/829/) as well as the Family Educational Rights and Privacy Act (FERPA) (https://registrar.rice.edu/ferpa/).

When serving in the role of a teaching assistant, graduate students are considered responsible employees under the University Title IX Policy (https://safe.rice.edu/). As a responsible employee of Rice University, once a teaching assistant knows about any incident of sexual assault, harassment, relationship violence, stalking, or another non-consensual interpersonal behavior, Rice Title IX personnel need to know so they can act to support the student and keep our community safe. You can gain access to the Title IX Resource Navigator, Student Wellbeing, and the Rice Counseling Center by calling 713-348-3311. If a student wants to make a report through the university, wants Title IX accommodations without making a report, or isn’t sure what to do, also call 713-348-3311 or extension 3311 on campus.

If the student wants to make a report through the legal system or is considering making a report, or needs immediate assistance, call the Rice University Police Department (RUPD) 713-348-6000 or extension 6000 on campus.
NON-TRADITIONAL STUDENTS

- Auditors (p. 93)
- Online-Distance Education (p. 93)
- Rice Learners (p. 93)
- Second Bachelor's Degree for Rice Alumni (p. 94)
- Visiting Students (non-degree) (p. 94)

Auditors

Any interested person may audit one or more courses at Rice by securing permission of the instructor and by registering as an auditor with the Office of the Registrar. Detailed instructions to apply as an auditor can be found on the Visiting Student Programs website (https://visitingstudents.rice.edu/visiting-auditors/).

Upon completion, the audited course will appear on the student’s transcript with a grade of either “AUD” or “NC” (see Grade Symbols (p. 27)). Instructors report the AUD if the student met the audit requirements of the class, or the NC if they have not. There are no credit hours associated with audited courses, and auditing a course does not affect a student’s GPA.

During the fall and spring semesters, and/or during the summer sessions, an audit fee of $1,065 per course per semester is charged for the privilege of auditing (see Cashier’s website (https://cashier.rice.edu/)). Rice alumni may audit a course at a reduced rate, $530 per course per semester.

A request to audit a class or to change from audit to credit or vice versa must be done by the deadlines as posted in the Academic Calendar (https://registrar.rice.edu/calendars/) for the applicable semester.

Currently enrolled degree-seeking Rice students will find more information regarding auditing in the undergraduate (p. 13) and graduate (p. 53) sections.

Please note that financial assistance is not available for auditing students.

Online-Distance Education

Rice University provides online-distance education courses and programs to extend its academic reach and enhance classroom instruction. Such courses are available for credit to degree-seeking students. These courses provide the same high quality as face-to-face instruction, as governed by the regulations and principles of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Please see University Policy 846, Distance and Online Education (https://policy.rice.edu/846/), for further details.

Rice Online for-credit Courses

Each academic year Rice offers a number of for-credit courses online. These courses use the online method of instruction, indicating that the majority of the class time instruction is occurring when and where students and instructors are not in the same place. These online course offerings can be found in the official Rice Course Schedule (https://courses.rice.edu/admweb/swkscat.main) by querying by method of instruction.

Rice Learners

Non-Credit Educational Opportunities at Rice

Rice University offers a number of opportunities for persons, or learners, to access various educational programs and materials. While not degree-granting, many of these programs or courses lead to certificates, continuing education credits, and other rewarding professional development opportunities.

Continuing Studies (at the Glasscock School of Continuing Studies)

The Glasscock School of Continuing Studies offers hundreds of non-credit course offerings throughout the year in a variety of areas of study. Choose from coursework focusing on non-credit pre-K - 12 education, philanthropy, professional studies, arts and design, humanities and social sciences, science, technology and health, foreign languages and much more. In addition, the Glasscock School offers several for-credit academic programs.

For additional information, please see the Glasscock School’s website: https://glasscock.rice.edu/.

Executive Education (at the Jones Graduate School of Business)

The Jones Graduate School of Business offers open enrollment, customized, and specially non-credit programs to help learners and their organizations to take charge of their personal and professional development. These executive education programs and courses are deliberately designed to maximize learning and transfer of knowledge by incorporating assessments, lecture, case studies, group activity, simulations, and coaching. All are taught by world-class business school faculty who are prolific researchers in their areas of expertise, and have won numerous prestigious teaching awards. Additionally, executive education faculty leverage their consulting experience and the professional experience of classroom participants to co-create a rich learning environment.

For additional information, please see the Jones School’s website: https://business.rice.edu/about-executive-education/.

Rice Online Learning

Rice Online Learning develops innovative non-credit and for-credit courseware to improve educational and professional outcomes for learners of all ages, around the world. Rice Online Learning is dedicated to providing broad access to top quality Rice University education while enhancing the curriculum and student experience on the Rice campus, and is committed to advancing the research frontiers in technology for education. Rice Online Learning’s objectives are organized by around three goals:

1. Improve the quality of education at Rice University
2. Expand Rice University’s reach and reputation
3. Generate resources to support Rice University’s core mission

For additional information, please see Rice Online Learning’s website: https://online.rice.edu/.
Second Bachelor's Degree for Rice Alumni

Rice alumni with a Rice bachelor's degree have the option of earning a second four-year bachelor's degree at Rice in a different discipline. In addition to being in a different discipline, the second degree must also be a different bachelor's degree from the one already earned; for example, the holder of a BA degree may pursue coursework leading to a BS or BMus degree.

Rice alumni with a Rice bachelor's degree desiring to earn a different four-year bachelor's degree must:

- Be accepted for the major by the major department
- Fulfill all requirements for the second degree
- Complete at least 30 additional semester hours at Rice (must include two full-time fall and/or spring semesters) upon their return to Rice and beyond their first bachelor’s degree (these hours are applied to the second bachelor's degree)

The entire undergraduate record for these students continues cumulatively. Those seeking admission to this program should complete the Second Four-Year Bachelor’s Degree Application available on the Office of the Registrar (https://registrar.rice.edu/online_forms/) website. This application should include a written statement specifying the proposed major and course program for the second degree, a supporting letter from the chair of the major department, and an explanation of the student’s reasons for returning to Rice for a second degree. This letter of application and paperwork should be submitted to the Office of the Registrar no later than August 1 for the fall semester and November 1 for the spring semester.

Eligible alumni students considering this option should note that coursework completed at Rice as visiting students can only be applied to the second degree with the approval of the major department for that degree. Additionally, coursework completed at Rice as Visiting Post Baccalaureates can only be applied to the second degree with the approval of the major department for that degree and the dean of graduate and postdoctoral studies.

Financial Aid

Students seeking information about financial aid available to participants in the second four-year bachelor's degree program should contact the Office of Financial Aid (https://financialaid.rice.edu/).

Second Four-Year Bachelor's Degree for Current Rice Undergraduates

Currently enrolled undergraduates who have not yet completed their first bachelor's degree and desire to concurrently earn a second four-year bachelor's degree, also known as a dual degree, should reference the Dual-Degree Requirements on the undergraduate Graduation Requirements (p. 29) page.

Visiting Students (non-degree)

Inter-Institutional Graduate Students

A number of inter-institutional graduate student enrollment agreements have been established enabling graduate students from one institution to take graduate-level courses at other participating institutions. The institutions currently participating in inter-institutional agreements include Rice University, Baylor College of Medicine, Texas A&M Health Science Center, University of Houston, University of Texas Health Science Center at Houston, and the University of Texas Medical Branch at Galveston. The number of credits allowed per term/semester and the course offerings may vary depending on the policy of the host school.

Registration Rules and Guidelines

The following registration rules and guidelines apply to graduate students (at participating inter-institutional institutions) seeking to be Rice University visiting students under an inter-institutional agreement:

- The student must be registered full-time (9 credit hours) between the student's home institution and the host institution during the semester they register for courses.
- Requested class must not be offered by the home institution during the requested term/semester.
- Requested class must be necessary for completion of graduate degree at the home institution.
- Over the course of their degree, the student may take up to a total of 12 credit hours at Rice University through the inter-institutional agreement.
- Tuition and fees are paid to the home institution.
- All paperwork with the appropriate approval signatures must be completed before the registration deadlines.
- Foreign students taking inter-institutional courses must submit additional paperwork (e.g., passport, I-94 arrival/departure card, and Check-In Sheet (https://rice.app.box.com/s/kizq3ht9i3fx80w8b133h2q28q2lbu/)).
- For a comprehensive list of Registration Deadlines (including Add, Drop, Variable Credit deadlines etc.), please consult the semester-specific Rice University Academic Calendar (https://registrar.rice.edu/calendars/).

Please Note:

- Inter-institutional graduate students may not take a course Pass/Fail.
- Due to the structure of the summer sessions at Rice University, this inter-institutional registration arrangement is not available to non-Rice students during the summer sessions.

For more information, including the enrollment process under an inter-institutional agreement, please see the Office of the Registrar’s website: https://registrar.rice.edu/students/inter_institutional (https://registrar.rice.edu/students/inter_institutional).

Online-Distance Education for Visiting Students

Rice University provides online-distance education courses and programs to extend its academic reach and enhance classroom instruction. Such courses are available for credit to degree-seeking students. These courses provide the same high quality as face-to-face instruction, as governed by the regulations and principles of the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Please see University Policy 846, Distance and Online Education (https://policy.rice.edu/846/), for further details.

Rice Online for-credit Courses

Each academic year Rice offers a number of for-credit courses online. These courses use the online method of instruction, indicating that
the majority of the class time instruction is occurring when and where students and instructors are not in the same place. These online course offerings can be found in the official Rice Course Schedule (https://courses.rice.edu/admweb/swkscat.main) by querying by method of instruction.

Online-Distance Education for Visiting Students (non-degree)
Rice offers for-credit online-distance education opportunities to visiting students (non-degree) or as non-credit course offerings. A complete list of all of Rice University’s online course offerings, both for-credit and non-credit offerings, can be found at Rice Online (http://online.rice.edu/).

Visiting students seeking to register for a Rice Online for-credit course should follow the application procedures documented on the Visiting Student Programs (https://visitingstudents.rice.edu/) website. Upon admission and registration of a Rice Online for-credit course, all students, including non-degree seeking visiting students, must abide by and support the Honor System at Rice University. Prior to the first day of classes, affirmation and acknowledgement of the Honor Code (https://honor.rice.edu/) will be required of all visiting students enrolled (for credit or for audit) in any for-credit Rice course.

State Authorization and Professional Licensure Requirements
Information about State Authorization and Professional Licensure may be found here (p. 3048).

Rice Faculty and Staff Members
Fall and Spring Semesters
With the appropriate authorizations, benefits-eligible employees of Rice may take one course per semester, either for-credit or audit. (See important note below regarding eligible courses.) Please see University Policy #409 (https://policy.rice.edu/409/) and/or #432 (https://policy.rice.edu/432/) for complete details about benefits eligibility. Employees must meet a six-month probationary period before using this benefit.

The registration period is the first two weeks of the semester. The following registration rules and guidelines apply to Rice benefits-eligible employees during the fall and spring semesters:

- Complete a Tuition Waiver Application Form (https://peopleblogs.rice.edu/hr-forms/tuition-waiver/)
- Get an authorizing signature of the employee's supervisor, the course instructor, and Human Resources.
- Course registration is limited by availability, and priority is given to enrolled, degree-seeking students.

Retirees, spouses and domestic partners of benefits-eligible employees are also able to audit one course per semester. Spouses and domestic partners should follow the same registration procedures as benefits-eligible employees.

Please Note: All graduate courses in the Jones Graduate School of Business, all courses offering individual instruction in the School of Architecture, all undergraduate and graduate courses offering individual instruction including musical performance or composition in the Shepherd School of Music, and Glasscock School of Continuing Studies classes are excluded from this program.

Summer Sessions
The tuition waiver or audit benefit is not available to Rice benefits-eligible employees during the Summer Sessions; however, with the appropriate authorizations, benefits-eligible employees of Rice may take courses offered during Rice's Summer Sessions (https://registrar.rice.edu/students/summersessions/) and apply for tuition reimbursement. Please see University Policy #432 (https://policy.rice.edu/432/).

The following registration rules and guidelines apply to Rice benefits-eligible employees during the Summer Sessions:

- Adhere to the deadlines to apply as a visiting student (https://registrar.rice.edu/students/summersessions/#enroll_nonrice), depending on the session in which enrollment is requested.
- Application for tuition reimbursement (https://peopleblogs.rice.edu/hr-forms/tuition-reimbursement-form/) This needs to be signed by the employee's supervisor and turned into Human Resources before the start date of the course.
- Visiting Student Application (https://visitingstudents.rice.edu/facultystaff-seeking-take-courses/).

Course registration is limited by availability, and priority is given to degree-seeking students.

Summer Sessions for Visiting Students
Rice’s Summer Sessions offer for-credit courses to Rice students, visiting undergraduates, visiting auditors, and visiting post baccalaureates. Students can choose to take courses in combined summer sessions. Current Rice students follow the same registration policies and procedures that are in place for the fall and spring semesters.

Resources
- For a schedule of summer sessions, please refer to the Academic Calendar (https://registrar.rice.edu/calendars/).
- For course offerings, please refer to https://courses.rice.edu.
- For information related to the Summer Sessions, please see https://registrar.rice.edu/students/summersessions/.

Application Process for Visiting Students
To apply, students will need to submit the following materials to the Rice University Office of the Registrar. Applicants will be notified as soon as possible of acceptance or non-acceptance:

- Visiting Student Application and Application Fee
- Official college transcript from all colleges or universities attended
- Official final high school transcript (waived if attended a college/university in the previous Spring semester) All transcripts must be mailed in and will not be accepted by fax or email.
- Official ACT/SAT scores (visiting high school students only)
- Dean of Students Recommendation Form (https://rice.app.box.com/s/lpwympahtvzguapi50w70ipakflv7in2/) (visiting high school and visiting undergraduates from other institutions)
- Official ACT/SAT scores (visiting high school students only)
- Dean of Students Recommendation Form (https://rice.app.box.com/s/lpwympahtvzguapi50w70ipakflv7in2/) (visiting high school and visiting undergraduates from other institutions)
- Release and Hold Harmless Agreement (required if under the age of 18)
- Proof of Meningococcal Vaccination Record or Waiver (required if under the age of 22)
- Visiting Student Financial Responsibility and Parental Consent Form (https://rice.app.box.com/s/bcsqvdzp0tgpm27cnu5rc5ltb16pndwr/)
Guidelines

- Tuition is due in full at registration before the beginning of classes.
- Enrollment in courses during the summer sessions carries no implications for regular admission to Rice.
- Visiting students may not take courses on a pass/fail basis.

It is essential that students follow the deadlines listed on the summer website at [https://registrar.rice.edu/students/summersessions/](https://registrar.rice.edu/students/summersessions/) and the Academic Calendar ([https://registrar.rice.edu/calendars/](https://registrar.rice.edu/calendars/)). Students may apply after the deadline (but before the start of classes) by paying a late fee. Course offerings are at the discretion of Rice and may be canceled at any time for any reason.

Visiting Post Baccalaureates

The visiting post baccalaureate (VPB) program at Rice allows a visiting student who has an undergraduate or graduate degree from an accredited college or university to take courses at Rice for credit but not in a specific degree program. Students interested in taking courses, but not for credit, should audit the courses. (See Auditors (p. 93).)

VPB Applicants must have a 3.00 (B) or better grade average in the previous undergraduate or graduate program or be granted the explicit approval to be a VPB by the dean of graduate and postdoctoral studies as part of the application process. Registration requires the permission of the course instructor or department chair. Visiting Post Baccalaureates cannot take courses on a pass/fail basis. Visiting Post Baccalaureates must receive at least a B for every class taken or they will not be allowed to remain in the program.

A student may not use courses taken under this arrangement to fulfill the requirements for a Rice degree unless and until the student has been accepted into a degree program by an academic department. A former Visiting Post Baccalaureate student may request that their graduate program allow up to three courses taken as Visiting Post Baccalaureates to count toward the graduate degree. Once approved by the graduate program, the student must also obtain the approval of the dean of graduate and postdoctoral studies.

Applications for Visiting Post Baccalaureate Program

Applications are available on the Visiting Student page ([https://visitingstudents.rice.edu/visiting-post-baccalaureates/](https://visitingstudents.rice.edu/visiting-post-baccalaureates/)) of the Office of the Registrar website. Official transcripts from all colleges and universities the student has attended should be mailed or securely emailed directly by the institutions to the Office of the Registrar. A student who was previously a Visiting Post Baccalaureate must complete a new application (without transcripts) for each semester. All application materials are due by the workday nearest to August 1 for fall semester courses and January 1 for spring semester courses.

Individuals applying as Visiting Post Baccalaureates for the summer term should apply to enroll in Rice’s Summer Sessions ([https://registrar.rice.edu/students/summersessions/](https://registrar.rice.edu/students/summersessions/)).

Tuition and Fees for Visiting Post Baccalaureate Program

Tuition and fee information can be found on the Cashier’s Website ([https://cashier.rice.edu/](https://cashier.rice.edu/)). If a class fills with Rice degree-seeking students, instructors may drop Visiting Post Baccalaureates up to the end of the second week of class. In that case, the tuition (less the nonrefundable application fee) will be refunded. If a Visiting Post Baccalaureate withdraws, drops, or adds classes, the same rules regarding grades, refunds, and applicable fees apply as for degree-seeking graduate students. There is no refund for dropping a class after the second week as long as the student stays enrolled in at least one other class. Pro-rated refunds for complete withdrawals are according to the deadlines listed on the Academic Calendar ([https://registrar.rice.edu/calendars/](https://registrar.rice.edu/calendars/)). Please visit the Summer Sessions for Visiting Students ([https://registrar.rice.edu/students/summersessions/](https://registrar.rice.edu/students/summersessions/)) page for information pertaining to summer sessions.

Please Note: Rice does not offer financial assistance to Visiting Post Baccalaureate students.

Visiting Researchers

Visiting researchers are undergraduate students who are enrolled in a degree-seeking program at another institution and, at the invitation by a Rice faculty member or department, engage in experiential research-specific learning. Such research is meant to assist the faculty with research efforts or to gain research experience which the student might apply toward degree requirements at the student’s home institution.

Visiting researchers should first work with the academic department to apply for the specific research program. International visiting researchers and departments must also work with the Office of International Students and Scholars ([https://oiss.rice.edu/vsugresearch/](https://oiss.rice.edu/vsugresearch/)) to obtain the necessary pre-certifications, if applicable.

For more information, see the Office of the Registrar’s website: [https://visitingstudents.rice.edu/visiting-student-researchers](https://visitingstudents.rice.edu/visiting-student-researchers/).

Visiting Undergraduate Students

A student who wishes to spend a semester or a year at Rice taking courses for credit to be applied toward the student’s undergraduate degree at another school may do so as a Visiting Student. Students must contact the Office of Admission ([https://admission.rice.edu/](https://admission.rice.edu/)) for the visiting student application. The application should be accompanied by the $75 application fee, an official high school transcript, an official transcript of college work to date, an SAT or ACT score, and recommendations from the dean of students and a faculty member who has taught the student for a full course. Applications should be submitted by March 15 for the fall semester.

Visiting students are assigned membership to one of the residential colleges during their stay and are charged the same fees as other undergraduates. In classes where enrollment is limited because of space or other considerations, candidates for Rice degrees have priority over visiting students for registration.

Visiting students may apply to transfer to Rice only after having left Rice for at least one semester.

Please Note: Rice does not offer financial assistance to Visiting Students.
FACULTY

- Faculty Grading Guidelines (p. 97)
- Non-Traditional Coursework (p. 97)
- Syllabus Standards (p. 98)

Faculty Grading Guidelines

The Committee on Examinations and Standing has drawn up the following guidelines on grading. Additional information is available in both the undergraduate (p. 13) and graduate (p. 53) student sections under the heading of "Grades."

- The evaluation of the student’s performance in a course and a decision on the appropriate grade is the responsibility of the designated instructor or instructors in the course.
- No student should be given an extension of time or opportunities to improve a grade that are not available to all members of the class, except for verified illness or justified absence from campus. No course assignments may be due between the last day of classes and the first day of the final examination period.
- Students in independent study courses are not to be allowed an extension beyond the time when grades are due. Faculty are to submit grades at the end of the semester for such students based on work completed during the semester. The instructor directing the independent study assumes responsibility with the student for ensuring that the work undertaken is appropriate to the span of a semester and for determining the degree credit to be received.
- The basis for grading and the expectations on all written assignments or tests should be clearly explained to the class in advance, preferably in writing at the beginning of the semester. The instructor should explain clearly which assignments or homework are covered by the honor system and which are not. To prevent allegations of plagiarism on written assignments, students should be warned that all direct and indirect quotations from other sources should be properly acknowledged. The instructor should explain the extent to which the student’s paper is expected to be independent of the references and clearly distinguishable from them.
- Instructors should be willing to give any student an explanation of the student’s grade as consistent with the grading for the rest of the class. For this reason, the committee urges the faculty to preserve all examinations and written material not returned to students, as well as grade records, for at least the following semester so that students may, if they wish, review with their instructor the basis for the grade received.
- Instructors may not change a semester grade after the grade has been submitted to the Office of the Registrar, except when there is a clerical error in calculating the grade. This is a long-standing university rule of which the faculty are reminded by the Office of the Registrar at the end of each semester. It is designed, in part, to protect the faculty from student pressure for grade changes. All other grade changes, including retroactive change to withdrawal, incomplete, or other, must be approved by the Committee on Examinations and Standing on the basis of a written petition from the student and on information from the instructor.
- There is no university requirement that a final examination be given in a course. It is university policy that final examinations that cover more than the material since the last examination, that are the only exam in the course, or that are comprehensive of the entire course may be given only during the final examination period.

Such examinations may not, for example, be labeled “tests” and administered during the last week of classes. Final examinations normally are of three-hour duration. Faculty who, under exceptional circumstances, wish to give longer examinations may do so only if the exam is scheduled as take-home. Under no circumstances may final exams exceed five hours.
- First-year undergraduate students receive mid-semester grades around the eighth week of the fall and spring semesters so that they can, if advisable, seek academic assistance or drop a class for which they may not be prepared. Faculty who teach first-year students in any of their classes will be asked to submit grades of standing for these students during the seventh week of the semester and should schedule the grading of tests, quizzes, or homework assignments accordingly. These grades are not recorded on the student’s transcript nor calculated in the grade point average, but they are important indicators for students and their faculty advisors.
- Departments using teaching associates, adjunct professors, or visiting faculty of any kind should make sure these teachers are familiar with Rice grading procedures. A regular faculty member who is well-versed in the grading guidelines should be assigned to assist such instructors.

The chair of the Committee on Examinations and Standing, the Office of the Dean of Undergraduates, or the dean of graduate and postdoctoral studies will be glad to advise any faculty member faced with exceptional circumstances that may justify special consideration. Students may petition the committee or, for graduate students, their department chair concerning the application of these guidelines. Suspected or possible violations of the honor system should be submitted to the Honor Council.

Academic Progress Reviews for Graduate Students

Graduate programs must establish mechanisms for tracking, reviewing, and documenting academic progress of graduate students on an ongoing basis and must provide graduate students a written assessment of their academic progress at least annually. In some graduate programs this ongoing progress review is carried out by a student’s thesis committee, while in others it is carried out by a standing faculty committee. Although a student’s supervisor plays an important role in reviewing the student’s academic progress, the responsibility for conducting the review process lies with the program and requires the involvement of additional faculty members in the program. For graduate students who are primarily engaged in coursework, for example, professional master’s students, the transcript is an adequate form of written assessment.

Non-Traditional Coursework

Courses tailored for individual students provide a valuable opportunity for them to pursue an academic or professional interest under the supervision of a Rice faculty member. Such courses are typically titled as independent study or research, directed reading, internships, or are described as a teaching experience. Although the organization of these courses is quite variable, they are subject to the same basic requirements as other course offerings. In particular:

- The subject matter and intellectual level of the course must be appropriate for Rice.
- The instructor of record must hold a regular faculty appointment at Rice. This instructor is responsible for submitting the final grade, in consultation with the student’s immediate supervisor, if appropriate.
• The course must have a written syllabus that meets published Rice Syllabus Standards (p. 98). In addition, the syllabus must include a description of anticipated activities and topical content.

• Credit hours assigned are subject to the same amount-of-work considerations as other courses. Credit hours will be awarded in accordance with the Rice credit hour guidelines (https://registrar.rice.edu/facstaff/contact_hours/) and fixed at the time of registration.

• All Academic Calendar (https://registrar.rice.edu/calendars/) (or Registrar) deadlines for registration, add/drop, completion of coursework, and grade submission must be met.

Syllabus Standards

Faculty members and course instructors are required to provide a course syllabus to students on or before the first day of class. The syllabus should be uploaded into ESTHER (https://esther.rice.edu), and may additionally be distributed in hard copy and/or on Canvas (https://www.rice.edu/canvas/). For archiving purposes, updated versions of the course syllabus can be uploaded into ESTHER through the end of the semester. Each syllabus must include the following instructions:

1. Instructor’s name, office number, and email address.
2. Office hours or a statement of either an “open-door” policy or hours by appointment.
3. Overall course objectives and expected learning outcomes.
4. Grade policies.
5. Absence policies.
7. Special materials required for the class, if any.
8. Number of required examinations and papers.
10. A statement encouraging any student with a disability that requires accommodation to contact both the course instructor and Disability Resource Center (https://drc.rice.edu/).
11. It is permissible to include a statement indicating that the information contained in the course syllabus, other than the absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.

The Center for Teaching Excellence (https://cte.rice.edu/) provides a syllabus outline (https://cte.rice.edu/syllabus/) that aids in meeting the above requirements.
PROGRAMS OF STUDY

The contents of Rice’s curricular programs are the collective responsibility of the faculty acting through their representatives in the Faculty Senate (https://senate.rice.edu/). There are specific guidelines (https://senate.rice.edu/procedures-guidelines-rules/) for the creation, elimination, and modification of undergraduate and graduate (https://senate.rice.edu/creating-and-changing-undergraduate-programs/) programs, including undergraduate major concentrations (https://senate.rice.edu/creating-undergraduate-concentrations/) and graduate major concentrations (https://rice.app.box.com/s/si3iW354ymteif6vbrbcd6ksuhf1tgw/), undergraduate minors (https://rice.app.box.com/s/wiwhbo8gh2847gtcx0vnyi41bqmmz0y/), as well as undergraduate certificates (https://rice.app.box.com/s/rht5o1rtr98swzw1qjbu2sbq7ff30vq/) and graduate certificates (https://rice.app.box.com/s/kmrmlqzprvyjy5mmndsnigw4zq756ffm/).

The General Announcements (GA) is the official Rice curriculum. In the event that there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

- Accounting (p. 108)
- African and African American Studies (p. 116)
- Air Force Science (p. 122)
- Ancient Mediterranean Civilizations (p. 124)
- Anthropology (p. 129)
- Applied Chemical Sciences (p. 169)
- Applied Physics (p. 173)
- Architecture (p. 177)
- Art History (p. 206)
- Asian Studies (p. 266)
- Bioengineering (p. 283)
- BioSciences (p. 321)
- Bioscience and Health Policy (p. 380)
- Business (p. 384)
- Chemical and Biomolecular Engineering (p. 554)
- Chemical Physics (p. 580)
- Chemistry (p. 582)
- Cinema and Media Studies (p. 604)
- Civic Leadership (p. 608)
- Civil and Environmental Engineering (p. 613)
- Classical Civilizations (p. 654)
- Classical Studies (p. 666)
- Cognitive Sciences (p. 678)
- College Courses (p. 684)
- Computational and Applied Mathematics (p. 697)
- Computational Science and Engineering (p. 717)
- Computer Science (p. 720)
- Critical and Cultural Theory (p. 763)
- Data Science (p. 766)
- Dual Credit Teacher Credentialing (p. 774)
- Earth, Environmental, and Planetary Sciences (p. 792)
- Economics (p. 831)
- Education (p. 856)
- Electrical and Computer Engineering (p. 876)
- Energy and Water Sustainability (p. 921)
- Energy Economics (p. 923)
- Engineering Design (p. 942)
- Engineering Management and Leadership (p. 945)
- English (p. 958)
- Entrepreneurship (p. 993)
- Environmental Analysis (p. 995)
- Environmental Science (p. 1000)
- Environmental Studies (p. 1015)
- European Studies (p. 1024)
- Financial Computation and Modeling (p. 1030)
- French Studies (p. 1032)
- German Studies (p. 1044)
- Global Affairs (p. 1057)
- Global Health Technologies (p. 1065)
- Gnosticism, Esotericism and Mysticism (p. 1072)
- Greek Language and Literature (p. 1104)
- Health Sciences (p. 1108)
- History (p. 1119)
- Human-Computer Interaction and Human Factors (p. 1169)
- Industrial Engineering (p. 1192)
- Industrial-Organizational Psychology (p. 1198)
- Jewish Studies (p. 1221)
- Kinesiology (p. 1226)
- Languages and Intercultural Communication (p. 1235)
- Latin American Studies (p. 1292)
- Latin Language and Literature (p. 1297)
- Liberal Studies (p. 1303)
- Lifetime Language and Literature Program (p. 1324)
- Linguistics (p. 1334)
- Managerial Economics and Organizational Sciences (p. 1341)
- Materials Science and NanoEngineering (p. 1344)
- Mathematical Economic Analysis (p. 1367)
- Mathematics (p. 1387)
- Mechanical Engineering (p. 1408)
- Medical Humanities (p. 1438)
- Medieval and Early Modern Studies (p. 1443)
- Military Science (p. 1461)
- Modern and Classical Literatures and Cultures (p. 1465)
- Museums and Cultural Heritage (p. 1508)
- Music (p. 1511)
- Naval Science (p. 1724)
- Neuroscience (p. 1727)
- Operations Research (p. 1743)
- Philosophy (p. 1757)
- Physics and Astronomy (p. 1772)
- Political Science (p. 1802)
- Politics, Law and Social Thought (p. 1826)
- Poverty, Justice and Human Capabilities (p. 1831)
- Program in Writing and Communication (p. 1838)
- Psychological Sciences (p. 1854)
Departments and Programs

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<table>
<thead>
<tr>
<th>Academic Program</th>
<th>Department</th>
<th>School</th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Management</td>
<td>JS (<a href="https://ga.rice.edu/programs-study/departments-programs/business/">https://ga.rice.edu/programs-study/departments-programs/business/</a>)</td>
<td>MAcc (p. 113)</td>
<td></td>
</tr>
<tr>
<td>Ancient Mediterranean Civilizations</td>
<td>Ancient Mediterranean Civilizations</td>
<td>HU (<a href="https://ga.rice.edu/programs-study/departments-programs/humanities/">https://ga.rice.edu/programs-study/departments-programs/humanities/</a>)</td>
<td>BA (p. 126)</td>
<td></td>
</tr>
<tr>
<td>Anthropology</td>
<td>Anthropology</td>
<td>SS (<a href="https://ga.rice.edu/programs-study/departments-programs/social-sciences/">https://ga.rice.edu/programs-study/departments-programs/social-sciences/</a>)</td>
<td>BA (p. 164), MA, PhD (p. 166)</td>
<td></td>
</tr>
<tr>
<td>Applied Chemical Sciences</td>
<td>Chemistry</td>
<td>NS (<a href="https://ga.rice.edu/programs-study/departments-programs/natural-sciences/">https://ga.rice.edu/programs-study/departments-programs/natural-sciences/</a>)</td>
<td></td>
<td>MSACS (p. 170)</td>
</tr>
<tr>
<td>Applied Physics</td>
<td>Applied Physics</td>
<td>EN (<a href="https://ga.rice.edu/programs-study/departments-programs/engineering/">https://ga.rice.edu/programs-study/departments-programs/engineering/</a>)</td>
<td></td>
<td>MS, PhD (p. 174)</td>
</tr>
<tr>
<td>Architecture Studies</td>
<td>Architecture</td>
<td>AR (<a href="https://ga.rice.edu/programs-study/departments-programs/architecture/">https://ga.rice.edu/programs-study/departments-programs/architecture/</a>)</td>
<td>BA (p. 198)</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>Architecture</td>
<td>AR (<a href="https://ga.rice.edu/programs-study/departments-programs/architecture/">https://ga.rice.edu/programs-study/departments-programs/architecture/</a>)</td>
<td>BA (p. 199), BArch (p. 196), MArch (p. 201), MS (p. 205)</td>
<td></td>
</tr>
<tr>
<td>Art History</td>
<td>Art History</td>
<td>HU (<a href="https://ga.rice.edu/programs-study/departments-programs/humanities/">https://ga.rice.edu/programs-study/departments-programs/humanities/</a>)</td>
<td>BA (p. 251), Minor (p. 261), MA, PhD (p. 258)</td>
<td></td>
</tr>
<tr>
<td>Asian Studies</td>
<td>Asian Studies</td>
<td>HU (<a href="https://ga.rice.edu/programs-study/departments-programs/humanities/">https://ga.rice.edu/programs-study/departments-programs/humanities/</a>)</td>
<td>BA (p. 277), Minor (p. 280)</td>
<td></td>
</tr>
<tr>
<td>Astronomy</td>
<td>Physics and Astronomy</td>
<td>NS (<a href="https://ga.rice.edu/programs-study/departments-programs/natural-sciences/">https://ga.rice.edu/programs-study/departments-programs/natural-sciences/</a>)</td>
<td>BA (p. 1788)</td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Department</td>
<td>Degree Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Astrophysics</td>
<td>Physics and Astronomy</td>
<td>BS (p. 1791)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bassoon Performance</td>
<td>Music</td>
<td>BS (p. 1580), AD (p. 1545), MMus (p. 1655)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemistry and Cell Biology</td>
<td>Biosciences</td>
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<td>Cello Performance</td>
<td>Music</td>
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<td>Civil Engineering</td>
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<td>Clarinet Performance</td>
<td>Music</td>
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<td>BA (p. 751), BSCS (p. 753), MCS, MS, PhD (p. 755)</td>
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<td>Computer Science <a href="https://ga.rice.edu/programs-study/departments-programs/engineering/">https://ga.rice.edu/programs-study/departments-programs/engineering/</a></td>
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Rice University
<table>
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<tr>
<th>Departments and Programs</th>
<th>Programs</th>
<th>Degrees</th>
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<th>Schools</th>
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<tbody>
<tr>
<td><strong>French Studies</strong></td>
<td>HU (<a href="https://ga.rice.edu/programs-study/departments-programs/humanities/">https://ga.rice.edu/programs-study/departments-programs/humanities/</a>)</td>
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<td><strong>Global Affairs</strong></td>
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<td>BA Minor (p. 1069)</td>
<td>-</td>
<td>MGA (p. 1063)</td>
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<td><strong>Global Health Technologies</strong></td>
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<td><strong>Greek Language and Literature</strong></td>
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<td>-</td>
<td>AD (p. 1554), MMus (p. 1674)</td>
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<td><strong>Health Sciences</strong></td>
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Rice University
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<th>Mechanical Engineering</th>
<th>Mechanical Engineering (p. 1408)</th>
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<td>(p. 1560), (p. 1562)</td>
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<td>(p. 1562), (p. 1563)</td>
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<td>(p. 1607), (p. 1603)</td>
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<td>(p. 1607), (p. 1603)</td>
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<td>(p. 1609), (p. 1603)</td>
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<td>(p. 1769)</td>
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<td>Physics</td>
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<td>(p. 1772)</td>
<td>(p. 1789), (p. 1769)</td>
<td>(p. 1800)</td>
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<td>BMus</td>
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<td>(p. 1567), (p. 1611)</td>
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<td>(p. 1511)</td>
<td>(p. 1567), (p. 1611)</td>
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<td>(p. 1823)</td>
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<td>(p. 1802)</td>
<td>(p. 1823)</td>
<td>(p. 1824)</td>
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<td>Politics, Law and Social Thought</td>
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<td>Poverty, Justice, and Human Capabilities</td>
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<td>(p. 1833)</td>
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<td>(p. 1876)</td>
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<td>MMus (p. 1702)</td>
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<td>Teaching and Learning</td>
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<td>Certificate (p. 2068)</td>
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### Accounting

#### Contact Information

**Accounting**  
https://business.rice.edu/  
319 McNair Hall

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The Master of Accounting degree, offered by the Jones Graduate School of Business, is designed to enable students with a top-tier undergraduate education, regardless of their major, to complete the educational requirements for becoming a certified public accountant. Certified public accountants conduct independent audits and provide accounting, tax, and consulting services. The program prepares students to enter careers in public accounting, corporate accounting, management accounting, governmental accounting, financial analysis, and law enforcement.

Graduates of the program will excel in analytics, critical thinking, ethics, judgment, and communications, built on outstanding technical accounting skills. An understanding of global capital markets and macroeconomic forces will complement graduates' accounting expertise, along with proficiency in corporate finance, risk and valuation.

Accounting does not currently offer an academic program at the undergraduate level.

**Master's Program**

- **Master of Accounting (MAcc) Degree** (p. 113)

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Peter Rodriguez

**Deputy Dean**  
Jeff Fleming

**Sr. Associate Dean of Degree Programs**  
Barbara Bennett Ostdiek

**Sr. Associate Dean of Diversity, Equity, and Inclusion**  
Constance Elise Porter

**Sr. Associate Dean of Executive Education**  
D. Brent Smith

**Associate Dean of Degree Programs**  
George Andrews

**Associate Dean for Innovation Initiatives**  
Michael Koenig

**Assistant Dean, External Relations**  
Katherine Schieffelin

* Although students are not normally admitted to this degree program, graduate students may earn this degree as they work towards the PhD.
Rice University

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Alexander W. Butler
Utpal Dholakia
Jeff Fleming
William H. Glick
Gustavo Grullon
Thomas Hemmer
Yael Hochberg
Ajay Kalra
Haiyang Li
Vikas Mittal
Amit Pazgal
Kris Ramesh
Shiva Sivaramakrishnan
Scott Sonenshein
Robert A. Westbrook
James P. Weston
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Vincent Kaminski
Benjamin Lansford

Associate Professor in the Practice
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Senior Lecturers
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Elizabeth O’Sullivan
Rick Schell

Lecturers
Abby Larson
Janet Moore
Lydia Mushar
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David Tobin
Dick Viebig

Joint Appointments
Linda P. Driskill
Michelle "Mikki" R. Hebl
David M. Lane
Frederick L. Oswald

Visiting Assistant Professor
Constance Elise Porter

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Accounting (MACC)
MACC 500 - INTERNSHIP IN ACCOUNTING
Short Title: INTERNSHIP IN ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised off-campus, non-group instruction, including field experiences, practica, or internships in applied accounting. Written and oral critique of activity required. Internship plan must be approved in advance by the MAcc Program Director. Instructor Permission Required.
MACC 501 - ACCOUNTING ETHICS AND PROFESSIONALISM  
Short Title: ETHICS IN ACCOUNTING  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The purpose of the course is to prepare the future CPA for ethical judgement. Course materials emphasize ethical reasoning and giving voice to values; principles of integrity, objectivity, independence (in fact and appearance) and avoidance of intentional misrepresentation of facts; the role of core values in a dynamically changing global economy; and professional and ethical issues in accounting practice.

MACC 502 - BUSINESS LAW FOR ACCOUNTANTS  
Short Title: BUSINESS LAW FOR ACCOUNTANTS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course examines the broad subject of law as it relates to business and is designed to help the accounting student develop "legal astuteness." The course provides an initial exposure to contracts and crucial concepts of tort, crime, agency, and business organization, as well as federal legal and regulatory schemes.

MACC 503 - ACCOUNTING AND CORPORATE GOVERNANCE  
Short Title: ACCOUNTING & CORP GOVERNANCE  
Department: Management  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Students will engage in an intensive 5-day learning program held partially or fully off-campus. An accounting faculty member will oversee the course, and various officials involved in public policy will lead many presentations and discussions. The grade for this course will be 100% based on accounting and business writing.

MACC 504 - FINANCE FOR ACCOUNTANTS  
Short Title: FINANCE FOR ACCOUNTANTS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Coverage of core concepts in the areas of 1) corporate finance, 2) financial portfolio management, and 3) financial futures and options.

MACC 505 - ECONOMIC ENVIRONMENT OF BUSINESS  
Short Title: ECONOMIC ENVIRONMENT OF BUSINESS  
Department: Management  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: EEB stresses an understanding of the major macroeconomic forces affecting business in today's global economy. Fluency in major macroeconomic concepts and forces enhances business decision-making in the globally competitive product, financial, and labor markets that characterize the modern business environment.

MACC 506 - JUDGMENT AND DECISION MAKING FOR ACCOUNTANTS  
Short Title: JUDGMENT/DECISION MAKING-ACCTS  
Department: Management  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Intensive Learning Experience  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Decisions in the workforce are often made under conditions of bias, conflict of interest, and missing information. In this course, accountants will learn how to identify and overcome common judgment and decision making errors through lecture, discussion, and experiential activities.

MACC 511 - ISSUES IN FINANCIAL REPORTING II  
Short Title: ISSUES IN FIN REPORTING II  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Topics include: accounting for dilutive securities and stock-based compensation; recognition and de-recognition of investments, leases, deferred taxes, and pension and other postretirement obligations; advanced topics on inter-corporate investment accounting. Codification research will be integrated throughout course. Comparison of U.S. GAAP and IFRS.

MACC 512 - FINANCIAL STATEMENT ANALYSIS AND VALUATION  
Short Title: FINANCIAL STATEMENT ANALYSIS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The first half of the course focuses on documenting and understanding a firm's profitability relative to past performance and comparable firms. The second half of the course covers: 1) forecasting financial statements and 2) deriving firm value under a variety of approaches, including DCF and residual income valuation (RIV).
MACC 513 - ISSUES IN FINANCIAL REPORTING III  
**Short Title:** ISSUES IN FIN REPORTING III  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course covers the advanced financial accounting topics of: preparation of consolidated statements, partnership accounting and reporting, accounting for bankruptcy and reorganization, segment disclosures, and interim reporting, and the role of the SEC in financial reporting for publicly traded companies.

MACC 514 - FAIR VALUE ACCOUNTING  
**Short Title:** FAIR VALUE ACCOUNTING  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA X MBA Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course examines: fair value accounting, as outlined in Accounting Standard Codification section 820 and other U.S. accounting standards; use of 3rd party pricing services, credit risk considerations, and recent accounting updates impacting the valuation of various financial instruments, such as loans, equities, department securities, alternative investments, real estate investments and liabilities.

MACC 515 - ADVANCED TOPICS IN REVENUE RECOGNITION  
**Short Title:** ADVANCED REVENUE RECOGNITION  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Accounting degree.  
**Course Level:** Graduate  
**Description:** While revenue generation is a key source of business risk and represents the primary value creation activity, its measurement and reporting in financial statements can be subject to substantial judgment. The course will cover the principles embedded in the US GAAP for revenue recognition and will examine how revenue recognition can vary substantially according to the underlying economics of different business models.

MACC 531 - ADVANCED MANAGEMENT ACCOUNTING  
**Short Title:** ADVANCED MGMT ACCOUNTING  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The use of management accounting information to serve management decision-making; review of cost accounting concepts; use of standards and variances; relevance and decision making; role of cost allocations; different costs for different purposes; product costing systems; and managing customers.

MACC 541 - ACCOUNTING CONTROL SYSTEMS  
**Short Title:** ACCOUNTING CONTROL SYSTEMS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA X MBA Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** MACC 542  
**Description:** Examines the concepts of the integrated audit of internal control over financial reporting in accordance with PCAOB Audit Standard 5. Also covers fundamental procedures used in financial statement audits, specifically in the client acceptance and continuance, planning and risk assessment, and audit comfort cycle phases of the engagement.

MACC 542 - ADVANCED AUDITING  
**Short Title:** ADVANCED AUDITING  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA X MBA Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** BUSI 440  
**Description:** This course provides students with an in-depth understanding of professional standards, the audit process, advanced auditing techniques, and the auditor's role. This course will use case studies to explore audit topics not extensively covered in a typical intro-auditing course, including planning/risk assessment, design and execution of procedures, testing techniques, and software tools.
MACC 561 - ACCOUNTING INFORMATION SYSTEMS
Short Title: ACCOUNTING INFORMATION SYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of automated systems of processing data for accounting information. The accounting system is discussed form the perspective of developing and maintaining systems capable of producing information for internal decision-making and external reporting. Hands-on experience may include general ledger, ERP, flowcharting software and other relevant computer technology.

MACC 562 - AUDITING: A DATA ANALYTICS APPROACH
Short Title: DATA ANALYTICS IN AUDITING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course applies accounting and critical thinking skills to real-world data analytics examples from auditing and forensics. The focus is on (1) the methodologies of transforming raw and unstructured data into workable data sets, (2) how to interpret data sets, and (3) the presentation of data to decision makers.

MACC 563 - DATA ANALYTICS FOR ACCOUNTANTS I
Short Title: DATA ANALYTICS FOR ACCT I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to using data analytics in an accounting context. Topics include how data are structured, methodologies for cleaning and merging data, and tools for analyzing and visualizing data.

MACC 564 - DATA ANALYTICS FOR ACCOUNTANTS II
Short Title: DATA ANALYTICS FOR ACCT II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced methods of leveraging data analytics in an accounting context. Students develop coding capabilities to extract, organize, and analyze various types of structured and unstructured financial data. Topics include statistical data analysis, probability, and introduction to machine learning.

MACC 561 - FEDERAL TAXATION
Short Title: FEDERAL TAXATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to federal income tax principles. Emphasis on general skills in identifying and resolving tax issues, understanding the administrative and public policy and reasoning underlying tax law choices and integrating the tax laws into business and personal decisions and planning. Coverage of taxation of C-corporations, S-corporations, and partnerships.

MACC 571 - TAXES AND BUSINESS STRATEGY
Short Title: TAXES AND BUSINESS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MACC 571
Description: An examination of how taxes affect companies’ decision-making and their financial and operational structure.

MACC 581 - GOVERNMENT AND NOT-FOR-PROFIT ACCOUNTING
Short Title: GOVT AND NFP ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Financial reporting, managerial, auditing, taxation, and information systems issues in governmental and nonprofit entities; ethics and professional standards; fund accounting concepts and practices, as well as government-wide financial reporting similar to private business consolidated reporting and the relationships between the two; not-for-profit budgeting, accounting, and reporting standards.
MACC 591 - ACCOUNTING THEORY
Short Title: ACCOUNTING THEORY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the "political" intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. Mutually Exclusive: Cannot register for MACC 591 if student has credit for BUSI 491/MGMT 591.

MACC 599 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Management
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Specialized aspect or topic in an area directly related to public accounting that is chosen by student and an appropriate faculty member. Department Permission Required. Repeatable for Credit.

MACC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: MACC

Department Description and Code
• Management: MGMT

Graduate Degree Description and Code
• Master of Accounting degree: MAcc

Graduate Degree Program Description and Code
• Degree Program in Accounting: ACCO

CIP Code and Description
• ACCO Major/Program: CIP Code/Title: 52.1399 - Management Sciences and Quantitative Methods, Other

Requirements for the MAcc Degree
The MAcc degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MAcc degree must complete:

• A minimum of 17 courses (36 credit hours) to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of 2 semesters of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 115) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of C (2.00 grade points) in each course.

MAcc coursework is comprised of 24 credit hours of accounting coursework, 9 credit hours of business coursework, and 3 credit hours of ethics coursework.

The MAcc degree program has a lockstep curriculum that students typically complete during contiguous fall and spring semesters. With approval from the MAcc program director, however, a student may take up to four semesters to complete the program. This approval would be granted for internship opportunities and other commitments. In such instances, the program must be completed in contiguous fall and spring
semesters, and the student must begin the program in a fall semester. Students requesting the three-semester program option or the four-semester program option must explain in their application the reason for requesting the extended program option, given the academic goals of the program. Students approved for the three- or four-semester program option must agree to follow the specific course sequence as required by the program director to ensure a meaningful pedagogic experience.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreesworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
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**Degree Requirements**

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<td>Accounting Coursework</td>
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<td>FEDERAL TAXATION</td>
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<tr>
<td>MACC 572</td>
<td>TAXES AND BUSINESS STRATEGY</td>
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<tr>
<td></td>
<td>Ethics Coursework</td>
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<td>MACC 501</td>
<td>ACCOUNTING ETHICS AND PROFESSIONALISM</td>
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<td>Business Coursework</td>
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<td>BUSINESS LAW FOR ACCOUNTANTS</td>
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<td>JUDGMENT AND DECISION MAKING FOR ACCOUNTANTS ¹</td>
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<td>MACC 562</td>
<td>AUDITING: A DATA ANALYTICS APPROACH</td>
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<tr>
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<td>Total Credit Hours</td>
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</table>

**Footnotes and Additional Information**

¹ MACC 503 and MACC 506 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

**Proposed Plan-of-Study**

The following plan-of-study represents the current lockstep two-semester sequence in which students pursuing the MAcc degree complete the required coursework. Substitution of courses may be made with permission of the program director.

As noted above, in some instances students may apply for, and be permitted to, pursue the MAcc degree on the three- or four-semester program option. In those instances, students must agree to follow a specific course sequence as required by the program director. Please contact the program director for details.

**Course**   **Title**  **Credit Hours**

**First Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>1st Semester</th>
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<td>MACC 512</td>
<td>FINANCIAL STATEMENT ANALYSIS AND VALUATION</td>
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<td>MACC 513</td>
<td>ISSUES IN FINANCIAL REPORTING III</td>
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<td>MACC 515</td>
<td>ADVANCED TOPICS IN REVENUE RECOGNITION</td>
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<td>MACC 542</td>
<td>ADVANCED AUDITING</td>
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<td>MACC 564</td>
<td>DATA ANALYTICS FOR ACCOUNTANTS II</td>
</tr>
<tr>
<td>MACC 571</td>
<td>FEDERAL TAXATION</td>
</tr>
<tr>
<td>MACC 572</td>
<td>TAXES AND BUSINESS STRATEGY</td>
</tr>
</tbody>
</table>

**Credit Hours**

| Fall Semester I | 1.5 |
| MACC 506       | JUDGMENT AND DECISION MAKING FOR ACCOUNTANTS                                | 1.5           |
| MACC 563       | DATA ANALYTICS FOR ACCOUNTANTS I                                           | 1.5           |

**Second Semester**

| Fall Semester II | 1.5 |
| MACC 503        | ACCOUNTING AND CORPORATE GOVERNANCE                                         | 1.5           |
| MACC 504        | FINANCE FOR ACCOUNTANTS                                                     | 1.5           |
| MACC 506        | JUDGMENT AND DECISION MAKING FOR ACCOUNTANTS ¹                             | 1.5           |
| MACC 562        | AUDITING: A DATA ANALYTICS APPROACH                                         | 1.5           |

**Credit Hours**

| Spring Semester I | 18 |
| MACC 531         | ADVANCED MANAGEMENT ACCOUNTING                                               | 1.5           |
| MACC 542         | ADVANCED AUDITING                                                           | 1.5           |
| MACC 572         | TAXES AND BUSINESS STRATEGY                                                  | 1.5           |

**Credit Hours**

| Spring Semester II | 18 |
| MACC 515          | ADVANCED TOPICS IN REVENUE RECOGNITION                                      | 1.5           |
| MACC 541          | ACCOUNTING CONTROL SYSTEMS                                                   | 1.5           |
| MACC 562          | AUDITING: A DATA ANALYTICS APPROACH                                         | 1.5           |

| Total Credit Hours | 36 |

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2021-2022 General Announcements PDF Generated 09/22/21
Policies for the MAcc Degree

Admission Requirements

For general university requirements, see Graduate Degrees (p. 57). Criteria for evaluating participants include: completion of (or plans for completion of) required undergraduate prerequisite courses, academic and professional accomplishments, GMAT or GRE test score, an interview, and, possibly, an admissions assessment examination. Current Rice students and Rice alumni are exempted from the test score requirement, although they may provide a GMAT or GRE score at their discretion. Applicants with exceptional undergraduate academic records are eligible to apply for a standardized test score requirement waiver.

Rice Undergraduates

Students who are on track to fulfill the requirements of the Rice business major or minor prior to completing their undergraduate degree are eligible for admission to the program. Non-business majors or minors are also eligible for admission if specific prerequisite courses will be completed before undergraduate graduation; the MAcc program director will consult prospective applicants to determine what prerequisite classes are needed. All MAcc applicants, regardless of being a business major or minor, need to have completed the introductory financial accounting course (BUSI 305), the first intermediate financial accounting course (BUSI 405), and the auditing course (BUSI 440) prior to beginning the MAcc program. Students potentially interested in the MAcc program are encouraged to take BUSI 305 in their sophomore or junior year. Rice undergraduates can apply and gain conditional admission to the MAcc program during the summer before their senior year. Conditionally admitted students who lack any of the prerequisite accounting courses must take appropriate classes to correct their deficiency.

Non-Rice Undergraduates

Students may apply as early as the summer before their senior year. Admitted students who lack the prerequisite accounting course work must take summer pre-term classes.

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MAcc program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards

A minimum overall grade point average of 2.67 (B-) is required for graduation. All courses taken towards the MAcc degree, other than the two courses graded as “Satisfactory/Unsatisfactory,” are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 2.67 at the end of any semester will be notified of dismissal. A student who has been notified of dismissal may appeal to the Academic Standards Committee of the Jones Graduate School of Business. The committee will decide, based on the circumstances of the appeal, whether the student:

1. may resume studies on probation,
2. is to be suspended for one semester or an academic year, or
3. is to be dismissed from the MAcc program.

Students are removed from probation only upon achieving an overall grade point average of at least 2.67 at the end of the following semester of work.

Students proposing to return after a period of academic suspension must apply to the Academic Standards Committee and receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only grades of C (2.00 grade points) and above are counted for credit toward graduation. If a student receives a grade below a C (2.00 grade points) in a course, the student must meet with the program director to determine remediation. Any plans for remediation must be approved by the Academic Standards Committee.

Professional Standards

Masters students are held to the high standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. (This probationary notice, however, is not required as a precondition for filing specific charges.)

Guidelines for Appealing Academic Dismissal

The Process

A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing

If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals

Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality

The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process

Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.
1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.

2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.

3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.

4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.

5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).

6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MAcc degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Accounting website: https://business.rice.edu/academic-program/master-accounting-macc (https://business.rice.edu/academic-program/master-accounting-macc/).

Opportunities for the MAcc Degree
Additional Information
For additional information, please see the Accounting website: https://business.rice.edu/academic-program/master-accounting-macc (https://business.rice.edu/academic-program/master-accounting-macc/).

African and African American Studies

Contact Information
African and African American Studies
https://caaas.rice.edu/

Anthony B. Pinn
Director, Center for African and African American Studies
pinn@rice.edu

The critical scholarly inquiry, mentored research, outward-facing programming, communication skills, global perspective, and commitment to justice long associated with African and African American Studies both draws on and enriches (often through deeply engaged criticism) the best of the liberal arts tradition. The African and African American Studies minor is an interdisciplinary course of study drawing on disciplines from the Humanities and Social Sciences.

The minor allows students to focus on issues of concern in this area of study across the university, including (but not limited to) histories of race and slavery, studies of African and African American culture, religion, philosophy, and race and racialization. Race as a general social-cultural category informs and influences the dynamics of our social world. From national politics and foreign policy, to economic developments, to community sustainability and environmental issues, to cultural clashes and claims and more, race and its implications are evident. As a result, formal attention to studying race and racialization holds great value regardless of one’s chosen profession. That is to say, understanding the history and various dynamics of race/racialization as well as how it operates in the present enhances a Rice education, and helps to prepare students for life across a broad range of fields and forms of employment.

Minor
- Minor in African and African American Studies (p. 119)

Certificate
- Certificate in African and African American Studies (p. 118)

Director
Anthony B. Pinn

Director of Undergraduate Studies
Daniel Domingues Da Silva

Director of Graduate Studies
Anthony B. Pinn

Professors
Elias K. Bongmba
Jenifer L. Bratter
Tony N. Brown
Jacqueline Coutí
Jeffrey B. Fleisher
W. Caleb McDaniel
Anthony B. Pinn
James Sidbury

Certificate in African and African American Studies
African and African American Studies (AAAS)

AAAS 200 - KNOWING BLACKNESS: INTRODUCTION TO AFRICAN AND AFRICAN AMERICAN STUDIES
Short Title: INTRO TO AAAS
Department: African & African Amer Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of the origins and development of African Studies and African American Studies. Through a focus on the articulation and resolution of field-changing debates, the course introduces students to methodologies and practices that have led to and that continue to lead to knowing Africa and African-descendent people with earnest regard for the complexity and subtlety that the subjects require.

AAAS 300 - CONTEMPORARY BLACK FICTION
Short Title: WRITING BLACK LIVES
Department: African & African Amer Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, students will be reading, reflecting, and dissecting short stories, novels, television scripts, and other works of fiction crafted by artists across the Black diaspora. Students will thoroughly discuss process and intent, with an extensive focus on craft.
Course URL: humanities.rice.edu/center-for-african-and-african-american-studies (http://humanities.rice.edu/center-for-african-and-african-american-studies/)

AAAS 510 - INTRODUCTION TO AFRICAN AND AFRICAN AMERICAN STUDIES
Short Title: INTRO TO DIASPORIC STUDIES
Department: African & African Amer Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the core course for the Certificate in African and African American Studies. It will provide an introduction to cross- and multi-disciplinary approaches to the histories, cultures and experiences of African and African Diasporic people, while also introducing students to the work of Rice faculty working in the field.

AAAS 600 - AFRICAN AND AFRICAN AMERICAN STUDIES COLLOQUIUM
Short Title: AF & AFAM STUDIES COLLOQUIUM
Department: African & African Amer Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Through readings and discussions the colloquium highlights key issues related to African and Black African American studies for graduate students preparing to conduct research in the field.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: Courses from various subjects may apply towards this program

Program Description and Code
- African and African American Studies: AAAS

Undergraduate Minor Description and Code
- Minor in African and African American Studies: AAAS

Graduate Certificate Description and Code
- Certificate in African and African American Studies: AAS
Certificate in African and African American Studies

Program Learning Outcomes for the Certificate in African and African American Studies

Upon completing the certificate in African and African American Studies, students will be able to:

1. Demonstrate a sophisticated understanding and use of major themes and concerns represented in African and African American Studies.
2. Develop the use of intellectual tools to conduct scholarship associated with African and African American Studies.

Requirements for the Certificate in African and African American Studies

The certificate in African and African American Studies is a graduate certificate. For general university requirements, please see Graduate Certificates (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the certificate in African and African American Studies must complete:

- A minimum of 4 courses (12-13 credit hours, depending on course selection) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- A minimum of 2 semesters of participation in the CAAAS Colloquium.\(^1\)
- A thesis (for the PhD program in which they have been admitted) that in some way features African and African American Studies.\(^2\)
- All course requirements met with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the Policies (p. 119) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.33 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B+ (3.33 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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### Certificate Requirements

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<td>AAAS 510</td>
<td>INTRODUCTION TO AFRICAN AND AFRICAN AMERICAN STUDIES</td>
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<td></td>
<td><strong>Elective Requirements</strong></td>
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<tr>
<td>Select 3 courses from the following:</td>
<td>9-10</td>
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<tr>
<td>ANTH 512</td>
<td>THE ARCHAEOLOGY OF AFRICA</td>
<td></td>
</tr>
<tr>
<td>ANTH 564</td>
<td>AFRICAN ARCHAEOLOGY FIELD TECHNIQUES (minimum of 3 credit hours)</td>
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</tr>
<tr>
<td>ANTH 643</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
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<tr>
<td>ENGL 570</td>
<td>AFRICAN AMERICAN STUDIES</td>
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<tr>
<td>HIST 505</td>
<td>THE ATLANTIC SLAVE TRADE</td>
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<tr>
<td>HIST 521</td>
<td>RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH</td>
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<td>HIST 558</td>
<td>RELIGION, RACE, AND DIFFERENCE IN A GLOBAL PERSPECTIVE</td>
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<td>HIST 563</td>
<td>RACE AND SLAVERY IN THE EARLY ATLANTIC</td>
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<td>SLAVERY AND SLAVING IN AFRICA</td>
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<td>POLI 535</td>
<td>RACE, ETHNICITY, AND AMERICAN POLITICS</td>
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<td>RELI 534</td>
<td>RELIGION AND POLITICS IN AFRICA</td>
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<td>RELI 537</td>
<td>AFRICAN MYTHS AND RITUALS</td>
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<td>RELI 539</td>
<td>THEOLOGY IN AFRICA</td>
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<td>RELI 540</td>
<td>THE CHURCH OF AFRICA</td>
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<tr>
<td>RELI 546</td>
<td>THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X</td>
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<td>RELI 547</td>
<td>WHAT'S RELIGIOUS ABOUT BLACK RELIGION?</td>
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<td>RELI 590</td>
<td>AFRICAN AMERICAN LITERATURE AND RELIGION</td>
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<td>SOCI 502</td>
<td>RACE AND FAMILY SEMINAR</td>
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<td>SOCI 524</td>
<td>RACE AND ETHNICITY SEMINAR</td>
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<td>SOCI 543</td>
<td>RACE, SOCIETY AND POPULATION CHANGE</td>
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<td>SOCI 544</td>
<td>RACE AND RACISM</td>
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<tr>
<td>SOCI 553</td>
<td>RACE, MIGRATION, AND HEALTH SEMINAR</td>
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</tbody>
</table>

### CIP Code and Description

- **AAAS Minor**: CIP Code/Title: 05.0101 - African Studies
- **AAS Certificate**: CIP Code/Title: 05.0101 - African Studies

\(^1\) Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

**Certificate in African and African American Studies**

**Core Requirement**

**Elective Requirements**

- **Select 3 courses from the following:**
  - ANTH 512 THE ARCHAEOLOGY OF AFRICA
  - ANTH 564 AFRICAN ARCHAEOLOGY FIELD TECHNIQUES (minimum of 3 credit hours)
  - ANTH 643 ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
  - ENGL 570 AFRICAN AMERICAN STUDIES
  - HIST 505 THE ATLANTIC SLAVE TRADE
  - HIST 521 RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH
  - HIST 558 RELIGION, RACE, AND DIFFERENCE IN A GLOBAL PERSPECTIVE
  - HIST 563 RACE AND SLAVERY IN THE EARLY ATLANTIC
  - HIST 574 SLAVERY AND SLAVING IN AFRICA
  - POLI 535 RACE, ETHNICITY, AND AMERICAN POLITICS
  - RELI 534 RELIGION AND POLITICS IN AFRICA
  - RELI 537 AFRICAN MYTHS AND RITUALS
  - RELI 539 THEOLOGY IN AFRICA
  - RELI 540 THE CHURCH OF AFRICA
  - RELI 546 THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
  - RELI 547 WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
  - RELI 590 AFRICAN AMERICAN LITERATURE AND RELIGION
  - SOCI 502 RACE AND FAMILY SEMINAR
  - SOCI 524 RACE AND ETHNICITY SEMINAR
  - SOCI 543 RACE, SOCIETY AND POPULATION CHANGE
  - SOCI 544 RACE AND RACISM
  - SOCI 553 RACE, MIGRATION, AND HEALTH SEMINAR
Students pursuing the certificate in African and African American Studies should be aware of the following program restriction:

- Graduate students may declare their intent to pursue a university certificate only after they have first been admitted into a graduate-level Rice degree-granting program.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the certificate in African and African American Studies should be aware of the following program-specific transfer credit guidelines:

- Transfer credit coursework cannot be applied or used to meet any of the program's course requirements.

**Additional Information**

For additional information, please see the African and African American Studies website: [https://caaas.rice.edu/](https://caaas.rice.edu/)

**Opportunities for the Certificate in African and African American Studies**

CAAAS Colloquium and Presentation

Students in the Certificate in African and African American Studies participate in the colloquium consisting of research presentations and public lectures organized by the Center for African and African American Studies (CAAAS) for a minimum of 2 semesters. In order to fulfill certificate requirements, students must register for the colloquium course (AAAS 600) and participate in 6 colloquium meetings. Colloquium topics are determined by the CAAAS steering committee with input from CAAAS affiliated faculty. The colloquium provides graduate students with the opportunity to interact with leading scholars, network, enhance their knowledge of cutting-edge issues in AAAS, and refine their AAAS scholarship.

Colloquium attendance constitutes an official requirement for the certificate, including at least one presentation (for more information, see the Requirements tab). Attendance beyond the required minimum is highly encouraged.

**Additional Information**

For additional information, please see the African and African American Studies website: [https://caaas.rice.edu/](https://caaas.rice.edu/)

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

**Minor in African and African American Studies**

**Program Learning Outcomes for the Minor in African and African American Studies**

Upon completing the minor in African and African American Studies, students will be able to:

- ...
1. Understand and appreciate the complexity of African and African American history and culture.
2. Compare and contrast the experiences of African peoples in different regions of the continent.

Requirements for the Minor in African and African American Studies

Students pursuing the minor in African and African American Studies must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 121) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/]). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the Minor in African and African American Studies</td>
<td>18</td>
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Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>Core Requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAAS 200</td>
<td>KNOWING BLACKNESS: INTRODUCTION TO AFRICAN AND AFRICAN AMERICAN STUDIES</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements

Select 5 courses as Electives from the following categories:¹² ¹5

Select at least 2 courses from Group A (see course list below)

Select at least 2 courses from Group B (see course list below)

Total Credit Hours 18

Footnotes and Additional Information

¹ Of the 6 courses (18 credit hours) required for the minor, a minimum of 3 courses (9 credit hours) must be taken at the 300-level or above. Please note that not all courses listed to fulfill requirements will be offered every academic year.

² Of the 5 courses (15 credit hours) of Elective Requirements, coursework must be selected from at least 3 different subject codes.

Course Lists to Satisfy Requirements

Elective Requirements

To fulfill the remaining African and African American Studies minor requirements, students must complete a total of 5 elective courses (15 credit hours) from the following two categories as listed below. At least 2 courses (6 credit hours) must be selected from each category (Group A and Group B), and the remaining course can be selected from either category (Group A or Group B). Additionally, coursework must be selected from at least 3 different subject codes, and a minimum of 3 courses (9 credit hours) must be taken at the 300-level or above.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
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<td></td>
</tr>
<tr>
<td>Select at least 2 courses from the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>ANTH 312 / MDEM 311.</td>
<td>THE ARCHAEOLOGY OF AFRICA</td>
<td></td>
</tr>
<tr>
<td>ANTH 343 / RELI 342</td>
<td>NEW RELIGIOUS MOVEMENTS IN AFRICA</td>
<td></td>
</tr>
<tr>
<td>ANTH 360</td>
<td>TOPICS IN AFRICAN CULTURE AND ETHNOGRAPHY</td>
<td></td>
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<tr>
<td>ANTH 364</td>
<td>AFRICAN ARCHAEOLOGY FIELD TECHNIQUES</td>
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</tr>
<tr>
<td>ANTH 423 / RELI 423</td>
<td>AFRICAN MYTHS AND RITUALS</td>
<td></td>
</tr>
<tr>
<td>FREN 324</td>
<td>FROM DECOLONIZATION TO GLOBALIZATION</td>
<td></td>
</tr>
<tr>
<td>HIST 204</td>
<td>THE IDEA OF AFRICA</td>
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<td>HIST 222</td>
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<td>HIST 223</td>
<td>HISTORY OF MODERN AFRICA</td>
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<td>HIST 229</td>
<td>HISTORY OF SOUTH AFRICA</td>
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<td>HIST 323</td>
<td>HISTORY OF ATLANTIC AFRICA</td>
<td></td>
</tr>
<tr>
<td>HIST 330</td>
<td>ATLANTIC SLAVE TRADE AND THE ORIGINS OF AFRO AMERICA</td>
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<tr>
<td>HIST 343</td>
<td>HISTORY OF AFRICA IN THE MUSEUM</td>
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</tr>
<tr>
<td>RELI 111</td>
<td>INTRODUCTION TO AFRICAN RELIGIONS</td>
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<tr>
<td>RELI 113</td>
<td>INTRODUCTION TO CHRISTIANITY IN AFRICA</td>
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</tr>
<tr>
<td>RELI 338</td>
<td>THE CHURCH OF AFRICA</td>
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<td>RELI 340</td>
<td>THEOLOGY IN AFRICA</td>
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<tr>
<td>RELI 348</td>
<td>CHRISTIANITY AND ISLAM IN AFRICA</td>
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<tr>
<td>RELI 424</td>
<td>RELIGION AND POLITICS IN AFRICA</td>
<td></td>
</tr>
<tr>
<td>RELI 426</td>
<td>RELIGION AND LITERATURE IN AFRICA</td>
<td></td>
</tr>
</tbody>
</table>

Group B

Select at least 2 courses from the following: 6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 443</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
<td></td>
</tr>
<tr>
<td>EDUC 304</td>
<td>RACE, CLASS, GENDER IN EDUCATION</td>
<td></td>
</tr>
<tr>
<td>ENGL 267</td>
<td>INTRODUCTION TO AFRICAN AMERICAN LITERATURE</td>
<td></td>
</tr>
<tr>
<td>ENGL 370</td>
<td>AFRICAN AMERICAN LITERATURE</td>
<td></td>
</tr>
</tbody>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
Policies for the Minor in African and African American Studies

Program Restrictions and Exclusions

Students pursuing the minor in African and African American Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in African and African American Studies should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.
Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Additional Information
For additional information, please see the African and African American Studies website: https://caaas.rice.edu/

Opportunities for the Minor in African and African American Studies

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the African and African American Studies website: https://caaas.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

Air Force Science

The Air Force Reserve Officer Training Corps (ROTC) program prepares men and women of character, commitment, and courage to assume leadership positions as commissioned officers in the active duty United States Air Force. On completion of the curriculum, students will have a thorough understanding of the core values, leadership, teamwork, and other requirements to be an effective officer in the world’s greatest Air Force.

For additional information regarding Air Force Science, please see the program’s website, at: https://www.uh.edu/class/airforce/.

Air Force Science is not a free-standing degree program; in addition to fulfilling the ROTC curriculum, candidates are required to successfully complete the degree program to which they have been admitted. Upon successful completion of both the Air Force Science curriculum and the conferral of their Rice undergraduate degree, the student will become an active duty commissioned officer in the United States Air Force.

Four-Year Program
The General Military Course (GMC) is the first half of the four-year ROTC program and is taken during the freshman and sophomore years. This program allows the student to experience Air Force ROTC without obligation (unless the student is on an Air Force ROTC scholarship).

Each semester of the GMC consists of one classroom hour of instruction as well as Leadership Laboratory each week.

During the first two years, the student will learn about the Air Force and the historical development of aerospace power.

During the summer preceding the junior year, the student will compete for the opportunity to attend a four-week Field Training Unit. Successful completion of field training is mandatory for entrance into the Professional Officer Course (POC), the junior and senior years of the four-year program.

As a junior, the student will study the core values, leadership, teamwork, and management tools required to become an effective Air Force officer.

During the senior year, students study the national security policy process and regional and cultural studies, participate in a war-game, and complete final requirements for commissioning as second lieutenants.

Leadership Laboratory
As an Air Force ROTC cadet, each student is required to attend an additional two-hour class known as Leadership Laboratory.

Although not part of the academic class requirement, it is an essential element of officer training. Leadership Laboratory is an intensive military training program in which students gain invaluable leadership and managerial experience while learning about the Air Force way of life. Students have numerous opportunities to hear guest speakers and panel discussions, participate in field trips, and experience practical leadership exercises.

AFROTC Scholarship Opportunities

In-College Scholarship Program (ICSP) is a highly competitive scholarship program aimed primarily at college freshmen and sophomores in any major (students with a bachelor’s degree can compete to earn a master’s degree).

ROTC scholarship students incur a military obligation. For additional information on AFROTC scholarship opportunities, please visit the AFROTC website at https://www.afrotc.com/ or call 1-800-4AFROTC.

Stipend
All AFROTC scholarship recipients and POC cadets receive a nontaxable monthly stipend.

Field Training (FT)
Cadets completing the General Military Course attend field training (FT) during the summer at Maxwell AFB, Alabama. This rigorous program of leadership training, physical conditioning and academics assesses the cadet’s potential to be an Air Force officer.

Cadets also receive survival and firearms training and career information.

Physical Fitness Training
Cadets meet at the University of Houston Alumni Center to perform physical fitness training. The training is mandatory and emphasizes push-ups, sit-ups, and running in order to pass the USAF physical fitness test.

Professional Development Training (PDT)
Cadets are eligible to compete to attend PDT during the summer months.

PDT consists of several programs, including:
• Tours of nearby active duty Air Force bases
• Soaring and free-fall parachuting at the United States Air Force Academy
• (USAFA)
• Cultural and Foreign Language Immersion
• Hands-on research at Air Force laboratories
• Shadowing a Air Force officer in Operation Air Force
• Internships at NASA and other government organizations

Cadets receive travel pay and daily pay for the majority of these programs.

For more information contact the Unit Admissions Officer at 713-743-4932 or visit the University of Houston Air Force website at https://www.uh.edu/class/airforce.

Summary
The mission of producing Air Force second lieutenants of character, commitment, and courage is more important than ever.

See AFSC in the Rice Course Schedule (these are taught at the University of Houston).

Air Force Science does not currently offer an academic program at the graduate level.

Commander and Professor
Lt. Colonel Matthew Manning

Associate Professors
Lt. Colonel Micheal Carrizales
Capt. Randi Williams

All courses and physical training sessions take place at the University of Houston. Additional information is available through the Air Force Science Department at the University of Houston by calling 713-743-4932 or on-line at www.uh.edu/class/airforce.

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?action=cata)

To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Air Force Science (AFSC)
AFSC 101 - FOUNDATION OF THE USAF I
Short Title: FOUNDATION OF THE USAF I
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Overall roles and missions of the USAF, career fields available. Emphasis on military customs and courtesies, appearance standards, core values, written and personal communications. Introduction to American military history. Course taught on the University of Houston campus in Garrison Gymnasium, Room 116. This course includes a lab taught on Wednesday from 2:30pm-4:30pm.

AFSC 102 - FOUNDATION OF THE USAF II
Short Title: FOUNDATION OF THE USAF II
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of AFSC 101. Course taught at the University of Houston.

AFSC 201 - EVOLUTION OF AIR POWER I
Short Title: EVOLUTION OF AIR POWER I
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Key historical events and milestones in the development of air power as a primary instrument of United States national security. Core values and competencies of leaders in the United States Air Force. Tenets of leadership and ethics. Course taught on the University of Houston campus in Garrison Gymnasium in Room 116. This course also includes a lab taught on Wednesday from 2:30pm-4:30pm.

AFSC 202 - EVOLUTION OF AIR POWER II
Short Title: EVOLUTION OF AIR POWER II
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of AFSC 201. Course taught at the University of Houston.
AFSC 238 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Lecture, Laboratory, Seminar  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

AFSC 301 - AIR FORCE LEADERSHIP STUDY I  
**Short Title:** AIR FORCE LEADERSHIP STUDY I  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, and leadership ethics. Case studies of Air Force leadership and management situations. Course taught on the University of Houston campus in Garrison Gymnasium, Room 116. This course includes a lab, taught on Wednesday from 2:30pm-4:30pm.

AFSC 302 - AIR FORCE LEADERSHIP STUDY II  
**Short Title:** AIR FORCE LEADERSHIP STUDY II  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Continuation of AFSC 301.

AFSC 381 - FIELD TRAINING  
**Short Title:** FIELD TRAINING  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 8  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** No military obligation is associated with this course. Four-week off-campus field training practicum. Introduces students to Air Force leadership. Places students in demanding and stressful leadership positions. Course taught at military base. Department Permission Required.

AFSC 401 - NATIONAL SECURITY AFFAIRS I  
**Short Title:** NATIONAL SECURITY AFFAIRS I  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Evolution of the role of national security in a democratic society with emphasis on policy formation, competing values, and organization. Civilian control of the military, roles of the services; functions of the Air Force Commands. Course taught on the University of Houston campus in Garrison Gymnasium, Room 116. This course includes a lab, taught on Wednesday from 2:30pm-4:30pm.

AFSC 402 - NATIONAL SECURITY AFFAIRS II  
**Short Title:** NATIONAL SECURITY AFFAIRS II  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Continuation of AFSC 401. Course taught at the University of Houston.

AFSC 477 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Air Force Science  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Lecture, Laboratory, Seminar  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**Description and Code Legend**  
*Note:* Internally the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**  
- Course offerings/subject code: AFSC

**Ancient Mediterranean Civilizations**

**Contact Information**

Ancient Mediterranean Civilizations  
[https://amc.rice.edu/](https://amc.rice.edu/)  
326 Humanities Building  
713-348-4947

Sophie Crawford-Brown  
Program Director  
scb@rice.edu

This interdisciplinary major in the cultures of ancient Greece and Rome, Judaism, early Christianity, and early Islam, as well as their antecedents,
explores these traditions both for their intrinsic interest and for the contributions each has made to contemporary Western society. Our combined focus on ancient cultural history in its broadest sense and on perspectives offered by cultural criticism enables students to examine the beginnings of the civilization in which they now participate.

Courses for this major address common questions about the transmission and transformation of cultures in the ancient Mediterranean world. Students examine sources, such as texts and artifacts that illuminate the process. They study how shifting cultural centers and frontiers in this world are delineated, and they explore the general integration and disintegration of specific ancient cultures. This major also offers opportunities for archaeological fieldwork and study abroad.

Rice is a sponsor of the American School of Classical Studies at Athens, the American School of Oriental Research, the American Academy in Rome, the American Research Center in Sofia, and the Intercollegiate Center for Classical Studies in Rome. Students majoring in Ancient Mediterranean Civilizations are encouraged to study in these programs as well as in the College Year in Athens program.

**Bachelor's Program**

- Bachelor of Arts (BA) Degree with a Major in Ancient Mediterranean Civilizations (p. 126)

Ancient Mediterranean Civilizations does not currently offer an academic program at the graduate level.

**Director and Advisor**

Sophie Crawford-Brown

**Professors**

David Cook  
April D. DeConick  
James D. Faubion  
Jeffrey B. Fleisher  
Matthias Henze  
Michael R. Maas  
Scott McGill  
Susan Keech McIntosh  
Donald Ray Morrison  
Paula A. Sanders  
Charles Siewert  
Harvey E. Yunis

**Associate Professors**

Maya Soifer Irish  
Hilary S. Mackie

**Assistant Professors**

Niki Clements  
Sophie Crawford-Brown

**Lecturers**

Molly Morgan  
Ted Somerville

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog [https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata](https://courses.rice.edu/admweb/ISWKSCAT.cat)

To view the most recent semester's course schedule, please see Rice's Course Schedule [https://courses.rice.edu/admweb/ISWKSCAT.cat](https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Ancient Mediterranean Civil (AMCI)**

**AMCI 238 - SPECIAL TOPICS**

- Short Title: SPECIAL TOPICS  
- Department: Ancient Mediterranean Civil  
- Grade Mode: Standard Letter  
- Course Type: Internship/Practicum, Lecture, Seminar, Laboratory  
- Credit Hours: 1-4  
- Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**AMCI 400 - DIRECTED HONORS RESEARCH**

- Short Title: AMC HONORS THESIS  
- Department: Ancient Mediterranean Civil  
- Grade Mode: Standard Letter  
- Course Type: Research  
- Credit Hours: 3  
- Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**AMCI 477 - SPECIAL TOPICS**

- Short Title: SPECIAL TOPICS  
- Department: Ancient Mediterranean Civil  
- Grade Mode: Standard Letter  
- Course Type: Internship/Practicum, Lecture, Laboratory, Seminar  
- Credit Hours: 1-4  
- Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**Description and Code Legend**

*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:*

**Course Catalog/Schedule**

- Course offerings/subject code: Courses from various subjects may apply towards this program

**Program Description and Code**

- Ancient Mediterranean Civilizations: AMCI

**Undergraduate Degree Description and Code**

- Bachelor of Arts degree: BA

**Undergraduate Major Description and Code**

- Major in Ancient Mediterranean Civilizations: AMCI
Bachelor of Arts (BA) Degree with a Major in Ancient Mediterranean Civilizations

Program Learning Outcomes for the BA Degree with a Major in Ancient Mediterranean Civilizations

Upon completing the BA degree with a major in Ancient Mediterranean Civilizations, students will be able to:

1. Explain the historical trajectory of at least two of these Ancient Mediterranean Civilizations: Graeco-Roman, Islamic, Jewish, Christian.
2. Identify and explain how cultural, political, intellectual, religious, and other aspects of Ancient Mediterranean Civilizations have affected aspects of contemporary societies.
3. Create convincing arguments about one or more aspects of Ancient Mediterranean Civilizations through the evaluation and critical analysis of textual and material evidence.

Requirements for the BA Degree with a Major in Ancient Mediterranean Civilizations

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Ancient Mediterranean Civilizations must complete:

- A minimum of 10 courses (30-31 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

Although not required, courses in ancient languages are recommended.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Credit Hours Required for the Major in Ancient Mediterranean Civilizations</td>
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</tbody>
</table>

Degree Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Ancient Mediterranean Civilizations</td>
</tr>
</tbody>
</table>

Core Requirements

Select 3 courses from 3 of the 5 following categories (see course lists below)

Graeco-Roman Civilization
Islamic Civilization
Jewish Civilization
Christian Civilization
Archaeological Methods and Theory

Themes Across Time
Select 1 course from the Themes Across Time category (see course list below)

Comparative Studies
Select 1 course from the Comparative Studies category (see course list below)

Elective Requirements
Select 5 elective courses from any of the course lists below

Total Credit Hours Required for the Major in Ancient Mediterranean Civilizations
30-31

Additional Credit Hours to Complete Degree Requirements
58-59

University Graduation Requirements (p. 29)
31

Total Credit Hours
120

Footnotes and Additional Information

Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Courses in this requirement address the creation, transmission, and reception of traditions in the Mediterranean world.

2 Courses in this requirement address two different cultural traditions or reflect similar themes but from different cultures (e.g. Women in Greece and Rome).

Course Lists to Satisfy Requirements

Core Requirements

Select 3 courses from 3 of the following 5 categories:

Graeco-Roman Civilization

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 325 /</td>
<td>SEX, SELF, AND SOCIETY IN ANCIENT</td>
<td>3</td>
</tr>
<tr>
<td>SWGS 332</td>
<td>GREECE</td>
<td></td>
</tr>
<tr>
<td>ANTH 363</td>
<td>THE ARCHAEOLOGY OF CITIES AND STATES</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 107 /</td>
<td>GREEK CIVILIZATION AND ITS LEGACY</td>
<td>3</td>
</tr>
<tr>
<td>HUMA 107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit</td>
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</tr>
<tr>
<td>CLAS 108 / HUMA 111</td>
<td>ROMAN CIVILIZATION AND ITS LEGACY</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 235</td>
<td>CLASSICAL MYTHOLOGY: INTERPRETATION, ORIGINS, AND INFLUENCE</td>
<td>3</td>
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<tr>
<td>CLAS 316 / PLST 316</td>
<td>DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 336 / LING 336</td>
<td>INTRO TO INDO-EUROPEAN</td>
<td>3</td>
</tr>
<tr>
<td>GREE 101</td>
<td>ELEMENTARY GREEK I</td>
<td>3</td>
</tr>
<tr>
<td>GREE 102</td>
<td>ELEMENTARY GREEK II</td>
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</tr>
<tr>
<td>GREE 201</td>
<td>INTERMEDIATE GREEK I: PROSE</td>
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<tr>
<td>GREE 202</td>
<td>INTERMEDIATE GREEK: EURIPIDES MEDEA/BIBLICAL KOINE</td>
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<tr>
<td>HART 201</td>
<td>ART AND ARCHITECTURE OF ANCIENT ROME</td>
<td>3</td>
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<tr>
<td>HART 216 / CLAS 218</td>
<td>CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 200</td>
<td>ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS</td>
<td>3</td>
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<tr>
<td>HIST 307</td>
<td>IMPERIAL ROME FROM CAESAR TO DIOCLETIAN</td>
<td>3</td>
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<tr>
<td>HIST 308 / MDEM 308</td>
<td>THE WORLD OF LATE ANTIQUITY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 357 / MDEM 357</td>
<td>JEWS AND CHRISTIANS IN MEDIEVAL EUROPE</td>
<td>3</td>
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<tr>
<td>HIST 358</td>
<td>HUMANITARIANISM FROM THE 19TH CENTURY TO THE PRESENT</td>
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<tr>
<td>LATI 101 / MDEM 101</td>
<td>ELEMENTARY LATIN I</td>
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<tr>
<td>LATI 102 / MDEM 102</td>
<td>ELEMENTARY LATIN II</td>
<td>3</td>
</tr>
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<td>LATI 201 / MDEM 211</td>
<td>INTERMEDIATE LATIN I: PROSE</td>
<td>3</td>
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<tr>
<td>LATI 202 / MDEM 212</td>
<td>INTERMEDIATE LATIN II</td>
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<td>LATI 302</td>
<td>ADVANCED LATIN</td>
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<tr>
<td>LATI 303</td>
<td>ADVANCED LATIN: PLAUTUS AND TERENCE</td>
<td>3</td>
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<tr>
<td>LATI 313</td>
<td>CICERO AND CATULLUS: LITERATURE AND SOCIETY IN THE ROMAN REPUBLIC</td>
<td>3</td>
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<tr>
<td>ASIA 221 / RELI 221</td>
<td>THE LIFE OF THE PROPHET MUHAMMAD</td>
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<tr>
<td>RELI 223</td>
<td>QUR’AN AND COMMENTARY</td>
<td>3</td>
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<td>RELI 440</td>
<td>ISLAM’S MYSTICAL AND ESOTERIC TRADITION</td>
<td>3</td>
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<tr>
<td>HIST 381 / RELI 385</td>
<td>GOD, TIME AND HISTORY</td>
<td>3</td>
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<tr>
<td>JWST 201</td>
<td>GREAT BOOKS OF JEWISH HISTORY AND CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>RELI 104 / MDEM 103</td>
<td>INTRODUCTION TO JEWISH MYSTICISM</td>
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</tr>
<tr>
<td>RELI 108</td>
<td>INTRODUCTION TO JUDAISM</td>
<td>3</td>
</tr>
<tr>
<td>RELI 122</td>
<td>THE BIBLE AND ITS INTERPRETERS</td>
<td>3</td>
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<tr>
<td>RELI 125 / HEBR 125</td>
<td>INTRODUCTION TO BIBLICAL HEBREW I</td>
<td>3</td>
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<tr>
<td>RELI 126 / HEBR 126</td>
<td>INTRODUCTION TO BIBLICAL HEBREW II</td>
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<tr>
<td>RELI 127</td>
<td>INTERMEDIATE BIBLICAL HEBREW III</td>
<td>3</td>
</tr>
<tr>
<td>RELI 203 / HIST 201</td>
<td>JUDAISM OF JESUS AND HILLEL</td>
<td>3</td>
</tr>
<tr>
<td>RELI 382</td>
<td>LOST JUDAISMS: THE APOCRYPHAL WRITINGS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 383</td>
<td>THE DEAD SEA SCROLLS</td>
<td>3</td>
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<tr>
<td>RELI 105 / MDEM 105</td>
<td>INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT</td>
<td>3</td>
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<tr>
<td>RELI 122</td>
<td>THE BIBLE AND ITS INTERPRETERS</td>
<td>3</td>
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<tr>
<td>RELI 125 / HEBR 125</td>
<td>INTRODUCTION TO BIBLICAL HEBREW I</td>
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<td>RELI 126 / HEBR 126</td>
<td>INTRODUCTION TO BIBLICAL HEBREW II</td>
<td>3</td>
</tr>
<tr>
<td>RELI 127</td>
<td>INTERMEDIATE BIBLICAL HEBREW III</td>
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<tr>
<td>RELI 243</td>
<td>THE BOOK OF GENESIS</td>
<td>3</td>
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<tr>
<td>RELI 271 / MDEM 271</td>
<td>MEDIEVAL POPULAR CHRISTIANI</td>
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<td>RELI 382</td>
<td>LOST JUDAISMS: THE APOCRYPHAL WRITINGS</td>
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<td>RELI 383</td>
<td>THE DEAD SEA SCROLLS</td>
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<td>RELI 449</td>
<td>EARLY CHRISTIAN CONTROVERSIES</td>
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<tr>
<td>ANTH 203</td>
<td>INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY</td>
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<tr>
<td>ANTH 205</td>
<td>INTRODUCTION TO ARCHAEOLOGY</td>
<td>3</td>
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<tr>
<td>ANTH 312 / MDEM 311</td>
<td>THE ARCHAEOLOGY OF AFRICA</td>
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<tr>
<td>ANTH 345</td>
<td>THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT</td>
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<td>ANTH 362</td>
<td>ARCHAEOLOGICAL FIELD TECHNIQUES</td>
<td>3</td>
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<tr>
<td>ANTH 363</td>
<td>THE ARCHAEOLOGY OF CITIES AND STATES</td>
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<tr>
<td>ANTH 392</td>
<td>KINGS, QUEENS, AND COMMONERS: THE ARCHAEOLOGY OF ANCIENT MESOAMERICA</td>
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<tr>
<td>ANTH 425</td>
<td>ADVANCED TOPICS IN ARCHAEOLOGY</td>
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<td>ANTH 460</td>
<td>ADVANCED ARCHAEOLOGICAL THEORY</td>
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<td>ANTH 363</td>
<td>THE ARCHAEOLOGY OF CITIES AND STATES</td>
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<td>ANTH 363</td>
<td>THE ARCHAEOLOGY OF CITIES AND STATES</td>
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### Themes Across Time

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<thead>
<tr>
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<tr>
<td>JWST 201</td>
<td>GREAT BOOKS OF JEWISH HISTORY AND CULTURE</td>
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<tr>
<td>RELI 104 / MDEM 103</td>
<td>INTRODUCTION TO JEWISH MYSTICISM</td>
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</tbody>
</table>

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>ANTH 363</td>
<td>THE ARCHAEOLOGY OF CITIES AND STATES</td>
<td>3</td>
</tr>
</tbody>
</table>
HART 101 / CLAS 102 / MDEM 111
INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC CIVILIZATIONS 3

HIST 200
ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS 3

HIST 308 / MDEM 308
THE WORLD OF LATE ANTIQUITY 3

HIST 381 / RELI 385
GOD, TIME AND HISTORY 3

PHIL 281
HISTORY OF PHILOSOPHY I 3

PHIL 370
SOCIAL AND POLITICAL PHILOSOPHY 3

PHIL 372
HISTORY OF SOCIAL AND POLITICAL PHILOSOPHY 3

PHIL 381
ANCIENT PHILOSOPHY 3

RELI 104 / MDEM 103
INTRODUCTION TO JEWISH MYSTICISM 3

RELI 315 / ASIA 315 / SWGS 315
GENDER AND ISLAM 3

Comparative Studies

Select 1 course from the following:

ANTH 392
KINGS, QUEENS, AND COMMONERS: THE ARCHAEOLOGY OF ANCIENT Mesoamerica 3

CLAS 336 / LING 336
INTRO TO INDO-EUROPEAN 3

HIST 357 / MDEM 357
JEWS AND CHRISTIANS IN MEDIEVAL EUROPE 3

PHIL 381
ANCIENT PHILOSOPHY 3

RELI 112
COMPARING CHRISTIANITIES 3

RELI 213
THE PROPHET JEREMIAH: THE BIBLICAL BOOK AND ITS RECEPTION IN JUDAISM AND CHRISTIANITY 3

RELI 348
CHRISTIANITY AND ISLAM IN AFRICA 3

RELI 384
PILGRIMAGE AND CRUSADE 3

RELI 392
JERUSALEM: HOLY CITY IN TIME AND IMAGINATION 3,4

Policies for the BA Degree with a Major in Ancient Mediterranean Civilizations

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the major in Ancient Mediterranean Civilizations should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of the annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Additional Information

For additional information, please see the Ancient Mediterranean Civilizations website: https://amc.rice.edu/

Opportunities for the BA Degree with a Major in Ancient Mediterranean Civilizations

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Distinction in Research and Creative Work

Students who wish to be considered for Distinction in Research and Creative Work in Ancient Mediterranean Civilizations must complete a thesis. A committee drawn from Ancient Mediterranean Civilizations faculty will evaluate the thesis for distinction according to the following criteria. Although students may draw on work done in previous courses, the thesis must present substantially new research based on primary sources (in translation), archaeological and visual materials, or some combination of them. The thesis should be at least thirty pages long, with additional formal bibliography and footnotes. It must locate its argument and importance in scholarly discussion. Theses will be written during the two semesters of the senior year. Before beginning the thesis, students must consult with the Director of the Ancient Mediterranean Civilizations program, no later than the spring semester of the junior year.

Additional Information

For additional information, please see the Ancient Mediterranean Civilizations website: https://amc.rice.edu/

See https://humanities.rice.edu/student-life/ for tables of fellowships, prizes, and internships/practica that may be relevant to this major.
Anthropology

Contact Information

Anthropology
https://anthropology.rice.edu/
572 Sewall Hall
713-348-4847

Jeffrey B. Fleisher
Department Chair
jfleisher@rice.edu

Gökçe Günel
Director of Undergraduate Studies
gg15@rice.edu

A. Cymene Howe
Director of Graduate Studies
cymene@rice.edu

Anthropology is a discipline that encompasses many subjects of study, all related to understanding human beings and their cultures. A student may organize a major in one or more of anthropology's principal fields or may combine a major in anthropology with one in another discipline. The goal of anthropology is to understand and interpret cultural and biological differences among human societies, both past and present.

The Rice Anthropology department includes diverse offerings in all major subfields of the subject. In archaeology there are courses on the rise and decline of past civilizations and cultures, as well as practical courses that permit students to participate in excavations. In biological anthropology there are courses in human evolution, human nutrition, and on the practice of medicine in our own and other cultures. Cultural anthropology surveys the diversity of world cultures, and offers courses on particular culture areas and provides critical perspectives on the study of contemporary culture changes globally. Social anthropology courses focus upon the study of myth, ritual, and religion among traditional and complex societies and the idea of history as cultural myth.

We also offer courses that explore the relationships between language, culture, and modes of thought in a number of societies. For those interested in the history of anthropology and its current concerns, there are a number of courses offered, including the art of ethnography and the study of the historical, political, and literary roots of anthropological ideas.

Bachelor’s Program

• Bachelor of Arts (BA) Degree with a Major in Anthropology (p. 164)

Minor

• Minor in Anthropology (p. 168)

Master’s Program

• Master of Arts (MA) Degree in the field of Anthropology*

Doctoral Program

• Doctor of Philosophy (PhD) Degree in the field of Anthropology (p. 166)

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair

Jeffrey B. Fleisher

Professors

Dominic C. Boyer
Jeffrey B. Fleisher
Eugenia Georges
A. Cymene Howe
Susan Keech McIntosh
Kamala Visweswaran

Associate Professors

Andrea Ballestero
Mary Prendergast

Assistant Professors

Amarilys Estrella
Gökçe Günel
Victoria Massie

Professors Emeriti

James D. Faubion
George E. Marcus
Roderick J. McIntosh
Julie M. Taylor

Visiting Professor

Manuel Domínguez-Rodrigo

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Anthropology (ANTH)

ANTH 200 - INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE
Short Title: INTRO TO STUDY OF LANGUAGE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Overview of the scientific study of the structure and function of language. Introduces the main fields of linguistics: phonetics, phonology, morphology, syntax, semantics, discourse, historical linguistics, sociolinguistics, and psycholinguistics. Highlights the interdisciplinary relationship of linguistics with anthropology, sociology, psychology, and cognitive sciences. Section 002 is for new matriculants only (first year students). Cross-list: LING 200.
ANTH 201 - INTRODUCTION TO SOCIAL/CULTURAL ANTHROPOLOGY
Short Title: INTRO TO SOCIAL/CULTURAL ANTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the history, methods, and concepts of social/cultural anthropology, which is devoted to the systematic description and understanding of cultural diversity in human societies.

ANTH 203 - INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY
Short Title: INTRO BIOLOGICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers a broad introduction to the human past as revealed by evolutionary studies of both biochemical and fossil evidence, and by archaeological studies of human cultural behavior.

ANTH 205 - INTRODUCTION TO ARCHAEOLOGY
Short Title: INTRO TO ARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the elementary concepts of the discipline through a series of case studies.

ANTH 212 - PERSPECTIVES ON MODERN ASIA
Short Title: PERSPECTIVES ON MODERN ASIA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A team taught interdisciplinary course focusing on the political, social and economic forces that are shaping the lives of the nearly one-half of the world's population that lives in Asia. Provides a selective, in-depth look at certain important areas of East, Southeast and South Asia that reflect larger themes and problems. Cross-list: ASIA 212.

ANTH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ANTH 290 - HISTORY AND ETHNOGRAPHY
Short Title: HISTORY & ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course focuses intensively on the history and ethnography of a single people, the selection of which changes from year to year. Using all available materials, this course provides an introduction to the approaches of the discipline and how they have changed, registered by the different ways anthropologists and others have represented the same subjects over time.

ANTH 299 - EXPERIENTIAL EDUCATION IN ANTHROPOLOGY
Short Title: EXPERIENTIAL EDUCATION IN ANTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Anthropology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides one hour of university credit for faculty-directed and approved internship. Students must obtain approval from a member of the department’s undergraduate committee and must submit a letter from the internship provider indicating completion and satisfactory performance. Department Permission Required. Repeatable for Credit.

ANTH 302 - ANTHROPOLOGICAL THEORY: A SURVEY
Short Title: ANTHROPOLOGICAL THEORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the major theorists and theoretical schools of social-cultural anthropology. Strongly recommended for majors.
ANTH 303 - INTRODUCTION TO ARCHAEOLOGICAL SCIENCE
Short Title: INTRO ARCHAEOLOGY SCIENCE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on methods of scientific analysis applied to archaeological materials, including bone, stone, pottery, glass, and metal. Methods conclude absolute dating, mineral petrography, experimental archaeology, elemental and isotopic analysis, and ancient DNA. Labs offer hands-on experience with various archaeological materials and analytical methods. Recommended Prerequisite(s): ANTH 205

ANTH 308 - THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION
Short Title: THE HISTORICAL IMAGINATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Cross-list: SWGS 336. Graduate/Undergraduate Equivalency: ANTH 508. Mutually Exclusive: Cannot register for ANTH 308 if student has credit for ANTH 508.

ANTH 309 - GLOBAL CULTURES
Short Title: GLOBAL CULTURES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine specific cultural debates and issues that have "overflowed" national boundaries. Topics will include student movements, democracy and citizenship, and the internationalization of professional and popular culture. Graduate/Undergraduate Equivalency: ANTH 509. Mutually Exclusive: Cannot register for ANTH 309 if student has credit for ANTH 509.

ANTH 310 - CONTEMPORARY CHINESE CULTURE
Short Title: CONTEMPORARY CHINESE CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This introductory course is designed to encourage ways of thinking about: Cultural China—a broad-ranging concept that includes the People's Republic of China, the newly established Special Administrative Region (SAR) of Hong Kong, the Republic of China on Taiwan, and overseas Chinese communities throughout the world.

ANTH 311 - MASCULINITIES
Short Title: MASCULINITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home, and war. Cross-list: SWGS 333. Graduate/Undergraduate Equivalency: ANTH 511. Mutually Exclusive: Cannot register for ANTH 311 if student has credit for ANTH 511.

ANTH 312 - THE ARCHAEOLOGY OF AFRICA
Short Title: THE ARCHAEOLOGY OF AFRICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Cross-list: MDEM 311. Graduate/Undergraduate Equivalency: ANTH 512. Mutually Exclusive: Cannot register for ANTH 312 if student has credit for ANTH 512.
ANTH 314 - SHIPS IN THE ANTHROPOLOGICAL IMAGINATION
Short Title: SHIPS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course interrogates what we can learn about social, political and economic life by examining ships. Ships have long inspired social theory and anthropological thinking. Seen from the shore, ships not only carried commodities, but also signified conquest, disease, and imperial power. They were characterized as instruments of economic development for some and as tools of oppression for others. As shipping and logistics have emerged as defining features of contemporary global exchange, ships have acquired new forms and functions. In addition to analyzing shipyards, ports, and ship-breaking facilities, this course will look at a wide-range of vessels, such as slave ships, spaceships, containerships, pirate ships, and rescue vessels and refugee ships in different parts of the world. Graduate/Undergraduate Equivalency: ANTH 514.

ANTH 315 - ZOOARCHAEOLOGY
Short Title: ZOOARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the study of ancient animal remains. Through laboratory exercises, students learn to identify bones and teeth of diverse animals and to distinguish natural and anthropogenic processes affecting fossil and archaeological bones. Key topics in human-animal relations are addressed, including paleoecology, the food quest, animal domestication, and the roles of animals in ancient culinary, ritual, and other social settings; as well as covering relevance of the past to present-day issues such as conservation biology. Graduate/Undergraduate Equivalency: ANTH 515. Recommended Prerequisite(s): ANTH 205

ANTH 316 - BLACK DECOLONIAL FEMINISMS IN THE AMERICAS
Short Title: BLACK DECOLONIAL FEMINISMS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will use both historical and contemporary readings focusing on Black and decolonial/anticolonial feminisms as theory and praxis to reflect on the particular experiences of Afro-descendants throughout the Americas. Through a close reading of scholarly and popular texts focusing on the experiences of Black women throughout the Americas (with particular emphasis on Latin America and the Caribbean) we will engage with themes including transnationalism and migration, language, belonging, gender and sexuality, land rights, social inequality and practices of resistance. We will also analyze how art (music, visual and performance art) and activism represent important sites of resistance to contemporary struggles faced by Black communities. Graduate/Undergraduate Equivalency: ANTH 516.

ANTH 317 - REVOLUTIONS AND UTOPIAS
Short Title: REVOLUTIONS AND UTOPIAS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In order to gain a more precise grasp of our contemporary political challenges and possibilities, this course in political anthropology investigates a wide range of historical and contemporary cases of rapid political and social transformation and carefully examines the ideas, desires and utopias that inspired them. Graduate/Undergraduate Equivalency: ANTH 517. Mutually Exclusive: Cannot register for ANTH 317 if student has credit for ANTH 517.

ANTH 319 - SYMBOLISM AND POWER
Short Title: SYMBOLISM AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course considers anthropological theories of the state and examines ethnographic accounts of states in some unexpected places - that is, outside the official realm of government bureaucracies and institutionalized politics. Topics include so-called "stateless societies," planning and bureaucratic rationality, violence and power, and ethnographic methods for studying the state. Graduate/Undergraduate Equivalency: ANTH 519. Mutually Exclusive: Cannot register for ANTH 319 if student has credit for ANTH 519.
ANTH 320 - CLIMATE CHANGE AND SOCIAL INEQUALITY  
Short Title: CLIMATE CHANGE SOC. INEQUALITY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course uses a social scientific approach to analyze and understand the relationship between climate change and social inequality. Through course readings, discussion and guest speakers, students will examine how the social, political, economic and ecological impacts of climate change exacerbate existing social inequities and disproportionately affect vulnerable communities. The course will also explore the concept of climate justice as a political and ethical framework for addressing climate change impacts and inequality.

ANTH 321 - SOCIAL LIFE OF DNA  
Short Title: SOCIAL LIFE OF DNA  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Course Level: Undergraduate Upper-Level  
Description: This upper level seminar examines the increasing significance of genetics as a central component of our social, economic, and political life. As the potential applications of DNA to our social life increasingly appear endless, this course asks how is genetic information reshaping our understanding of the value of life itself? In addition to identifying markers, scientific knowledge production around genetic information is reconstituting key ideas of risk, care, capital that impact our ideas of disability, race, kinship, citizenship, nationalism, and justice. In this class, our aim is to ask a) what is historically and materially distinct about genetic information as a metaphor for social processes, b) how is the value of life itself being reproduced and transformed for whom, and c) what are potential consequences we face by relating to one another through the geneticization of social life? Mutually Exclusive: Cannot register for ANTH 321 if student has credit for ANTH 521.

ANTH 322 - GLOBAL IM/MOBILITIES: BORDERS, MIGRATION, AND CITIZENSHIP  
Short Title: GLOBAL IM/MOBILITIES  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: How do cultural conceptions of race, ethnicity, and nationalism shape who we think we are? How are these ideas related to Western views of the relations between nature and society, and how do these differ from those in other cultures? Graduate/Undergraduate Equivalency: ANTH 522. Mutually Exclusive: Cannot register for ANTH 322 if student has credit for ANTH 522.
ANTH 329 - BODIES, SENSUALITIES, AND ART  
Short Title: BODIES, SENSUALITIES, & ART  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Cross-cultural approaches to art and the senses. Students may engage any medium. Emphasis to be placed on issues generated from performance in the arts rather than from academia. Contrasts art and academic knowledge to explore alternative epistemologies and aesthetics. Graduate/Undergraduate Equivalency: ANTH 529. Mutually Exclusive: Cannot register for ANTH 329 if student has credit for ANTH 529.

ANTH 330 - GEOARCHAEOLOGY  
Short Title: GEOARCHAEOLOGY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Anthropology or Earth Science. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Overview of the basics of the analysis of soils and sediments as related to archaeological deposits, and introducing the key concepts of surficial geology, site formation, landscape evolution, and the scope of depositional environments. Includes practical methods for describing stratigraphy, sediments and soil profiles in the field.

ANTH 331 - ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST  
Short Title: ANCIENT NEAR EAST  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An in-depth examination of the art and archaeology of ancient Mesopotamia, Syria, Anatolia and Persia. Beginning in the Neolithic period, we will examine the development of Near Eastern art and architecture through the study of ancient sites and their associated material culture. Cross-list: HART 311.

ANTH 332 - THE SOCIAL LIFE OF CLEAN ENERGY  
Short Title: SOCIAL LIFE OF CLEAN ENERGY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course considers the phenomenon of renewable energy, using a social scientific approach to analyze the various forces and interests involved in the development of renewable energy projects (such as hydropower, solar and wind) in both the global North and South. No prerequisites required. Cross-list: ENST 332. Graduate/Undergraduate Equivalency: ANTH 532. Mutually Exclusive: Cannot register for ANTH 332 if student has credit for ANTH 532.

ANTH 333 - THE MATERIAL WORLD  
Short Title: THE MATERIAL WORLD  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores the mutually constructive relationship between humans and objects; it asks how objects are made meaningful and active by humans, and how, in turn, people acquire meaning, relations, and agency through material culture. Topics include: commoditization, consumption, gift exchange, subjects and objects, identity, fashion, collecting, art, and authenticity. Graduate/Undergraduate Equivalency: ANTH 533. Mutually Exclusive: Cannot register for ANTH 333 if student has credit for ANTH 533.

ANTH 335 - ANTHROPOLOGY AS CULTURAL CRITIQUE  
Short Title: ANTHROPOLOGY/CULTURAL CRITIQUE  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The critical assessment and interpretation of Euroamerican social institutions and cultural forms have always been an integral part of anthropology's intellectual project. This course will explain the techniques, history, and achievements of such critique. It will also view the purpose in the context of a more generational tradition of critical social thought in the West, especially the U.S. Graduate/Undergraduate Equivalency: ANTH 535. Mutually Exclusive: Cannot register for ANTH 335 if student has credit for ANTH 535.
ANTH 336 - BECOMING A DOCTOR
Short Title: BECOMING A DOCTOR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course introduces such classic anthropological concepts as the rite of passage and the cultural system as frames for the investigation of the professionalization of medicine as a discipline, medical training and the changing epistemologies of medical knowledge and the changing scope and content of the medical cosmos. Graduate/Undergraduate Equivalency: ANTH 536. Mutually Exclusive: Cannot register for ANTH 336 if student has credit for ANTH 536.

ANTH 337 - JAPANESE POPULAR CULTURE
Short Title: JAPANESE POPULAR CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Japan and the U.S. are connected by a mutual fascination with each other's mass culture, with each country frequently employing the other as inspiration or cautionary tale. We will examine selections from anthropological work, juxtaposing it with theoretical readings on the nature of publics, crowds, and image circulation in general.

ANTH 338 - READING POPULAR CULTURE
Short Title: READING POPULAR CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course examines a number of cases from popular genres-romance, novels, television sit-coms, tourist sites, movies, rock music and submits them to a variety of theoretical approaches from disciplines such as anthropology, sociology, literary studies, and philosophy. Graduate/Undergraduate Equivalency: ANTH 538. Mutually Exclusive: Cannot register for ANTH 338 if student has credit for ANTH 538.

ANTH 339 - IMAGE, MEDIA, ANTHROPOLOGY
Short Title: IMAGE, MEDIA, ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The intersection of anthropology and aesthetics is making a significant contribution to the discipline. From the modern to the postmodern to the contemporary work of visual anthropology we will examine what it means to take up a philosophy of aesthetics, and consider how we can integrate this genealogy of thought into contemporary anthropological projects.

ANTH 340 - NEOLIBERALISM AND GLOBALIZATION
Short Title: NEOLIBERALISM & GLOBALIZATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the relationship between two of the most powerful forces shaping the world today: economic globalization and political neoliberalism. Using ethnographic, policy and theoretical documentation drawn from a variety of case studies, we will reconstruct the interrelated origins of globalization and neoliberalism and map their social and cultural impacts across the world. Graduate/Undergraduate Equivalency: ANTH 540. Mutually Exclusive: Cannot register for ANTH 340 if student has credit for ANTH 540.

ANTH 341 - MUSEUMS AND HERITAGE: EXHIBITING ART, EXHIBITING CULTURE
Short Title: MUSEUMS AND HERITAGE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A wide-ranging introduction to museum studies with a particular focus on the collection and exhibition of cultural heritage materials. We will examine how heritage objects are displayed and represented in museums of art, natural historical history, and heritage. Topics include looking and ethics of collecting, policies of display, changing roles for museums; exhibition design and curatorial practice. Cross-list: HURC 341. Graduate/Undergraduate Equivalency: ANTH 541. Mutually Exclusive: Cannot register for ANTH 341 if student has credit for ANTH 541.
ANTH 342 - ETHNOGRAPHIES OF CARE
Short Title: ETHNOGRAPHIES OF CARE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An ethnographically grounded exploration of the political, social, and intimate relations that constitute care in various situations of life and death. We ask how particular populations come to be understood as requiring, receiving, or being entitled to care? Who becomes obliged to provide care? And what are care’s collateral effects? Graduate/Undergraduate Equivalency: ANTH 542. Mutually Exclusive: Cannot register for ANTH 342 if student has credit for ANTH 542.

ANTH 343 - NEW RELIGIOUS MOVEMENTS IN AFRICA
Short Title: NEW RELIG MOVEMENTS IN AFRICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discusses new religious movements and the religious, sociological, and political factors leading to their rise, also missionary and colonial reactions to them. Examines their relationship to indigenous religions, political praxis, and their focus on this-worldly salvation in the wake of political and economic marginality. Cross-list: RELI 342.

ANTH 344 - CITY/CULTURE
Short Title: CITY/CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course treats both the theorization and the ethnographic exploration of the urban imaginary; urban spaces and practices; urban, suburban, and post-urban planning; city-states, colonial cities, and capital cities; and the late 20th century metropolis. Graduate/Undergraduate Equivalency: ANTH 544. Mutually Exclusive: Cannot register for ANTH 344 if student has credit for ANTH 544.

ANTH 345 - THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT
Short Title: ARCHAEOLOGY IN SOCIAL CONTEXT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the way that archaeological evidence of the past has been used and viewed by particular groups at different times. Using case studies, the course considers issues of gender, race, Eurocentrism, political domination and legitimacy that emerge from critical analysis of representations of the past by archaeologists, museums, and collectors. Graduate/Undergraduate Equivalency: ANTH 545. Mutually Exclusive: Cannot register for ANTH 345 if student has credit for ANTH 545.

ANTH 346 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES
Short Title: VIRTRECONSTR HISTORCL CITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course, part of the HRC’s Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ARCH 310, COMP 316, HART 316.

ANTH 347 - THE U.S. AS A FOREIGN COUNTRY
Short Title: THE U.S. AS A FOREIGN COUNTRY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the way that archaeological evidence of the past has been used and viewed by particular groups at different times. Using case studies, the course considers issues of gender, race, Eurocentrism, political domination and legitimacy that emerge from critical analysis of representations of the past by archaeologists, museums, and collectors. Graduate/Undergraduate Equivalency: ANTH 545. Mutually Exclusive: Cannot register for ANTH 345 if student has credit for ANTH 545.
ANTH 348 - ANTHROPOLOGIES OF NATURE
Short Title: ANTHROPOLOGIES OF NATURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the uses and makings of nature in accounts of the human and post-human. It introduces students to nature as an object of study, as an analytic and as a heuristic. Some of the topics the course explores include the nature-culture dyad, nature as resource, science and technology and the remaking of nature, economies of nature, materiality, nature and kinship, and natural ontologies. Graduate/Undergraduate Equivalency: ANTH 548. Mutually Exclusive: Cannot register for ANTH 348 if student has credit for ANTH 548.

ANTH 349 - THE ANTHROPOLOGY OF ETHICS
Short Title: THE ANTHROPOLOGY OF ETHICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Philosophical ethics argues over the proper criteria of the definition and the assessment of ethical action. This course focuses on an emerging and increasingly salient anthropological project: empirical inquiry into the themes and variations of ethical systems and the sociocultural rationale for their existence and reproduction. Graduate/Undergraduate Equivalency: ANTH 549. Mutually Exclusive: Cannot register for ANTH 349 if student has credit for ANTH 549.

ANTH 351 - CULTURES OF NATIONALISM
Short Title: CULTURES OF NATIONALISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the cultural dimensions of nationalism, particularly around the creation of forms of "peoplehood" that seem to be presupposed by almost all nation-building projects. Texts to be analyzed will include the Declaration of Independence, the United States Constitution, and the Declaration of the Rights of Man. Graduate/Undergraduate Equivalency: ANTH 551. Mutually Exclusive: Cannot register for ANTH 351 if student has credit for ANTH 551.

ANTH 353 - CULTURES OF INDIA
Short Title: CULTURES OF INDIA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retrench normative arrangements of gender. Cross-list: SWGS 353. Graduate/Undergraduate Equivalency: ANTH 553. Mutually Exclusive: Cannot register for ANTH 353 if student has credit for ANTH 553.

ANTH 354 - ILLNESS, DISABILITY, AND THE GENDERED BODY
Short Title: DISABILITY AND GENDERED BODIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the uses and makings of nature in accounts of the human and post-human. It introduces students to nature as an object of study, as an analytic and as a heuristic. Some of the topics the course explores include the nature-culture dyad, nature as resource, science and technology and the remaking of nature, economies of nature, materiality, nature and kinship, and natural ontologies. Graduate/Undergraduate Equivalency: ANTH 548. Mutually Exclusive: Cannot register for ANTH 354 if student has credit for ANTH 554.

ANTH 355 - SPACE, PLACE, AND LANDSCAPE
Short Title: SPACE, PLACE, LANDSCAPE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of the way archaeologists study space, place and landscape, including studies that emphasize ecological, symbolic, political economic and religious aspects. Recent theoretical work on space, place and landscape will be emphasized, as well as archaeological methods of investigation and interpretation, including remote sensing, surveying, and GIS. Graduate/Undergraduate Equivalency: ANTH 555. Mutually Exclusive: Cannot register for ANTH 355 if student has credit for ANTH 555.
ANTH 358 - THE FOURTH WORLD: ISSUES OF INDIGENOUS PEOPLE
Short Title: FOURTH WORLD: INDIGENOUS PEOPLE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In contrast with people self-identified within political structures of the First, Second and Third Worlds, Fourth World peoples are, generally speaking, "stateless peoples." In this course we will examine both how this "unofficial" status affects their struggle for self-determination and how native peoples engage traditional beliefs and practices for self-empowerment. Through readings, films and speakers we will examine current conflicts facing indigenous people in North and South America, the Soviet Union, Europe, Asia, and Australia. Graduate/Undergraduate Equivalency: ANTH 558. Mutually Exclusive: Cannot register for ANTH 358 if student has credit for ANTH 558.

ANTH 359 - ASIAN TOPICS
Short Title: ASIAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This introductory course covers various topics relating to the ethnography and anthropology of Asian cultures. These may include some or all of the following: popular culture and cultural production, religion, cultural aspects of development and globalization.

ANTH 360 - TOPICS IN AFRICAN CULTURE AND ETHNOGRAPHY
Short Title: AFRICAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This introductory course covers various topics relating to the ethnography and anthropology of African cultures. These may include some or all of the following: popular culture and cultural production, cultural aspects of development and globalization.

ANTH 361 - LATIN AMERICAN TOPICS
Short Title: LATIN AMERICAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines contemporary cultural and political dynamics in Latin America. Topics include: race, ethnicity and indigenousness; borders, migrations and diaspora; genocide and state violence; neo-colonialisms and neo-liberalisms; sexuality, gender and class dynamics; social movements and activism; the politics and practices of medicine and religion; popular culture, media and technology. Graduate/Undergraduate Equivalency: ANTH 561. Mutually Exclusive: Cannot register for ANTH 361 if student has credit for ANTH 561.

ANTH 362 - ARCHAEOLOGICAL FIELD TECHNIQUES
Short Title: ARCHAEOLOGICAL FLD TECHNIQUES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 205
Description: Methods used in fieldwork, laboratory analysis, and interpretation of archaeological data from a local site excavated by the class. Graduate/Undergraduate Equivalency: ANTH 562. Repeatable for Credit.

ANTH 363 - THE ARCHAEOLOGY OF CITIES AND STATES
Short Title: ARCHAEOLOGY CITIES AND STATE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A comparative study of the archaic cities and states of Mesopotamia, Egypt, the Indus, China, and South America, emphasizing the causes and conditions of their origins. Graduate/Undergraduate Equivalency: ANTH 563. Mutually Exclusive: Cannot register for ANTH 363 if student has credit for ANTH 563.
ANTH 364 - AFRICAN ARCHAEOLOGY FIELD TECHNIQUES
Short Title: AFRICAN ARCHAEOLOGY FIELD TECHNIQUES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, basic field archaeology techniques are taught on-site in an archaeological context in Africa with emphasis on excavation methods, artifact recovery, and recording techniques. Students will excavate stone structures and a variety of historical deposits. Fieldwork takes place in Africa, June-July. Graduate/Undergraduate Equivalency: ANTH 564. Mutually Exclusive: Cannot register for ANTH 364 if student has credit for ANTH 564. Repeatable for Credit.
Course URL: www.songomnara.rice.edu/fieldschool.htm (http://www.songomnara.rice.edu/fieldschool.htm)

ANTH 365 - POLITICS OF REPRESENTATION: HOW WE UNDERSTAND "WAR" AND "THE RACIAL OTHER"
Short Title: POLITICS OF REPRESENTATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Does media show how things really are? This class explores the politics of representation, particularly in times of social mayhem, revolution, and war. Although we will focus primarily on cultural and political representations of the Israeli-Palestinian conflict, this class will also put this dispute in comparison with other global events. Cross-list: SOCI 365.

ANTH 366 - SCIENCE, LOCAL AND GLOBAL
Short Title: SCIENCE, LOCAL AND GLOBAL
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores science as a transnational phenomenon, focusing on the pathways along which it flows around the world. Topics include differences in local styles of reasoning, dynamics of international scientific collaborations, transnational migration of knowledge workers, the role of science in nationalist projects, and the commodification of science. Graduate/Undergraduate Equivalency: ANTH 566. Mutually Exclusive: Cannot register for ANTH 366 if student has credit for ANTH 566.

ANTH 370 - ARCHAEOLOGICAL LAB ANALYSIS
Short Title: ARCHAEOLOGICAL LAB ANALYSIS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Techniques of processing, conserving, and recording archaeological materials are emphasized. Students will become familiar with procedures for pottery, glass, metals, and building materials in addition to plant and animal remains. Course work includes lectures, hands-on lab work, and informal discussion. Graduate/Undergraduate Equivalency: ANTH 570. Repeatable for Credit.

ANTH 371 - MONEY AND EVERYDAY LIFE
Short Title: MONEY AND EVERYDAY LIFE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Money is such a part of everyday modern life that it is hard for us to imagine living without it. Yet in many pre-modern societies, gift-exchange was as important as money is in our own. This course will look at the cultural dimensions of systems of exchange, ranging from gift giving among Northwest Coast Indians to foreign currency exchanges between financial institutions. Along with the classic work of Marx and Simmel on money and capital, we will also cover some of the anthropological work on gifts and exchange, such as that of Mauss, Levi-Strauss, and Bourdieu, as well as some of the contemporary debates initiated by Bataille and Derrida. Graduate/Undergraduate Equivalency: ANTH 571. Mutually Exclusive: Cannot register for ANTH 371 if student has credit for ANTH 571.

ANTH 372 - CULTURES OF CAPITALISM
Short Title: CULTURES OF CAPITALISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of us think of capitalism as primarily an economic phenomenon. Yet, it also has a profoundly cultural dimension. This class will examine how capitalism and related phenomena, such as commodification, markets and marketing, corporate finance and the calculation of risk, both affect and are affected by culture. We will consider the impact of capitalist markets on social relations and gender identities; on ideals of patriotism, responsibility and success; and on popular culture and leisure practices. We will also ask how people resist, appropriate and modify in culturally specific ways the logic and institutions of a global capitalist order. Graduate/Undergraduate Equivalency: ANTH 572. Mutually Exclusive: Cannot register for ANTH 372 if student has credit for ANTH 572.
ANTH 374 - ASIAN PREHISTORY
Short Title: ASIAN PREHISTORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course covers select topics in the archaeology and paleoanthropology of Asia from the arrival of Homo erectus to the development of the earliest civilizations. Class discussions will focus on the history of exploration in Asia and the main debates that have shaped the study of prehistory in the largest continent on Earth. Graduate/Undergraduate Equivalency: ANTH 574. Mutually Exclusive: Cannot register for ANTH 374 if student has credit for ANTH 574.

ANTH 376 - ART AND ACTIVISM
Short Title: ART AND ACTIVISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores art and social change in times of mass displacement, racial oppression, and war. It surveys the efforts involved in achieving justice and the possible implications of remaining historically mute and hopeless. The class will host contemporary activists and artists concerned with radical visions of hope in Houston. Cross-list: SOCI 376.

ANTH 378 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser-known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: FILM 378, HART 391. Graduate/Undergraduate Equivalency: ANTH 578. Mutually Exclusive: Cannot register for ANTH 378 if student has credit for ANTH 578.

ANTH 380 - GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS
Short Title: GLOBAL HEALTH JUSTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 580. Mutually Exclusive: Cannot register for ANTH 380 if student has credit for ANTH 580.

ANTH 381 - MEDICAL ANTHROPOLOGY
Short Title: MEDICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cultural, ecological, and biological perspectives on human health and disease throughout the world. Graduate/Undergraduate Equivalency: ANTH 581. Mutually Exclusive: Cannot register for ANTH 381 if student has credit for ANTH 581.

ANTH 382 - BODY, TECHNOLOGY, AND ENHANCEMENT
Short Title: BODY, TECHNOLOGY, ENHANCEMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on the body and the various technologies that are used to optimize it. Includes topics such as cosmetic surgery, diet supplementation, pharmaceutical enhancement and body art. Graduate/Undergraduate Equivalency: ANTH 582. Mutually Exclusive: Cannot register for ANTH 382 if student has credit for ANTH 582.
ANTH 384 - PALEO-TECHNOLOGY
Short Title: PALEO-TECHNOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This Stone Age semester will immerse students in hunter-gatherer lifeways and the innovations that allowed our ancestors to survive. Student 'bands' will complete cooperative learning tasks to ensure group survival (assessment). Most class meetings will be held in outdoor space on campus. Graduate/Undergraduate Equivalency: ANTH 584. Mutually Exclusive: Cannot register for ANTH 384 if student has credit for ANTH 584.

ANTH 385 - MEDIA, CULTURE, AND SOCIETY
Short Title: MEDIA, CULTURE, AND SOCIETY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and newsmaking, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 585. Mutually Exclusive: Cannot register for ANTH 385 if student has credit for ANTH 585.

ANTH 386 - MEDICAL ANTHROPOLOGY OF FOOD AND HEALTH
Short Title: MEDICINE, FOOD, AND HEALTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Food is increasingly understood and manipulated at the molecular level and used in therapy or disease prevention. This course focuses on the fluid intersection of biomedicine and nutrition as changes in agriculture, food safety, and research into the physiological and genetic effects of food alter how Western cultures eat. Graduate/Undergraduate Equivalency: ANTH 586. Mutually Exclusive: Cannot register for ANTH 386 if student has credit for ANTH 586.

ANTH 387 - ASIAN AMERICAN CONTEMPORARY COMMUNITIES
Short Title: ASIAN AMERICAN COMMUNITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course will investigate the diverse cultural traditions and shared experiences of Asian Americans in the United States. By analyzing historical works, literary texts, and films, we will explore a range of topics including Asian immigration, gender roles, identity formation, and ethnic media. Cross-list: ASIA 387.

ANTH 388 - THE ARCHAEOLOGY OF FOOD
Short Title: ARCHAEOLOGY OF FOOD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers a broad anthropological perspective on food and culture, as well as the way that archaeologists attempt to reconstruct the subsistence technologies and diets of ancient peoples. Topics include forager and agricultural subsistence technologies, the origins of food production, feasting, food and identity, and gender and food. Graduate/Undergraduate Equivalency: ANTH 589. Mutually Exclusive: Cannot register for ANTH 389 if student has credit for ANTH 589.

ANTH 389 - CULTURE, NARRATION, AND SUBJECTIVITY
Short Title: CULTURE,NARRATION,SUBJECTIVITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how linguistic and narrative structures interact to produce specific cultures of interpretation. The focus will be on linguistic and literary representations of subjectivity. This course will use novels by Western authors, such as Virginia Woolf and Dostoevsky, and some Chinese materials as comparison. Graduate/Undergraduate Equivalency: ANTH 590. Mutually Exclusive: Cannot register for ANTH 390 if student has credit for ANTH 590.
ANTH 391 - SPECULATIVE FUTURES
Short Title: SPECULATIVE FUTURES
Department: Anthropology
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Drawing from "CliFi," “Speculative Fiction,” and global anthropological case studies, this course analyzes a series of potential futures as earthly conditions continue to be altered by human activity. Students will develop speculative future models through assessing climate conditions, population displacement, ethics, ecological transformations and human practices and values. Cross-list: ENST 391. Graduate/Undergraduate Equivalency: ANTH 591. Mutually Exclusive: Cannot register for ANTH 391 if student has credit for ANTH 591.

ANTH 392 - KINGS, QUEENS, AND COMMONERS: THE ARCHAEOLOGY OF ANCIENT MESOAMERICA
Short Title: ANCIENT MESOAMERICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: With an approach in archaeological methods and theories, Ancient Mesoamerica investigates the lives of ancient kings, queens, and commoners of pre-Columbian Central America. The course includes an overview of the culture history of indigenous cultures in this study area, with emphasis on topics of social archaeology that hold relevance to today’s world.

ANTH 393 - THE ANTHROPOLOGY OF TOXICITY: RETHINKING HEALTH AND SOVEREIGNTY
Short Title: THE ANTHROPOLOGY OF TOXICITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through ethnographic, scientific, and personal accounts of toxicity in a range of sites—from warzones to office buildings—this course explores toxicity as an analytic that helps us think critically about health and sovereignty. We explore the way that colonial geographies imprint geographies of toxicity and the ways that capitalism and consumption produce and distribute toxicity. In relation to health, we explore the ways that the materiality and biology of toxic exposure are embodied in specific ways that undermine singular or universalizable concepts and measures of human and environmental health and require us to think about the health in relation to the specificities of race, class, gender, disability, and intimacy in particular places and times. In relation to sovereignty, we explore the ways that the promiscuous movement of toxicants provokes but also eludes regulations that hew to the ridged boundaries of law and territory and raise new questions of accountability and evidence. Graduate/Undergraduate Equivalency: ANTH 593. Mutually Exclusive: Cannot register for ANTH 393 if student has credit for ANTH 593.

ANTH 394 - THE ARCHAEOLOGY OF SLAVERY AND THE AFRICAN DIASPORA
Short Title: THE ARCHAEOLOGY OF SLAVERY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers methodological and thematic approaches employed in the historical archaeology of slavery and the African diaspora in the Americas from the fifteenth to the nineteenth centuries. Archaeologists are uniquely positioned to study enslaved people through their material culture, and in this case especially, archaeologists have the opportunity to apply their particular approaches since written documents relating to the African diaspora are overwhelmingly written by the enslavers, not the enslaved. In this class emphasis is placed on what the archaeological analyses of the material record reveal about slavery and the everyday lives of enslaved individuals, including plantation life, labor management of the planters, work habits of the enslaved, leisure time, economic networks, kinship, religious practices, retentions, and resistance, to name but a few. Students interested in African and African diaspora studies, archaeology, slavery, and race should find this course useful. Graduate/Undergraduate Equivalency: ANTH 594. Mutually Exclusive: Cannot register for ANTH 394 if student has credit for ANTH 594.

ANTH 395 - CULTURES AND COMMUNICATION
Short Title: CULTURES AND COMMUNICATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Investigates the relations between different forms of communication - speech, print, film, and cultural constructions such as audiences, publics, and communities. Graduate/Undergraduate Equivalency: ANTH 595. Mutually Exclusive: Cannot register for ANTH 395 if student has credit for ANTH 595.

ANTH 396 - LAW AND RESISTANCE IN THE EVERYDAY
Short Title: LAW AND RESISTANCE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore how people interact with the law in their everyday lives—in the U.S. and elsewhere. Examples will include how individuals experience and respond to policing, examining the effects of immigration and border security policies, and tracing how people and groups mobilize to challenges laws perceived as unjust. Cross-list: SOCI 396. Graduate/Undergraduate Equivalency: ANTH 596. Mutually Exclusive: Cannot register for ANTH 396 if student has credit for ANTH 596.
ANTH 397 - ANTHROPOLOGY JOURNAL CLUB
Short Title: ANTHROPOLOGY JOURNAL CLUB
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students select, read, and discuss current articles from leading journals in sociocultural anthropology and related fields. Department Permission Required. Graduate/Undergraduate Equivalency: ANTH 597. Repeatable for Credit.

ANTH 398 - ETHNOGRAPHIC RESEARCH METHODS
Short Title: ETHNOGRAPHIC RESEARCH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course considers the practice of ethnographic research (design, data collection and analysis). Topics include the contentious canonization of fieldwork & the ethnographic method, ethics & human subjects, rethinking the field & collaboration. Projects include participant observation, field notes, interviewing, and analysis of archival, ephemeral & audio/visual materials. Graduate/Undergraduate Equivalency: ANTH 598. Mutually Exclusive: Cannot register for ANTH 398 if student has credit for ANTH 598.

ANTH 399 - ANTHROPOLOGY OF REPRODUCTION
Short Title: ANTHROPOLOGY OF REPRODUCTION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines a variety of issues related to reproduction. Using a cross-cultural and critical approach, we will analyze how social negotiations over biological processes bring reproduction to the center of social theory. We will explore a variety of topics, such as pregnancy, prenatal testing and childbirth, reproductive rights, kinship and belonging, the use of new reproductive technologies, and the politics of the nation-state as they affect women's and men's reproductive lives. Ethnographic readings and examples from around the world will illustrate our discussions and enable students to gain an understanding of the complex intersection of local and global politics regarding reproductive experiences and choices. Recommended Prerequisite(s): ANTH 381

ANTH 400 - GLOBAL URBAN LAB
Short Title: GLOBAL URBAN LAB
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Guided independent research with lab component to study questions under the topics of sports, healthcare, transportation, immigration, and urban development in Houston and other global cities covered in the Global Urban Lab program. Instructor Permission Required. Mutually Exclusive: Cannot register for ANTH 400 if student has credit for POST 400/SOSC 400.

ANTH 403 - ANALYZING PRACTICE
Short Title: ANALYZING PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A critical review of work informed by what has sometimes been deemed the "key concept" of anthropological theory and research since the 1960s. Special attention will be devoted to the analytics of practice developed by Foucault, by Bourdieu, and by de Certeau. Graduate/Undergraduate Equivalency: ANTH 603. Mutually Exclusive: Cannot register for ANTH 403 if student has credit for ANTH 603.

ANTH 404 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Directed reading and preparation of written papers on anthropological subjects not offered in the curriculum and advanced study of subjects on which courses are offered. Instructor Permission Required. Repeatable for Credit.

ANTH 405 - MUSEUM INTERNSHIP AND DIRECTED READING
Short Title: MUSEUM INTERNSHIP
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines a research-oriented internship at a local museum with directed readings in preparation for the specific focus of the internship. Instructor Permission Required. Recommended Prerequisite(s): ANTH 341.
ANTH 409 - SLOW READING SEMINAR
Short Title: SLOW READING SEM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to develop "slow reading" techniques that allow students to carefully pursue lines of thought that emerge from a text. It is anchored in ethnographic texts and will require students to identify and explore the conceptual genealogies and intellectual conversations in which a text participates. We will explore the required texts and complement them with collectively defined thematic. The seminar will train student in different reading approaches all characterized by slow engagement. Graduate/Undergraduate Equivalency: ANTH 609. Repeatable for Credit.

ANTH 410 - THE ETHNOGRAPHY OF DEVELOPMENT
Short Title: THE ETHNOGRAPHY OF DEVELOPMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course suggests the necessity of a solid ethnographic grounding for both practical development work and for further intellectual growth of the discipline. Graduate/Undergraduate Equivalency: ANTH 610. Mutually Exclusive: Cannot register for ANTH 410 if student has credit for ANTH 610.

ANTH 413 - CULTURE AFTER COMMUNISM
Short Title: CULTURE AFTER COMMUNISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines cultural transformations in the late- and post-socialist societies of East-Central Europe, the former Soviet Union, and Asia. Explores everyday discourses and practices through which new forms of property, selfhood, nationalism, and the state are emerging, and the legacy of cold war politics for ethnographic representation of these societies. Graduate/Undergraduate Equivalency: ANTH 613. Mutually Exclusive: Cannot register for ANTH 413 if student has credit for ANTH 613.

ANTH 417 - ONTOLOGIES, VITALITIES, THINGS
Short Title: ONTOLOGIES, VITALITIES, THINGS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will focus on emerging and established thematics in cultural anthropology that have been drawn from philosophical (and other) interventions concerning being, matter, vibrancy, vitality and objects and considers how these conceptual domains can be productively engaged in the empirical work of anthropology. Graduate/Undergraduate Equivalency: ANTH 617. Mutually Exclusive: Cannot register for ANTH 417 if student has credit for ANTH 617.

ANTH 418 - WRITING ETHNOGRAPHY
Short Title: WRITING ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Writing Culture, resulted in a return to the monograph, but in alternate forms, opening a space for post-humanist and interdisciplinary engagements with ethnography. This course explores the different forms and possibilities for writing ethnography. Graduate/Undergraduate Equivalency: ANTH 618. Recommended Prerequisite(s): Upper division coursework in English and/or Anthropology

ANTH 420 - ETHNOGRAPHY STUDIO
Short Title: ETHNOGRAPHY STUDIO
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will read a selection of contemporary ethnographies deemed "exemplary" by diverse audiences paired with theoretical works that the authors claim in their arguments. The course will focus on how ethnographies are structured, the central issues they investigate, and how they go about doing this. The central task of the class is to analyze, critically but also productively, what rigor and creativity mean in the ethnographic investigation of contemporary and recurring questions and problems, relations between questions, theory and ethnography will also be explored through students' own ethnographic writing. Graduate/Undergraduate Equivalency: ANTH 620. Mutually Exclusive: Cannot register for ANTH 420 if student has credit for ANTH 620.
ANTH 424 - MAJOR FIGURES IN CULTURAL AND SOCIAL THOUGHT
Short Title: MAJOR FIGURES IN CULTURAL AND SOCIAL THOUGHT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar course asks why "infrastructure" – that which enables other things to happen – has recently become such an important concept in the human sciences. After reviewing recent and classic theoretical approaches we explore recent anthropological studies of infrastructures-in-action ranging from information and media infrastructures to environmental and biotic infrastructures to infrastructures of governance and power. Graduate/Undergraduate Equivalency: ANTH 622. Mutually Exclusive: Cannot register for ANTH 422 if student has credit for ANTH 622.

ANTH 423 - AFRICAN MYTHS AND RITUALS
Short Title: AFRICAN MYTHS AND RITUALS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and that serve as a basis for the negotiation of power and ideology for members within that community. Readings from classic theorists: Durkheim, Levi-Strauss, Edmond Leach, Gennap and Turner, and contemporary theorists: Werbner, Heusch, Comaroff, and Ray. Cross-list: RELI 423.

ANTH 425 - ADVANCED TOPICS IN ARCHAEOLOGY
Short Title: ADVANCED TOPICS IN ARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 205 and ANTH 362
Description: Seminar on selected topics in archaeological analysis and theory. The course will variously focus on ceramic analysis and classification, archaeological sampling in regional survey and excavation, and statistical approaches to data analysis and presentation. Please consult with the department for additional information. Graduate/Undergraduate Equivalency: ANTH 625. Mutually Exclusive: Cannot register for ANTH 425 if student has credit for ANTH 625. Repeatable for Credit.

ANTH 426 - UNDERGROUND SPATIALITIES STUDY
Short Title: UNDERGROUND SPATIALITIES STUDY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar course will introduce students to thinking about space volumetrically and kinesthetically. It builds on scholarship that calls our attention to the geopolitics of volumetric space using underground water movement as a case study. It is a hands on studio that combines anthropology, arts, and architecture. Graduate/Undergraduate Equivalency: ANTH 626. Mutually Exclusive: Cannot register for ANTH 426 if student has credit for ANTH 626.

ANTH 428 - FEMINIST SCIENCE AND TECHNOLOGY STUDIES
Short Title: FEMINIST STS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces students to thinking about space volumetrically and kinesthetically. It builds on scholarship that calls our attention to the geopolitics of volumetric space using underground water movement as a case study. It is a hands on studio that combines anthropology, arts, and architecture. Graduate/Undergraduate Equivalency: ANTH 626. Mutually Exclusive: Cannot register for ANTH 426 if student has credit for ANTH 626.

ANTH 422 - INFRASTRUCTURES AND POWER
Short Title: INFRASTRUCTURES AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar course asks why "infrastructure" – that which enables other things to happen – has recently become such an important concept in the human sciences. After reviewing recent and classic theoretical approaches we explore recent anthropological studies of infrastructures-in-action ranging from information and media infrastructures to environmental and biotic infrastructures to infrastructures of governance and power. Graduate/Undergraduate Equivalency: ANTH 622. Mutually Exclusive: Cannot register for ANTH 422 if student has credit for ANTH 622.

ANTH 424 - MAJOR FIGURES IN CULTURAL AND SOCIAL THOUGHT
Short Title: CULTURAL AND SOCIAL THOUGHT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course comprises an in-depth examination of the career and major works of a scholar of significant influence within and beyond anthropology. In Fall 2018, the course will focus on anthropologist Mary Douglas. Graduate/Undergraduate Equivalency: ANTH 624. Mutually Exclusive: Cannot register for ANTH 424 if student has credit for ANTH 624. Repeatable for Credit.
ANTH 429 - ACTIVISM AND SOCIAL MOVEMENTS
Short Title: ACTIVISM AND SOCIAL MOVEMENTS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Movements to alleviate inequalities constitute important cultural and political interventions globally. This course examines advocacy practices to create and sustain social movements and political struggles. Cases included grassroots advocacy, NGOs, transnational and technological activism; environmental justice; human rights; gender, ethnic and sexual rights; consumption and globalization; democratization and neoliberalism. Graduate/Undergraduate Equivalency: ANTH 629. Mutually Exclusive: Cannot register for ANTH 429 if student has credit for ANTH 629.

ANTH 440 - REGULATORY TRANSLATIONS LAB
Short Title: REGULATORY TRANSLATIONS LAB
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class examines how the concept of "translation" can be used to understand the movement of regulations around our globalized world. It is designed as a research experience that will give students the opportunity to conduct archival research, produce annotated bibliographies, and conduct a literature review with an interdisciplinary approach that combines the social sciences and humanities. This is a hands on lab that will benefit students who are interested in the law from a social perspective and interdisciplinary thinking and research methods. Instructor Permission Required.

ANTH 441 - EXPLORING THE UNDERGROUND THROUGH ETHNOGRAPHY
Short Title: EXPLORING THE UNDERGROUND
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will be a hands-on research experience to explore the meaning and uses of "the underground and the subterranean" across diverse communities. Students will review existing academic literature and artistic forms of expression that explore the meaning of the underground of r scientists, activists, artists, and everyday citizens. Students will also conduct fieldwork (interviews and participant observation) with Houston communities to understand what practices bring people close to that which is not immediately visible. Instructor Permission Required.

ANTH 442 - MUSEUMS: THEORY AND PRACTICE
Short Title: MUSEUMS: THEORY & PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines readings and lectures exploring the representation of anthropological and archaeological materials in Museum exhibits with an internship at the Houston Museum of Natural Science. Graduate/Undergraduate Equivalency: ANTH 642. Mutually Exclusive: Cannot register for ANTH 442 if student has credit for ANTH 642.

ANTH 443 - ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
Short Title: RACE ETHNICITY AND HEALTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines readings and lectures exploring the representation of anthropological and archaeological materials in Museum exhibits with an internship at the Houston Museum of Natural Science. Graduate/Undergraduate Equivalency: ANTH 642. Mutually Exclusive: Cannot register for ANTH 443 if student has credit for ANTH 643.

ANTH 444 - CULTURE, PSYCHIATRY, AND MENTAL ILLNESS
Short Title: CULTURE AND MENTAL ILLNESS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines readings and lectures exploring the representation of anthropological and archaeological materials in Museum exhibits with an internship at the Houston Museum of Natural Science. Graduate/Undergraduate Equivalency: ANTH 642. Mutually Exclusive: Cannot register for ANTH 444 if student has credit for ANTH 644.
ANTH 445 - EXPERTS AND CULTURES OF EXPERTISE
Short Title: EXPERTS/EXPERTISE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Studies of experts and expert knowledge have recently become one of the most vibrant and promising areas of research in social-cultural anthropology today. This seminar reviews recent anthropological research on experts and their cultures of expertise and situates it in comparison to theoretical, sociological and historical engagements of expert cultures. Graduate/Undergraduate Equivalency: ANTH 645. Mutually Exclusive: Cannot register for ANTH 445 if student has credit for ANTH 645.

ANTH 446 - ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY
Short Title: ADV BIOMEDICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 381
Description: Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Graduate/Undergraduate Equivalency: ANTH 646. Mutually Exclusive: Cannot register for ANTH 446 if student has credit for ANTH 646.

ANTH 447 - MODERN ETHNOGRAPHY AND THE ETHNOGRAPHY OF MODERNITY
Short Title: MODERN ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores the strategies of representation, the methodologies, and the diagnostic categories to which anthropologists have resorted in coming to terms with such phenomena as rationalization, economic and informational globalization, and the commodification of culture. Graduate/Undergraduate Equivalency: ANTH 647. Mutually Exclusive: Cannot register for ANTH 447 if student has credit for ANTH 647.

ANTH 448 - PHENOMENOLOGICAL ANTHROPOLOGY
Short Title: PHENOMENOLOGICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar explores phenomenological theory in the human sciences beginning with Hegel and Marx and examines its uptake in recent works of anthropological ethnography and theory. The course will focus especially upon questions of selfhood and alterity, affect and emotion, and the senses and knowledge. Graduate/Undergraduate Equivalency: ANTH 648. Mutually Exclusive: Cannot register for ANTH 448 if student has credit for ANTH 648.

ANTH 449 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is "sexuality" across cultural milieux? This course analyzes understandings and practices of sexuality from a global, comparative perspective, including different social configurations of gender and intimacy, reproduction, sensuality and the erotic. Case studies explore the complex relationships between sexuality and gender, ethnicity, nationalism, globalization, commodification, politics, media, health and medicine. Cross-list: SWGS 449. Graduate/Undergraduate Equivalency: ANTH 649. Mutually Exclusive: Cannot register for ANTH 449 if student has credit for ANTH 649.

ANTH 451 - THE ANTHROPOLOGY OF WATER
Short Title: THE ANTHROPOLOGY OF WATER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will offer students concepts and methodological fieldwork according to each student's project specificities. Graduate/Undergraduate Equivalency: ANTH 651. Mutually Exclusive: Cannot register for ANTH 451 if student has credit for ANTH 651.
**ANTH 453 - COLLATERAL AFTERWORLDS**  
**Short Title:** COLLATERAL AFTERWORLDS  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Drawing on ethnography and social theory, this course develops analytics attuned to the socialities, intimacies, temporalities, and forms of ethic that emerge in the precarious spaces of liberal and democratic violence and failure. In refugee camps or climate catastrophes, in a queer present or under enduring legacies, what happens if we think the social with hope and futurity in abeyance? Graduate/Undergraduate Equivalency: ANTH 653. Repeatable for Credit.

**ANTH 456 - HERITAGE MANAGEMENT**  
**Short Title:** HERITAGE MANAGEMENT  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course examines the policies and politics of heritage management from a global perspective. We examine how different nations define, protect, and manage heritage resources. Case studies will present debates over the meaning and interpretation of cultural heritage and illustrate connections between heritage and such issues as nationalism and identity. The graduate level course will engage students at a more advanced theoretical level through additional reading assignments and an additional paper. Graduate/Undergraduate Equivalency: ANTH 656. Mutually Exclusive: Cannot register for ANTH 456 if student has credit for ANTH 656.

**ANTH 458 - HUMAN OSTEOLOGY**  
**Short Title:** HUMAN OSTEOLOGY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Introduction to the analysis of human skeletal material from archaeological sites. Graduate/Undergraduate Equivalency: ANTH 658. Mutually Exclusive: Cannot register for ANTH 458 if student has credit for ANTH 658.

**ANTH 460 - ADVANCED ARCHAEOLOGICAL THEORY**  
**Short Title:** ADVANCED ARCHAEOLOGICAL THEORY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ANTH 205  
**Description:** History and analysis of the major currents of archaeological theory from the Encyclopaedist origins of positivism, through cultural evolutionism and historical particularism, to the New Archaeology and current trends. Graduate/Undergraduate Equivalency: ANTH 660. Mutually Exclusive: Cannot register for ANTH 460 if student has credit for ANTH 660.

**ANTH 463 - WEST AFRICAN PREHISTORY**  
**Short Title:** WEST AFRICAN PREHISTORY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Seminar providing in-depth consideration of the later prehistoric archaeology (late Stone Age and Iron Age) of the West African subcontinent. Graduate/Undergraduate Equivalency: ANTH 663. Mutually Exclusive: Cannot register for ANTH 463 if student has credit for ANTH 663.

**ANTH 467 - SPECIAL TOPICS**  
**Short Title:** SPECIAL TOPICS  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture, Seminar, Lecture/Laboratory, Independent Study, Laboratory, Internship/Practicum  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**ANTH 483 - SEMINAR ON DOCUMENTARY AND ETHNOGRAPHIC FILM**  
**Short Title:** DOCUM & ETHNOGRAPH FILM  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Overview of the history of documentary and ethnographic cinema from a worldwide perspective. Includes both canonical and alternative films and film movements, with emphasis on the shifting and overlapping of boundaries of fiction and nonfiction genres. Graduate/Undergraduate Equivalency: ANTH 683. Mutually Exclusive: Cannot register for ANTH 483 if student has credit for ANTH 683.
ANTH 490 - DIRECTED HONORS RESEARCH  
**Short Title:** DIRECTED HONORS RESEARCH  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A two-semester sequence of independent research culminating in the preparation and defense of an honors thesis. Open only to candidates formally accepted into the honors program. Instructor Permission Required.

ANTH 491 - DIRECTED HONORS RESEARCH  
**Short Title:** DIRECTED HONORS RESEARCH  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A two-semester sequence of independent research culminating in the preparation and defense of an honors thesis. Open only to candidates formally accepted into the honors program. Instructor Permission Required.

ANTH 493 - SENIOR RESEARCH PREPARATION  
**Short Title:** SENIOR RESEARCH PREPARATION  
**Department:** Anthropology  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Through this required course for Anthropology majors in their final year of the program, students will cultivate skills in research design and preparation, complete training in research ethics, prepare research ethics protocols, connect with faculty advisors for their senior research project, and connect with other students in their cohort.

ANTH 495 - ANTHROPOLOGY CAPSTONE  
**Short Title:** ANTHROPOLOGY CAPSTONE  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Required of all anthropology majors who do not enroll in ANTH 490 and ANTH 491. Each student formulates and completes an advanced research project guided by a faculty supervisor and evaluated by a faculty panel.

ANTH 506 - HISTORY OF ANTHROPOLOGICAL IDEAS  
**Short Title:** HIST OF ANTHROPOLOGICAL IDEAS  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A sequel to ANTH 306/506, the course explores turns and trends in sociocultural research and critique during the past half-century. Special attention is paid to the rise and fall of structuralism, the problematization of “the primitive” and the proliferation of theories of “practice.”

ANTH 507 - ANTHROPOLOGICAL DIRECTIONS FROM SECOND WORLD WAR TO PRESENT  
**Short Title:** ANTHRO FROM 2ND WW-PRESENT  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Graduate/Undergraduate Equivalency: ANTH 308. Mutually Exclusive: Cannot register for ANTH 508 if student has credit for ANTH 308.

ANTH 508 - THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION  
**Short Title:** THE HISTORICAL IMAGINATION  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 5  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Graduate/Undergraduate Equivalency: ANTH 308. Mutually Exclusive: Cannot register for ANTH 508 if student has credit for ANTH 308.

ANTH 509 - GLOBAL CULTURES  
**Short Title:** GLOBAL CULTURES  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will examine specific cultural debates and issues that have "overflowed" national boundaries. Topics will include student movements, democracy and citizenship, and the internationalization of professional and popular culture. Graduate/Undergraduate Equivalency: ANTH 309. Mutually Exclusive: Cannot register for ANTH 509 if student has credit for ANTH 309.
ANTH 511 - MASCULINITIES
Short Title: MASCULINITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home and war. Graduate/Undergraduate Equivalency: ANTH 311. Mutually Exclusive: Cannot register for ANTH 511 if student has credit for ANTH 311.

ANTH 512 - THE ARCHAEOLOGY OF AFRICA
Short Title: THE ARCHAEOLOGY OF AFRICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Graduate/Undergraduate Equivalency: ANTH 312. Mutually Exclusive: Cannot register for ANTH 512 if student has credit for ANTH 312. Repeatable for Credit.

ANTH 514 - SHIPS IN THE ANTHROPOLOGICAL IMAGINATION
Short Title: SHIPS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course interrogates what we can learn about social, political and economic life by examining ships. Ships have long inspired social theory and anthropological thinking. Seen from the shore, ships not only carried commodities, but also signified conquest, disease, and imperial power. They were characterized as instruments of economic development for some and as tools of oppression for others. As shipping and logistics have emerged as defining features of contemporary global exchange, ships have acquired new forms and functions. In addition to analyzing shipyards, ports, and ship-breaking facilities, this course will look at a wide-range of vessels, such as slave ships, spaceships, containerships, pirate ships, and rescue vessels and refugee ships in different parts of the world. Graduate/Undergraduate Equivalency: ANTH 314.

ANTH 515 - ZOOARCHAEOLOGY
Short Title: ZOOARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to the study of ancient animal remains. Through laboratory exercises, students learn to identify bones and teeth of diverse animals and to distinguish natural and anthropogenic processes affecting fossil and archaeological bones. Key topics in human-animal relations are addressed, including paleoecology, the food quest, animal domestication, and the roles of animals in ancient culinary, ritual, and other social settings; as well as covering relevance of the past to present-day issues such as conservation biology. Graduate/Undergraduate Equivalency: ANTH 315.

ANTH 516 - BLACK DECOLONIAL FEMINISMS IN THE AMERICAS
Short Title: BLACK DECOLONIAL FEMINISMS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will use both historical and contemporary readings focusing on Black and decolonial/anticolonial feminisms as theory and praxis to reflect on the particular experiences of Afro-descendants throughout the Americas. Through a close reading of scholarly and popular texts focusing on the experiences of Black women throughout the Americas (with particular emphasis on Latin America and the Caribbean) we will engage with themes including transnationalism and migration, language, belonging, gender and sexuality, land rights, social inequality and practices of resistance. We will also analyze how art (music, visual and performance art) and activism represent important sites of resistance to contemporary struggles faced by Black communities. Graduate/Undergraduate Equivalency: ANTH 316.

ANTH 517 - REVOLUTIONS AND UTOPIAS
Short Title: REVOLUTIONS AND UTOPIAS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In order to gain a more precise grasp of our contemporary political challenges and possibilities, this course in political anthropology investigates a wide range of historical and contemporary cases of rapid political and social transformation and carefully examines the ideas, desires and utopias that inspired them. Graduate/Undergraduate Equivalency: ANTH 317. Mutually Exclusive: Cannot register for ANTH 517 if student has credit for ANTH 317.
ANTH 519 - SYMBOLISM AND POWER
Short Title: SYMBOLISM AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course considers anthropological theories of the state and examines ethnographic accounts of states in some unexpected places - that is, outside the official realm of government bureaucracies and institutionalized politics. Topics include so-called "stateless societies," planning and bureaucratic rationality, violence and power, and ethnographic methods for studying the state. Graduate/Undergraduate Equivalency: ANTH 319. Mutually Exclusive: Cannot register for ANTH 519 if student has credit for ANTH 319.

ANTH 521 - SOCIAL LIFE OF DNA
Short Title: SOCIAL LIFE OF DNA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This upper level seminar examines the increasing significance of genetics as a central component of our social, economic, and political life. As the potential applications of DNA to our social life increasingly appear endless, this course asks how is genetic information reshaping our understanding of the value of life itself? In addition to identifying markers, scientific knowledge production around genetic information is reconstituting key ideas of risk, care, capital that impact our ideas of disability, race, kinship, citizenship, nationalism, and justice. In this class, our aim is to ask a) what is historically and materially distinct about genetic information as a metaphor for social processes, b) how is the value of life itself being reproduced and transformed for whom, and c) what are potential consequences we face by relating to one another through the geneticization of social life? Mutually Exclusive: Cannot register for ANTH 521 if student has credit for ANTH 321.

ANTH 522 - GLOBAL IM/MOBILITIES: BORDERS, MIGRATION, AND CITIZENSHIP
Short Title: GLOBAL IM/MOBILITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How do cultural conceptions of race, ethnicity, and nationalism shape who we think we are? How are these ideas related to Western views of the relations between nature and society, and how do these differ from those in other cultures? Graduate/Undergraduate Equivalency: ANTH 322. Mutually Exclusive: Cannot register for ANTH 522 if student has credit for ANTH 322.

ANTH 526 - LAW, POWER AND CULTURE
Short Title: LAW, POWER AND CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of normativity and its different social forms across the world. It combines theoretical and ethnographic analyses of legal institutions and practices as cultural phenomena undergirded by power relations, knowledge forms and historical forces. Graduate/Undergraduate Equivalency: ANTH 326. Mutually Exclusive: Cannot register for ANTH 526 if student has credit for ANTH 326.

ANTH 527 - GENDER AND SYMBOLISM
Short Title: GENDER AND SYMBOLISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examinations of beliefs concerning men, women, and gender in different cultures, including the West, relating to issues of symbolism, power, and the distribution of cultural models. Mutually Exclusive: Cannot register for ANTH 527 if student has credit for ANTH 327.

ANTH 529 - BODIES, SENSUALITIES, AND ART
Short Title: BODIES, SENSUALITIES, & ART
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cross-cultural approaches to art and the senses. Students may engage any medium. Emphasis to be placed on issues generated from performance in the arts rather than from academia. Contrasts art and academic knowledge to explore alternative epistemologies and aesthetics. Graduate/Undergraduate Equivalency: ANTH 329. Mutually Exclusive: Cannot register for ANTH 529 if student has credit for ANTH 329.

ANTH 532 - THE SOCIAL LIFE OF CLEAN ENERGY
Short Title: SOCIAL LIFE OF CLEAN ENERGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course considers the phenomenon of renewable energy using a social scientific approach to analyze the various forces and interests involved in the development of renewable energy projects (such as hydropower, solar and wind) in both the global North and South. No prerequisites required. Graduate/Undergraduate Equivalency: ANTH 332. Mutually Exclusive: Cannot register for ANTH 532 if student has credit for ANTH 332.
ANTH 533 - THE MATERIAL WORLD
Short Title: THE MATERIAL WORLD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the mutually constructive relationship between humans and objects; it asks how objects are made meaningful and active by humans, and how, in turn, people acquire meaning, relations, and agency through material culture. Topics include: commoditization, consumption, gift exchange, subjects and objects, identity, fashion, collecting, art, and authenticity. Graduate/Undergraduate Equivalency: ANTH 333. Mutually Exclusive: Cannot register for ANTH 533 if student has credit for ANTH 333.

ANTH 535 - ANTHROPOLOGY AS CULTURAL CRITIQUE
Short Title: ANTHROPOLOGY/CULTURAL CRITIQUE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The critical assessment and interpretation of Euro American social institutions and cultural forms have always been an integral part of anthropology's intellectual project. This course will explain the techniques, history, and achievements of such critique. It will also view the purpose in the context of a more generational tradition of critical social thought in the West, especially the U.S. Graduate/Undergraduate Equivalency: ANTH 335. Mutually Exclusive: Cannot register for ANTH 535 if student has credit for ANTH 335.

ANTH 536 - BECOMING A DOCTOR
Short Title: BECOMING A DOCTOR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course introduces such classic anthropological concepts as the rite of passage and the cultural system as frames for the investigation of the professionalization of medicine as a discipline, medical training and the changing epistemologies of medical knowledge and the changing scope and content of the medical cosmos. Graduate/Undergraduate Equivalency: ANTH 336. Mutually Exclusive: Cannot register for ANTH 536 if student has credit for ANTH 336.

ANTH 538 - READING POPULAR CULTURE
Short Title: READING POPULAR CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines a number of cases from popular genres-romance novels, television sit-coms, tourist sites, movies, rock music and submits them to a variety of theoretical approaches from disciplines such as anthropology, sociology, literary studies, and philosophy. Graduate/Undergraduate Equivalency: ANTH 338. Mutually Exclusive: Cannot register for ANTH 538 if student has credit for ANTH 338.

ANTH 540 - NEOLIBERALISM AND GLOBALIZATION
Short Title: NEOLIBERALISM & GLOBALIZATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the relationship between two of the most powerful forces shaping the world today: economic globalization and political neoliberalism. Using ethnographic, policy and theoretical documentation drawn from a variety of case studies, we will reconstruct the interrelated origins of globalization and neoliberalism and map their social and cultural impacts across the world. Graduate/Undergraduate Equivalency: ANTH 340. Mutually Exclusive: Cannot register for ANTH 540 if student has credit for ANTH 340.

ANTH 541 - MUSEUMS AND HERITAGE: EXHIBITING ART, EXHIBITING CULTURE
Short Title: MUSEUMS AND HERITAGE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A wide-ranging introduction to museum studies with a particular focus on the collection and exhibition of cultural heritage materials. We will examine how heritage objects are displayed and represented in museums of art, natural historical history, and heritage. Topics include looking and ethics of collecting, policies of display, changing roles for museums; exhibition design and curatorial practice. Instructor Permission Required. Graduate/Undergraduate Equivalency: ANTH 341. Mutually Exclusive: Cannot register for ANTH 541 if student has credit for ANTH 341.
ANTH 542 - ETHNOGRAPHIES OF CARE
Short Title: ETHNOGRAPHIES OF CARE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An ethnographically grounded exploration of the political, social, and intimate relations that constitute care in various situations of life and death. We ask how particular populations come to be understood as requiring, receiving, or being entitled to care? Who becomes obliged to provide care? And what are care’s collateral effects? Graduate/Undergraduate Equivalency: ANTH 342. Mutually Exclusive: Cannot register for ANTH 542 if student has credit for ANTH 342.

ANTH 544 - CITY/CULTURE
Short Title: CITY/CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course treats both the theorization and the ethnographic exploration of the urban imaginary; urban spaces and practices; urban, suburban, and post-urban planning; city-states, colonial cities, and capital cities; and the late 20th century metropolis. Graduate/Undergraduate Equivalency: ANTH 344. Mutually Exclusive: Cannot register for ANTH 544 if student has credit for ANTH 344.

ANTH 545 - THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT
Short Title: ARCHAEOLOGY IN SOCIAL CONTEXT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the way that archaeological evidence of the past has been used and viewed by particular groups at different times. Using case studies, the course considers issues of gender, race, Eurocentrism, political domination and legitimacy that emerge from critical analysis of representations of the past by archaeologists, museums, and collectors. Graduate/Undergraduate Equivalency: ANTH 345. Mutually Exclusive: Cannot register for ANTH 545 if student has credit for ANTH 345.

ANTH 547 - THE U.S. AS A FOREIGN COUNTRY
Short Title: THE U.S. AS A FOREIGN COUNTRY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course looks at selected aspects of American culture and society from an anthropological point of view. Readings derive from the works of both foreign and native observers, past and present. Graduate/Undergraduate Equivalency: ANTH 347. Mutually Exclusive: Cannot register for ANTH 547 if student has credit for ANTH 347.

ANTH 548 - ANTHROPOLOGIES OF NATURE
Short Title: ANTHROPOLOGIES OF NATURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class examines the uses and makings of nature in accounts of the human and post-human. It introduces students to nature as an object of study, as an analytic and as a heuristic. Some of the topics the course explores include the nature-culture dyad, nature as resource, science and technology and the remaking of nature, economies of nature, materiality, nature and kinship, and natural ontologies. Graduate/Undergraduate Equivalency: ANTH 348. Mutually Exclusive: Cannot register for ANTH 548 if student has credit for ANTH 348.

ANTH 549 - THE ANTHROPOLOGY OF ETHICS
Short Title: THE ANTHROPOLOGY OF ETHICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Philosophical ethics argues over the proper criteria of the definition and the assessment of ethical action. This course focuses on an emerging and increasingly salient anthropological project: empirical inquiry into the themes and variations of ethical systems and the sociocultural rationale for their existence and reproduction. Graduate/Undergraduate Equivalency: ANTH 349. Mutually Exclusive: Cannot register for ANTH 549 if student has credit for ANTH 349.

ANTH 550 - HISTORICAL ANTHROPOLOGIES OF RELIGION
Short Title: HISTORICAL ANTHROPOLOGIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the study of the religious past through conjunctions of anthropology and history. Readings will include books and selections by Max Weber, Marshall Sahlins, Victor Turner, Jacques Le Goff, Aron Gurevich, and others. Cross-list: RELI 555.

ANTH 551 - CULTURES OF NATIONALISM
Short Title: CULTURES OF NATIONALISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the cultural dimensions of nationalism, particularly around the creation of forms of “peoplehood” that seem to be presupposed by almost all nation-building projects. Texts to be analyzed will include the Declaration of Independence, the United States Constitution, and the Declaration of the Rights of Man. Graduate/Undergraduate Equivalency: ANTH 351. Mutually Exclusive: Cannot register for ANTH 551 if student has credit for ANTH 351.
ANTH 553 - CULTURES OF INDIA
Short Title: CULTURES OF INDIA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of the way anthropologists study space, place and landscape, including studies that emphasize ecological, symbolic, political economic and religious aspects. Recent theoretical work on space, place, and landscape will be emphasized, as well as archaeological methods of investigation and interpretation, including remote sensing, surveying, and GIS. Graduate/Undergraduate Equivalency: ANTH 355. Mutually Exclusive: Cannot register for ANTH 355 if student has credit for ANTH 353. Repeatable for Credit.

ANTH 554 - ILLNESS, DISABILITY, AND THE GENDERED BODY
Short Title: DISABILITY AND GENDERED BODIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retrench normative arrangements of gender. Cross-list: SWGS 554. Graduate/Undergraduate Equivalency: ANTH 354. Mutually Exclusive: Cannot register for ANTH 554 if student has credit for ANTH 354.

ANTH 555 - SPACE, PLACE, AND LANDSCAPE
Short Title: SPACE, PLACE, AND LANDSCAPE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of the way archaeologists study space, place and landscape, including studies that emphasize ecological, symbolic, political economic and religious aspects. Recent theoretical work on space, place, and landscape will be emphasized, as well as archaeological methods of investigation and interpretation, including remote sensing, surveying, and GIS. Graduate/Undergraduate Equivalency: ANTH 355. Mutually Exclusive: Cannot register for ANTH 355 if student has credit for ANTH 355.

ANTH 558 - THE FOURTH WORLD: ISSUES OF INDIGENOUS PEOPLES
Short Title: FOURTH WORLD:INDIGENOUS PEOPLE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In contrast with people self-identified within political structures of the First, Second and Third Worlds, Fourth World peoples are, generally speaking, "stateless peoples." In this course we will examine both how this "unofficial" status affects their struggle for self-determination and how native peoples engage traditional beliefs and practices for self-empowerment. Through readings, films and speakers we will examine current conflicts facing indigenous people in North and South America, the Soviet Union, Europe, Asia, and Australia. Graduate/Undergraduate Equivalency: ANTH 358. Mutually Exclusive: Cannot register for ANTH 558 if student has credit for ANTH 358.

ANTH 561 - LATIN AMERICAN TOPICS
Short Title: LATIN AMERICAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines contemporary cultural and political dynamics in Latin America. Topics include: race, ethnicity and indigenousness; borders, migrations and diaspora; genocide and state violence; neo-colonialisms and neo-liberalisms; sexuality, gender and class dynamics; social movements and activism; the politics and practices of medicine and religion; popular culture, media and technology. Graduate/Undergraduate Equivalency: ANTH 361. Mutually Exclusive: Cannot register for ANTH 561 if student has credit for ANTH 361.

ANTH 562 - ARCHAEOLOGICAL FIELD TECHNIQUES
Short Title: ARCHAEOLOGICAL FLD TECHNIQUES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods used in fieldwork, laboratory analysis, and interpretation of archaeological data from a local site excavated by the class. Graduate/Undergraduate Equivalency: ANTH 362. Repeatable for Credit.

ANTH 563 - EARLY CIVILIZATIONS
Short Title: EARLY CIVILIZATIONS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A comparative study of the civilizations of Mesopotamia, Egypt, the Indus, China, and the Maya, emphasizing the causes and conditions of their origins. Graduate/Undergraduate Equivalency: ANTH 363. Mutually Exclusive: Cannot register for ANTH 563 if student has credit for ANTH 363.
ANTH 564 - AFRICAN ARCHAEOLOGY FIELD TECHNIQUES  
**Short Title:** AFRICAN ARCHAEOLOGY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** In this course, basic field archaeology techniques are taught on-site in an archaeological context in Africa with emphasis on excavation methods, artifact recovery, and recording techniques. Students will excavate stone structures and a variety of historical deposits. Fieldwork takes place in Africa, June-July. Graduate/Undergraduate Equivalency: ANTH 364. Mutually Exclusive: Cannot register for ANTH 564 if student has credit for ANTH 364. Repeatable for Credit.  
**Course URL:** [www.songomnara.rice.edu/fieldschool.htm](http://www.songomnara.rice.edu/fieldschool.htm)  

ANTH 566 - SCIENCE, LOCAL AND GLOBAL  
**Short Title:** SCIENCE, LOCAL AND GLOBAL  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course explores science as a transnational phenomenon, focusing on the pathways along which it flows around the world. Topics include differences in local styles of reasoning, dynamics of international scientific communities, transnational migration of knowledge workers, the role of science in nationalist projects, and the commodification of science. Graduate/Undergraduate Equivalency: ANTH 366. Mutually Exclusive: Cannot register for ANTH 566 if student has credit for ANTH 366.  

ANTH 570 - ARCHAEOLOGICAL LABORATORY TECHNIQUES AND ANALYSIS  
**Short Title:** ARCHAEOLOGICAL LAB ANALYSIS  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3-6  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Techniques of processing, conserving, and recording archaeological materials are emphasized. Students will become familiar with procedures for pottery, glass, metals, and building materials, in addition to plant and animal remains. Course work includes lectures, hands-on lab work, and informal discussion. Graduate/Undergraduate Equivalency: ANTH 370. Repeatable for Credit.  

ANTH 571 - MONEY AND EVERYDAY LIFE  
**Short Title:** MONEY AND EVERYDAY LIFE  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Money is such a part of everyday modern life that it is hard for us to imagine living without it. Yet in many pre-modern societies, gift-exchange was as important as money is in our own. This course will look at the cultural dimensions of systems of exchange, ranging from gift giving among Northwest Coast Indians to foreign currency exchanges between financial institutions. Along with the classic work of Marx and Simmel on money and capital, we will also cover some of the anthropological work on gifts and exchange, such as that of Mauss, Levi-Strauss, and Bourdieu, as well as some of the contemporary debates initiated by Bataille and Derrida. Graduate/Undergraduate Equivalency: ANTH 371. Mutually Exclusive: Cannot register for ANTH 571 if student has credit for ANTH 371.  

ANTH 572 - CULTURES OF CAPITALISM  
**Short Title:** CULTURES OF CAPITALISM  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Most of us think of capitalism as primarily an economic phenomenon. Yet, it also has a profoundly cultural dimension. This class will examine how capitalism and related phenomena, such as commodification, markets and marketing, corporate finance and the calculation of risk, both affect and are affected by culture. We will consider the impact of capitalist markets on social relations and gender identities; on ideals of patriotism, responsibility and success; and on popular culture and leisure practices. We will also ask how people resist, appropriate and modify in culturally specific ways the logic and institutions of a global capitalist order. Graduate/Undergraduate Equivalency: ANTH 372. Mutually Exclusive: Cannot register for ANTH 572 if student has credit for ANTH 372.  

ANTH 574 - ASIAN PREHISTORY  
**Short Title:** ASIAN PREHISTORY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course covers select topics in the archaeology and paleoanthropology of Asia from the arrival of Homo erectus to the development of the earliest civilizations. Class discussions will focus on the history of exploration in Asia and the main debates that have shaped the study of prehistory in the largest continent on Earth. Graduate/Undergraduate Equivalency: ANTH 374. Mutually Exclusive: Cannot register for ANTH 574 if student has credit for ANTH 374.
ANTH 578 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA  
Short Title: MEMORY AND PLACE IN CINEMA  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 378. Mutually Exclusive: Cannot register for ANTH 578 if student has credit for ANTH 378.

ANTH 580 - GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS  
Short Title: GLOBAL HEALTH JUSTICE  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 380. Mutually Exclusive: Cannot register for ANTH 580 if student has credit for ANTH 380.

ANTH 581 - MEDICAL ANTHROPOLOGY  
Short Title: MEDICAL ANTHROPOLOGY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and news-making, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 385. Mutually Exclusive: Cannot register for ANTH 581 if student has credit for ANTH 385.

ANTH 582 - BODY, TECHNOLOGY, ENHANCEMENT  
Short Title: BODY, TECHNOLOGY, ENHANCEMENT  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and news-making, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 385. Mutually Exclusive: Cannot register for ANTH 581 if student has credit for ANTH 385.

ANTH 584 - PALEO-TECHNOLOGY  
Short Title: PALEO-TECHNOLOGY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will focus on prehistoric technologies and human survival. The Stone Age semester will immerse students in hunter-gatherer lifeways and the innovations that allowed our ancestors to survive. Student ‘bands’ will complete cooperative learning tasks to ensure group survival (assessment). Most class meetings will be held in outdoor space on campus. Graduate/Undergraduate Equivalency: ANTH 384. Mutually Exclusive: Cannot register for ANTH 584 if student has credit for ANTH 384.

ANTH 585 - MEDIA, CULTURE, AND SOCIETY  
Short Title: MEDIA, CULTURE, AND SOCIETY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and news-making, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 385. Mutually Exclusive: Cannot register for ANTH 585 if student has credit for ANTH 385.

ANTH 586 - MEDICAL ANTHROPOLOGY OF FOOD AND HEALTH  
Short Title: MEDICINE, FOOD, AND HEALTH  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and news-making, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 386. Mutually Exclusive: Cannot register for ANTH 586 if student has credit for ANTH 386.
ANTH 589 - THE ARCHAEOLOGY OF FOOD
Short Title: ARCHAEOLOGY OF FOOD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers a broad anthropological perspective on food and culture, as well as the way that archaeologists attempt to reconstruct the subsistence technologies and diets of ancient peoples. Topics include forager and agricultural subsistence technologies, the origins of food production, feasting, food and identity, and gender and food. Graduate/Undergraduate Equivalency: ANTH 389. Mutually Exclusive: Cannot register for ANTH 589 if student has credit for ANTH 389.

ANTH 590 - CULTURE, NARRATION, AND SUBJECTIVITY
Short Title: CULTURE,NARRATION,SUBJECTIVITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines how linguistic and narrative structures interact to produce specific cultures of interpretation. The focus will be on linguistic and literary representations of subjectivity. This course will use novels by Western authors, such as Virginia Woolf and Dostoevsky, and some Chinese materials as comparison. Graduate/Undergraduate Equivalency: ANTH 390. Mutually Exclusive: Cannot register for ANTH 590 if student has credit for ANTH 390.

ANTH 591 - SPECULATIVE FUTURES
Short Title: SPECULATIVE FUTURES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Drawing from “CliFi,” “Speculative Fiction,” and global anthropological case studies, this course analyzes a series of potential futures as earthly conditions continue to be altered by human activity. Students will develop speculative future models through assessing climate conditions, population displacement, ethics, ecological transformations and human practices and values. Graduate/Undergraduate Equivalency: ANTH 391. Mutually Exclusive: Cannot register for ANTH 591 if student has credit for ANTH 391.

ANTH 593 - THE ANTHROPOLOGY OF TOXICITY: RETHINKING HEALTH AND SOVEREIGNTY
Short Title: ANTHROPOLOGY OF TOXICITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Through ethnographic, scientific, and personal accounts of toxicity in a range of sites—from warzones to office buildings—this course explores toxicity as an analytic that helps us think critically about health and sovereignty. We explore the ways that colonial geographies imprint geographies of toxicity and the ways that capitalism and consumption produce and distribute toxicity. In relation to health, we explore the ways that the materiality and biology of toxic exposure are embodied in specific ways that undermine singular or universalizable concepts and measures of human and environmental health and require us to think about the health in relation to the specificities of race, class, gender, disability, and intimacy in particular places and times. In relation to sovereignty, we explore the ways that the promiscuous movement of toxicants provokes but also eludes regulations that hew to the ridged boundaries of law and territory and raise new questions of accountability and evidence. Graduate/Undergraduate Equivalency: ANTH 393. Mutually Exclusive: Cannot register for ANTH 593 if student has credit for ANTH 393.

ANTH 594 - THE ARCHAEOLOGY OF SLAVERY AND THE AFRICAN DIASPORA
Short Title: THE ARCHAEOLOGY OF SLAVERY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers methodological and thematic approaches employed in the historical archaeology of slavery and the African diaspora in the Americas from the fifteenth to the nineteenth centuries. Archaeologists are uniquely positioned to study enslaved people through their material culture, and in this case especially, archaeologists have the opportunity to apply their particular approaches since written documents relating to the African diaspora are overwhelmingly written by the enslavers, not the enslaved. In this class emphasis is placed on what the archaeological analyses of the material record reveal about slavery and the everyday lives of enslaved individuals, including plantation life, labor management of the planters, work habits of the enslaved, leisure time, economic networks, kinship, religious practices, retentions, and resistance, to name but a few. Students interested in African and African diaspora studies, archaeology, slavery, and race should find this course useful. Graduate/Undergraduate Equivalency: ANTH 394. Mutually Exclusive: Cannot register for ANTH 594 if student has credit for ANTH 394.
ANTH 595 - CULTURES AND COMMUNICATION
Short Title: CULTURES AND COMMUNICATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigates the relations between different forms of communication - speech, print, film, and cultural constructions such as audiences, publics, and communities. Graduate/Undergraduate Equivalency: ANTH 395. Mutually Exclusive: Cannot register for ANTH 595 if student has credit for ANTH 395.

ANTH 596 - LAW AND RESISTANCE IN THE EVERYDAY
Short Title: LAW AND RESISTANCE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore how people interact with the law in their everyday lives – in the U.S. and elsewhere. Examples will include how individuals experience and respond to policing, examining the effects of immigration and border security policies, and tracing how people and groups mobilize to challenges laws perceived as unjust. Graduate/Undergraduate Equivalency: ANTH 396. Mutually Exclusive: Cannot register for ANTH 596 if student has credit for ANTH 396.

ANTH 597 - ANTHROPOLOGY JOURNAL CLUB
Short Title: ANTHROPOLOGY JOURNAL CLUB
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students select, read, and discuss current articles from leading journals in sociocultural anthropology and related fields. Department Permission Required. Graduate/Undergraduate Equivalency: ANTH 397. Repeatable for Credit.

ANTH 598 - ETHNOGRAPHIC RESEARCH METHODS
Short Title: ETHNOGRAPHIC RESEARCH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course considers the practice of ethnographic research (design, data collection and analysis). Topics include the contentious canonization of fieldwork & the ethnographic method, ethics & human subjects, rethinking the field & collaboration. Projects include participant observation, field notes, interviewing, and analysis of archival, ephemeral & audio/visual materials. Graduate/Undergraduate Equivalency: ANTH 398. Mutually Exclusive: Cannot register for ANTH 598 if student has credit for ANTH 398.

ANTH 600 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

ANTH 601 - GRADUATE PROSEMINAR IN ANTHROPOLOGY: THEORY, METHOD, AND PROFESSIONALIZATION
Short Title: GR PROSEMINAR IN ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course combines an introduction to classic and contemporary social theory with an overview of the evolving research foci of anthropology today and with detailed discussion of the process of anthropological professionalization. The course is designed for graduate students in anthropology but is open to others with advance permission. Repeatable for Credit.

ANTH 602 - ANTHROPOLOGY PROPOSAL WRITING SEMINAR
Short Title: PROPOSAL WRITING SEMINAR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar prepares anthropology graduate students to write a successful grant proposal. Basic elements of proposal writing, including problem conceptualization, literature reviews, and methods will be covered.

ANTH 603 - ANALYZING PRACTICE
Short Title: ANALYZING PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A critical review of work informed by what has sometimes been deemed the "key concept" of anthropological theory and research since the 1960s. Special attention will be devoted to the analytics of practice developed by Foucault, by Bourdieu, and by de Certeau. Graduate/Undergraduate Equivalency: ANTH 403. Mutually Exclusive: Cannot register for ANTH 603 if student has credit for ANTH 403.
ANTH 606 - COGNITIVE STUDIES  
Short Title: COGNITIVE STUDIES  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Relations between thought, language, and culture. Special emphasis given to natural systems of classification and the logical principles underlying them. Mutually Exclusive: Cannot register for ANTH 606 if student has credit for ANTH 406. Repeatable for Credit.

ANTH 609 - SLOW READING SEMINAR  
Short Title: SLOW READING SEMINAR  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is designed to develop "slow reading" techniques that allow students to carefully pursue lines of thought that emerge from a text. It is anchored in ethnographic texts and will require students to identify and explore the conceptual genealogies and intellectual conversations in which a text participates. Students will explore the required texts and complement them with collectively defined thesauri. The seminar will train student in different reading approaches all characterized by slow engagement. Graduate/Undergraduate Equivalency: ANTH 409. Repeatable for Credit.

ANTH 610 - THE ETHNOGRAPHY OF DEVELOPMENT  
Short Title: THE ETHNOGRAPHY OF DEVELOPMENT  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is designed to develop a solid ethnographic grounding for both practical development work and further intellectual growth of the discipline. Graduate/Undergraduate Equivalency: ANTH 410. Mutually Exclusive: Cannot register for ANTH 610 if student has credit for ANTH 410.

ANTH 612 - RHETORIC  
Short Title: RHETORIC  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: An overview of classical theories. Intensive discussion of contemporary theories and applications in a wide variety of disciplines. Mutually Exclusive: Cannot register for ANTH 612 if student has credit for ANTH 412. Repeatable for Credit.

ANTH 613 - CULTURE AFTER COMMUNISM  
Short Title: CULTURE AFTER COMMUNISM  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Examines cultural transformations in the late- and post-socialist societies of East-Central Europe, the former Soviet Union, and Asia. Explores everyday discourses and practices through which new forms of property, selfhood, nationalism, and the state are emerging, and the legacy of cold war politics for ethnographic representation of these societies. Graduate/Undergraduate Equivalency: ANTH 413. Mutually Exclusive: Cannot register for ANTH 613 if student has credit for ANTH 413.

ANTH 614 - HERMENEUTICS AND LINGUISTIC ANTHROPOLOGY  
Short Title: HERMENEUTICS & LINGUISTIC ANTH  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Application of linguistic theory and method in the analysis of cultural materials. Includes discourse analysis and the structure and interpretation of texts and conversation. Mutually Exclusive: Cannot register for ANTH 614 if student has credit for ANTH 414. Repeatable for Credit.

ANTH 615 - THEORIES OF MODERNITY/POSTMODERNITY  
Short Title: THEORIES OF MODERNITY/POSTMOD  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: An advanced course for graduate students and undergraduate majors with interests in the interdisciplinary field of cultural studies. Readings in the work of Marx, Weber, Durkheim, Saussure, Gadamer, Derrida, Bakhtin, Foucault, and others. Mutually Exclusive: Cannot register for ANTH 615 if student has credit for ANTH 415. Repeatable for Credit.

ANTH 616 - CLASSICAL SOCIAL THEORY  
Short Title: CLASSICAL SOCIAL THEORY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar explores the foundations of social and cultural analysis. It will address precursors, but will focus primarily on works that introduce and develop the concepts and epistemic apparatuses that inaugurated such disciplines as sociology, anthropology, religious studies, and political theory as we know them today.
ANTH 617 - ONTOLOGIES, VITALITIES, THINGS
Short Title: ONTOLOGIES, VITALITIES, THINGS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course focuses on emerging and established thematics in cultural anthropology that have been drawn from philosophical (and other) interventions concerning being, matter, vibrancy, vitality and objects and considers how these conceptual domains can be productively engaged in the empirical work of anthropology. Graduate/Undergraduate Equivalency: ANTH 417. Mutually Exclusive: Cannot register for ANTH 617 if student has credit for ANTH 417.

ANTH 618 - WRITING ETHNOGRAPHY
Short Title: WRITING ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In the 1980s and 1990s, an experimental turn in anthropology brought literary theory to the analysis and understanding of ethnography as a form of writing. Critiques of the (1986) text, Writing Culture, resulted in a return to the monograph, but in alternate forms, opening a space for post-humanist and interdisciplinary engagements with ethnography. This course explores the different forms and possibilities for writing ethnography. Graduate/Undergraduate Equivalency: ANTH 418. Recommended Prerequisite(s): Upper division coursework in English and/or Anthropology.

ANTH 620 - ETHNOGRAPHY STUDIO
Short Title: ETHNOGRAPHY STUDIO
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will read a selection of contemporary ethnographies deemed “exemplary” by diverse audiences paired with theoretical works that the authors claim in their arguments. The course will focus on how ethnographies are structured, the central issues they investigate, and how they go about doing this. The central task of the class is to analyze, critically but also productively, what rigor and creativity mean in the ethnographic investigation of contemporary and recurring questions and problems, relations between questions, theory and ethnography will also be explored through students’ own ethnographic writing. Graduate/Undergraduate Equivalency: ANTH 420. Mutually Exclusive: Cannot register for ANTH 620 if student has credit for ANTH 420.

ANTH 622 - INFRASTRUCTURES AND POWER
Short Title: INFRASTRUCTURES AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course asks why “infrastructure” – that which enables other things to happen – has recently become such an important concept in the human sciences. After reviewing recent and classic theoretical approaches we explore recent anthropological studies of infrastructures-in-action ranging from information and media infrastructures to environmental and biotic infrastructures to infrastructures of governance and power. Graduate/Undergraduate Equivalency: ANTH 422. Mutually Exclusive: Cannot register for ANTH 622 if student has credit for ANTH 422.

ANTH 623 - VALUES AND VALUABLES
Short Title: VALUES AND VALUABLES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Conceptually and ethnographically explores different value regimes and the objects and subjects that help define them. Reviews theories of value and explores the creative configurations that people around the world make of them. Some of the topics include: capitalism and financial capitalism, the materialization of value, affective attachments to valuables, and the social life of valuables.

ANTH 624 - MAJOR FIGURES IN CULTURAL AND SOCIAL THOUGHT
Short Title: CULTURAL AND SOCIAL THOUGHT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course comprises an in–depth examination of the career and major works of a scholar of significant influence within and beyond anthropology. In Fall 2018, the course will focus on anthropologist Mary Douglas. Graduate/Undergraduate Equivalency: ANTH 424. Mutually Exclusive: Cannot register for ANTH 624 if student has credit for ANTH 424. Repeatable for Credit.
ANTH 625 - ADVANCED TOPICS IN ARCHAEOLOGY
Short Title: ADVANCED TOPICS IN ARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on selected topics in archaeological analysis and theory. The course will variously focus on ceramic analysis and classification, archaeological sampling in regional survey and excavation, and statistical approaches to data analysis and presentation. Please consult with the department for additional information. Graduate/Undergraduate Equivalency: ANTH 425. Mutually Exclusive: Cannot register for ANTH 625 if student has credit for ANTH 425. Repeatable for Credit.

ANTH 626 - UNDERGROUND SPATIALITIES STUDIO
Short Title: UNDERGROUND SPATIALITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class introduces students to thinking about space volumetrically and kinesthetically. It builds on scholarship that calls our attention to the geopolitics of volumetric space using underground water movement as a case study. It is a hands on studio that combines anthropology, arts, and architecture. Graduate/Undergraduate Equivalency: ANTH 426. Mutually Exclusive: Cannot register for ANTH 626 if student has credit for ANTH 426.

ANTH 628 - FEMINIST SCIENCE AND TECHNOLOGY STUDIES
Short Title: FEMINIST STS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will survey the field of Social Studies of Science and Technology (STS) emphasizing the contributions made by feminist and queer scholarship. It will combine foundational theoretical works with contemporary ethnographies. Graduate/Undergraduate Equivalency: ANTH 428. Mutually Exclusive: Cannot register for ANTH 628 if student has credit for ANTH 428.

ANTH 629 - ACTIVISM AND SOCIAL MOVEMENTS
Short Title: ACTIVISM AND SOCIAL MOVEMENTS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Movements to alleviate inequalities constitute important cultural and political interventions globally. This course examines advocacy practices to create and sustain social movements and political struggles. Cases included grassroots advocacy, NGOs, transnational and technological activism; environmental justice; human rights; gender, ethnic and sexual rights; consumption and globalization; democratization and neoliberalism. Graduate/Undergraduate Equivalency: ANTH 429. Mutually Exclusive: Cannot register for ANTH 629 if student has credit for ANTH 429.

ANTH 642 - MUSEUMS: THEORY AND PRACTICE
Short Title: MUSEUMS: THEORY & PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course combines readings and lectures exploring the representation of anthropological and archaeological materials in museum exhibits with an internship at the Houston Museum of Natural Science. The Graduate-Level course will engage students at a more advanced theoretical level through additional reading assignments and an additional paper. Graduate/Undergraduate Equivalency: ANTH 442. Mutually Exclusive: Cannot register for ANTH 642 if student has credit for ANTH 442.

ANTH 643 - ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
Short Title: RACE ETHNICITY AND HEALTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores how human bodies and biomedical 'facts' are culturally constructed with respect to race and ethnicity, and examines how these constructs variably impact experiences of health, well-being and illness. Instructor Permission Required. Graduate/Undergraduate Equivalency: ANTH 443. Mutually Exclusive: Cannot register for ANTH 643 if student has credit for ANTH 443.
ANTH 644 - CULTURE, PSYCHIATRY, AND MENTAL ILLNESS
Short Title: CULTURE AND MENTAL ILLNESS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar takes psychiatric practice as an object of anthropological investigation. It explores the ways in which emotional suffering and therapeutic systems are constituted within various social, cultural, and historical contexts. Topics include affect, anxiety, psychosis, and somatization in cross-cultural perspective; diagnostic standardization; the cultural history of psychiatry; institutionalization and deinstitutionalization; psychiatric professionalization; the globalization of Western psychiatric practice; and critical anti-psychiatry movements. Graduate/Undergraduate Equivalency: ANTH 444. Mutually Exclusive: Cannot register for ANTH 644 if student has credit for ANTH 444.

ANTH 645 - EXPERTS AND CULTURES OF EXPERTISE
Short Title: EXPERTS/EXPERTISE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Studies of experts and expert knowledge have recently become one of the most vibrant and promising areas of research in social-cultural anthropology today. This seminar reviews recent anthropological research on experts and their cultures of expertise and situates it in comparison to theoretical, sociological and historical anthropological research on experts and expert cultures. Graduate/Undergraduate Equivalency: ANTH 445. Mutually Exclusive: Cannot register for ANTH 645 if student has credit for ANTH 444.

ANTH 646 - ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY
Short Title: ADV BIOMEDICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Cross-list: ENST 646. Graduate/Undergraduate Equivalency: ANTH 446. Recommended Prerequisite(s): ANTH 381 or ANTH 581. Mutually Exclusive: Cannot register for ANTH 646 if student has credit for ANTH 446.

ANTH 647 - MODERN ETHNOGRAPHY AND THE ETHNOGRAPHY OF MODERNITY
Short Title: MODERN ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course explores the strategies of representation, the methodologies, and the diagnostic categories to which anthropologists have resorted in coming to terms with such phenomena as rationalization, economic and informational globalization, and the commodification of culture. Graduate/Undergraduate Equivalency: ANTH 447. Mutually Exclusive: Cannot register for ANTH 647 if student has credit for ANTH 447.

ANTH 648 - PHENOMENOLOGICAL ANTHROPOLOGY
Short Title: PHENOMENOLOGICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar explores phenomenological theory in the human sciences beginning with Hegel and Marx and examines its uptake in recent works of anthropological ethnography and theory. The course will focus especially upon questions of selfhood and alterity, affect and emotion, and the senses and knowledge. Graduate/Undergraduate Equivalency: ANTH 448. Mutually Exclusive: Cannot register for ANTH 648 if student has credit for ANTH 448.

ANTH 649 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is "sexuality" across cultural milieux? This course analyzes understandings and practices of sexuality from a global, comparative perspective, including different social configurations of gender and intimacy, reproduction, sensuality and the erotic. Case studies explore the complex relationships between sexuality and gender, ethnicity, nationalism, globalization, commodification, politics, media, health and medicine. Graduate/Undergraduate Equivalency: ANTH 449. Mutually Exclusive: Cannot register for ANTH 649 if student has credit for ANTH 449.

ANTH 650 - PEDAGOGY
Short Title: PEDAGOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Training in the basic elements of teaching for anthropology graduate students with 18 credit hours of graduate coursework. Recommended Prerequisite(s): Third year and above graduate students. Repeatable for Credit.
ANTH 651 - THE ANTHROPOLOGY OF WATER
Short Title: THE ANTHROPOLOGY OF WATER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will offer students concepts and methodological resources to conduct their own research projects on water related issues from an anthropological perspective. It will include reading materials and fieldwork according to each student’s project specificities. Graduate/Undergraduate Equivalency: ANTH 451. Mutually Exclusive: Cannot register for ANTH 651 if student has credit for ANTH 451.

ANTH 652 - RESEARCH DESIGN
Short Title: RESEARCH DESIGN
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of the process of conceptualization and concrete design of dissertation-linked research. Recommended for third- or fourth-year graduate students.

ANTH 653 - COLLATERAL AFTERWORLDS
Short Title: COLLATERAL AFTERWORLDS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Drawing on ethnography and social theory, this course develops analytics attuned to the socialities, intimacies, temporalities, and forms of ethic that emerge in the precarious spaces of liberal and democratic violence and failure. In refugee camps or climate catastrophes, in a queer present or under enduring legacies, what happens if we think the social with hope and futurity in abeyance?
Graduate/Undergraduate Equivalency: ANTH 453. Repeatable for Credit.

ANTH 654 - RESEARCH DESIGN
Short Title: RESEARCH DESIGN
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of the process of conceptualization and concrete design of dissertation-linked research. Recommended for third- or fourth-year graduate students.

ANTH 655 - HERITAGE MANAGEMENT
Short Title: HERITAGE MANAGEMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the policies and politics of heritage management from a global perspective. We examine how different nations define, protect, and manage heritage resources. Case studies will present debates over the meaning and interpretation of cultural heritage and illustrate connections between heritage and such issues as nationalism and identity. The graduate level course will engage students at a more advanced theoretical level through additional reading assignments and an additional paper. Graduate/Undergraduate Equivalency: ANTH 456. Mutually Exclusive: Cannot register for ANTH 656 if student has credit for ANTH 456.

ANTH 658 - HUMAN OSTEOLOGY
Short Title: HUMAN OSTEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the analysis of human skeletal material from archaeological sites. Instructor Permission Required. Graduate/Undergraduate Equivalency: ANTH 458. Mutually Exclusive: Cannot register for ANTH 658 if student has credit for ANTH 458.

ANTH 660 - ADVANCED ARCHAEOLOGICAL THEORY
Short Title: ADVANCED ARCHAEOLOGICAL THEORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ANTH 205
Description: History and analysis of the major currents of archaeological theory from the Encyclopaedist origins of positivism, through cultural evolutionism and historical particularism, to the New Archaeology and current trends. Graduate/Undergraduate Equivalency: ANTH 460. Mutually Exclusive: Cannot register for ANTH 660 if student has credit for ANTH 460. Repeatable for Credit.

ANTH 663 - WEST AFRICAN PREHISTORY
Short Title: WEST AFRICAN PREHISTORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ANTH 458
Description: Seminar providing in-depth consideration of the later prehistoric archaeology (late Stone Age and Iron Age) of the West African subcontinent. Graduate/Undergraduate Equivalency: ANTH 463. Mutually Exclusive: Cannot register for ANTH 663 if student has credit for ANTH 463.

ANTH 667 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
ANTH 683 - DOCUMENTARY AND ETHNOGRAPHIC FILM
Short Title: DOCUMENTARY AND ETHNOGRAPHIC
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the history of documentary and ethnographic cinema from a worldwide perspective. Includes both canonical and alternative films and film movements, with emphasis on the shifting and overlapping boundaries of fiction and nonfiction genres. Graduate/Undergraduate Equivalency: ANTH 483. Mutually Exclusive: Cannot register for ANTH 683 if student has credit for ANTH 483.

ANTH 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: ANTH

Department Description and Code
- Anthropology: ANTH

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Anthropology: ANTH

Undergraduate Minor Description and Code
- Minor in Anthropology: ANTY

Graduate Degree Descriptions and Codes
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
- Degree Program in Anthropology: ANTH

CIP Code and Description
1
- ANTH Major/Program: CIP Code/Title: 45.0201 - Anthropology
- ANTY Minor: CIP Code/Title: 45.0201 - Anthropology

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Anthropology

Program Learning Outcomes for the BA Degree with a Major in Anthropology

Upon completing the BA degree with a major in Anthropology, students will be able to:

1. Understand how the history of anthropological debates, concepts, and goals is relevant to the discipline’s changing understanding of the dynamics of cultures past and present.
2. Think historically and comparatively, based on a solid understanding of anthropological perspectives on culture, experience, and social practice with regard to particular dimensions of culture, for example gender, health, law, ethics, ritual, materiality, heritage, and the environment.
3. Apply disciplinary tools for responsibly researching and describing culture and critically conceptualizing the relationship between culture and factors such as historical change, power and social difference, and human diversity. These tools are based on an understanding of anthropological theory and method.
4. Apply research and analytical tools to individual research questions and case studies in order to become effective producers and critical evaluators of anthropological knowledge.
5. Be able to communicate with a wide range of audiences both orally and in writing.

Requirements for the BA Degree with a Major in Anthropology

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Anthropology must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 166) tab.
- A minimum of 8 courses (24 credit hours) from departmental (ANTH) course offerings.
- The requirements for one area of specialization (see below for areas of specialization). The BA degree with a major in Anthropology offers two areas of specialization:
  - Anthropological Archaeology (p. 165), or
  - Social-Cultural Anthropology (p. 165)
- A final Capstone or Honors research project culminating in an oral presentation as well as a written paper.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/).
Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Anthropology</td>
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**Degree Requirements**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Core Requirements</td>
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<td>Introductory Courses</td>
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<td></td>
<td>Select 2 courses from the following:</td>
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<td>ANTH 201  INTRODUCTION TO SOCIAL/CULTURAL ANTHROPOLOGY</td>
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<td></td>
<td>ANTH 203  INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY</td>
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<td>ANTH 205  INTRODUCTION TO ARCHAEOLOGY</td>
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<td>Method Course</td>
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<td>Select 1 course from the following:</td>
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<tr>
<td></td>
<td>ANTH 315  ZOOARCHAEOLOGY</td>
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<td></td>
<td>ANTH 362  ARCHAEOLOGICAL FIELD TECHNIQUES</td>
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<td>ANTH 398  ETHNOGRAPHIC RESEARCH METHODS</td>
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<td>Theory Course</td>
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<td></td>
<td>ANTH 302  ANTHROPOLOGICAL THEORY: A SURVEY</td>
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<tr>
<td></td>
<td>or ANTH 460  ADVANCED ARCHAEOLOGICAL THEORY</td>
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<td></td>
<td>Elective Requirements</td>
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<tr>
<td></td>
<td>Select 6 elective courses (18 credit hours) from departmental (ANTH) course offerings at the 300-level or above</td>
<td>18</td>
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</tbody>
</table>

**Area of Specialization**

**Anthropology Areas of Specialization**

The major in Anthropology has two distinct areas of specialization, Anthropological Archaeology and Social-Cultural Anthropology. Depending on a student's interest and desired area of specialization, students should see specific department advisors for assistance with elective course selection.

**Area of Specialization: Anthropological Archaeology**

In this area of specialization, the focus is on research skills in the library, the field, and the laboratory. Archaeology students will also engage theoretical developments and critical contemporary debates on issues such as the politics of the past and cultural heritage. Students also develop at least one analytical skill, such as ceramic analysis, archaeological statistics, spatial analysis, or zooarchaeology, drawing on the university's laboratory and computer facilities. The archaeology program at Rice has a long-term focus on the archaeology of the African past, including complex urban and pastoralist societies. The program offers students the opportunity to participate in archaeological excavations abroad as well as projects in and around Houston that focus on the African American past of the city and surrounding counties. Students inquiring about the anthropological archaeology area of specialization should see Dr. Mary Prendergast (mary@rice.edu, Sewall Hall, 590) about elective course options.

**Area of Specialization: Social-Cultural Anthropology**

This area of specialization engages with contemporary issues populations, and social dynamics that affect human life and culture broadly around the world. Social-cultural anthropology inquires across a vast range of human concerns from religion to social movements, from gender to medicine, from science studies to media, and from nature to law. Students are trained in ethnographic research methods and qualitative data collection, and they learn the theoretical

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. Students may petition the undergraduate advisor to apply up to 2 courses (6 credit hours) of relevant coursework completed outside of the department toward Elective Requirements.

2. Courses taken to satisfy the Research Sequence: Capstone or Honors requirement may be applied toward the Elective Requirements.

3. The research sequence consists of 2 courses (4 credit hours) for Capstone students and 3 courses (7 credit hours) for Honors students. All students take ANTH 493. Capstone students will also take ANTH 495. Honors students will also take ANTH 490 for 3 credit hours and ANTH 491 for 3 credit hours.

4. The Anthropology Capstone provides an opportunity for students to conduct an independent research project on a topic that interests them, while working one-on-one with a faculty supervisor. The project culminates in a research paper and a presentation to the faculty and assembled students. The Capstone includes a one-credit research preparation course, ANTH 493, and one three-credit independent research course (Anthropology Capstone ANTH 495).

5. See the Opportunities (p. 166) tab for more information.
principles that have shaped the discipline as well as contemporary, innovative approaches that question how human sociability is constituted in the 21st century. The social-cultural anthropology program at Rice has always championed interdisciplinary theoretical, and experimental modes of anthropology inquiry, and students are encouraged to add their creative intellectual insights to their research pursuits and goals. Students inquiring about the social-cultural anthropology area of specialization should see Dr. Gökçe Günel (gg15@rice.edu, Sewall Hall, 584) about elective course options.

Policies for the BA Degree with a Major in Anthropology
Program Restrictions and Exclusions
Students pursuing the major in Anthropology should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Anthropology should be aware of the following departmental transfer credit guidelines:

• No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing may apply towards the major.

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

• Dr. Dominic Boyer is the undergraduate transfer credit advisor. All students seeking transfer credit in anthropology for courses taken elsewhere should see Dr. Boyer for approval.

• Transfer credit coursework from online-only courses cannot be applied or used to meet any of the major’s course requirements.

Additional Information
For additional information, please see the Anthropology website: https://anthropology.rice.edu.

Archaeological Field School in Sub-Saharan Africa

The Department of Anthropology offers an archaeological field school during the summer months in Africa. Past field schools have been on the island of Gorée, located off the coast of Senegal, where research focused on the development of Gorée as a supply port for the Atlantic trade, at Songo Mnara, a 15th-century Swahili urban center on the southern Tanzanian coast, and Basanga, an Iron Age settlement mound in southwest Zambia. This course is offered for a total of six hours of credit (ANTH 364 and ANTH 370). The course is offered without specific prerequisites, but there is a general requirement that students have some prior coursework in archaeology or African history. Program fees apply.

Requirements for the Departmental Honors Program

The Honors Program is intended to acknowledge outstanding students, and to provide them with advanced training in the planning and execution of sustained, independent research. As a rule, students should petition the undergraduate advisor to be admitted to the Program no later than the 10th week of the spring semester of their junior year. Admission is at the discretion of the department faculty. The only formal prerequisite to admittance are a Grade Point Average in the major of at least 3.50 and an overall GPA at the end of the junior year of at least 3.00. Final decisions concerning admission are at the discretion of department faculty. Once admitted to the Program, students must complete a thesis, on a topic of their choosing, under the direction of one of the members of the department’s faculty. Topics should be approved by the faculty advisor by the end of the first month of the senior year. Theses are due at the end of the last semester of the senior year.

The Honors Thesis includes a one-credit research preparation and support course, ANTH 493, and two three-credit research courses (Directed Honors Research ANTH 490 and ANTH 491).

All honors projects will be considered for the Distinction in Research and Creative Work (p. 51).

Additional Information
For additional information, please see the Anthropology website: https://anthropology.rice.edu.

Doctor of Philosophy (PhD) Degree in the field of Anthropology

Program Learning Outcomes for the MA and PhD Degrees in the field of Anthropology

Upon completing the MA and PhD degrees in the field of Anthropology, students will be able to:

1. Excel at professions within and outside the academy that emphasize research, analytic, and writing skills.
2. Demonstrate a comprehensive understanding of the history of the discipline as well as anthropological theory and practice.
3. Utilize the key methodological, theoretical, and analytical skills at the heart of the discipline and become skilled producers of anthropological knowledge, able to critique actively and reconfigure canonical approaches to social science.
4. Apply research and analytical skills to original research questions and case studies to produce innovative approaches to anthropological

Opportunities for the BA Degree with a Major in Anthropology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
knowledge and intervene effectively in both disciplinary discussions and wider sociocultural debates.

5. Conduct responsible, ethical research with interlocutors and consultants in a world of increasingly complex interplay between small-scale and large-scale concerns and commitments.

Requirements for the MA and PhD Degrees in the field of Anthropology

The department seeks applicants to the PhD program with a defined research interest in sociocultural anthropology; an undergraduate background in anthropology is desirable, but not required. Entering students will devise a detailed first-year plan of study with provisional plans for succeeding years in consultation with a faculty advisory committee. The plan will emphasize broad training in the discipline before the eventual definition of a thesis research project.

MA Degree Program

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA in the social-cultural area of specialization, graduate students may earn a terminal MA degree in the field of Anthropology with the approval of their faculty committee and by completing:

• 30 semester hours of approved coursework.
• Two qualifying exams or two qualifying essays required for PhD candidacy.
• A thesis which meets the standards of the student’s PhD candidacy committee.

Requirements for the PhD Degree in the field of Anthropology

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree program in Anthropology with the social-cultural specialization must:

• Complete required coursework: 90 semester hours of graduate study (undergraduate courses, including language courses, do not satisfy this requirement).
• Complete 6 Required Courses (18 credit hours) listed below.
• Complete 4 additional courses (12 credit hours) as electives in the Department of Anthropology (either ANTH 500-level or ANTH 600-level).
• Prior to achieving candidacy, successfully complete an end-of-year report. Students will write a 2-3 page (double-spaced) summary of their achievements for the year and consult with a faculty panel at the end of each spring semester.

Summary

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Degree Requirements

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<tr>
<td>ANTH 506</td>
<td>HISTORY OF ANTHROPOLOGICAL IDEAS</td>
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</tr>
<tr>
<td>ANTH 507</td>
<td>ANTHROPOLOGICAL DIRECTIONS FROM SECOND WORLD WAR TO PRESENT</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 598</td>
<td>ETHNOGRAPHIC RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 601</td>
<td>GRADUATE PROSEMINAR IN ANTHROPOLOGY: THEORY, METHOD, AND PROFESSIONALIZATION</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 602</td>
<td>ANTHROPOLOGY PROPOSAL WRITING SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 650</td>
<td>PEDAGOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements

Students pursuing the PhD must select at least 4 courses from departmental (ANTH) course offerings at the 500-level or 600-level

Total Credit Hours

60

Footnotes and Additional Information

1 Only one semester of ANTH 650 is required, however a minimum of 18 credit hours of graduate credit is required in order to be eligible to take this course.

Requirements for PhD Candidacy (and thus eligibility for the candidacy MA)

Students pursuing the PhD degree program in Anthropology must complete the following. These requirements must be completed no later than the end of the eighth semester of enrollment in the program:

• Successful completion of all required courses. Students must receive at least a ‘B’ in a course for the department to deem it successfully completed. An overall GPA of at least 3.00 each semester must be maintained to remain in good academic standing.
• The approval by the student’s candidacy committee of either two qualifying examinations or two qualifying essays (further details are noted in the Graduate Student Handbook found on the Policies (p. 168) tab and the Department of Anthropology website (https://anthropology.rice.edu/)).
• The approval by the student’s candidacy committee of the design and content of at least one undergraduate syllabus to be created in ANTH 650.
• The committee’s approval of the thesis research.
• For students not bilingual (in English and their field research language), the passing of an examination in a period of 90 minutes, with the help of a dictionary, of at least 1,000 words into English from an academic journal article in anthropology in either the relevant field language or a major scholarly language (further details are noted in the Graduate Student Handbook found on the Policies
(p. 168) tab and the Department of Anthropology website (https://anthropology.rice.edu/).

- (For acquisition of the PhD) Successful completion of extended fieldwork with regular reports made back to the thesis committee.
- (For acquisition of the PhD) Complete and defend the thesis to the satisfaction of the thesis committee.

**Policies for the PhD Degree in the field of Anthropology**

**Department of Anthropology Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Anthropology publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Anthropology_Graduate_Handbook.pdf

**Financial Support**

All first-year students receive the same level of support: a combination of graduate fellowships and tuition scholarships. These awards are renewed for a further four years of study contingent upon satisfactory performance. Potential applicants to the program are invited to contact the Director of Graduate Studies for further information on current levels of financial support.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the PhD degree in the field of Anthropology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Anthropology website: https://anthropology.rice.edu/

**Opportunities for the PhD Degree in the field of Anthropology**

**Additional Information**

For additional information, please see the Anthropology website: https://anthropology.rice.edu/

**Minor in Anthropology**

**Program Learning Outcomes for the Minor in Anthropology**

Upon completing the minor in Anthropology, students will be able to:

1. Understand the origins and current state of approaches and methods across the discipline’s subfield.

2. Describe anthropology’s unique, comparative, and historically informed perspective on human social, cultural, and political continuity and variation.

3. Make use of anthropology’s critical perspectives to understand contemporary social and cultural practices in the world around them.

4. Utilize critical reading and thinking skills to make original arguments about the significance of social and cultural practices in the world around them.

**Requirements for the Minor in Anthropology**

Students pursuing the minor in Anthropology must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 169) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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<th>Code</th>
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**Minor Requirements**

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<td>Core Requirements</td>
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<tr>
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<td>Select 2 courses from the following:</td>
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<tr>
<td>ANTH 201</td>
<td>INTRODUCTION TO SOCIAL/CULTURAL ANTHROPOLOGY</td>
<td></td>
</tr>
<tr>
<td>ANTH 203</td>
<td>INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY</td>
<td></td>
</tr>
<tr>
<td>ANTH 205</td>
<td>INTRODUCTION TO ARCHAEOLOGY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Select 4 elective courses from departmental (ANTH) course offerings ¹</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>18</td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

¹ A minimum of 3 of the elective courses (minimum 9 credit hours) must be completed at the 300-level or above.
Policies for the Minor in Anthropology

Program Restrictions and Exclusions

Students pursuing the minor in Anthropology should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Anthropology should be aware of the following departmental transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
• Dr. Beverly Mitchell is the undergraduate transfer credit advisor. All students seeking transfer credit in anthropology for courses taken elsewhere should see Dr. Mitchell for approval.
• Transfer credit coursework from online-only courses cannot be applied or used to meet any of the minor’s course requirements.

Additional Information

For additional information, please see the Anthropology website: anthropology.rice.edu/.

Opportunities for the Minor in Anthropology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Archaeological Field School in Sub-Saharan Africa

The Department of Anthropology offers an archaeological field school during the summer months in Africa. Past field schools have been on the island of Gorée, located off the coast of Senegal, where research focused on the development of Gorée as a supply port for the Atlantic trade, at Songo Mnara, a 15th-century Swahili urban center on the southern Tanzanian coast, and Basanga, an Iron Age settlement mound in southwest Zambia. This course is offered for a total of six hours of credit (ANTH 364 and ANTH 370). The course is offered without specific prerequisites, but there is a general requirement that students have some prior coursework in archaeology or African history. Program fees apply.

Additional Information

For additional information, please see the Anthropology website: https://anthropology.rice.edu/.

Applied Chemical Sciences

Contact Information

Applied Chemical Sciences
https://profms.rice.edu
203 Keck Hall
713-348-3188
Anatoly B. Kolomeisky
Faculty Director
tolya@rice.edu
Dagmar Beck
PSM Program Director
dkbeck@rice.edu

The professional master’s degree in Applied Chemical Sciences aims to provide students with a wider range of science-related career opportunities. Students will take three semesters of advanced science and engineering courses together with business, ethics, and communication classes. In addition, a required internship will provide practical work experience. The MS in Applied Chemical Sciences (MSACS) degree prepares students with background in chemistry for employment in chemical industries or government organizations. The MSACS degree program offers three areas of specialization:

• Bioorganic Chemistry, or
• Computational Chemistry and Data Science, or
• Petroleum Chemistry.

Students will be able to pursue advanced coursework in the area that matches their interests.

The MS in Applied Chemical Sciences (MSACS) degree is part of the professional science master’s (PSM) program at Rice housed in the Wiess School of Natural Sciences. These master’s degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communications skills. They instill a level of scholastic proficiency that exceeds that of the bachelor’s level, and create the cross-functional aptitudes needed in modern industry. Skills acquired in this program will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

Applied Chemical Sciences does not currently offer an academic program at the undergraduate level.

Master’s Program

• Master of Science in Applied Chemical Sciences (MSACS) Degree (p. 170)

2021-2022 General Announcements PDF Generated 09/22/21
**Master of Science in Applied Chemical Sciences (MSACS) Degree**

**Program Learning Outcomes for the MSACS Degree**

Upon completing the MSACS Degree, students will be able to:

1. Apply basic chemical knowledge and analytical skills to problem solving.
2. Demonstrate in-depth understanding of chemical knowledge in one of the three areas of specialization.
3. Use statistical analysis to evaluate data.
4. Demonstrate written, oral, and visual communication strategies required to communicate effectively across science, business, and government.

**Requirements for the MSACS Degree**

The MSACS degree is a non-thesis master's degree. For general university requirements for non-thesis masters degrees, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MSACS degree must complete:

- A minimum of 14 courses (minimum of 39-40.5 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 172) tab.
- A 3-6 month internship. Instead of a thesis, at the conclusion of their internship, students must present their internship project in both oral and written form as part of the Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may request approval to fulfill the internship requirement by working on a specific, pre-approved project with their current employer.
- The requirements for one area of specialization (see below for areas of specialization). The MSACS degree program offers three areas of specialization:
  - A minimum overall GPA of 2.67 or higher in all Rice coursework.
  - A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

**Note:** Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor or
where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

#### Core Requirements

Core Chemistry Courses

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<tr>
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<tbody>
<tr>
<td>CHEM 590</td>
<td>PROFESSIONAL MASTERS SEMINAR IN APPLIED CHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 591</td>
<td>RESEARCH LABORATORY EXPERIENCE</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 592</td>
<td>STATISTICAL DATA ANALYSIS</td>
<td>3</td>
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Cohort Courses

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER’S SEMINAR (2 semesters required, 1st semester)</td>
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<td>NSCI 501</td>
<td>PROFESSIONAL MASTER’S SEMINAR (2 semesters required, 2nd semester)</td>
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<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
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<td>NSCI 512</td>
<td>PROFESSIONAL MASTER’S PROJECT</td>
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<tr>
<td>NSCI 610 / ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
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#### Three to Six Month Internship

A three to six month internship is required

#### Area of Specialization

Select 1 of the following Areas of Specialization (see Areas of Specialization below) 12-13.5

- Bioorganic Chemistry
- Computational Chemistry and Data Science
- Petroleum Chemistry

#### Elective Requirements

Select 3 courses from approved management, business, analytics, or communication coursework (see course list below) 9

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>39-40.5</td>
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</table>

### Areas of Specialization

**Bioorganic Chemistry**

Students must complete a minimum of 4 courses (minimum of 12-13.5 credit hours, depending on area of specialization) to satisfy the requirements for one area of specialization.

**Computational Chemistry and Data Science**

Students must complete a minimum of 4 courses (minimum of 12-13.5 credit hours, depending on course selection) to satisfy the requirements for the MSACS degree program’s Bioorganic Chemistry area of specialization.

**Footnotes and Additional Information**

1 Practical experience is offered via a three to six month immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form for the cohort course Professional Master’s Project (NSCI 512). Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer.

### Course List

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<tr>
<td>CHEM 501</td>
<td>ADVANCED ORGANIC CHEMISTRY</td>
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<tr>
<td>CHEM 511</td>
<td>SPECTRAL METHODS IN ORGANIC CHEMISTRY</td>
<td>12-13.5</td>
</tr>
<tr>
<td>CHEM 542</td>
<td>MEDICINAL CHEMISTRY I</td>
<td>12-13.5</td>
</tr>
<tr>
<td>CHEM 547</td>
<td>SUPRAMOLECULAR CHEMISTRY</td>
<td>12-13.5</td>
</tr>
<tr>
<td>CHEM 548</td>
<td>PEPTIDE CHEMISTRY DESIGN, SYNTHESIS AND STRUCTURE</td>
<td>12-13.5</td>
</tr>
<tr>
<td>or CHEM 554</td>
<td>DRUG DISCOVERY AT THE INTERFACE OF CHEMISTRY AND BIOLOGY</td>
<td>12-13.5</td>
</tr>
<tr>
<td>CHEM 552</td>
<td>CHEMICAL BIOLOGY</td>
<td>12-13.5</td>
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<tr>
<td>CHEM 515</td>
<td>CHEMICAL KINETICS AND DYNAMICS</td>
<td>12-13.5</td>
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<tr>
<td>CHEM 523</td>
<td>ADVANCED ANALYSIS METHODS FOR MOLECULAR DYNAMICS FROM STATISTICAL MECHANICS TO MACHINE LEARNING</td>
<td>12-13.5</td>
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<td>CHEM 537</td>
<td>BIOPHYSICAL CHEMISTRY</td>
<td>12-13.5</td>
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<tr>
<td>CHEM 551</td>
<td>BIOMOLECULAR CONCEPTS</td>
<td>12-13.5</td>
</tr>
<tr>
<td>CHBE 505</td>
<td>ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS</td>
<td>12-13.5</td>
</tr>
<tr>
<td>EEPS 585</td>
<td>COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY</td>
<td>12-13.5</td>
</tr>
<tr>
<td>EEPS 587</td>
<td>SEM: PETROLEUM GEOCHEMISTRY - PRINCIPALS AND PRACTICE</td>
<td>12-13.5</td>
</tr>
<tr>
<td>STAT 532</td>
<td>FOUNDATIONS OF STATISTICAL INFERENCE I</td>
<td>12-13.5</td>
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<tr>
<td>STAT 533</td>
<td>FOUNDATIONS OF STATISTICAL INFERENCE II</td>
<td>12-13.5</td>
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<tr>
<td>STAT 535</td>
<td>DATA SCIENCE PROJECTS</td>
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</tbody>
</table>
Master of Science in Applied Chemical Sciences (MSACS) Degree

Area of Specialization: Petroleum Chemistry
Students must complete a minimum of 4 courses (12 credit hours) to satisfy the requirements for the MSACS degree program's Petroleum Chemistry area of specialization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEM 511</td>
<td>SPECTRAL METHODS IN ORGANIC CHEMISTRY</td>
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<td>CLASSICAL AND STATISTICAL THERMODYNAMICS</td>
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<tr>
<td>CHEM 533 /</td>
<td>NANOSCIENCE AND NANOTECHNOLOGY I</td>
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<td>CEVE 533 /</td>
<td></td>
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<td>MSNE 534</td>
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<td>CHEM 547</td>
<td>SUPRAMOLECULAR CHEMISTRY</td>
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<td>CHBE 505</td>
<td>ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS</td>
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</tr>
<tr>
<td>CHBE 550</td>
<td>PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE</td>
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</table>

Total Credit Hours: 12

Course List to Satisfy Requirements
Elective Requirements
Select a minimum of 3 courses (minimum of 9 credit hours) from the following approved coursework in management, business, analytics or communication.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>EEPS 585</td>
<td>COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY</td>
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<tr>
<td>EEPS 587</td>
<td>SEM: PETROLEUM GEOCHEMISTRY - PRINCIPALS AND PRACTICE</td>
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<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
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<td>ENGI 542</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
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<tr>
<td>ENGI 614</td>
<td>LEARNING HOW TO INNOVATE?</td>
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<td>MGMT 610</td>
<td>FUNDAMENTALS OF THE ENERGY INDUSTRY</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
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</tr>
<tr>
<td>MGMT 633 /</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN</td>
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</tr>
<tr>
<td>BIOE 633</td>
<td>HIGH-TECH STARTUPS</td>
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<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
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<td>MGMT 686</td>
<td>INTRODUCTION TO MARKETING RESEARCH</td>
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<td>MGMT 689</td>
<td>DECISION MODELS</td>
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<tr>
<td>MGMT 717</td>
<td>PROJECT MANAGEMENT</td>
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</tr>
<tr>
<td>MGMT 721</td>
<td>BUSINESS LAW</td>
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<td>MGMT 747</td>
<td>REGULATORY ENVIRONMENT OF BUSINESS</td>
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<tr>
<td>MGMT 771</td>
<td>DIGITAL MARKETING</td>
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</tr>
</tbody>
</table>

Total Credit Hours: 9

Policies for the MSACS Degree

Professional Science Master's Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Professional Science Master's Program publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf)

Admission

Admission to graduate study in Applied Chemical Sciences is open to qualified students holding a bachelor's degree in a related science or engineering program that included course work in general chemistry, physics, and advanced math. Scores from the general Graduate Record Examination (GRE), good critical thinking and communication skills and strong quantitative abilities. Some lab experience, intro statistics, introductory economics and computer skills preferred. Department faculty evaluate the previous academic record and credentials of each applicant individually and make admission decisions.

Transfer Credit

For Rice University’s policy regarding transfer credit, see [Transfer Credit](p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MSACS degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Applied Chemical Sciences website: [https://profms.rice.edu/](https://profms.rice.edu/)

Opportunities for the MSACS Degree

Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.
As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science may have the option to pursue the Master of Science in Applied Chemical Sciences (MSACS) degree. For additional information, students should contact their undergraduate major advisor, the faculty MSACS program director, and the Professional Science Master’s (PSM) program director.

Additional Information
For additional information, please see the Applied Chemical Sciences website: https://profms.rice.edu/

Applied Physics
Contact Information
Applied Physics
https://appliedphysics.rice.edu/
713-348-6008

Junichiro Kono
Program Chair
kono@rice.edu

The Applied Physics Graduate Program (APP) advisors include or have included faculty from the departments of Bioengineering; Chemical and Biomolecular Engineering; Chemistry; Computation and Applied Mathematics; Earth, Environmental, and Planetary Sciences; Electrical and Computer Engineering; Materials Science and Nanoengineering; Mechanical Engineering; Physics and Astronomy; and Statistics, as well as faculty at the Texas Medical Center.

A joint effort of both the Wiess School of Natural Sciences and the George R. Brown School of Engineering at Rice where the application of physics principles is beneficial, and overseen by the Smalley-Curl Institute (SCI), the Applied Physics Graduate Program is administered by a committee composed of members from the participating departments mentioned above. The objective is to provide an interdisciplinary graduate education in the basic science that underlies important technology. The faculty believes that the experience obtained by performing research at the intellectually stimulating interface of physical science and engineering is particularly effective in producing graduates who succeed in careers based on new and emerging technologies.

Due to the interdisciplinary nature of the program, students can utilize any of the research facilities in either the natural sciences or engineering schools of Rice University, as well as institutions in the Texas Medical Center. Prospective students are urged to contact the Program Chair or the Applied Physics Admissions Committee (APAC) for detailed descriptions of research facilities and ongoing research projects.

Applied Physics does not currently offer an academic program at the undergraduate level.

Master's Program
- Master of Science (MS) Degree in the field of Applied Physics*

Doctoral Program
- Doctor of Philosophy (PhD) Degree in the field of Applied Physics (p. 174)
- Although students are not directly admitted to a Master of Science (MS) degree program, graduate students must earn the MS in lieu of a qualifying exam as they work toward the PhD.

Chair, Applied Physics Graduate Program
Junichiro Kono

Director, Smalley-Curl Institute
Naomi J. Halas

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p.action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Applied Physics (APPL)
APPL 490 - RQI - REU SUMMER RESEARCH PROGRAM
Short Title: UNDERGRAD SUMMER RESEARCH-REU
Department: Applied Physics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research experience under supervision of graduate students and faculty. Summer semester only. Department Permission Required.

APPL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Applied Physics
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
APPL 750 - INTERNATIONAL RESEARCH INTERNSHIP
**Short Title:** INTERNATIONAL RESEARCH INTERNSHIP
**Department:** Applied Physics
**Grade Mode:** Standard Letter
**Course Type:** Internship/Practicum
**Credit Hours:** 3
**Restrictions:** Enrollment is limited to Graduate level students.
**Description:** Research internship in a foreign laboratory at institutes and universities in Mainz, Germany and Toulouse, France. Department Permission Required.

APPL 800 - RESEARCH AND THESIS
**Short Title:** RESEARCH AND THESIS
**Department:** Applied Physics
**Grade Mode:** Standard Letter
**Course Type:** Research
**Credit Hours:** 1-15
**Restrictions:** Enrollment is limited to Graduate level students.
**Description:** Thesis research under the supervision of faculty. Repeatable for Credit.

**Description and Code Legend**
*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**
- Course offerings/subject codes: Courses from various subjects may apply toward the graduate degree

**Program Description and Code**
- Applied Physics: APPL

**Graduate Degree Descriptions and Codes**
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD

**Graduate Degree Program Descriptions and Codes**
- Degree Program for Applied Physics students in Bioengineering: APBI
- Degree Program for Applied Physics students in Chemical and Biomolecular Engineering: APCB
- Degree Program for Applied Physics students in Chemistry: APCH
- Degree Program for Applied Physics students in Computational and Applied Mathematics: APCA
- Degree Program for Applied Physics students in Earth Science: APEA
- Degree Program for Applied Physics students in Electrical Engineering: APEL
- Degree Program for Applied Physics students in Materials Science and NanoEngineering: APMS
- Degree Program for Applied Physics students in Mechanical Engineering: APME
- Degree Program for Applied Physics students in Physics: APPH
- Degree Program for Applied Physics students in Statistics: APST
- Degree Program offered to students in Applied Physics (1st year students only): APPL

**CIP Code and Description**
- APBI Major/Program: CIP Code/Title: 14.1201 - Engineering Physics/ Applied Physics
- APCB Major/Program: CIP Code/Title: 14.1201 - Engineering Physics/ Applied Physics
- APCH Major/Program: CIP Code/Title: 40.0899 - Physics, Other
- APEA Major/Program: CIP Code/Title: 40.0899 - Physics, Other
- APEL Major/Program: CIP Code/Title: 14.1201 - Engineering Physics/ Applied Physics
- APME Major/Program: CIP Code/Title: 14.1201 - Engineering Physics/ Applied Physics
- APMS Major/Program: CIP Code/Title: 14.1201 - Engineering Physics/ Applied Physics
- APPH Major/Program: CIP Code/Title: 40.0899 - Physics, Other
- APPL Major/Program: CIP Code/Title: 40.0899 - Physics, Other
- APST Major/Program: CIP Code/Title: 14.1201 - Engineering Physics/ Applied Physics

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

Doctor of Philosophy (PhD) Degree in the field of Applied Physics

**Program Learning Outcomes for the MS and PhD Degrees in the field of Applied Physics**
Upon completing the MS and PhD degrees in the field of Applied Physics, students will be able to:

1. Acquire and demonstrate advanced knowledge in the foundational applications of physics including familiarity with past and current scientific literature in their chosen specialization.
2. Develop the ability to conduct independent applied physics research including the aptitude to identify, formulate, and overcome challenging scientific and engineering problems in this endeavor.
3. Make an original and significant technical contribution in their chosen specialization area.

**Requirements for the MS and PhD Degrees in the field of Applied Physics**
The Applied Physics Program (APP) offers a PhD degree. For general university requirements, please see Doctoral Degrees (p. 72). The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

The program does not offer a stand-alone thesis MS degree, although students admitted to the program are required to earn the MS within the program before proceeding to the PhD. For each degree, students must fulfill the university requirements set forth in the General Announcements under which they entered. The semester hour requirements may
be fulfilled both by classroom hours and research hours. A total of nine one-semester, 3-credit hour per course minimum, graduate level courses is required for the master's degree in applied physics, ordinarily a requirement for advancement to candidacy in the PhD program. Four of these are core courses required of all students, and five are elective courses chosen according to individual research goals. The Applied Physics Curriculum Committee (APCC) may waive some course requirements for students who demonstrate a thorough knowledge of material in one or more core/elective course(s). Full requirements are available on the Applied Physics website (https://appliedphysics.rice.edu/current-students/program-requirements/).

By the end of the third year in the program, all APP students should have completed the university requirements for the master's degree, fulfilled the course requirements of the AP, and defended a master's thesis in a public oral examination by a committee approved by the Program Chair and Graduate Studies. The examination covers the work reported in the thesis as well as the entire field in which the student intends to work toward their PhD. The examining committee votes separately on awarding the master's degree and on admission to candidacy for the PhD. The student may be required to fulfill teaching/grading requirements set by the host department. Fulfillment of all university degree requirements and successful defense of a PhD thesis in a public examination by a university approved committee is necessary for the PhD.

### Summary

**Code** | **Title** | **Credit Hours**
--- | --- | ---

**Total Credit Hours Required for the PhD in the field of Applied Physics**

- **Core Requirements**
  - Select 4 courses from the following, depending on area of research (see below for suggested Areas of Specialization): 12
    - BIOE 502 / BIOS 505 / SSPB 501: PHYSICAL BIOLOGY
    - CHBE 501: FLUID MECHANICS AND TRANSPORT PROCESSES
    - CHBE 602: PHYSICO-CHEMICAL HYDRODYNAMICS
    - CHBE 611: ADVANCED TOPICS-THERMODYNAMICS
    - PHYS 515: CLASSICAL DYNAMICS
    - PHYS 516: MATHEMATICAL METHODS
    - PHYS 521: QUANTUM MECHANICS I
      - or CHEM 530: QUANTUM CHEMISTRY
    - PHYS 522: QUANTUM MECHANICS II
      - or CHEM 531: ADVANCED QUANTUM CHEMISTRY
    - PHYS 526: STATISTICAL PHYSICS
      - or CHEM 520: CLASSICAL AND STATISTICAL THERMODYNAMICS
    - PHYS 532: CLASSICAL ELECTRODYNAMICS
    - PHYS 563 / ELEC 563: INTRODUCTION TO SOLID STATE PHYSICS

- **Elective Requirements**
  - Select 5 elective courses (see below for suggested Areas of Specialization). 3

### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

### Additional Requirements as Defined by Department

- **Total Credit Hours**
  - 90

### Footnotes and Additional Information

1. Any course taken beyond the four-course requirement for the Applied Physics Core Requirements can be applied towards the Applied Physics Electives requirement. No courses may count toward both Core Requirements and Elective Requirements.
2. Due to overlap of curricula, only 1 course from each of these groups may be used for the 9 required courses.
3. A full list of elective courses can be found on the Applied Physics website (https://appliedphysics.rice.edu/current-students/elective-courses/).

### Course Lists to Satisfy Requirements

#### Areas of Specialization

Some examples of areas of specialization that students may choose are listed below. The lists are only suggested lists and are by no means a full list of possible courses for the area of specialization.

#### Nanomaterials and Nanodevices

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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#### Neuroengineering and Biotechnology

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<tr>
<th>Code</th>
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</table>

### Footnotes

1. Any course taken beyond the four-course requirement for the Applied Physics Core Requirements can be applied towards the Applied Physics Electives requirement. No courses may count toward both Core Requirements and Elective Requirements.
2. Due to overlap of curricula, only 1 course from each of these groups may be used for the 9 required courses.
3. A full list of elective courses can be found on the Applied Physics website (https://appliedphysics.rice.edu/current-students/elective-courses/).
Doctor of Philosophy (PhD) Degree in the field of Applied Physics

### Photonics and Plasmonics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>BIOS 524</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
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<tr>
<td>BIOS 551</td>
<td>MOLECULAR BIOPHYSICS</td>
<td>3</td>
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<tr>
<td>ELEC 587</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY</td>
<td>3</td>
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<td>ELEC 680</td>
<td>NANO-NEUROTECHNOLOGY</td>
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<td>PHYS 551</td>
<td>BIOLOGICAL PHYSICS</td>
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<td>PHYS 552</td>
<td>TOPICS IN BIOLOGICAL PHYSICS</td>
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### Suggested Core Courses

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<tbody>
<tr>
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<td>QUANTUM MECHANICS I</td>
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### Suggested Elective Courses

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<td>SPECTROSCOPY AT THE SINGLE MOLECULE/PARTICLE LIMIT</td>
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<td>ELEC 562</td>
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<td>3</td>
</tr>
<tr>
<td>ELEC 566</td>
<td>NANOPHOTONICS AND METAMATERIALS</td>
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</tr>
<tr>
<td>ELEC 567</td>
<td>NANO-OPTICS</td>
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<tr>
<td>ELEC 568</td>
<td>LASER SPECTROSCOPY</td>
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<tr>
<td>ELEC 569</td>
<td>ULTRAFAST OPTICAL PHENOMENA</td>
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<tr>
<td>ELEC 571</td>
<td>IMAGING AT THE NANOSCALE</td>
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<td>PHYS 572</td>
<td>FUNDAMENTALS OF QUANTUM OPTICS</td>
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### Quantum and Ultracold Matter

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<tr>
<td>ELEC 568</td>
<td>LASER SPECTROSCOPY</td>
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<tr>
<td>ELEC 569</td>
<td>ULTRAFAST OPTICAL PHENOMENA</td>
<td>3</td>
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<tr>
<td>PHYS 532</td>
<td>CLASSICAL ELECTRODYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 533</td>
<td>NANOSTRUCTURE AND NANOTECHNOLOGY I</td>
<td>3</td>
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<td>PHYS 537</td>
<td>METHODS OF EXPERIMENTAL PHYSICS I</td>
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<td>PHYS 567</td>
<td>QUANTUM MATERIALS</td>
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<td>QUANTUM PHASE TRANSITIONS</td>
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<td>MODERN ATOMIC PHYSICS</td>
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<tr>
<td>PHYS 580</td>
<td>INTRODUCTION TO PLASMA PHYSICS</td>
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### Photonics and Plasmonics

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</tr>
<tr>
<td>ELEC 571</td>
<td>IMAGING AT THE NANOSCALE</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 572</td>
<td>FUNDAMENTALS OF QUANTUM OPTICS</td>
<td>3</td>
</tr>
</tbody>
</table>

### Suggested Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 521</td>
<td>QUANTUM MECHANICS I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 526</td>
<td>STATISTICAL PHYSICS</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 532</td>
<td>CLASSICAL ELECTRODYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 563</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS</td>
<td>3</td>
</tr>
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</table>

### Suggested Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 589</td>
<td>COMPUTATIONAL MOLECULAR BIOENGINEERING/BIOPHYSICS</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 519</td>
<td>COMPUTATIONAL SCIENCE I</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 615</td>
<td>THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 530</td>
<td>QUANTUM CHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 546</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 548</td>
<td>MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 605</td>
<td>COMPUTATIONAL ELECTRODYNAMICS AND NANOPHOTONICS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 533</td>
<td>COMPUTATIONAL MATERIALS MODELING</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 538</td>
<td>COMPUTATIONAL NANOSCIENCE FOR GREEN INFRASTRUCTURE</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 517</td>
<td>COMPUTATIONAL PHYSICS</td>
<td>3</td>
</tr>
</tbody>
</table>

### Policies for the PhD Degree in the field of Applied Physics

#### Applied Physics Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Applied Physics publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Applied_Physics_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Applied_Physics_Graduate_Handbook.pdf)

#### Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit](#) (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Applied Physics should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

#### Additional Information

For additional information, please see the Applied Physics website: [https://appliedphysics.rice.edu/](https://appliedphysics.rice.edu/)
Opportunities for the PhD Degree in the field of Applied Physics

Students who have completed the PhD program in Applied Physics establish careers in industry, government laboratories, and academia.

Additional Information
For additional information, please see the Applied Physics website: https://appliedphysics.rice.edu/

Architecture
Contact Information

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The Rice School of Architecture focuses on speculative practice - that is, the teaching and research of architecture and urban design as speculations that will advance professional practice as well as our built environment. Intimate student-faculty interaction, academic freedom, and unrestricted institutional cooperation within and outside the university are distinctive qualities of the architecture degree programs at Rice. Students build on their classroom experience through design-build projects in our Construct program; site and office visits with our Mentorship program; and our award-winning Totalization program, which incorporates professional consultants and instruction (structural, façade, financial, MEP, and other) within the studio, enabling our students to apply advanced technologies to building design and construction.

Rice Architecture’s undergraduate programs maintain a balance between a focused study of architecture and a broad general education. In addition to formal coursework, students benefit from lectures and presentations from distinguished practitioners and scholars, symposia and other cultural events, and the unique Rice Preceptorship program, which places students in an outstanding professional office for a nine to twelve-month internship that includes all phases of the design-construction process.

Rice Architecture’s graduate programs situate design within a broader context of architectural history, contemporary practice, and advanced material and fabrication technologies. Rice’s graduate program culminates in an independent design thesis, on the principle that an architectural education provides a complete exposure to architecture’s breadth, from which students establish their expertise, through this independent design research.
Architecture (ARCH)

ARCH 101 - PRINCIPLES OF ARCHITECTURE I - ORDER
Short Title: PRINCIPLES OF ARCHITECTURE I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This introductory studio frames architecture as a discipline through a set of short problems that examine the relationship between formal and spatial ordering, technical and material concepts, and issues of use and program, culminating in a small synthetic project. Permission Required by Director of Undergraduate Studies, Rice School of Architecture. Department Permission Required.

ARCH 102 - PRINCIPLES OF ARCHITECTURE II - REPRESENTATION
Short Title: PRINCIPLES OF ARCHITECTURE II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARCH 101
Description: What is the role of information and representation within the design process? This studio introduces and explores the tools and concepts of notation and representation in architecture and how they serve as instruments of inquiry in a design processes. The use of precedents is a focus early in the semester, in which students analyze a project and its formal concepts that inform the design of a small architectural project in the second part of the course.

ARCH 105 - ENVIRONMENT, CULTURE AND SOCIETY
Short Title: ENVIRONMENT, CULTURE & SOCIETY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This introductory course in environmental studies helps students to better understand the complex interrelationship between human cultures and their social and physical environments. Lectures and assignments draw upon the methods and expertise of architecture, the humanities and the social sciences. This is a core course of Rice's Environmental Studies minor. Cross-list: ENST 100.

ARCH 201 - PRINCIPLES OF ARCHITECTURE III - ORGANIZATION
Short Title: PRINCIPLES OF ARCHITECTURE III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARCH 102
Description: What is the relationship between diagrammatic organization systems and the tectonic systems of construction? What is the relationship between the internal organization of a building’s program and its immediate external context? The potentials of different structural systems in relationship to programmatic diagrams are foregrounded to develop an architectural proposal for a public program of medium size.
ARCH 202 - PRINCIPLES OF ARCHITECTURE IV - EFFECTS
Short Title: PRINCIPLES OF ARCHITECTURE IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What is the relationship between material, technique and spatial or formal effects? This studio focuses on developing a student's understanding and experimentation with material and tectonic systems, building envelopes, and issues of sustainability.

ARCH 207 - TECHNOLOGY I
Short Title: TECHNOLOGY I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course will introduce students to historical and contemporary structures through multi-media presentations, computer-based visualizations, field trips, and hands-on experiments with materials of construction and physical models of structures. This course also addresses sustainability issues specific to structural systems such as embodied energy, life-cycle cost, and material recycling. This is the introductory course on the art and science of designing engineered structures and is the first of four required courses in the architectural technology sequence. It is intended for first or second year students interested in both civil engineering and architecture. Graduate/Undergraduate Equivalency: ARCH 507. Mutually Exclusive: Cannot register for ARCH 207 if student has credit for ARCH 507.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 225 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: HART 225. Graduate/Undergraduate Equivalency: ARCH 525. Mutually Exclusive: Cannot register for ARCH 225 if student has credit for ARCH 525.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARCH 301 - INTERMEDIATE PROBLEMS IN ARCHITECTURE I - SITUATION
Short Title: INTERMEDIATE PROBLEMS ARCH I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 202
Description: What is the relationship between the building and larger systems of the environment, constructed and natural, in which it sits and affects? This studio focuses on issues of architecture's relationship to site and landscape environmental considerations and the relationship between systems and processes across the scales of architecture, urban and infrastructure.

ARCH 302 - INTERMEDIATE PROBLEMS IN ARCHITECTURE II - LEGIBILITY
Short Title: INTERMEDIATE PROBLEMS ARCH II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 301
Description: How do questions of legibility in architecture engage a global milieu? This typically travel focused studio develops a large and complex architectural project in an urban context, examining through design the relationship between a specific locale and culture on the one hand and on the other a global economy and discipline.
ARCH 310 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES
Short Title: VIRTL RECONSTR HISTORCL CITIES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ANTH 346, COMP 316, HART 316.
ARCH 314 - TECHNOLOGY III
Short Title: TECHNOLOGY III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The building envelope is the collection of material assemblies that separate a building's interior from the exterior environment. This course examines the interaction of those assemblies with natural forces such as temperature, moisture, and solar radiation and the details of construction which have evolved to mitigate them. The subject matter includes both traditional building exterior wall and roof construction and newer technologies such as rainscreen, green roof, and building surface media systems. This course addresses sustainability issues related to enclosure systems through energy cost and carbon footprint analysis. It is the third of four required courses in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 514. Mutually Exclusive: Cannot register for ARCH 314 if student has credit for ARCH 514.
Course URL: www.arch.rice.edu/academics/current-courses

Short Title: BRAZIL BUILT
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From Brazil Builds, MOMA's 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today's worldwide attention on Brasil, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: HART 310. Graduate/Undergraduate Equivalency: ARCH 515. Mutually Exclusive: Cannot register for ARCH 315 if student has credit for ARCH 515.

ARCH 316 - TECHNOLOGY IV
Short Title: TECHNOLOGY IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course addresses building environmental systems including power, water, and wastewater with an emphasis on air conditioning systems. Through multimedia presentations and field trips, students are taught to analyze the thermal environment in a variety of building types and select equipment to meet these needs. Sustainability issues related to environmental systems such as energy conservational and life cycle costs are also addressed. This is the fourth required course in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 516. Mutually Exclusive: Cannot register for ARCH 316 if student has credit for ARCH 516.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 318 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and/or Turkish helpful but not necessary. Cross-list: HART 308. Graduate/Undergraduate Equivalency: ARCH 518. Mutually Exclusive: Cannot register for ARCH 318 if student has credit for ARCH 518.
ARCH 321 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING

Short Title: SUSTAINABILITY CASE STUDIES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via "repositioning" or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufacturers, contractors, developers, owners, and Rice campus facility managers Cross-list: ENST 321. Graduate/Undergraduate Equivalency: ARCH 621. Mutually Exclusive: Cannot register for ARCH 321 if student has credit for ARCH 621.

ARCH 322 - CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS

Short Title: CASE STUDIES IN SUSTAINABILITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This course will explore application of high performance, sustainable design to specific Rice University campus and facility targets. In partnership with Rice University leadership, the team effort will develop "regenerative redesign" approaches based on investigation of other campuses' case study. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Cross-list: ENST 322. Mutually Exclusive: Cannot register for ARCH 322 if student has credit for ARCH 622.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 323 - SEMINAR IN ARCHITECTURE

Short Title: SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Small, focused, discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. Each section is a different seminar topic. This seminar series is open to RSA undergraduate and graduate students. Students from other departments may enroll in the course with instructor permission. See our website for more information: arch.rice.edu/courses. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Graduate/Undergraduate Equivalency: ARCH 523. Repeatable for Credit.

ARCH 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME

Short Title: MATERIAL, FORM, SPACE, TIME
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: CLAS 326, HART 326. Graduate/Undergraduate Equivalency: ARCH 626. Mutually Exclusive: Cannot register for ARCH 326 if student has credit for ARCH 626.

ARCH 327 - CONSTRUCT

Short Title: CONSTRUCT
Department: Architecture
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3,4
Course Level: Undergraduate Upper-Level
Description: Construct involves graduate and undergraduate students in the design and construction of real projects at various scales. Elective courses and course sequences will be formatted to address the specific requirements of each project as required. Please consult postings for further information. Space is limited, and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 327 if student has credit for ARCH 627. Repeatable for Credit.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
ARCH 329 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the street as a focus of urban life in 18th and 19th century. We will look at ways streets functioned as spaces of livelihood, sociability, and transgression in cities such as London, Paris, Istanbul, Amsterdam & Cairo. Cross-list: HART 329, HIST 329. Graduate/Undergraduate Equivalency: ARCH 529. Mutually Exclusive: Cannot register for ARCH 329 if student has credit for ARCH 529.

ARCH 330 - CONSTRUCT II
Short Title: CONSTRUCT II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3,4
Course Level: Undergraduate Upper-Level
Description: Construct involves graduate and undergraduate students in the design and construction of real projects at various scales. Elective courses and course sequences will be formatted to address the specific requirements of each project as required. Please consult postings for further information. Space is limited, and registration does not guarantee a space in this course. The final roster is formulated on the first day of class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 330 if student has credit for ARCH 630. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 331 - IMPERIAL CITY: ISTANBUL 1453-1922
Short Title: ISTANBUL IMPERIAL CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. Cross-list: HART 321. Graduate/Undergraduate Equivalency: ARCH 521. Mutually Exclusive: Cannot register for ARCH 331 if student has credit for ARCH 521.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 332 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. Cross-list: HART 322. Graduate/Undergraduate Equivalency: ARCH 522. Mutually Exclusive: Cannot register for ARCH 332 if student has credit for ARCH 522.

ARCH 340 - LECTURE IN ARCHITECTURE
Short Title: LECTURE IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Large, introductory-level course in lecture/discussion format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: www.arch.rice.edu. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 345 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: HART 345. Graduate/Undergraduate Equivalency: ARCH 645. Mutually Exclusive: Cannot register for ARCH 345 if student has credit for ARCH 235/ARCH 535.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
ARCH 346 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE II (1950-1950)
Short Title: FOUNDATIONS IN ARCH II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 345 or ARCH 645 or HART 345 or HART 645
Description: Lectures and discussions focusing on significant architectural and urban practices between 1850 and 1950. Graduate/Undergraduate Equivalency: ARCH 646. Mutually Exclusive: Cannot register for ARCH 346 if student has credit for ARCH 336/ARCH 536.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 346.html

ARCH 350 - INTRODUCTORY ARCHITECTURE SEMINAR
Short Title: INTRODUCTORY ARCHITECTURE SEM
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Small, focused, introductory-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 350.html

Short Title: FOUNDATIONS IN ARCH III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ARCH 225 or ARCH 525) and (ARCH 345 or ARCH 645) and (ARCH 346 or ARCH 646)
Description: Lectures and discussions focusing on significant architectural and urban practices between 1950 and 2000. Graduate/Undergraduate Equivalency: ARCH 652. Mutually Exclusive: Cannot register for ARCH 352 if student has credit for ARCH 337/ARCH 537.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 352.html

ARCH 353 - PHOTOGRAPHY FOR ARCHITECTS
Short Title: PHOTO FOR ARCHITECTS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Exploration of a variety of photographic techniques for architectural research, design, and presentation. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 353 if student has credit for ARCH 653.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 353.html

ARCH 359 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities’ histories and theories of space and film. Cross-list: FILM 359, HART 359. Graduate/Undergraduate Equivalency: ARCH 654. Mutually Exclusive: Cannot register for ARCH 359 if student has credit for ARCH 654.

ARCH 363 - ARCHITECTURAL FREEHAND DRAWING WORKSHOP
Short Title: ARCH FREEHAND DRAWING WKSHOP
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The object of this workshop is to explore, practice and develop a series of drawing methods and techniques in the context of the architectural design process. Emphasis will be on the development of free-hand drawing skills that will enhance the ability the ability of the design in communicating conceptual ideas. The course will consist of a combination of lectures/demonstrations, in-class drawing exercises, and out-of-class assignments. Two sketch books (one at mid-term and one at the end of the semester) will also be required. Attendance is critical. Please come to the first class prepared to draw with pen and an 8 1/2 x 11 or 9 x 12 sketch pad. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 363 if student has credit for ARCH 663. Repeatable for Credit.
ARCH 366 - RIO DE JANEIRO: A SOCIAL AND ARCHITECTURAL HISTORY  
Short Title: RIO DE JANEIRO  
Department: Architecture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The development of Rio de Janeiro from a colonial capital to an Olympic host with emphasis on the peoples of the city and evolution of the urban panorama. Cross-list: HIST 366. Mutually Exclusive: Cannot register for ARCH 366 if student has credit for ARCH 666.

ARCH 367 - SCULPTURE STUDIO  
Short Title: SCULPTURE STUDIO  
Department: Architecture  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ARTS 165  
Description: Study of advanced problems in various sculptural media. Limited enrollment. The roster is formulated on the first day of class by the instructor, who may allow additional registration for majors and under-classmen. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARTS 366.

ARCH 375 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES  
Short Title: LATIN-EUROPE/LATIN-AMERICA  
Department: Architecture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course challenges our pre-conceived maps of the world, highlighting Latin America's place within our understanding of modernity as a product of transnational interconnections. Transversing the Atlantic, this course traces the interactions of capitalism and culture, science and aesthetics, and the ideologies that informed and formed the urban fabric and spatial politics of important cities in the modern Latin world - Paris, Rio de Janeiro, Rome, Buenos Aires, Barcelona, Havana, and Brasilia. Cross-list: HART 375. Graduate/Undergraduate Equivalency: ARCH 675. Mutually Exclusive: Cannot register for ARCH 375 if student has credit for ARCH 675.

ARCH 376 - THE ARCHITECTURE OF BOOKS  
Short Title: THE ARCHITECTURE OF BOOKS  
Department: Architecture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Over the past decades, the conception of books has become an integral part of any architectural practice. This seminar aims to introduce students to the book as a means to think about the production of space, and as a critical vessel to discuss and disseminate architectural ideas. In the first part of the seminar students will engage in an in-depth analysis of seminal architectural publications, considering their historical background, conceptual background and introducing such topics as typography and layout- and in-class discussions of relevant literature. The second part will be dedicated to the actual "building" of a small architectural publication, which will reflect critical and editorial skills as well as the craft of bookmaking. Graduate/Undergraduate Equivalency: ARCH 676. Mutually Exclusive: Cannot register for ARCH 376 if student has credit for ARCH 676.

ARCH 400 - ARCHITECTURE UNDERGRADUATE INTERNSHIP  
Short Title: ARCH UNDERGRAD INTERNSHIP  
Department: Architecture  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Internship/Practicum  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours vary each semester. Subject to approval of faculty advisor and director or undergraduate studies. Instructor Permission Required. Repeatable for Credit. Department Permission Required. Repeatable for Credit.

ARCH 401 - ADVANCED TOPICS IN ARCHITECTURE - THE METROPOLIS  
Short Title: ADVANCED TOPICS ARCHITECTURE  
Department: Architecture  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ARCH 302  
Description: What is the agency of the architect as a public figure and the contributions of architecture to the emerging and existing public realms? This studio focuses on a very large building program or urban scaled design, engaging the complexity of the communities and shared spaces of the emerging metropolis/megalopolis.
ARCH 402 - ADVANCED TOPICS IN ARCHITECTURE - WILLIAM WARD WATKIN
Short Title: ADVANCED TOPICS ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 401 and ARCH 403
Description: The final design studio of the four year BA in Architecture is conducted as design research studio in which students pursue a topic and develop a brief under a conceptual umbrella provided by the instructor. The studio is linked to the ARCH 403 design research seminar taken the semester prior to the studio.

ARCH 403 - DEGREE PROJECT SEMINAR
Short Title: DEGREE PROJECT SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A special-topics seminar establishing the intellectual/design foundation for the spring Watkin Studio (ARCH 402). Texts, case studies, and design methods will be used to investigate focused subjects of particular contemporary relevance as established by the instructor. Assignments can consist of written papers, analytical projects, elaborations of design techniques, and other forms of investigation. Students are approved for section and topic, taking their preference into account. Students enrolled in each section will continue to work with the same instructor in the spring studio. Instructor Permission Required.

ARCH 412 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Cross-list: HART 412. Graduate/Undergraduate Equivalency: ARCH 612. Mutually Exclusive: Cannot register for ARCH 412 if student has credit for ARCH 612. Repeatable for Credit.

ARCH 423 - PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE
Short Title: PROF&MGMT IN ARCH PRACTICE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 302
Description: This is required for the completion of the Bachelor of Architecture professional degree; students may take the course in their fourth year of architectural study in the BA program or in their final year of study in the BArch program. Graduate/Undergraduate Equivalency: ARCH 623. Mutually Exclusive: Cannot register for ARCH 423 if student has credit for ARCH 623.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 431 - URBANISM: ARCHITECTURE AND THE CITY
Short Title: URBANISM: ARCH & THE CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The intention of a course on urbanism is to view architecture in light of the city. An assembly of theoretical considerations serves to construct a perspective that allows us to critically assess modern urbanization. The goal is to help students form their own perspective on the practice of architecture and to broaden their understanding of the relentless urbanization that dominates the modern world. Students are expected to read extensively, to be prepared to discuss topics of urbanism in class, to form two-person teams to read selected texts to be presented in class and to shape a term project that may take the form of a final paper or a design proposal dealing with suburban issues. Grades are based on class participation, the reading project and the term project. Graduate/Undergraduate Equivalency: ARCH 631. Mutually Exclusive: Cannot register for ARCH 431 if student has credit for ARCH 631.

ARCH 433 - THE CULLINAN SEMINAR
Short Title: THE CULLINAN SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar for advanced undergraduate students and graduate students will focus on the writings and practice of the semester's four RSA Cullinan visitors: art historian David Joselit (Yale), architect Michael Maltzan (L.A.), architect Alejandro Zaera-Polo (London), and art historian Neil Levine (Harvard). The seminar will be a platform for researching these four topics, including additional background references, other writings by these four figures as well as writings about them and their own work. Additionally, the seminar will feature one seminar session each with the four speakers. Graduate/Undergraduate Equivalency: ARCH 633. Mutually Exclusive: Cannot register for ARCH 433 if student has credit for ARCH 633. Repeatable for Credit.
ARCH 450 - INTERMEDIATE ARCHITECTURE SEMINAR
Short Title: INTERMEDIATE ARCH SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Small, focused, intermediate-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 452 - PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY
Short Title: PRACTICING UTOPIA
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will explore the alliance between aesthetics, science, and ideology at the core of French and Latin American modernism. Focusing on early twentieth-century scientific and cultural dialogues between France and Latin America, this seminar will have as main territories of exploration: Paris, Rio de Janeiro, Buenos Aires, Havana, and Caracas. Cross-list: HART 463.

ARCH 455 - HOUSING AND URBAN PROGRAMS: ISSUES IN POLICY
Short Title: HOUSE&URBAN PROG:ISSUES POLICY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This course will explore current issues in the formulation and implementation of housing and urban development programs in the U.S. An oral presentation and written paper on a specific topic within a general policy area required.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 456 - FUTURES OF THE BOOK
Short Title: FUTURES OF THE BOOK
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From an ongoing interest in the book as a physical object, to the exploration of its potentials expanding into a four-dimensional digital realm, to rapidly changing demands for the storage and retrieval of knowledge, this master class will provide a platform to engage experts from various disciplines in a debate on the shifting futures of the book. Instructor Permission Required. Graduate/Undergraduate Equivalency: ARCH 656. Mutually Exclusive: Cannot register for ARCH 456 if student has credit for ARCH 656.

ARCH 461 - SPECIAL PROJECTS
Short Title: SPECIAL PROJECTS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research or design arranged in consultation with a faculty member. Subject to approval of faculty advisor and director or undergraduate studies. Instructor Permission Required. Repeatable for Credit.

ARCH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Internship/Practicum, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

ARCH 491 - REAL ESTATE LAB: DEVELOP, DESIGN AND CONSTRUCTION
Short Title: RE LAB:DEVELOP DESIGN CONSTR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Graduate/Undergraduate Equivalency: ARCH 691. Mutually Exclusive: Cannot register for ARCH 491 if student has credit for ARCH 691. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses
ARCH 500 - PRECEPTORSHIP PROGRAM
Short Title: PRECEPTORSHIP PROGRAM
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Full time internship for nine to twelve months under guidance of appointed preceptor. Required for all students enrolled in the Bachelor or Architecture degree program. Repeatable for Credit.

ARCH 501 - CORE DESIGN STUDIO I
Short Title: CORE DESIGN STUDIO I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The first in a sequence of four studios that foregrounds the relationship between form and program. By underscoring this pairing, the studio suggests that program and form amplify one another (rather than one superseding the other). The studio establishes a foundation in visual culture through examples in architecture and other design disciplines, art, and art history, as well as exercises in visual/spatial discrimination. The studio stresses the importance of iteration throughout the semester: individual projects emphasize a production/critique/refinement cycle, as does the overall sequence of projects that make up the entire studio.

ARCH 502 - CORE DESIGN STUDIO II
Short Title: CORE DESIGN STUDIO II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The second in a sequence of four studios that foregrounds the relationship between form, program, and technology.

ARCH 503 - CORE DESIGN STUDIO III
Short Title: CORE DESIGN STUDIO III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The third in a sequence of four studios that foregrounds the relationship between form, program, and technology.

ARCH 504 - CORE DESIGN STUDIO IV
Short Title: CORE DESIGN STUDIO IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The fourth in a sequence of four studios that foregrounds the relationship between form, program, and technology.

ARCH 505 - TECHNOLOGY I
Short Title: TECHNOLOGY I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The course will introduce students to historical and contemporary structures through multi-media presentations, computer-based visualizations, field trips, and hands-on experiments with materials of construction and physical models of structures. This course also addresses sustainability issues specific to structural systems such as embodied energy, life-cycle cost, and material recycling. This is the introductory course on the art and science of designing engineered structures and is the first of four required courses in the architectural technology sequence. It is intended for first year graduate students in architecture. Graduate/Undergraduate Equivalency: ARCH 207.
Mutually Exclusive: Cannot register for ARCH 507 if student has credit for ARCH 207.

Course URL: www.arch.rice.edu/academics/current-courses

ARCH 506 - TECHNOLOGY II
Short Title: TECHNOLOGY II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The second part of the introduction to contemporary building structures. The topics covered are the design of concrete structures and design of specialized structures including tilt wall, long span, and high rise. Each structural type is explored in terms of overall performance, design of individual components, and the relation of structure to other building subsystems such as foundations, enclosure, and interiors. This course also addresses sustainability issues specific to structural systems and is the second of four required courses in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 309. Recommended Prerequisite(s): Prior completion of Technology I. Mutually Exclusive: Cannot register for ARCH 509 if student has credit for ARCH 309.

Course URL: www.arch.rice.edu/academics/current-courses
ARCH 514 - TECHNOLOGY III
Short Title: TECHNOLOGY III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The building envelope is the collection of material assemblies that separate a building's interior from the exterior environment. This course examines the interaction of those assemblies with natural forces such as temperature, moisture, and solar radiation and the details of construction which have evolved to mitigate them. The subject matter includes both traditional building exterior and roof construction and newer technologies such as rainscreen, green roof, and building surface media systems. This course addresses sustainability issues related to enclosure systems through energy cost and carbon footprint analysis. It is the third of four required courses in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 314. Mutually Exclusive: Cannot register for ARCH 514 if student has credit for ARCH 314.
Course URL: www.arch.rice.edu/academics/current-courses/http://www.arch.rice.edu/academics/current-courses/

ARCH 515 - BRAZIL BUILT: THE CLINIC, THE TROPICAL AND THE AESTHETIC
Short Title: BRAZIL BUILT
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: From Brazil Builds, MOMA's 1943 celebrated exhibition to Brasília, the supermodern capital created ex-nihilo in the middle of nowhere, to today's worldwide attention on Brazil, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: HART 526. Graduate/Undergraduate Equivalency: ARCH 315. Mutually Exclusive: Cannot register for ARCH 515 if student has credit for ARCH 315.

ARCH 516 - TECHNOLOGY IV
Short Title: TECHNOLOGY IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course addresses building environmental systems including power, water, and wastewater with an emphasis on air condition systems. Through multimedia presentations and fieldtrips, students are taught to analyze the thermal environment in a variety of building types and select equipment to meet these needs. Sustainability issues related to environmental systems such as energy conservational and life cycle costs are also addressed. This is the fourth required course in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 316. Mutually Exclusive: Cannot register for ARCH 516 if student has credit for ARCH 316.
Course URL: www.arch.rice.edu/academics/current-courses/http://www.arch.rice.edu/academics/current-courses/

ARCH 518 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and/or Turkish helpful but not necessary. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 508. Graduate/Undergraduate Equivalency: ARCH 318. Mutually Exclusive: Cannot register for ARCH 518 if student has credit for ARCH 318.

ARCH 521 - IMPERIAL CITY: ISTANBUL 1453-1922
Short Title: IMPERIAL CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman Empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 521. Graduate/Undergraduate Equivalency: ARCH 331. Mutually Exclusive: Cannot register for ARCH 521 if student has credit for ARCH 331.
ARCH 522 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 522. Graduate/Undergraduate Equivalency: ARCH 332. Mutually Exclusive: Cannot register for ARCH 522 if student has credit for ARCH 332.

ARCH 523 - SEMINAR IN ARCHITECTURE
Short Title: SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Small, focused, discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar series is open to RSA undergraduate and graduate students. Students from other departments may enroll in the course with instructor permission. "See our website for more information: arch.rice.edu/courses". Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Graduate/Undergraduate Equivalency: ARCH 323. Repeatable for Credit.

ARCH 525 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: HART 545. Graduate/Undergraduate Equivalency: ARCH 225. Mutually Exclusive: Cannot register for ARCH 525 if student has credit for ARCH 225.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 529 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 529. Graduate/Undergraduate Equivalency: ARCH 329. Mutually Exclusive: Cannot register for ARCH 529 if student has credit for ARCH 329.

ARCH 550 - INTERMEDIATE/ADVANCED ARCHITECTURE SEMINAR
Short Title: INTER/ADVANCED ARCH SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: Small, focused, intermediate/advanced-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 600 - M. ARCH. I INTERNSHIP
Short Title: M. ARCH. I INTERNSHIP
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Practical work experience for students who have completed at least four semesters in the Option I Program prior to their entrance into the regular Master of Architecture studio sequence. Instructor Permission Required. Repeatable for Credit.

ARCH 601 - ARCHITECTURAL PROBLEMS: STUDIO
Short Title: ARCHITECTURAL PROBLEMS:STUDIO
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific buildings and facilities. Note: there are three separate sections for this course. The course is coordinated by RSA faculty Troy Schaum and Will Cannady. Repeatable for Credit.
ARCH 602 - ARCHITECTURAL PROBLEMS
Short Title: ARCHITECTURAL PROBLEMS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10,12
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific buildings and facilities. Repeatable for Credit.

ARCH 605 - ARCHITECTURE FOR NON-ARCHITECTS INSTRUCTION
Short Title: NON-ARCHITECTS INSTRUCTION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: For selected graduate students only, this course will provide the opportunity for hands-on teaching experience by involvement in syllabus design and preparation of lectures, discussions, design exercises and other teaching methods, under the supervision of the course instructors. Enrollment limited to 6 and by permission only. Instructor Permission Required. Repeatable for Credit.

ARCH 610 - HISTORY, THEORY AND STRUCTURE/ PARIS PROGRAM (RSAP)
Short Title: HIST, THEORY & STRUCTR: PARIS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 6
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Seminar, comprised of separate modules, each addressing different issues of urban theory, historical evolution and structure of greater Paris, through lectures, discussions, research and site visits.

ARCH 612 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: HART 612. Graduate/Undergraduate Equivalency: ARCH 412. Mutually Exclusive: Cannot register for ARCH 612 if student has credit for ARCH 412. Repeatable for Credit.

ARCH 613 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Cross-list: ENST 613. Graduate/Undergraduate Equivalency: ARCH 313. Mutually Exclusive: Cannot register for ARCH 613 if student has credit for ARCH 313.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 615 - WOODSHOP SAFETY
Short Title: WOODSHOP SAFETY
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hour: 1
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course will cover all safety concerns in the model shop. Students will learn the proper set up and maintenance of the stationary tools as well as how to do basic fabrication. Students will learn basic material layout and produce objects using the tools as we cover them. Repeatable for Credit.

ARCH 620 - ARCHITECTURAL PROBLEMS: STUDIO/PARIS PROGRAM (RSAP)
Short Title: ARCHITECTURAL PROBLEMS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Advanced issues in building design and urban infrastructure using greater Paris as context. Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific architectural interventions in the urban context.
ARCH 621 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via "repositioning" or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufactures, contractors, developers, owners, and Rice campus facility managers Cross-list: ENST 621. Graduate/Undergraduate Equivalency: ARCH 321. Mutually Exclusive: Cannot register for ARCH 621 if student has credit for ARCH 321.

ARCH 623 - PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE
Short Title: PROF&MGMT IN ARCH PRACTICE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: ARCH 423. Mutually Exclusive: Cannot register for ARCH 623 if student has credit for ARCH 423.

ARCH 626 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: HART 626. Graduate/Undergraduate Equivalency: ARCH 326. Mutually Exclusive: Cannot register for ARCH 626 if student has credit for ARCH 326.

ARCH 631 - URBANISM I: THE CITY THEORETICALLY CONSIDERED
Short Title: URBANISM I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The intention of a course on urbanism is to view architecture in light of the city. An assembly of theoretical considerations serves to construct a perspective that allows us to critically assess modern urbanization. The goal is to help students form their own perspective on the practice of architecture and to broaden their understanding of the relentless urbanization that dominates the modern world. Students are expected to read extensively, to be prepared to discuss topics of urbanism in class, to form two-person teams to read selected texts to be presented in class and to shape a term project that may take the form of a final paper or a design proposal dealing with suburban issues. Grades are based on class participation, the reading project and the term project. Graduate/Undergraduate Equivalency: ARCH 431. Mutually Exclusive: Cannot register for ARCH 631 if student has credit for ARCH 431.

ARCH 633 - THE CULLINAN SEMINAR
Short Title: THE CULLINAN SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This seminar for advanced undergraduate students and graduate students will focus on the writings and practice of the semester's four RSA Cullinan visitors: art historian David Joselit (Yale), architect Michael Maltzan (L.A.), architect Alejandro Zaera-Polo (London), and art historian Neil Levine (Harvard). The seminar will be a platform for researching these four topics, including additional background references, other writings by these four figures as well as writings about them and their own work. Additionally, the seminar will feature one seminar session each with the four speakers. Graduate/Undergraduate Equivalency: ARCH 433. Mutually Exclusive: Cannot register for ARCH 633 if student has credit for ARCH 433. Repeatable for Credit.

ARCH 645 - FOUNDATIONS AND THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: HART 645. Graduate/Undergraduate Equivalency: ARCH 345. Mutually Exclusive: Cannot register for ARCH 645 if student has credit for ARCH 235/ARCH 535.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/
ARCH 646 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE II (1850-1950)
Short Title: FOUNDATIONS IN ARCH II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Prerequisite(s): ARCH 345 or ARCH 645 or HART 345 or HART 645
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated be 1850 and 1950. Cross-list: HART 506. Graduate/Undergraduate Equivalency: ARCH 346. Mutually Exclusive: Cannot register for ARCH 646 if student has credit for ARCH 336/ARCH 536.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 646

ARCH 650 - ADVANCED ARCHITECTURE SEMINAR
Short Title: ADVANCED ARCH SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: Small, focused, advanced-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 650

ARCH 651 - PRESENT FUTURE SEMINAR
Short Title: PRESENT FUTURE SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: The Present Future seminar will examine the history of future projection as it came to dominate modern architecture and urbanism in the period of 1914-2014. The realization of such a large number of future projections over the preceding century allows us to examine their effects as they have now come to constitute our present. Focusing on modern urbanism, will trace both the historical and the contemporary effects of the future as it was imagined so long ago. Given the volatile historical moment that we are presently passing through, an effort will be made to understand the logic as well as the remaining potential of future projection as a design strategy today.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 651

Short Title: FOUNDATIONS IN ARCH III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Prerequisite(s): (ARCH 225 or ARCH 525) and (ARCH 345 or ARCH 645) and (ARCH 346 or ARCH 646)
Description: Lectures and discussions focusing on significant architectural and urban practices between 1950 and 2000. Graduate/Undergraduate Equivalency: ARCH 352. Mutually Exclusive: Cannot register for ARCH 652 if student has credit for ARCH 537.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 652

ARCH 654 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: HART 659. Graduate/Undergraduate Equivalency: ARCH 359. Mutually Exclusive: Cannot register for ARCH 654 if student has credit for ARCH 359.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 654

ARCH 655 - CONTEMPORARY PRACTICES IN ARCHITECTURE
Short Title: CONTEMPORARY PRACTICES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures and discussions focusing on issues and approaches central to current architectural discourse and practice. M.Archs take this course in their penultimate semester. Also open to undergraduates, seniors and above.
Course URL: www.arch.rice.edu/academics/current-courses/ARCH 655
ARCH 656 - FUTURES OF THE BOOK
Short Title: FUTURES OF THE BOOK
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: From an ongoing interest in the book as a physical object, to the exploration of its potentials expanding into a four-dimensional digital realm, to rapidly changing demands for the storage and retrieval of knowledge, this master class will provide a platform to engage experts from various disciplines in a debate on the shifting futures of the book. Instructor Permission Required. Graduate/Undergraduate Equivalency: ARCH 456. Mutually Exclusive: Cannot register for ARCH 656 if student has credit for ARCH 456.

ARCH 675 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES
Short Title: LATIN-EUROPE/LATIN-AMERICA
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course challenges our pre-conceived maps of the world, highlighting Latin America’s place within our understanding of modernity as a product of transnational interconnections. Transversing the Atlantic, this course traces the interactions of capitalism and culture, science and aesthetics, and the ideologies that informed and formed the urban fabric and spatial politics of important cities in the modern Latin world - Paris, Rio de Janeiro, Rome, Buenos Aires, Barcelona, Havana, and Brasilia. Cross-list: HART 675. Graduate/Undergraduate Equivalency: ARCH 375. Mutually Exclusive: Cannot register for ARCH 675 if student has credit for ARCH 375.

ARCH 676 - THE ARCHITECTURE OF BOOKS
Short Title: THE ARCHITECTURE OF BOOKS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Over the past decades, the conception of books has become an integral part of any architectural practice. This seminar aims to introduce students to the book as a means to think about the production of space, and as a critical vessel to discuss and disseminate architectural ideas. In the first part of the seminar students will engage in an in-depth analysis of seminal architectural publications, considering their historical background, conceptual background and introducing such topics as typography and layout- and in-class discussions of relevant literature. The second part will be dedicated to the actual "building" of a small architectural publication, which will reflect critical and editorial skills as well as the craft of bookmaking. Graduate/Undergraduate Equivalency: ARCH 376. Mutually Exclusive: Cannot register for ARCH 676 if student has credit for ARCH 376.

ARCH 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARCH 690 - PEDAGOGY PRACTICUM
Short Title: PEDAGOGY PRACTICUM
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course addresses the development of skills for the teaching of History & Technology core courses. Weekly meetings will be held and supervised by faculty in the teaching of whose courses practicum students are involved. Department Permission Required. Repeatable for Credit.

ARCH 691 - REAL ESTATE LAB: DEVELOP, DESIGN AND CONSTRUCTION
Short Title: RE LAB: DEVELOP DESIGN CONSTR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Cross-list: MGMT 757. Graduate/Undergraduate Equivalency: ARCH 491. Mutually Exclusive: Cannot register for ARCH 691 if student has credit for ARCH 491. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 700 - PRACTICUM
Short Title: PRACTICUM
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Full-time internship service in approved local offices under interdisciplinary supervision. Emphasis on real world design, planning, or research experiences. Special tuition. May be taken in any semester or in summer. Instructor Permission Required. Repeatable for Credit.
ARCH 701 - THESIS PROPOSAL
Short Title: THESIS PROPOSAL
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course provides a structure in which the independent conceptual formulation, articulation, and critical evaluation of thesis proposals can take place. By the end of the semester, each student is expected to clearly outline a thesis focus, its architectural implications, contemporary relevance, and projected material results.

ARCH 702 - PRE-THESIS PREPARATION
Short Title: PRE-THESIS PREPARATION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The aim of this course is to locate potential thesis topics and hone those topics by situating them within a lineage of architectural and urban paradigms. The aim is also to develop and rehearse a focused argument for your particular approach to the topic. The thesis design project tests this approach in a project, the underpinnings of which seek a synthesis of intellectual and design objectives. Thesis concludes with a public final review, where the project is evaluated both on its own terms and within the broader field of contemporary architectural discourse. Mutually Exclusive: Cannot register for ARCH 702 if student has credit for ARCH 638.

ARCH 703 - DESIGN THESIS STUDIO
Short Title: DESIGN THESIS STUDIO
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate

ARCH 711 - SPECIAL PROJECTS
Short Title: SPECIAL PROJECTS
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Independent research or design arranged in consultation with a faculty member subject to approval of the student’s faculty advisor and director. Repeatable for Credit.

ARCH 729 - THESIS WRITTEN DOCUMENT (FALL)
Short Title: FALL WRITTEN THESIS
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: All architecture thesis students are required to provide a written document to the university on completion of their thesis as a requirement for graduation. This document, prepared in consultation with the thesis director and the director of the thesis program, should include a written and graphic description of the project and conform to the university requirements for thesis documents.

ARCH 730 - THESIS WRITTEN DOCUMENT (SPRING)
Short Title: SPRING WRITTEN THESIS
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: All architecture thesis students are required to provide a written document to the university on completion of their thesis as a requirement for graduation. This document, prepared in consultation with the thesis director and the director of the thesis program, should include a written and graphic description of the project and conform to the university requirements for thesis documents.

ARCH 751 - PRESENT FUTURE II
Short Title: PRESENT FUTURE II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: ARCH 751 is the third core course of the Master of Arts degree program. It is the concluding semester of the three semester research project, the subject of which changes with each class. The purpose of the semester is to draw the conclusions of the project and produce and package the results. The formats vary with each project.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: ARCH

School/Department Description and Code
- Architecture: ARCH

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Architecture degree: BArch

Undergraduate Major Descriptions and Codes
- Major in Architecture (attached to the BA degree): ARCH
- Major in Architectural Studies (attached to the BA degree): ARST
**Bachelor of Architecture (BArch) Degree**

The program leading to the BArch degree is accredited by the National Architectural Accrediting Board (NAAB), [https://naab.org](https://naab.org).

**Program Learning Outcomes for the BArch Degree**

Upon completing the BArch degree, students will be able to:

1. Innovate the knowledge and practice of architecture through advanced critical thinking, experimentation, and research.
2. Explore the practice of architecture through the Preceptorship Program, a year-long supervised internship in an architectural firm that subsequently informs advanced research and design.
3. Project innovative architectural practices and ideas through experimental research and design, synthesizing heterogeneous cultural and technical considerations into a coherent project.
4. Integrate experience in architectural practice with experimental design projects through advanced building technologies, including material, structural, environmental, and mechanical systems.

**Requirements for the BArch Degree**

Students pursuing the BArch degree must complete:

- A minimum of 8 courses (62 credit hours) to satisfy major requirements.
- A minimum of 62 credit hours to satisfy degree requirements.
- A minimum grade of C (2.00 grade points) in each course.
- A Preceptorship. Students must complete a 9-12 month internship and enroll in ARCH 500.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier ([https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ARCH 500</td>
<td>PRECEPTORSHIP PROGRAM (1st semester)</td>
<td>15</td>
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<tr>
<td>ARCH 500</td>
<td>PRECEPTORSHIP PROGRAM (2nd semester)</td>
<td>15</td>
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<tr>
<td>ARCH 423 / ARCH 623</td>
<td>PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE</td>
<td>3</td>
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<tr>
<td>1 course at the 300-level or above.</td>
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<td>ARCH 601</td>
<td>ARCHITECTURAL PROBLEMS: STUDIO</td>
<td>10</td>
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<tr>
<td>ARCH 602</td>
<td>ARCHITECTURAL PROBLEMS</td>
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<td>ARCH 602</td>
<td>ARCHITECTURAL PROBLEMS</td>
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**Footnotes and Additional Information**

1. All courses above must be taken in the sequence and semester prescribed by the School of Architecture and completed with a grade of C (2.00 grade points) or higher.
By accepting a place in the BArch degree program and Preceptorship, each student agrees to all the terms specified by Rice and/or the assigned Preceptorship office, including: registration fees, start and end dates, work responsibilities, performance expectations, and agreement to return to Rice the subsequent year. Failure to meet these expectations will result in an unsatisfactory grade evaluation and may prevent further progress in the program. Students’ concerns while on Preceptorship should be brought to the attention of the Director of External Programs as soon as possible. While on Preceptorship, a student remains a Rice student and is governed by applicable student codes of conduct, rights, and responsibilities.

ARCH 500 is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As a S/U course, it does not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

Students will substitute a course at the 300-level or above if the student completed ARCH 423/ARCH 623 during the student’s first four years of study.

If students are attending the Rice School of Architecture in Paris, students must enroll in two semesters of ARCH 620 Architectural Problems as their studio courses, in place of ARCH 601 or ARCH 602.

Policies for the BArch Degree

The Bachelor of Architecture (BArch) degree program is open to students who have completed the undergraduate preprofessional architecture program at Rice. The BArch degree requires the successful completion of the Bachelor of Arts (BA) degree with a major in Architecture, completion of the two-semester Preceptorship, and completion of two advanced option studios and approved lecture or seminar courses. Admission to the program requires completion of all university and major requirements for the BA degree, a portfolio of work and formal application. Admittance is dependent upon satisfactory academic performance, demonstrated aptitude, and preparation for the Preceptorship and the advanced coursework of the final year. Grades are not the exclusive criterion for admission; however the school expects a minimum of a B (3.00 GPA) within the required courses for the major and, typically, no grades in the C (2.00) GPA range during the last two years of studio courses. Preliminary admittance is offered early in the spring semester of senior year contingent upon satisfactory completion of remaining coursework.

The academic year immediately following preceptorship, students must return for their final year of study to the School of Architecture, taking advanced level studios and courses. In this year, students may apply to Rice Architecture in Paris to complete a semester abroad. The autumn studios feature the Totalization studio, in which the student’s experience from preceptorship is integrated into academic research through a comprehensive design project. At the end of this final two-year stage, students graduate with a Bachelor of Architecture (professional) degree.

The Bachelor of Architecture (BArch) degree program is accredited by the National Architectural Accrediting Board (NAAB) and recognizes the student’s experience from preceptorship is integrated into academic research through a comprehensive design project. The bachelor’s degree is dependent upon satisfactory academic performance, demonstrated aptitude, and preparation for the Preceptorship and the advanced coursework of the final year.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the BArch degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the School of Architecture website: https://arch.rice.edu/.

Opportunities for the BArch Degree

Rice Architecture - Paris

BArch students entering their fifth year may apply to the Paris program to complete one semester in Paris.

Recent Preceptor Offices

- BAR (San Francisco)
- Pei, Cobb, Freyd & Partners (New York)
- Bohlin Cywinski Jackson (San Francisco)
- Pelli Clarke Pelli (New Haven)
- PLP (London)
- Ennead Architects (New York)
- Renzo Piano Building Workshop (Genoa)
- Johnston Marklee (Los Angeles)
- Rogers Partners (New York)
- Kieran Timberlake (Philadelphia)
- SHoP (New York)
- KPF (London)
- SOM (San Francisco)
- KPF (New York)
- Thomas Phifer & Associates (New York)
- Weiss/Manfredi (New York)
- WXY (New York)
- NADAAA (Boston)

Additional Information

For additional information, please see the School of Architecture website: https://arch.rice.edu/.
Bachelor of Arts (BA) Degree with a Major in Architectural Studies

Program Learning Outcomes for the BA Degree with a Major in Architectural Studies

Upon completing the BA degree with a major in Architectural Studies, students will be able to:

1. Gain knowledge of the history and theory of architecture in relation to broader social, technological, and cultural practices and transformations.
2. Understand the design process in architecture through a variety of scales and problems and with an appreciation of design’s importance in the quality of our cities and environment.
3. Explore and develop specific interests concerning the discipline and/or its relationship to other fields and endeavors.

Requirements for the BA Degree with a Major in Architectural Studies

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BA degree with a major in Architectural Studies must complete:

- A minimum of 12 courses (48 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 2 courses (6 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).)

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).)

Students and their academic advisors should identify the major’s academic program's transfer credit advisor when considering transfer credits. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

The BA degree with a major in Architectural Studies provides a foundation in architectural ideas and design while allowing a broader pursuit of other fields as an undergraduate. Enrollment is restricted to students admitted into the architecture program who have completed the first two years of required courses. Approval is based on academic performance and demonstrated aptitude indicating that the student is on track for continued study in the discipline. While grades are not the exclusive criteria for the decision, the School of Architecture expects a minimum of a B (3.00) GPA within the required courses for the major, and no more than 1 studio course grade in the C (2.00) GPA range.

Policies for the BA Degree with a Major in Architectural Studies

Admission

The BA degree with a major in Architectural Studies provides a foundation in architectural ideas and design while allowing a broader pursuit of other fields as an undergraduate. Enrollment is restricted to students admitted into the architecture program who have completed the first two years of required courses. Approval is based on academic performance and demonstrated aptitude indicating that the student is on track for continued study in the discipline. While grades are not the exclusive criteria for the decision, the School of Architecture expects a minimum of a B (3.00) GPA within the required courses for the major, and no more than 1 studio course grade in the C (2.00) GPA range.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Architectural Studies should be aware of the following departmental transfer credit guidelines:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 101</td>
<td>PRINCIPLES OF ARCHITECTURE I - ORDER</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 102</td>
<td>PRINCIPLES OF ARCHITECTURE II - REPRESENTATION</td>
<td>6</td>
</tr>
</tbody>
</table>
Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the School of Architecture website: https://arch.rice.edu/.

Opportunities for the BA Degree with a Major in Architectural Studies

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the School of Architecture website: https://arch.rice.edu/.

Bachelor of Arts (BA) Degree with a Major in Architecture

Program Learning Outcomes for the BA Degree with a Major in Architecture

Upon completing the BA degree with a major in Architecture, students will be able to:

1. Formulate architectural projects that integrate design skills with critical thinking, engaging broader theoretical, social, political, economic, cultural, and environmental issues.

2. Explore how technology, issues of the environment, and construction inform innovative design solutions.

3. Strategize how the relationship of architectural concepts, communication and representation techniques, and construction technology can innovate practice.

Requirements for the BA Degree with a Major in Architecture

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BA degree with a major in Architecture must complete:

- A minimum of 17 courses (75 credit hours) to satisfy major requirements.
- A minimum of 130 credit hours to satisfy degree requirements.
- A minimum of 55 credit hours of Elective Requirements, 45 of which must be taken outside of the School of Architecture (courses outside of departmental (ARCH) course offerings), and 10 of which may be taken as free electives from any subject code.
- A minimum of 11 courses (45 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
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Degree Requirements

<table>
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<td>ARCH 102</td>
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<td>ARCH 202</td>
<td>PRINCIPLES OF ARCHITECTURE IV - EFFECTS</td>
<td>6</td>
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<tr>
<td>ARCH 207</td>
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<td>ARCH 225</td>
<td>INTRODUCTION TO ARCHITURAL THINKING</td>
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<td>HART 225</td>
<td>INTERMEDIATE PROBLEMS IN ARCHITECTURE I - SITUATION</td>
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<td>ARCH 302</td>
<td>INTERMEDIATE PROBLEMS IN ARCHITECTURE II - LEGIBILITY</td>
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<td>ARCH 314</td>
<td>TECHNOLOGY III</td>
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<td>ARCH 316</td>
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<td>HART 345</td>
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<td>ARCH 352</td>
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<td>ARCH 401</td>
<td>ADVANCED TOPICS IN ARCHITECTURE - THE METROPOLIS</td>
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<td>ARCH 402</td>
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Elective Requirements

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<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Additional Credit Hours to Complete Degree Requirements</td>
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</tr>
<tr>
<td></td>
<td>Complete 45 credit hours from any course offerings outside of ARCH course offerings</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Complete 10 additional credit hours as free electives from any course offerings</td>
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<tr>
<td></td>
<td>University Graduation Requirements (p. 29)</td>
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<td>130</td>
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</table>

Rice University
Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Required Plan-of-Study

Students must complete the required ARCH course offerings below in the sequence and semester prescribed by the School of Architecture.

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<thead>
<tr>
<th>Course</th>
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<th>Credit Hours</th>
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</tr>
<tr>
<td>ARCH 225</td>
<td>INTRODUCTION TO ARCHITECTURAL THINKING</td>
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<tr>
<td>HART 225</td>
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<td>HART 345</td>
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<td>3</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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<tr>
<td>3rd Semester</td>
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<td></td>
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<td>ARCH 207</td>
<td>TECHNOLOGY I</td>
<td>3</td>
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<tr>
<td>ARCH 346</td>
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<td>4th Semester</td>
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<td>PRINCIPLES OF ARCHITECTURE IV - EFFECTS</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 309</td>
<td>TECHNOLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 352</td>
<td>FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE III (1950-2000)</td>
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<td>5th Semester</td>
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<td>INTERMEDIATE PROBLEMS IN ARCHITECTURE I - SITUATION</td>
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<td>ARCH 314</td>
<td>TECHNOLOGY III</td>
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<td><strong>Credit Hours</strong></td>
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<td>6th Semester</td>
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<td>ARCH 316</td>
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<td><strong>Credit Hours</strong></td>
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<tr>
<td>7th Semester</td>
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<td>ARCH 403</td>
<td>DEGREE PROJECT SEMINAR</td>
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<td><strong>Credit Hours</strong></td>
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<tr>
<td>8th Semester</td>
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<tr>
<td>ARCH 402</td>
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</tr>
<tr>
<td><strong>Credit Hours</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td></td>
<td><strong>75</strong></td>
</tr>
</tbody>
</table>

Policies for the BA Degree with a Major in Architecture

The BA degree with a major in Architecture, leading to a Bachelor of Architecture (BArch) degree, is the primary undergraduate architecture program at Rice. Students who apply and are accepted into the University and the School of Architecture enter directly into this program. The required courses for the BA degree with a major in Architecture, leading ultimately to the BArch degree, consist of four integrated sequences in the following areas: Design Studios, History and Theory, Technology, and Practice. Courses in these sequences must be taken in the order and semesters specified by the School of Architecture.

The curriculum for this professional degree program sequence has three two-year long stages. The first stage provides a foundation sequence in design, history and theory, and technology taken in the first and second years. Students are also expected to fulfill the majority of University general distribution requirements during these two years. The curriculum is designed to provide an intensive focus on architecture, while allowing each student to receive a broad education and to pursue other interests.

Approval of major is based on academic performance and demonstrated aptitude indicating that the student is on track for advanced study at the BArch level. While grades are not the exclusive criteria for the decision, the school expects a minimum of a B (average 3.00) GPA within the required courses for the major and no more than one studio course grade in the C (2.00) GPA range. Students apply during the Spring of their second year of architectural study, and are notified after the conclusion of that semester.

The second intermediate stage occurs in the third and fourth years. Students complete the courses required for the BA degree with a major in Architecture, remaining university requirements, and take electives through which students can develop their particular interests in the field and in other areas. In their fourth year, students pursue a design research sequence through a seminar in the fall that is linked to the spring studio. At the end of this stage, and with the completion of all major and university requirements, students graduate, receiving the degree of a BA degree with a major in Architecture.

The third and final stage consists of the Bachelor of Architecture (BArch) degree and includes the year of Preceptorship. The BArch degree program is only open to students who have completed the first four years at Rice School of Architecture and who apply for admission into this stage of the program during their fourth year. As with the approval for major two years prior, approval is based on satisfactory academic performance and preparation for the advanced studies of the BArch degree.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their
academic program's transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**
Students pursuing the major in Architecture should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**
For additional information, please see the School of Architecture website: [https://arch.rice.edu/](https://arch.rice.edu/).

**Opportunities for the BA Degree with a Major in Architecture**

**Academic Honors**
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**
For additional information, please see the School of Architecture website: [https://arch.rice.edu/](https://arch.rice.edu/).

**Master of Architecture (MArch) Degree**
The program leading to the MArch degree is accredited by the National Architectural Accrediting Board (NAAB). [https://naab.org](https://naab.org).

**Program Learning Outcomes for the MArch Degree**
Upon completing the MArch degree, students will be able to:

1. Innovate the knowledge and practice of architecture through advanced critical thinking, experimentation, and research.
2. Develop or augment a comprehensive knowledge of the technical aspects of design and construction including an understanding of their impact on design and the environment at a level commensurate with advanced study.
3. Develop a comprehensive knowledge of diverse, advanced building technologies and their application to the design, construction, and operation of buildings, including environmental, material, structural, and mechanical systems, using leading computer applications and tools.
4. Develop or augment a comprehensive understanding of architectural practice and foster the development of innovative forms of practice at a level commensurate with advanced study.

**Requirements for the MArch Degree**
The MArch degree can be either a thesis or a non-thesis master's degree depending on the option the student pursues. For general university requirements for thesis master's degrees, please see Thesis Master's Degrees (p. 75). For general university requirements for non-thesis master's degrees, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MArch degree programs must complete:

- A minimum of 93-95 credit hours or 131-133 credit hours, depending on option pursued, to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- For the Non-Thesis MArch degree program options, a minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 205) tab.
- The requirements for one degree program option (see below for options). The MArch degree program offers two options:
  - Option 1 (Thesis or Non-Thesis) (p. 202), or
  - Option 2 (Thesis or Non-Thesis) (p. 203).

- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the thesis master's degree or the non-thesis master's degree with a minimum grade of B- (2.67 grade points) in each course.

The Master of Architecture (MArch) degree program understands architecture to be a generalist practice, while encouraging each student's freedom to forge a specific trajectory within this generalist milieu. We prepare students to engage an ever more ambiguous world—one that can no longer simply be flattened by such binaries as local and global, quantity and quality, mind and nature, form and function, or standards and exceptions. The challenge we pose to our students is to transgress the obsolescence of opposing values and to navigate the tricky waters of a world no longer organized around presupposed notions of solidity, permanence, rootedness, centrality, protection, and identity. Our program is the very place where visions of the future are tested and where students are asked to understand the world's complexity in order to focus on the tangible, the legible, and the relevant.

Individuals who possess a Bachelor's degree in any discipline can apply to the MArch degree program. Our curriculum offers a set of core courses (in Design, History and Theory, Technology, and Practice) and many free electives, both in the School of Architecture and across campus. In studio courses, strong emphasis is given to the very means by which architecture is able to change the world through program, form, and technology. Such fundamental aspects to design can, when mobilized, produce a practice of architecture that is as speculative as it is realist. Every fall, advanced "Totalization" studios are conducted in such a way as to have students rigorously weigh all aspects of building design while nonetheless biasing their engagement so as to produce highly specific architectural projects. In their final thesis semester, students are asked to face the world and engage it through architectural speculation and...
a precise understanding of historical, political, economic, and physical dimensions, which can together define a better future.

The MArch degree program is accredited by the National Architectural Accrediting Board (NAAB) and qualifies graduates to take the state professional licensing exams after completing the required internship in an architectural office.

Programs of Study

There are two program options at the Master of Architecture (MArch) level: Option 1 and Option 2. They differ according to the Bachelor’s degree received prior to entering the graduate program. MArch students in Options 1 and 2 complete the degree requirements by either submitting a thesis or by taking alternative coursework. Thesis students are required to take Design Thesis Studio (ARCH 703, 10 credit hours) and Written Thesis (ARCH 729 or ARCH 730, 3 credit hours). Students who pursue the non-thesis MArch degree are required to take the Architectural Programs: Studio (ARCH 601, 10 credit hours) in lieu of the thesis studio and an additional elective (worth 3 credit hours) in lieu of the written thesis course. All students are required to enroll in Thesis Proposal (ARCH 701), even if they pursue the non-thesis degree program (Option 1 or 2).

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Option 1 - MArch Degree Program

Offered to individuals who hold a four-year undergraduate degree with a major in a field other than Architecture or a major in Architecture with fewer than five semesters of architectural design studio. Preference for admission is given to those who have completed a balanced education in the arts, sciences, and humanities. A minimum of two semesters of college-level courses in the history of art and/or architecture and one semester of college-level courses in mathematics or physics is recommended. Previous preparation in the visual arts is also desirable, as are courses in philosophy, literature, and economics. In order to graduate, students in this program must complete, in addition to 6 semesters of design studios (70-72 credit hours), a curriculum of 34 credit hours with an additional free electives course load of 27 credit hours.

Summary

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Option 1 Degree Requirements

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<td>CORE DESIGN STUDIO I</td>
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<td>TECHNOLOGY II</td>
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<td>ARCH 514</td>
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<td>ARCH 516</td>
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<td>ARCH 525 / HART 525</td>
<td>INTRODUCTION TO ARCHITURAL THINKING</td>
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<td>ARCH 601</td>
<td>ARCHITECTURAL PROBLEMS: STUDIO</td>
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<td>ARCH 602</td>
<td>ARCHITECTURAL PROBLEMS</td>
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<td>ARCH 623</td>
<td>PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE</td>
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Thesis Requirements

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<td>ARCH 729</td>
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<td>or ARCH 730</td>
<td>THESIS WRITTEN DOCUMENT (SPRING)</td>
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Elective Requirements

Students must complete 9 additional courses 27

Total Credit Hours 131-133

Footnotes and Additional Information

1 Students enrolled in the Paris program (RSAP) will register for ARCH 620 design studio in lieu of ARCH 601 (fall) or ARCH 602 (spring).

2 All students are required to take ARCH 701 even if they pursue the non-thesis degree program (Option 1 or 2). Students who wish to remain enrolled as a registered student for an eighth semester will register for ARCH 703 and ARCH 730 (instead of ARCH 729) in the eighth semester. Students who wish to take this extension must decide at the beginning of their seventh semester. Students who pursue the non-thesis MArch degree are required to take the Architectural Programs: Studio (ARCH 601, 10 credit hours) in lieu of the thesis studio and alternative coursework (worth 3 credit hours) in lieu of the written thesis course ARCH 729 or ARCH 730.

3 ARCH 701, ARCH 703, ARCH 729, and ARCH 730 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of B-(2.67) in each required course.

Option 1 Plan-of-Study

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>1st Semester</td>
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</tr>
<tr>
<td>ARCH 501</td>
<td>CORE DESIGN STUDIO I</td>
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<tr>
<td>ARCH 507</td>
<td>TECHNOLOGY I</td>
<td>3</td>
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<tr>
<td>ARCH 525 / HART 525</td>
<td>INTRODUCTION TO ARCHITURAL THINKING</td>
<td>3</td>
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### Option 2 Degree Requirements

<table>
<thead>
<tr>
<th>Credit Hours</th>
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#### Core Requirements

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<thead>
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<th>Credit Hours</th>
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<tr>
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<td>ARCH 503 CORE DESIGN STUDIO III</td>
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<td>ARCH 507 TECHNOLOGY I</td>
</tr>
<tr>
<td>3</td>
<td>ARCH 509 TECHNOLOGY II</td>
</tr>
<tr>
<td>3</td>
<td>ARCH 514 TECHNOLOGY III</td>
</tr>
<tr>
<td>3</td>
<td>ARCH 516 TECHNOLOGY IV</td>
</tr>
<tr>
<td>3</td>
<td>ARCH 525 INTRODUCTION TO ARCHITECTURAL THINKING</td>
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<tr>
<td>10</td>
<td>ARCH 601 ARCHITECTURAL PROBLEMS: STUDIO</td>
</tr>
<tr>
<td>10-12</td>
<td>ARCH 602 ARCHITECTURAL PROBLEMS</td>
</tr>
<tr>
<td>3</td>
<td>ARCH 645 / ARCH 514 THEORY OF ARCHITECTURE I (1450-1850)</td>
</tr>
<tr>
<td>3</td>
<td>ARCH 646 / HART 506 THEORY OF ARCHITECTURE II (1850-1950)</td>
</tr>
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<td>3</td>
<td>ARCH 652 FOUNDATIONS IN THE HISTORY AND TECHNOLOGY III</td>
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#### Select 2 courses from the following:

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<tr>
<td>6</td>
<td>ARCH 645 FOUNDATIONS AND THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)</td>
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<td>6</td>
<td>ARCH 646 / HART 506 THEORY OF ARCHITECTURE II (1850-1950)</td>
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<tr>
<td>3</td>
<td>ARCH 652 FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE III (1950-2000)</td>
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</table>

### Footnotes and Additional Information

1. Students enrolled in the Paris program (RSAP) will register for ARCH 620 design studio in lieu of ARCH 601 (fall) or ARCH 602 (spring).

2. All students are required to take ARCH 701 even if they pursue the non-thesis degree program (Option 1 or 2). Students who wish to remain enrolled as a registered student for an eighth semester will register for ARCH 703 in their seventh semester and ARCH 730 (instead of ARCH 729) in the eighth semester. Students who wish to take this extension must decide at the beginning of their seventh semester. Students who pursue the non-thesis MArch degree are required to take the Architectural Problems: Studio (ARCH 601, 10 credit hours) in lieu of the thesis studio and alternative coursework (worth 3 credit hours) in lieu of the written thesis course ARCH 729 or ARCH 730.

3. ARCH 701, ARCH 703, ARCH 729, ARCH 730 and are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of B- (2.67) in each required course.
### Option 2 Plan-of-Study

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
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</tr>
<tr>
<td>ARCH 503</td>
<td>CORE DESIGN STUDIO III</td>
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<tr>
<td>ARCH 507</td>
<td>TECHNOLOGY I ¹</td>
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<tr>
<td>ARCH 525</td>
<td>INTRODUCTION TO ARCHITECTURAL THINKING</td>
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<td><strong>2nd Semester</strong></td>
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<td>ARCH 504</td>
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<td>ARCH 509</td>
<td>TECHNOLOGY II ¹</td>
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<tr>
<td>History and Theory</td>
<td>History and Theory ⁵</td>
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<td>Elective two</td>
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<td><strong>Credit Hours</strong></td>
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<td><strong>3rd Semester</strong></td>
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<tr>
<td>ARCH 514</td>
<td>TECHNOLOGY III ¹</td>
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<td>ARCH 601</td>
<td>ARCHITECTURAL PROBLEMS: STUDIO ²</td>
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<td>ARCH 623</td>
<td>PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE</td>
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### Thesis Requirements

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>ARCH 701</td>
<td>THESIS PROPOSAL</td>
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<tr>
<td>ARCH 703</td>
<td>DESIGN THESIS STUDIO ³,⁴</td>
<td>10</td>
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<tr>
<td>ARCH 729</td>
<td>THESIS WRITTEN DOCUMENT (FALL) ³,⁴</td>
<td>3</td>
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<tr>
<td>or ARCH 730</td>
<td>THESIS WRITTEN DOCUMENT (SPRING)</td>
<td></td>
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</tbody>
</table>

### Elective Requirements

Students must complete 4 additional courses: 12 Credit Hours

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### Footnotes and Additional Information

1. Students who have previously taken courses equivalent to Technology I, II, III, or IV (ARCH 507, ARCH 509, ARCH 514, or ARCH 516) at another institution may instead take electives with permission from the director of graduate studies.

2. Students enrolled in the Paris program (RSAP) should register for ARCH 620 design studio in lieu of ARCH 601 (fall) or ARCH 602 (spring).

3. All students are required to take ARCH 701 even if they pursue the non-thesis degree program (option 1 or 2). Students who wish to remain enrolled as a registered student for an eighth semester will register for ARCH 703 in their seventh semester and ARCH 730 (instead of ARCH 729) in the eighth semester. Students who wish to take this extension must decide at the beginning of their seventh semester. Students who pursue the non-thesis MArch degree are required to take the Architectural Problems: Studio (ARCH 601, 10 credit hours) in lieu of the thesis studio and alternative coursework (worth 3 credit hours) in lieu of the written thesis course ARCH 729 or ARCH 730.

4. ARCH 701, ARCH 703, ARCH 729, and ARCH 730 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of B- (2.67) in each required course.
and completed with a minimum overall GPA of 3.00 in required coursework and a minimum grade of B+ (2.67 grade points) in each course.

Policies for the MArch Degree
School of Architecture Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the school of Architecture publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Architecture_Graduate_Handbook.pdf

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the MArch degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the School of Architecture website: https://arch.rice.edu/

Opportunities for the MArch Degree
Master of Architecture (MArch) Thesis Requirement
Thesis is when students build upward and outward from what they’ve learned over the years, giving back to the school by providing new disciplinary insights and knowledge. Our students discover and invent new territories within architectural and urban paradigms. All MArch degree candidates are required to propose an independent thesis, articulating an ambition, and envisioning its architectural specificity. Students develop their individual thesis proposals during their penultimate semester. Students in Options 1 and 2 complete the degree requirements by either submitting a thesis or by taking alternative coursework. Thesis design evolves from the honing of that proposal and continues through the final semester, under the guidance of an individual advisor. In early January, thesis projects are reviewed publicly by a panel of invited guest scholars and practitioners.

RSA Paris
MArch degree (Option 1 and Option 2) students may apply to RSAP to complete one semester in Paris: Option 1 students may do so in their fifth or sixth semester, Option 2 in their third or fourth semester. BArch students may apply to RSAP in their final year of study.

Additional Information
For additional information, please see the School of Architecture website: https://arch.rice.edu/

Master of Science (MS) Degree in the field of Architecture
Program Learning Outcomes for the MS Degree in the field of Architecture
Upon completing the MS degree in the field of Architecture, students will be able to:

1. Integrate architecture and advanced research to address the most pressing and complex issues of design, environment, and culture.
2. Develop research techniques and knowledge of advanced systems, techniques, and processes.
3. Innovate the knowledge and practice of architecture through advanced critical thinking and experimentation.

Requirements for the MS Degree in the field of Architecture
The MS degree can be either a thesis or a non-thesis master’s degree depending on the option the student pursues. For general university requirements for thesis master’s degrees, please see Thesis Master’s Degrees (p. 75). For general university requirements for non-thesis master’s degrees, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Present Future is a concentrated undertaking culminating in the MS (Master of Science) degree, in the field of Architecture. The program is structured around a three-semester-long exploration of a topic led by a Rice School of Architecture faculty member. A select group of students form the core: a collective intelligence responsible for developing a discourse that synthesizes theoretical, historical, and design ambitions. Subjects will be of contemporary importance and will be framed by a 3-credit seminar the first term, a 12-credit collective thesis in the second term, and a concluding 3-credit seminar in the third term. In addition to free electives, each semester will include additional required credits that are appropriate to the selected topic, bringing the total credit hours to 39.

The program’s student body will include those with backgrounds in architecture as well as other fields: individuals with BA, BS equivalent, or more advanced degrees in architecture or other disciplines are invited to apply. Coursework will include offerings from the School of Architecture and other departments across Rice University.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MS Degree in the field of Architecture</td>
<td>39</td>
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Degree Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td>ARCH 602</td>
<td>ARCHITECTURAL PROBLEMS</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
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</tr>
<tr>
<td>Students must complete 7 additional courses from departmental (ARCH) course offerings</td>
<td>21</td>
<td></td>
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</tbody>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
## Art History

### Contact Information

Art History  
https://arthistory.rice.edu/  
103 Herring Hall  
713-348-4276  
Graham Bader  
Department Chair  
Graham.PBader@rice.edu

The Department of Art History offers a wide range of courses in European, American, Latin American, Middle Eastern/Islamic, African/African diaspora and Asian art history. The major in Art History is structured to expose students to the chronological, geographical, and methodological breadth of the field of scholarship. Students in the program may pursue the BA degree with a major in Art History. The department also offers a minor in Art History.

### Bachelor's Program

- Bachelor of Arts (BA) Degree with a Major in Art History (p. 251)

### Minor

- Minor in Cinema and Media Studies (p. 606)
- Minor in Art History (p. 261)

### Master's Program

- Master of Arts (MA) Degree in the field of Art History*

### Doctoral Program

- Doctor of Philosophy (PhD) Degree in the field of Art History (p. 258)

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

### Chair

Graham Bader

### Director of Undergraduate Studies

Lida Oukaderova

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### Policies for the MS Degree in the field of Architecture

#### School of Architecture Graduate Program Handbook

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#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Architecture should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

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### Opportunities for the MS Degree in the field of Architecture

Additional Information

For additional information, please see the School of Architecture website: https://arch.rice.edu/

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### Additional Information

Footnotes and Additional Information  
1. With permission, thesis or a design studio may be taken as electives.
HART 100 - AP/OTH CREDIT IN ART HISTORY

Short Title: AP/OTH CREDIT IN ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement Exams. This credit counts toward the total credit hours required for graduation, but does not count toward total credit hours required for the Art History Major.

HART 101 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC

Short Title: INTRO HIST OF WESTERN ART I
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: CLAS 102, MDEM 111. Mutually Exclusive: Cannot register for HART 101 if student has credit for HART 220.

HART 102 - INTRODUCTION TO THE HISTORY OF WESTERN ART II: RENAISSANCE TO PRESENT

Short Title: INTRO HIST OF WESTERN ART II
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from the Renaissance through the 20th century.

HART 105 - KEY MONUMENTS AND ARTISTS OF WESTERN ART

Short Title: KEY MONUMENTS & ARTISTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An in-depth look at important moments in the history of European and American art, from the Renaissance to the 20th century. Rather than being a comprehensive survey, the course will focus on a limited number of works by leading artists in the fields of painting, sculpture, and architecture.

HART 115 - MONUMENTS AND METHODS OF ART HISTORY

Short Title: MONUMENTS AND METHODS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Focusing on a range of topics—from Greek temples to Chinese painting, Michelangelo to Andy Warhol—this class introduces students to a selection of primary monuments and figures from art history, as well as to some of the questions art historians have asked about them. Guest lecturers and visits to local museums are planned.

HART 125 - GREAT ARTISTS AND FILMS ABOUT THEM

Short Title: GREAT ARTISTS AND FILMS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will introduce the works of fourteen great artists from the Renaissance to modern times. We will learn about the artists through readings, images shown in class, trips to Houston's museums, and by viewing feature-length films that dramatize the lives of the artists.
HART 180 - 14 FILMS YOU SHOULD SEE BEFORE YOU GRADUATE FROM RICE UNIVERSITY
Short Title: 14 FILMS BEFORE YOU GRADUATE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Featuring the important, but less familiar works of American and European directors from the 1930s - 1960s. This class represents an ideal mixture of modernist auteur cinema and shameless viewing pleasure. Cross-list: FILM 180.

HART 201 - ART AND ARCHITECTURE OF ANCIENT ROME
Short Title: ART AND ARCH OF ANCIENT ROME
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course tracks Rome's rise from a small village to a massive empire, through the lens of the art and architecture that the ancient Romans left behind. We'll examine the physical remains of this remarkable civilization, looking at famous monuments like the Colosseum and the Pantheon as well as lesser-known temples, houses, mosaics, wall-paintings, and sculptures that revolutionized the ancient world and helped to shape our own. Some course meetings will be held at area museums.

HART 202 - AVANT-GARDE AND AFTER: MODERN ART IN EUROPE, 1900-1945
Short Title: MODERN ART IN EUROPE,1900-1945
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class surveys European art from roughly 1900-1945, paying particular attention to the social contexts in which this work emerged and the interpretive strategies that have been used to understand it. Among the topics to be considered are Cubism, Futurism, Constructivism, Dada, and Surrealism, as well as the reaction against these by emergent authoritarian regimes of the 1930s. Students cannot receive credit for HART 202 and HART 305.

HART 203 - ART SINCE 1945
Short Title: ART SINCE 1945
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the major developments, figures, and works of late modernism beginning with the shift, during the 1940s, from Paris to New York as the cultural center of avant-garde. The class charts the rise of Abstract Expressionism in the 1940s and 50s and follows its divided legacies in the 1960s and 70s. We will examine the post-modern debates of the 1980s and the 90s and conclude with a look at trends in contemporary art.

HART 207 - FOURTEEN ARTWORKS AT THE MFAH
Short Title: FOURTEEN ARTWORKS AT THE MFAH
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the major developments, figures, and works of late modernism beginning with the shift, during the 1940s, from Paris to New York as the cultural center of avant-garde. The class charts the rise of Abstract Expressionism in the 1940s and 50s and follows its divided legacies in the 1960s and 70s. We will examine the post-modern debates of the 1980s and the 90s and conclude with a look at trends in contemporary art.

HART 209 - BEGINNING DIGITAL PHOTOGRAPHY
Short Title: BEGINNING DIGITAL PHOTOGRAPHY
Department: Art History
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to digital photography through exploration of light, camera, and computer. Assignments include looking, taking, discussing, adjusting, printing and writing about photographs. The class is a balance of visual awareness, technical skills and meaning in the context of photography's continuing history. Cross-list: FOTO 210.
HART 216 - CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY
Short Title: GREEK ART AND ARCHAEOLOGY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art and archaeology of the ancient Greek world. Artistic media, such as sculpture and vase painting will be examined in a broad range of the material culture ancient Greeks created and used. Consideration of these materials within their cultural, social and religious contexts will be discussed. Cross-list: CLAS 218.

HART 220 - INTRODUCTION TO MEDIEVAL ART AND ARCHITECTURE OF WESTERN EUROPE
Short Title: INTRODUCTION TO MEDIEVAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will focus on art and architecture produced in Western Europe from the 4th to the 15th centuries. The broad survey of material will be covered chronologically and by geographic region Mutually Exclusive: Cannot register for HART 220 if student has credit for CLAS 102/HART 101/MDEM 111.

HART 221 - INTRODUCTION TO ISLAMIC ART AND ARCHITECTURE
Short Title: INTRO TO ISLAMIC ART AND ARCH
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is an introduction to the monuments and masterpieces of Islamic art and architecture. Proceeding chronologically, we will examine building types such as mosques, tombs, and palaces, along with examples of pottery, calligraphy, and contemporary art. Special emphasis will be placed on the global context and cross-cultural dimensions of Islamic art. The course will have some meetings at the Museum of Fine Arts, Houston.

HART 225 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: ARCH 225. Graduate/Undergraduate Equivalency: HART 545. Mutually Exclusive: Cannot register for HART 225 if student has credit for HART 545.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HART 250 - CONTEMPORARY EUROPEAN CINEMA
Short Title: CONTEMPORARY EUROPEAN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class examines trends in European cinema of the last fifteen years. Particular attention will be given to the issues of history, memory and national identity in Europe's shifting geopolitical climate, and to the formal and aesthetic concerns with which filmmakers responded to these shifts. The discussion will include films by Michael Haneke, Fatih Akin, Christian Mingiu and others. Cross-list: FILM 250.
HART 257 - ART AND ART HISTORY OF THE LONG NINETEENTH CENTURY
Short Title: NINETEENTH-CENTURY ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the histories and methodologies of art from the long nineteenth century. Students will be introduced to major movements and artistic styles including Neoclassicism, Romanticism, Realism, Impressionism, and Post-Impressionism. Between a combination of lecture and discussion we will explore a variety of mediums across multiple countries. We will also consider these objects, artists, and periods within larger socio-political frameworks such as class, gender, and the rise of industrial modernity.

HART 263 - EPISODES IN THE HISTORY OF PHOTOGRAPHY: FROM INVENTION TO THE PRESENT
Short Title: HISTORY OF PHOTOGRAPHY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class examines the history of both artistic and non-artistic uses of photography from its origins in the nineteenth century, across the 20th century and into the present. In so doing we will pay close attention to a number of specific themes, from the medium's conception in the late eighteenth century, through avant-garde and institutional debates in the twentieth and twenty-first centuries concerning photography's relationship to artistic and social issues, to questions of gender, race, class, and global politics. Cross-list: FOTO 263. Mutually Exclusive: Cannot register for HART 263 if student has credit for HART 363.

HART 265 - A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA
Short Title: ART/ POLITICS MOD LATIN AMER
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Providing an alternative understanding of modernity and its artistic partner, modernism, this survey course traverses the political, social and cultural landscapes that informed and formed the art and architecture of Latin America, from the early twentieth century to the present. Graduate/Undergraduate Equivalency: HART 665. Mutually Exclusive: Cannot register for HART 265 if student has credit for HART 665.

HART 280 - HISTORY & AESTHETICS OF FILM
Short Title: HISTORY & AESTHETICS OF FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narration, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, nonfiction, and Third World cinemas. Cross-list: ARTS 280, FILM 280.

HART 281 - THE BEGINNINGS OF CINEMA
Short Title: THE BEGINNINGS OF CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class studies the emergence of cinema in the context of cultural developments at the turn of the 20th century. Early films will be examined together with such contemporaneous issues as technologies of vision, modern mass culture, urban expansion and consumerism. Cross-list: FILM 281.

HART 283 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: FILM 285. Equivalency: HART 481. Mutually Exclusive: Cannot register for HART 283 if student has credit for HART 481.
HART 284 - NONFICTION FILM
Short Title: NONFICTION FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the history and aesthetics of nonfiction film as both a social artifact and as a work of art. Includes discussions of actualities, the city film, the social documentary, surrealist cinema, propaganda, ethnography, the essay film, and the contemporary nonfiction film from around the world. Cross-list: FILM 284.

HART 286 - CLASSICAL AND CONTEMPORARY FILM AND THEORY
Short Title: CLASSICAL & CONTEMPORARY FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course focusing on contexts such as movies and ads, familiar plots and conventions define their significance. Cross-list: ENGL 286.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

HART 297 - SPECIAL TOPICS IN MUSEUM CURATORIAL STUDIES
Short Title: SPECIAL TOPICS: MUSEUM STUDIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Special Topics class taught by visiting Curators from the MFAH. FA 2016: Intro to Islamic Art at the MFAH. This course explores the dynamic, multifaceted character of Islamic art and architecture across the globe. Travel from Spain to India studying original art at the Museum of Fine Arts. Gain understanding of the historical, religious, social, craft, and visual contexts of the art. Graduate/Undergraduate Equivalency: HART 597. Mutually Exclusive: Cannot register for HART 297 if student has credit for HART 597.

HART 299 - INDEPENDENT STUDY IN ART THEORY AND CRITICISM
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Independent study, reading, or special research in art history. Instructor Permission Required. Repeatable for Credit.

HART 300 - MUSEUM INTERNSHIP I
Short Title: MUSEUM INTERNSHIP I
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The aim of this course is to provide select students a practicum in museum work accompanied by an introduction to a history of museums, including the varieties of museums, their role in society and significant issues in museums today. Instructor Permission Required.

HART 301 - MUSEUM INTERNSHIP II
Short Title: MUSEUM INTERNSHIP II
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This internship provides select students with a practicum in museum work, in coordination with a Houston-area museum. A HART faculty member will supervise the internship. Students will work directly with the museum to gain hands-on experience in curatorial practice and collection, exhibition and archive management, while also learning about the role of museums in society and significant issues in museums today. Instructor Permission Required. Repeatable for Credit.

HART 302 - FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE
Short Title: ART, ARCHITECTURE AND NATURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar considers theories and narratives of nature in the crafting of modern and contemporary art and architecture in the Americas. Artists and architects will include Maria Fernada Cardoso, Rogelio Salmona (Colombia); Ana Mendieta, Ricardo Porro (Cuba); Ana Maria Tavares, Lina Bo Bardi (Brazil); Mark Dion and Buckminster Fuller (USA). Graduate/Undergraduate Equivalency: HART 568. Mutually Exclusive: Cannot register for HART 302 if student has credit for HART 568.

HART 303 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent Study in Art History. Instructor Permission Required.
HART 304 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. (The trip is optional. There is a course fee.) Course taught in Spanish. Instructor Permission Required. Cross-list: FILM 339, SPPO 375. Graduate/Undergraduate Equivalency: HART 565. Mutually Exclusive: Cannot register for HART 304 if student has credit for HART 565.

HART 305 - POST WAR: ART IN EUROPE, 1945-2000
Short Title: ART IN EUROPE, 1945-2000
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the heterodox individual artistic practices and movements in post-World-War Two Europe. Focusing on the countries of France, Belgium, The Netherlands, Germany, Italy, England, and the Soviet Union, particular attention will be given to the post-war reconstruction of the Marshall Plan, economic austerity and recovery, the French colonial war in Algeria, the legacy of the German occupation, the rise of the student movement and the protests of May '68, Stalinism and the cold war, and the national guilt of the Holocaust. In addition to weekly readings, each student will be responsible for a 20-minute presentation and a 10-15 page final paper. Graduate/Undergraduate Equivalency: HART 505. Mutually Exclusive: Cannot register for HART 305 if student has credit for HART 505.

HART 307 - TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING, 13TH-20TH CENTURIES
Short Title: TECHNICAL ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Art historians, especially in the United States, tend to rely on photographs, but a study of the actual object is invaluable in studying works of art. This course aims to inform students about the technical study of art, which in the last fifty years has become a major field of research. Most classes will be held at the Museum of Fine Arts, Houston, or other Houston collections. Graduate/Undergraduate Equivalency: HART 549. Mutually Exclusive: Cannot register for HART 307 if student has credit for HART 549.

HART 308 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and /or Turkish helpful but not necessary. Cross-list: ARCH 318. Graduate/Undergraduate Equivalency: HART 508. Mutually Exclusive: Cannot register for HART 308 if student has credit for HART 508.

Short Title: THE DAWN OF ROME
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture that reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Cross-list: CLAS 309. Graduate/Undergraduate Equivalency: HART 509. Mutually Exclusive: Cannot register for HART 309 if student has credit for HART 509.

HART 310 - BRAZIL BUILT: THE CLINIC, THE TROPICAL, AND THE AESTHETIC
Short Title: BRAZIL BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From Brazil Builds, MOMA's 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today's worldwide attention on Brail, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: ARCH 315. Graduate/Undergraduate Equivalency: HART 526. Mutually Exclusive: Cannot register for HART 310 if student has credit for HART 526.
HART 311 - ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST
Short Title: ANCIENT NEAR EAST
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An in-depth examination of the art and archaeology of ancient Mesopotamia, Syria, Anatolia and Persia. Beginning in The Neolithic period, we will examine the development of Near Eastern art and architecture through the study of ancient sites and their associated material culture. Cross-list: ANTH 331. Graduate/Undergraduate Equivalency: HART 511. Mutually Exclusive: Cannot register for HART 311 if student has credit for HART 511.

HART 312 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Cross-list: MUCH 308. Graduate/Undergraduate Equivalency: HART 514. Mutually Exclusive: Cannot register for HART 312 if student has credit for MUCH 508.

HART 314 - POLITICS OF CULTURAL HERITAGE IN THE MODERN MIDDLE EAST, 1800 TO THE PRESENT
Short Title: POLITICS OF CULTURAL HERITAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine the history of the concept of "cultural heritage" in the modern Middle East. We will explore the emergence of concerns for archaeological sites and architectural monuments, and the ability of cultural heritage to shore up contested claims of identity, ideology, and political legitimacy.

HART 315 - ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS
Short Title: ART AND ACTIVISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How have art and activism in the Americas from the early 20th century to today informed and fed one another? Moving between South and North America, this seminar study artists and collectives that have confronted, in isolation or with intersectionality in mind, indigenous rights, gender equality, LGBT+ rights, and systemic racism. The course is organized around artwork and activism grouped within three loose themes: race and disenfranchisement; gender and sexuality; and ecology and capitalism. From graphic art employed by the Black Panthers to photographic essays in defense of ways of life in the Amazon Basin of northern Brazil, "Art and Activism" will offer a chance to contemplate, study, and debate visual and performative projects that have endeavored (or continue to try) to effect social change. Some class meetings may be held at area cultural spaces. Graduate/Undergraduate Equivalency: HART 514.

HART 316 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES
Short Title: VIRTL RECONSTR HISTORCL CITIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ANTH 346, ARCH 310, COMP 316.
HART 317 - MODERN ART AND MONSTROSITY
Short Title: MODERN ART AND MONSTROSITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Why is it that in the modern era, beginning around the middle of the eighteenth century, artists begin to see various forms of monstrosity in aesthetic terms, as something beautiful? What is it about the modern period that accounts for this shift in how monstrosity is represented and understood and how does it differ from earlier historical images of the monster. This class will examine the modernist fascination with monstrosity, asking not only why it became a topic of such particular and widespread interest to artists, writers, and filmmakers during this time, but also what it can tell us about modernist aesthetics more broadly. Examining a range of representations from the 18th century on, we will look at a variety of visual artists, filmmakers, and novelists who depict various forms of monsters, be they human (Jack the Ripper) or non-human (the Golem). From Mary Shelley’s Frankenstein and the myth of the vampire, to Picasso’s monstrous images of 1920s, to the distinctly modern phenomenon of serial killing, this course will chart the dark monstrous underside to modern art. Graduate/Undergraduate Equivalency: HART 517. Mutually Exclusive: Cannot register for HART 317 if student has credit for HART 517.

HART 318 - SPECIAL TOPICS IN ANCIENT ART
Short Title: ROME: THE ETERNAL CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to the major monuments of Rome, Pompeii, and Herculaneum. We will focus not only on the history and functions of these monuments in antiquity but also on how their meaning and representation has changed and evolved in the post-classical world. Instructor Permission Required. Cross-list: CLAS 321. Repeatable for Credit.

HART 319 - ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES
Short Title: ARCHITECTURE ISLAMIC EMPIRES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: During the early modern period, ca. 1500-1800, around one-third of the earth’s human population inhabited territories that were ruled by three empires: the Ottomans in the eastern Mediterranean, the Safavids in the Iranian plateau, and the Mughals in South Asia. This period saw a surge in production of architectural monuments (such as the Taj Mahal), the emergence of cosmopolitan cities (such as Istanbul and Isfahan), and the expansion of the public sphere in gardens, promenades, and coffeehouses. This course examines the architecture, urbanism, and material culture of these three empires in the context of global trade, representations of power, and urban life in the capital cities of Istanbul, Isfahan, and Delhi. Graduate/Undergraduate Equivalency: HART 519.

HART 321 - IMPERIAL CITY: ISTANBUL 1453-1922
Short Title: ISTANBUL IMPERIAL CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. Cross-list: ARCH 331. Graduate/Undergraduate Equivalency: HART 521. Mutually Exclusive: Cannot register for HART 321 if student has credit for HART 521.

HART 322 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, “ornament” and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. Cross-list: ARCH 332. Graduate/Undergraduate Equivalency: HART 522. Mutually Exclusive: Cannot register for HART 322 if student has credit for HART 522.
forms of sociability, material objects, and architectural types such as
Routes of transfer will be explored along with the development of new
will examine the material context of the substances in different scales,
these stimulants across the globe from the sixteenth century onward. We
and architectural spaces. In this course, we trace the dissemination of
tea, and tobacco has long created distinctive material cultures, artworks,
Description:

HART 325 - COFFEEHOUSES AND TEAHOUSES: A GLOBAL HISTORY
Short Title: BUDDHIST & DAOIST ART IN CHINA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual materials that shed light on pre-modern China’s Buddhist, Daoist, and other diverse religious and ritual practices. We will examine the range of social and ethnic backgrounds that participated in the making, spreading, and use of religious visual culture in traditional China. Topics may include: funeral art and ritual; images of heaven, hell, and rebirth; and representations of gender, among others. Students will develop analytical skills, critical thinking skills, and holistic views regarding the meaning, function, and style of the arts of diverse religious traditions in China. Cross-list: ASIA 323, MDEM 323. Mutually Exclusive: Cannot register for HART 323 if student has credit for HART 623.

HART 324 - PERSIANATE ARTS OF THE BOOK
Short Title: PERSIANATE BOOK ARTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores figural painting and arts of the book in the Persianate cultural sphere, ca. 1300s-1800s. We will study concepts of the book in Islamic civilization, illustrated narratives of Persian literature, word/image relationship, albums, and single-page portraits. The class also examines artistic interactions with East Asia and Europe, and concludes with the advent of lithography in the nineteenth century. Some course meetings will take place at Houston-area museums. Graduate/Undergraduate Equivalency: HART 524. Mutually Exclusive: Cannot register for HART 324 if student has credit for HART 524.

HART 325 - COFFEEHOUSES AND TEAHOUSES: A GLOBAL HISTORY
Short Title: COFFEEHOUSE TEAHOUSE HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From Ottoman coffeehouses to Japanese teahouses to Parisian cafés, the collective consumption of substances such as coffee, tea, and tobacco has long created distinctive material cultures, artworks, and architectural spaces. In this course, we trace the dissemination of these stimulants across the globe from the sixteenth century onward. We will examine the material context of the substances in different scales, ranging from utensils to interior spaces and broader urban landscapes. Routes of transfer will be explored along with the development of new forms of sociability, material objects, and architectural types such as coffeehouses, teahouses, and smoking rooms. This course occasionally meets at an area museum during the semester.

HART 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 326, CLAS 326. Graduate/Undergraduate Equivalency: HART 626. Mutually Exclusive: Cannot register for HART 326 if student has credit for HART 626.

HART 327 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Cross-list: CLAS 324. Graduate/Undergraduate Equivalency: HART 627. Mutually Exclusive: Cannot register for HART 327 if student has credit for HART 627.

HART 328 - EPIPHANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE
Short Title: EPIPHANIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Epiphanies are events or objects that can note a striking appearance or manifestation, just as an epiphanic experience contains a significant moment of revelation. This course examines expressions of epiphanies in modernist art, literature, film, sacred experience, and in the mundane details of life itself. Cross-list: RELI 375.
HART 329 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the street as a focus of urban life in 18th and 19th century. We will look at ways streets functioned as spaces of livelihood, sociability, and transgression in cities such as London, Paris, Istanbul, Amsterdam and Cairo. Cross-list: ARCH 329, HIST 329. Graduate/Undergraduate Equivalency: HART 529. Mutually Exclusive: Cannot register for HART 329 if student has credit for HART 529.

HART 330 - EARLY MEDIEVAL ART
Short Title: EARLY MEDIEVAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Early Medieval Art from the 5th Century to the Romanesque period. This course begins with a study of the art and architecture of the Ostrogoths, Visigoths, Lombards, Celts, Anglo-Saxons, Franks, and Merovingians, and the transformation of the Roman World through new Germanic, Barbarian, and Christian forces. The second part of the course considers the cultural Renaissance of the Carolingian and Ottonian Periods under rulers such as Charlemagne and Otto III. The last third of the course focuses on themes of pilgrimage, relics, crusades and the emergence of new monumental tradition in art and architecture during the Romanesque Period. Cross-list: MDEM 330. Graduate/Undergraduate Equivalency: HART 530. Mutually Exclusive: Cannot register for HART 330 if student has credit for HART 530.

HART 331 - GOTHIC ART
Short Title: GOTHIC ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the full array of sacred art and architecture produced in the early and high gothic periods in northern Europe. Includes cathedral architecture, sculpture, stained glass, manuscripts, and metalwork studies in relationship to the expansion of royal and Episcopal power. Cross-list: MDEM 331. Graduate/Undergraduate Equivalency: HART 531. Mutually Exclusive: Cannot register for HART 331 if student has credit for HART 531.

HART 332 - ART OF THE COURTS
Short Title: ART OF THE COURTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of art and architecture produced in the late gothic period within three distinct settings—the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, the city hall and hospital, and the chapel and parish church. Cross-list: MDEM 332. Graduate/Undergraduate Equivalency: HART 532. Mutually Exclusive: Cannot register for HART 332 if student has credit for HART 532.

HART 333 - LOOKING AT EUROPEAN PRINTS 1400-1700
Short Title: LOOKING AT PRINTS 1400-1700
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The class has several goals: to gain a thorough historical understanding of prints by master artists such as Schongauer, Mantegna, Düer, and Rembrandt as well as more popular prints, explore key issues in the study of prints, such as how they revolutionized European culture, their patronage, markets, functions, and techniques; and to examine the prints first-hand. Graduate/Undergraduate Equivalency: HART 525. Mutually Exclusive: Cannot register for HART 333 if student has credit for HART 525.

HART 334 - PICASSO, POLLOCK, WARHOL
Short Title: PICASSO, POLLOCK, WARHOL
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will look in detail at three of the twentieth century's most important artists: Pablo Picasso, Jackson Pollock, and Andy Warhol. Our central focus is understanding the means by which these three artists created, expanded, or even "destroyed" the medium. What did it mean to make (or reject) painting in 1910, 1950, and 1965? Special attention will be paid to recent scholarly literature and close looking at works in local collections. Graduate/Undergraduate Equivalency: HART 546. Mutually Exclusive: Cannot register for HART 334 if student has credit for HART 546.
HART 339 - AMERICAN ART AND ARCHITECTURE I: 1620-1800
Short Title: AMERICAN ART: 1620-1800
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of art in northern Europe from Jan van Eyck to Peter Bruegel. Cross-list: MDEM 340. Graduate/Undergraduate Equivalency: HART 553. Mutually Exclusive: Cannot register for HART 340 if student has credit for HART 553.

HART 340 - NORTHERN RENAISSANCE ART
Short Title: NORTHERN RENAISSANCE ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. Cross-list: MDEM 343. Graduate/Undergraduate Equivalency: HART 543. Mutually Exclusive: Cannot register for HART 343 if student has credit for HART 543.

HART 341 - EARLY RENAISSANCE ART IN ITALY
Short Title: EARLY RENAISSANCE ART IN ITALY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of Italian art and architecture from Giotto to Botticelli, with emphasis on painting and sculpture in the 15th century. Graduate/Undergraduate Equivalency: HART 541. Mutually Exclusive: Cannot register for HART 341 if student has credit for HART 541.

HART 342 - THE HIGH RENAISSANCE AND MANNERISM IN ITALY
Short Title: HIGH RENAISSANCE&MANNERISM ITALY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the High Renaissance, with emphasis on its leading masters (e.g., Leonardo, Raphael, Bramante, Michelangelo, and Titian). Includes a study of mannerism, the stylish art produced after the first quarter of the 16th century. Graduate/Undergraduate Equivalency: HART 542. Mutually Exclusive: Cannot register for HART 342 if student has credit for HART 542.

HART 343 - MASTERS OF THE BAROQUE ERA
Short Title: MASTERS OF THE BAROQUE ERA
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. Cross-list: MDEM 343. Graduate/Undergraduate Equivalency: HART 543. Mutually Exclusive: Cannot register for HART 343 if student has credit for HART 543.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART 344</td>
<td>CAPITALISM AND CULTURE</td>
<td>CAPITALISM AND CULTURE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This seminar will examine the way European culture, especially art, was shaped by the rise of the monetary economy and capitalism, beginning in the late Middle Ages and continuing into modern times. Graduate/Undergraduate Equivalency: HART 544. Mutually Exclusive: Cannot register for HART 344 if student has credit for HART 544.</td>
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<tr>
<td>HART 345</td>
<td>FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)</td>
<td>FOUNDATIONS IN ARCH I</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: ARCH 345.</td>
</tr>
<tr>
<td>HART 346</td>
<td>SEMINAR ON LOVE: MAKING LOVE IN MODERN ART AND THOUGHT</td>
<td>MAKING LOVE IN MODERN ART</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This seminar explores various conceptions of love from the classical era to our postmodern age. Ranging from eros to philia to agape, we will examine literary, philosophical, and artistic expressions of love in painting, cinema, literature, psychoanalysis, philosophy, religion, and culture. Cross-list: SWGS 346.</td>
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<tr>
<td>HART 347</td>
<td>SEMINAR ON LOVE</td>
<td>SEMINAR ON LOVE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This seminar will examine the themes of love, sex, and spirit from the classical era through the postmodern age. We will examine literary, philosophical, and artistic expressions in painting, sculpture, cinema, novels, poetry, psychoanalysis, religion, and culture. Cross-list: RELI 343.</td>
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<tr>
<td>HART 348</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
<td>TRENDS IN CUBAN CULTURE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Research</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. This course is taught in Spanish. Graduate students will be required to complete all the requirements for the course in addition to writing a substantial research paper at the end of the semester. This is the credit for the actual trip to Cuba. Graduate/Undergraduate Equivalency: HART 548. Mutually Exclusive: Cannot register for HART 348 if student has credit for HART 548.</td>
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<tr>
<td>HART 349</td>
<td>TRENDS IN CONTEMPORARY ART</td>
<td>TRENDS IN CONTEMPORARY ART</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This seminar will map the terrain of contemporary art as it has developed in the wake of political and theoretical engagements of the 1990's. For many critics, Contemporary Art practice has given way to the worst aspects of spectacular culture losing sight of the political, theoretical, and artistic rigor that characterized the historical and neo-avant-garde. Graduate/Undergraduate Equivalency: HART 570. Mutually Exclusive: Cannot register for HART 349 if student has credit for HART 570.</td>
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</tbody>
</table>
HART 351 - ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES
Short Title: ART, REVOLUTION, WAR
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines the ambition (or lack thereof) of modern art to play an active role during periods of violent conflict. From the French Revolution to the recent disastrous American engagements in the Middle East wars to the never-ending war on terror, artists have produced images that attempt to actively engage in these conflicts. This class will examine the relative successes and failures of art during times of violent revolution and war within the modern era. Graduate/Undergraduate Equivalency: HART 651. Mutually Exclusive: Cannot register for HART 351 if student has credit for HART 651.

HART 352 - BLACK CONTEMPORARY ART
Short Title: BLACK CONTEMPORARY ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the speculative and dynamic field of black contemporary visual and performance art by joining visual analysis with the critical application of race, gender, sexuality, and disability theory. This class centers application over memorization. By the end of the semester, students will demonstrate an in-depth knowledge of contemporary trends in black art production and circulation, be able to identify the work of formative black modern and contemporary artists and contextualize art objects across theories of blackness and the social process of representation. This course occasionally meets at an area museum during the semester. By the end of the semester, students will be equipped with a set of skills—reading, writing, and analysis—that will set a foundation for the creative development of a 10-to-12-page analytical essay on an art object of their choice. This assignment is methodically organized over the course of the semester to encourage each student to develop an argument that arises from their own close reading, application of theory, and lived experiences. Distribution 1 credit effective Fall 2021.

HART 353 - ART AND EMOTION
Short Title: ART AND EMOTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine the role played by emotion in our response to works of art. What is the relationship of emotion to the specific formal properties of a given work of art, such as color, texture, shape, line quality, sound, and so on? What role does our cognitive faculties play in determining our emotional response to art? Are there political stakes to emotional affect? These and other questions will be examined. Graduate/Undergraduate Equivalency: HART 653. Mutually Exclusive: Cannot register for HART 353 if student has credit for HART 653.

HART 354 - AGE OF ROMANTICISM IN EUROPE
Short Title: AGE OF ROMANTICISM IN EUROPE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will consider the emergence and flourishing of Romanticism in the visual arts in Europe. We will consider artists from France, Germany and Britain, including Eugene Delacroix, J.M.W. Turner, John Constable and Caspar David Friedrich. We will combine study of paintings with readings of contemporaneous philosophers and writers, including Hegel and Byron. Graduate/Undergraduate Equivalency: HART 554. Mutually Exclusive: Cannot register for HART 354 if student has credit for HART 554.

HART 355 - JACQUES-LOUIS DAVID: REVOLUTION
Short Title: JACQUES-LOUIS DAVID: REVOLUTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will consider the painting of Jacques-Louis David with particular reference to the ideas of revolution. This seminar will combine close reading and looking, using primary and secondary readings to explore issues of classicism, politics, eroticism, and aesthetics in the work of this central figure in art history. Graduate/Undergraduate Equivalency: HART 555. Mutually Exclusive: Cannot register for HART 355 if student has credit for HART 555.
HART 356 - SEX AND MONEY: THE SPECIES DIVIDE
Short Title: SEX & MONEY: THE SPECIES DIVIDE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the visual representations of lust and greed, both human and non-human. It will introduce students to such theories as feminism and posthumanism as well as medieval beliefs about the Seven Deadly Sins and demons. Graduate/Undergraduate Equivalency: HART 556.

HART 357 - CONSTABLE AND TURNER
Short Title: CONSTABLE AND TURNER
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will explore critical issues surrounding the careers of John Constable and J.M.W. Turner, arguably the greatest landscape painters of the early 19th century. We will look at both similarities and differences in the work of these two rivals, while considering their work in the context of great historical change in England. Graduate/Undergraduate Equivalency: HART 547. Mutually Exclusive: Cannot register for HART 357 if student has credit for HART 547.

HART 358 - IMPRESSIONISM AND POST-IMPRESSIONISM
Short Title: IMPRESSIONISM/POST-IMP
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will explore painting in France from approximately 1865 to 1900. Mixing lectures and classroom discussion, we will focus on individual artists including Claude Monet, Edgar Degas, Mary Cassatt, Georges Seurat, Vincent van Gogh, and Paul Cezanne. We will also consider and discuss a set of critical issues surrounding these painters, including the politics of gender and class within the changing urban setting of Paris. Graduate/Undergraduate Equivalency: HART 558. Mutually Exclusive: Cannot register for HART 358 if student has credit for HART 558.

HART 359 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: ARCH 359, FILM 359. Graduate/Undergraduate Equivalency: HART 659. Mutually Exclusive: Cannot register for HART 359 if student has credit for HART 659.

HART 361 - WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS
Short Title: WHAT IS CINEMA?
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using a variety of readings now considered classics as our guide, this class will look closely at a broad range of films and film movements discussed by critics and theorists such as Rudolf Amheim, Jean Epstein, Sergei Eisenstein, Walter Benjamin and Andre Bazin. Cross-list: FILM 361. Graduate/Undergraduate Equivalency: HART 561. Mutually Exclusive: Cannot register for HART 361 if student has credit for HART 561.

HART 362 - UPCYCLING: MEANINGFUL REUSE IN ART AND MONUMENTS FROM ANTIQUITY TO TODAY
Short Title: UPCYCLING
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this seminar, we will explore the phenomenon of upcycling - intentionally meaningful reuse - by investigating the intersection of reuse and memory in the art and monuments of many different times, places, and people, from prehistory to the modern art that surrounds us on the Rice campus. Graduate/Undergraduate Equivalency: HART 562. Mutually Exclusive: Cannot register for HART 362 if student has credit for HART 562.
HART 364 - GENDER AND SEXUALITY IN FILM
Short Title: GENDER AND SEXUALITY IN FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how cinema has reflected, shaped and critiqued cultural understandings of gender and sexuality over the last 100 years. By pairing film analysis with critical readings in gender and sexuality studies, we will explore the development of sexual and gender conventions—as well as their transgressions—on screen across diverse historical periods and cultures. Graduate/Undergraduate Equivalency: HART 564. Mutually Exclusive: Cannot register for HART 364 if student has credit for HART 584.

HART 365 - ART BETWEEN THE WARS: EUROPEAN MODERNISM, 1918-1940
Short Title: ART BETWEEN THE WARS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Beginning in the aftermath of the First World War, a conflict that devastated the physical and psychological landscape of Europe, and ending with the rise of various totalitarian regimes (Fascism, Stalinism) this seminar will examine European art of the interwar period, from 1918-1940. Potential topics will include Surrealism, The Russian avant-garde, the return to order, Esprit-Nouveau, the machine aesthetic, De Stijl, avant-garde cinema, etc. Graduate/Undergraduate Equivalency: HART 575. Mutually Exclusive: Cannot register for HART 365 if student has credit for HART 575.

HART 367 - ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE
Short Title: ARCHITECTURES POWER RESISTANCE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar adopts a global approach to examine architecture and the built environment as sites of power, resistance, and coexistence. Through a series of case studies spanning the globe, from Central Asia to the Mediterranean to the Americas, we will explore how architectural works—monuments, buildings, urban plans, indigenous settlements, refugee camps—exercised authority, resisted domination, and/or created settings for coexistence. Topics to discuss include cross-cultural interactions in medieval Iberia (Spain/Portugal); Nineteenth-century Orientalist architecture and its discontents; the interwoven complexity of infrastructures, race, and gender in early twentieth century South America; the spaces and politics of U.S. assistance programs during the era of “development” across the Global South; and environmental diasporas and indigenous reclamations from the Amazon to Sub-Saharan Africa in present days. This course occasionally meets at an area museum during the semester. Graduate/Undergraduate Equivalency: HART 567.

HART 369 - STATE OF THE ART
Short Title: STATE OF THE ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is the current state of the art historical field? Looking at contemporary scholarship across a range of historical periods, the class will introduce students to a selection of some of the most important, ground-breaking, and / or influential writings in art history produced in the last 25 years or so. Paying particular attention to an array of recent trends, methodologies, and political interventions, this class will examine some of the most pressing questions, debates, and advanced interdisciplinary theories within current art historical practice. Graduate/Undergraduate Equivalency: HART 569. Mutually Exclusive: Cannot register for HART 369 if student has credit for HART 569.
HART 371 - CHINESE PAINTING
Short Title: CHINESE PAINTING
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines Chinese painting from ancient times to the early twentieth century. Issues of examination include themes, styles, and functions of Chinese painting; the interrelationship between paintings and the intended viewers; regionalism; images and words; foreign elements in Chinese painting. Cross-list: ASIA 371. Graduate/Undergraduate Equivalency: HART 571. Mutually Exclusive: Cannot register for HART 371 if student has credit for HART 571.

HART 372 - CHINESE ART AND VISUAL CULTURE
Short Title: CHINESE ART AND VISUAL CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Chinese Art and Visual Culture is an introductory seminar studying the history of traditional Chinese art and visual culture from ancient times to the nineteenth century. This course draws upon masterpieces and monuments from both archaeological finds and museum collections, including bronze vessels, funeral objects, painting, calligraphy, sculptures, architecture, ceramics, and so on. Designed for students who have no background in Chinese art, Chinese history, or art history, the seminar uses diverse teaching materials in multiple media beyond traditional textbook-based readings to achieve four main goals: 1) Develop visual literacy through a direct encounter with objects. The development of specialized vocabulary to describe, analyze, and communicate function, composition, and meaning in art. 2) Understand major artistic movements of art and architecture within historical, social, political contexts. 3) Develop specialized knowledge in art from specific geographical locations (e.g. China), time periods, artists or artistic movements. 4) Evaluate and use primary and secondary source materials. Cross-list: ASIA 372, MDEM 373. Mutually Exclusive: Cannot register for HART 372 if student has credit for HART 572.

HART 374 - THE VISUAL CULTURE OF THE FRENCH REVOLUTION
Short Title: ART OF THE FRENCH REVOLUTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the central role that art and visual culture played in the French Revolution. While engaging in a detailed study of the causes, progress and outcome of the Revolution we will pay attention to painting, prints, festivals and the wide range of visual culture that not only reflected the Revolution but helped fuel it. Graduate/Undergraduate Equivalency: HART 574. Mutually Exclusive: Cannot register for HART 374 if student has credit for HART 574.

HART 375 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES
Short Title: LATIN-EUROPE/LATIN-AMERICA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: ARCH 375. Graduate/Undergraduate Equivalency: HART 675. Mutually Exclusive: Cannot register for HART 375 if student has credit for HART 675.

HART 376 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE
Short Title: EAST AND WEST
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: ASIA 376, MDEM 376. Graduate/Undergraduate Equivalency: HART 576. Mutually Exclusive: Cannot register for HART 376 if student has credit for HART 576.
HART 377 - MEDIEVAL MANUSCRIPTS  
**Short Title:** MEDIEVAL MANUSCRIPTS  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This seminar explores illuminated European manuscripts from late antiquity through the early sixteenth century. It examines manuscripts’ functions, patrons, makers, and materials and technique, as well as such issues as the relationship between text and image and the manuscript’s ideological stance. Students have the opportunity to study original medieval illuminations. Cross-list: MDEM 377. Graduate/Undergraduate Equivalency: HART 577. Mutually Exclusive: Cannot register for HART 377 if student has credit for HART 578.

HART 378 - DUTCH ART IN THE AGE OF REMBRANDT  
**Short Title:** DUTCH ART IN AGE OF REMBRANDT  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will examine Dutch and Flemish seventeenth-century art, including major masters, such as Rembrandt, Rubens, and Vermeer, and major developments, such as the rise of still life, genre, and landscape painting. Cross-list: MDEM 378. Graduate/Undergraduate Equivalency: HART 578. Mutually Exclusive: Cannot register for HART 378 if student has credit for HART 578.

HART 379 - THE AESTHETICS OF REALISM: FROM COURBET TO THE WIRE  
**Short Title:** THE AESTHETICS OF REALISM  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This seminar will consider both the historical roots and contemporary manifestations of an aesthetics of realism. As a form of art concerned with the world as it is, in all its imperfection, realism is often assumed to ignore ideas of beauty, and even to court harsh, rough or ugly appearances. But as we will see there is both theoretical basis for an aesthetics of realism and a long history of its visual development. Graduate/Undergraduate Equivalency: HART 579.

HART 380 - SURVEY OF AMERICAN FILM AND CULTURE  
**Short Title:** SURVEY OF AMER FILM & CULTURE  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A course that explores the history of cinema in the U.S. from its origins to the present day. This course will examine the development of narrative, sound, the classical Hollywood form and style; film genres; the emergence of television; the influence of postwar “art cinemas”; the origins of the blockbuster; and the status of Hollywood as “global cinema.” Cross-list: ENGL 373, FILM 373.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)  

HART 381 - COLLAGE AND ITS HISTORIES  
**Short Title:** COLLAGE AND ITS HISTORIES  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This class will explore the centrality of collage to the development of the 20th century art and film. Beginning with the seminal achievements of Picasso and Braque, we will examine works across geographical and medium boundaries, including Dada photomontage, early avant-garde film, 1960s happenings, and the reformulation of collage aesthetics in 1980s postmodernism. Graduate/Undergraduate Equivalency: HART 581. Mutually Exclusive: Cannot register for HART 381 if student has credit for HART 581.

HART 382 - MODALITIES OF CINEMA  
**Short Title:** MODALITIES OF CINEMA  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** In this course we will survey the range of organizing principles in cinema - the differing and combative ways cinema arranges its images and sounds. We will look at classicism, modernism, postmodernism and many other modes. The films will range from early silent pictures, to experimental shorts, to commercial blockbusters. Cross-list: FILM 382.
HART 383 - GLOBAL CINEMA
Short Title: GLOBAL CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to cinema as a global enterprise. It explores the relationship between nations, identities, races, concepts, and genres. It inquires into the question of globalization as it relates to the motion picture audience, corporations, and the commerce of ideas. Cross-list: FILM 383.

HART 385 - ARCHITECTURE AND LITERATURE IN ISLAMIC CULTURES
Short Title: ARCH AND LIT ISLAMIC CULTURES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buildings, objects, and texts are all cultural artifacts. When they intersect—when a building is inscribed with a poem or a literary text engages with a spatial reality—the result is a sophisticated product that combines visual and verbal modes of communication. Visual cultures of the Islamic lands abound with such examples, ranging from poetic epigraphy on buildings (as in the Alhambra) to versified descriptions of cities and monuments. This seminar will examine select works of Islamic art and architecture in relation to literary texts that engage with their aesthetic and functional aspects. Graduate/Undergraduate Equivalency: HART 587. Mutually Exclusive: Cannot register for HART 385 if student has credit for HART 587.

HART 386 - DADA
Short Title: DADA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Inaugurated against the calamitous backdrop of the First World War, "Dada," the artist Francis Picabia claimed, "smells of nothing, it is nothing, nothing, nothing." This seminar will examine the aesthetics of shock and nihilism (literally, 'nothingness'), developed by Dada in six cities: Zurich, Berlin, Cologne, Hannover, New York, and Paris. Graduate/Undergraduate Equivalency: HART 586. Mutually Exclusive: Cannot register for HART 386 if student has credit for HART 586.

HART 387 - HOLOCAUST MEMORY IN MODERN GERMANY
Short Title: HOLOCAUST MEMORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course traces and examines forms of Holocaust memory and memorialization in film, literature, art, architecture, city planning, museums, and memorials in Germany. For an additional credit hour, students will participate in a week-long trip to Berlin. Instructor Permission Required. Cross-list: GERM 351.

HART 388 - POST WAR EUROPEAN CINEMA
Short Title: POST WAR EUROPEAN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class surveys major developments in European cinema from the late 1940s to the late 1960s. Our study will include such movements as Italian Neorealism, German Rubble Films, French New Wave, and Soviet cinema in the Thaw. Particular attention will be paid to such issues as cinema and post-war reconstruction, memory and nation, and body and space. Cross-list: FILM 388. Graduate/Undergraduate Equivalency: HART 588. Mutually Exclusive: Cannot register for HART 388 if student has credit for HART 588.

HART 389 - JUSTICE AND CINEMA
Short Title: JUSTICE AND CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Why have film directors been drawn to criminal investigations and the search for justice since cinema's early years? This course examines films that represent court trials, investigate crimes and seek truth across different cultures over the last 100 years. Graduate/Undergraduate Equivalency: HART 589.
HART 391 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class investigates how sexuality has been constructed, avoided, celebrated, and suppressed in museums. In addition to studying a genealogy of sexual display and spectatorship in museums, students will also do the work of collectors, curators, and critics of artistic, historical, and scientific displays of sex and sexuality. Cross-list: SWGS 321.

HART 395 - ROMAN ARCHAEOLOGY: FIELD SCHOOL
Short Title: ROMAN ARCHAEOLOGY FIELD SCHOOL
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a traditional archaeological field course, taught in the Roman Forum. Techniques and advanced technologies for processing, conserving, and recording archeological materials are emphasized. Students will become familiar with procedures for ceramics, metals, plant and animal remains and building materials. Course work include lectures, hands-on excavation, and informal discussion. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 691. Mutually Exclusive: Cannot register for HART 391 if student has credit for HART 691.

HART 396 - MEDICAL HUMANITIES VISUAL CULTURE
Short Title: MED HUMANITIES VISUAL CULTURES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will examine literal and symbolic representations of the human body in order to explore the relations between the visibility of medicine, corporeality, subjectivity, and healing. Repeatable for Credit.

HART 397 - HART IN THE WORLD FIELD STUDY
Short Title: FIELD STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through on-site lectures, seminar discussions, museum visits, architectural itineraries, and field trips, this course will explore the complex political, social, and cultural histories of a major international metropolis. The city visited changes each time the course is offered; past locations have included Istanbul, Rome, and Rio de Janeiro. More information on upcoming locations is available at https://arthistory.rice.edu/opportunities/hart-world. Graduating students are not eligible. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 697. Mutually Exclusive: Cannot register for HART 397 if student has credit for HART 697. Repeatable for Credit.
Course URL: www.arthistory.rice.edu/opportunities/hart-world (http://www.arthistory.rice.edu/opportunities/hart-world)

HART 398 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY
Short Title: FROM EXPRESSIONISM TO FASCISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. Cross-list: GERM 339. Graduate/Undergraduate Equivalency: HART 596. Mutually Exclusive: Cannot register for HART 398 if student has credit for HART 596.

HART 399 - EXHIBITING SEXUALITIES
Short Title: EXHIBITING SEXUALITIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class investigates how sexuality has been constructed, avoided, celebrated, and suppressed in museums. In addition to studying a genealogy of sexual display and spectatorship in museums, students will also do the work of collectors, curators, and critics of artistic, historical, and scientific displays of sex and sexuality. Cross-list: SWGS 321.
HART 400 - BAYOU BEND UNDERGRADUATE INTERNSHIP I
Short Title: BAYOU BEND UG INTERNSHIP I
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Undergraduate Internship at Bayou Bend, the American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 603. Mutually Exclusive: Cannot register for HART 400 if student has credit for HART 603.

HART 401 - BAYOU BEND UNDERGRADUATE INTERNSHIP II
Short Title: BAYOU BEND UG INTERNSHIP II
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Undergraduate Internship at Bayou Bend and The American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Graduate/Undergraduate Equivalency: HART 604. Mutually Exclusive: Cannot register for HART 401 if student has credit for HART 604.

HART 402 - HONORS THESIS
Short Title: HONORS THESIS
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Honors thesis project in art history. Students must receive permission of the department faculty prior to enrolling. For additional information, please see Honors Program in the Rice University General Announcements. Department Permission Required.

HART 403 - HONORS THESIS
Short Title: HONORS THESIS
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Honors thesis project in art history. Students must receive permission of the department faculty prior to enrolling. For additional information, please see Honors Program in the Rice University General Announcements. Instructor Permission Required.

HART 404 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Cross-list: ARCH 412. Graduate/Undergraduate Equivalency: HART 612. Mutually Exclusive: Cannot register for HART 412 if student has credit for HART 612. Repeatable for Credit.
HART 413 - MURDER AND MODERNISM
Short Title: MURDER AND MODERNISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate/Undergraduate level students.
Description: This course will examine the grotesque in literature and art. It covers a variety of textual and visual sources across periods; theoretical materials will include works from literary studies, visual culture, art history, critical theory and aesthetics. Cross-list: ENGL 438.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

HART 427 - VISUAL CULTURE OF MEDIEVAL PILGRIMAGE
Short Title: MEDIEVAL PILGRIMAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate/Undergraduate level students.
Description: This seminar explores the rich visual culture associated with Medieval pilgrimage between the fourth and fifteenth centuries. The experience of pilgrimage was shaped by symbols, images, and places encountered along the routes to sites of sacred significance, especially the roads to Jerusalem, Rome, Santiago, and Canterbury. We will examine the theological, practical, visual, and experiential aspects of pilgrimage in Western Europe and the Holy Land as understood through visual culture and contemporary texts. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 527. Mutually Exclusive: Cannot register for HART 427 if student has credit for HART 527.

HART 431 - ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH CENTURY
Short Title: ARCH OF GOTHIC CATHEDRAL
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate/Undergraduate level students.
Description: This course will focus on one of the most important contributions to the history of western architecture—the Gothic cathedral. The course will approach the material from a number of different perspectives—the formal and technical development of Gothic architecture; the Medieval architect and the design of Gothic buildings, the social, economic, and political history of "big church" building in the Middle Ages; Gothic architecture as experience and metaphor; and the afterlife of the Gothic cathedral from Vasari to the National Cathedral in Washington, D.C. Cross-list: MDEM 431.

HART 433 - THE BAYEUX TAPESTRY AND THE ANGLO-NORMAN WORLD
Short Title: THE BAYEUX TAPESTRY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate/Undergraduate level students.
Description: This course focuses on one of the most important secular works from the middle ages—a 230-foot long embroidery depicting the Battle of Hastings. We will consider the relationship between the textual and visual narratives of the historical events; the tapestry as an artifact and its history; its origin, date, purpose and patronage of the tapestry; the artistic context of the tapestry in the eleventh century; issues of narratology; and reception and visibility in the century. Several eleventh- and twelfth-century texts such as the "Chanson de Roland," the "Lais" and the "Fables" of Marie de France, "Le Jeu d'Adam" and "La Vie de Saint Alexis" will be examined with particular attention to the authors’ desire to create a visual experience for the audience. Graduate/Undergraduate Equivalency: HART 533. Mutually Exclusive: Cannot register for HART 433 if student has credit for HART 533.

HART 434 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate/Undergraduate level students.
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: MDEM 434, SWGS 434. Graduate/Undergraduate Equivalency: HART 534. Mutually Exclusive: Cannot register for HART 434 if student has credit for HART 534.
HART 435 - MULTICULTURAL EUROPE, 1400-1700  
Short Title: MULTICULTURAL EUROPE, 1400-1700  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The art of Europe was never the product of a single culture working in isolation. This seminar will explore the multicultural aspects of medieval and early modern Europe by focusing on the visual culture of groups who defined themselves or are today defined by nationality, race, or religion. Cross-list: HIST 443, MDEM 435. Graduate/Undergraduate Equivalency: HART 535. Mutually Exclusive: Cannot register for HART 435 if student has credit for HART 535.  

HART 440 - ISSUES IN THE HISTORY OF PRINTS, PRE-MODERN TO PRESENT  
Short Title: ISSUES IN HISTORY OF PRINTS  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: With their distinctive technical, social, and commercial associations, prints are often sidelined in traditional art histories. This course will introduce recent scholarship on the multiple image from the late middle ages to the present, with stress on the transformations of printmaking from the development of photography into our digital age. Graduate/Undergraduate Equivalency: HART 640. Mutually Exclusive: Cannot register for HART 440 if student has credit for HART 640.  

HART 451 - MODELS OF ABSTRACTION  
Short Title: MODELS OF ABSTRACTION  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will examine a range of different models of abstract painting and sculpture as they appear throughout the twentieth century. Looking closely at the historical contexts that gave rise to abstraction particular attention will be paid to how apparently similar forms of abstraction can denote very different kinds of meaning. Graduate/Undergraduate Equivalency: HART 551. Mutually Exclusive: Cannot register for HART 451 if student has credit for HART 551.  

HART 452 - MANET(S) AND MODERNISM(S)  
Short Title: MANET(S) AND MODERNISM(S)  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar considers the pivotal figure of Edouard Manet. Combining a study of paintings from throughout his career, with close readings of primary sources, we will assess the key aspects of his style and subject matter. We will also consider art historical to his work and relationship to modernity. Graduate/Undergraduate Equivalency: HART 552. Mutually Exclusive: Cannot register for HART 452 if student has credit for HART 552.  

HART 457 - VIDEO AND EXPANDED CINEMA  
Short Title: VIDEO AND EXPANDED CINEMA  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar explores the emergence of video and "expanded cinema" as a primary field of artistic practice over the course of the 1960s and 1970s. We will examine seminal works by artists including Andy Warhol, Dan Graham, and Robert Whitman as well as the shifting aesthetic, political, and media landscapes in which this work emerged. Cross-list: FILM 455. Graduate/Undergraduate Equivalency: HART 557. Mutually Exclusive: Cannot register for HART 457 if student has credit for HART 557.  

HART 460 - CHINESE BUDDHIST WOODCUTS 850-1450  
Short Title: CHINESE BUDDHIST WOODCUTS 850-1450  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will study woodblock print illustrations in the context of cultural change. Buddhism and printing have been closely related since the dawn of the age of print. Many scriptures reproduced by woodblock printing were imbedded with illustrations, which themselves offer an effective tool to study cultural transformation. The seminar draws sources from both images and texts. Its cross-cultural perspective highlights nomads and non-Chinese peoples as agents of cultural transformation, with additional visual comparisons from Korean, Japanese, and Islamic traditions. In addition to weekly discussions, the final evaluation includes a research paper and a 30-minute presentation. Students should have an advanced background in Chinese art to take this seminar. Readings will include both Chinese and English sources. Some classes will meet at area museums. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 661. Recommended Prerequisite(s): HART 372 or ASIA 372; students should have Chinese reading skills. Mutually Exclusive: Cannot register for HART 460 if student has credit for HART 661.
HART 461 - ART OF THE 60s AND 70s
Short Title: ART OF THE 60s AND 70s
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: By all accounts the 1960s and 1970s marked one of the most vibrant, experimental, audacious, and - above all - contentious periods in the history of avant-garde modernism. This seminar will examine the momentous shift from the international dominance of American Abstract Expressionism in the 1950s to a wide array of global counter-movements in the 1960s and 70s. Possible topics include: Happenings, Minimalism, Fluxus, Conceptualism, Nouveau Realisme, Body Art, Structuralist Film, Gutai, Light and Space, Noeconretism, Arte Povera, The Situationist International, etc. Graduate/Undergraduate Equivalency: HART 559. Mutually Exclusive: Cannot register for HART 461 if student has credit for HART 559.

HART 463 - PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY
Short Title: PRACTICING UTOPIA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will explore the alliance between aesthetics, science, and ideology at the core of French and Latin American modernism. Focusing on early twentieth-century scientific and cultural dialogues between France and Latin America, this seminar will have as main territories of exploration: Paris, Rio de Janeiro, Buenos Aires, Havana, and Caracas. Cross-list: ARCH 452. Graduate/Undergraduate Equivalency: HART 563. Mutually Exclusive: Cannot register for HART 463 if student has credit for HART 563.

HART 465 - LATIN AMERICAN BODIES: ON MODERNISM
Short Title: LATIN AMER BODIES:ON MODERNISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine theories and practices of modernism and modernization within Latin America-Europe Dialogues. Designed as a laboratory of ideas and forms, this seminar will probe critical perspectives on art and architecture's relation to society and science. Each week, we will examine a theorist, an artist, and an architect. Graduate/Undergraduate Equivalency: HART 566. Mutually Exclusive: Cannot register for HART 465 if student has credit for HART 566.

HART 473 - EVOLUTION CUSTOM BUILT: ARCHITECTURE, GENETICS, AND THE ANTHROPOCENE
Short Title: EVOLUTION CUSTOM BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the twentieth century, architects, scientists, engineers and technocrats attempted to free humanity from the constraints of nature ...and were met with developments in science and technology sufficient to do so. Tracking the late nineteenth and twentieth century techno-scientific impetus to re/design the shape of the future, from the level of genes to the scale of the built environment, this seminar combines investigations and theories of landscape, object oriented ontology, architecture and ecocriticism. In the first part of the course, we'll unpack the history of modern agrilogistic thought, which projected empty, unoccupied space for opportunity and development onto otherwise occupied chromosomes, cultures and landscapes. The second section of this seminar traces the drive to order the biological world, using logics of efficiency and accountability, by reordering developments in energy, industry and resource development through the lens of object oriented ontology. Finally, we'll reconsider developments in the plant, animal and human sciences which bolstered humanity's twentieth century hubris, from the birth of genetics to the role radiation played in liberating plant breeding from the confines of Mendelian crosses. Graduate students will have six additional readings and extra presentations of the landscape and architecture projects for two given weeks, per student. Graduate/Undergraduate Equivalency: HART 573. Mutually Exclusive: Cannot register for HART 473 if student has credit for HART 573.

HART 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HART 480 - SEMINAR ON FILM AUTHORSHIP. THE NEW HOLLYWOOD
Short Title: SEMINAR ON FILM AUTHORSHIP
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. Cross-list: ARTS 435, FILM 435.
HART 481 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS  
**Short Title:** AUTEUR FILM  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: FILM 485. Equivalency: HART 283. Mutually Exclusive: Cannot register for HART 481 if student has credit for HART 283.

HART 482 - CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE  
**Short Title:** CAESAR'S PALACE  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Described as both a “Hall of Despotism” and a “Citadel of Majesty,” the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperors. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Cross-list: CLAS 482. Graduate/Undergraduate Equivalency: HART 582. Mutually Exclusive: Cannot register for HART 482 if student has credit for HART 582.

HART 493 - WALTER BENJAMIN, MEDIA & MODERNITY  
**Short Title:** WALTER BENJAMIN  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This seminar will examine the key theoretical writings on media and modernity by Walter Benjamin, one of the first twentieth-century critics to place new forms of visual experience and technology at the center of his understanding of modern life. The course will pay particular attention to Benjamin's writings on urbanism, film and photography, and the ways in which these relate to avant-garde practices such as Dada, Surrealism, and New Objectivity (Neue Sachlichkeit). Graduate/Undergraduate Equivalency: HART 593. Mutually Exclusive: Cannot register for HART 493 if student has credit for HART 593.

HART 495 - READINGS IN MEDIA HISTORY AND THEORY  
**Short Title:** READINGS IN MEDIA HISTORY  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Understanding “media” broadly, this class explores a range of historical and theoretical readings around the term. Typewriters, photography and television will be among our topics, guided by two primary questions: how have developments in media affected, even determined, human perception and communication, and how have artists and critics responded to such changes? Graduate/Undergraduate Equivalency: HART 595. Mutually Exclusive: Cannot register for HART 495 if student has credit for HART 595.

HART 501 - INTERNSHIP PROGRAM II  
**Short Title:** MUSEUM INTERNSHIP  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate credit for work as museum intern at a variety of museums. Instructor Permission Required. Repeatable for Credit.

HART 503 - GRADUATE RESEARCH PAPER  
**Short Title:** GRADUATE RESEARCH PAPER  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate research paper.  

HART 504 - INDEPENDENT STUDY  
**Short Title:** INDEPENDENT STUDY  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 3-6  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate independent study, reading and research on variable topics. Instructor Permission Required. Repeatable for Credit.
HART 505 - POST WAR: ART IN EUROPE, 1945-2000
Short Title: ART IN EUROPE, 1945-2000
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the heterodox individual artistic practices and movements in post-World-War Two Europe. Focusing on the countries of France, Belgium, The Netherlands, Germany, Italy, England, and the Soviet Union, particular attention will be given to the post-war reconstruction of the Marshall Plan, economic austerity and recovery, the French colonial war in Algeria, the legacy of the German occupation, the rise of the student movement and the protests of May '68, Stalinism and the cold war, and the national guilt of the Holocaust. In addition to weekly readings, each graduate student will be responsible for an 18-25 page paper and a 30 minute presentation. Graduate/Undergraduate Equivalency: HART 305. Mutually Exclusive: Cannot register for HART 505 if student has credit for HART 305.

HART 506 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE II (1850-1950)
Short Title: FOUNDATIONS IN ARCH II
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ARCH 345 or ARCH 645 or HART 345 or HART 645
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated by 1850 and 1950. Cross-list: ARCH 646.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 507 - MURDER AND MODERNISM
Short Title: MURDER AND MODERNISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: "Murder, George Orwell lamented in his 1946 essay "Decline of the English Murder," isn't what it used to be. Unlike what he calls "our great period in murder" - roughly 1850 to the beginning of the Second World War - contemporary murder has lost its aesthetic appeal. "There is," he writes, "no depth of feeling in it." This class will examine the modernist fascination with murder, asking not only why it became a topic of such particular interest to artists, writers, and filmmakers during this time, but what it can tell us about modernist aesthetics more broadly." Graduate/Undergraduate Equivalency: HART 413. Mutually Exclusive: Cannot register for HART 507 if student has credit for HART 413.

HART 508 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and/or Turkish helpful but not necessary. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: ARCH 518. Graduate/Undergraduate Equivalency: HART 308. Mutually Exclusive: Cannot register for HART 508 if student has credit for HART 308.

HART 509 - THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETERNAL CITY
Short Title: THE DAWN OF ROME
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture the reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Graduate students will be expected to complete all the requirements of this class in addition to writing a substantial research paper at the end of the semester. Graduate/Undergraduate Equivalency: HART 309. Mutually Exclusive: Cannot register for HART 509 if student has credit for HART 309.
HART 510 - ARCHITECTURE AND DYNASTIC ASPIRATION IN THE EARLY ROMAN EMPIRE
Short Title: ARCH AND DYNASTIC ASPIRATIONS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Nero is often remembered as the tyrannical emperor who let the city burn and gorged on ill-gotten luxury; his successors conceived as good emperors who built the Coliseum, Imperial Palace and the vast majority of Rome's remaining monuments. In this course you will question whether things were so straightforward. Graduate Students will be expected to complete additional readings and write a substantial research paper, due at the end of the semester. Mutually Exclusive: Cannot register for HART 510 if student has credit for HART 410.

HART 511 - ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST
Short Title: ANCIENT NEAR EAST
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An in-depth examination of the art and archaeology of ancient Mesopotamia, Syria, Anatolia and Persia. Beginning in The Neolithic period, we will examine the development of Near Eastern art and architecture through the study of ancient sites and their associated material culture. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 311. Mutually Exclusive: Cannot register for HART 511 if student has credit for HART 311.

HART 512 - PLATFORMS OF KNOWLEDGE IN A WIDE WEB OF WORLDS
Short Title: PLATFORMS OF KNOWLEDGE
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this seminar is to explore, critique, and experience online platforms in the field of Digital Art History (e.g., image repositories, e-learning, publishing, collaborative research, crowd-sourced, etc.) that uphold the academic mission to disseminate knowledge by enabling teachers, students and researchers to discover, analyze, share information without regard to barriers of space and time, and publish work widely. Advanced digital technologies, after all, do allow researchers to handle large volumes of digitized images and texts, trace patterns and connections formerly hidden from view, recover the past in virtual environments, and bring the complex intricacies of works of art to light as never before. The latest tools and techniques, however, raise questions about what counts as expertise, who controls access to information, what gets lost in translation, what power is likely to shift from educational institutions to profit-seeking companies, how the privileging of quantification and metrics affects humanistic wisdom, and how academic autonomy and diversity can ultimately be disrupted. A final presentation is required.

HART 514 - ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS
Short Title: ART AND ACTIVISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How have art and activism in the Americas from the early 20th century to today informed and fed one another? Moving between South and North America, this seminar study artists and collectives that have confronted, in isolation or with intersectionality in mind, indigenous rights, gender equality, LGBT+ rights, and systemic racism. The course is organized around artwork and activism grouped within three loose themes: race and disenfranchisement; gender and sexuality; and ecology and capitalism. From graphic art employed by the Black Panthers to photographic essays in defense of ways of life in the Amazon Basin of northern Brazil, "Art and Activism" will offer a chance to contemplate, study, and debate visual and performative projects that have endeavored (or continue to try) to effect social change. Graduate Students will write a 20-25 page (not counting bibliography and illustrations) final research paper; undergraduate students will submit a paper 10-12 pages in length. Some class meetings may be held at area cultural spaces. Graduate/Undergraduate Equivalency: HART 315.
HART 515 - OTTOMAN EMPIRE
Short Title: OTTOMAN EMPIRE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate seminar examines different approaches to study of modernity and modernization in the Ottoman Empire from the onset of the Tanzimat reforms in 1839 until after WWI and the empire's demise. By engaging equally the social and spatial dimensions of the major societies, including Istanbul, Damascus, Beirut, Cairo, and Izmir we will explore the various meanings of modernity and modernization as these reflect at the urban architectural scales, in urban life, in localized discourses on the city, through such emerging institutions as the museum, and the context of expanding migration and global works.

HART 516 - CITY & FESTIVAL: CULT PRACTICES & THE ARCHITECTURAL PRODUCTION IN THE ANcient GRECO-ROMAN WORLD
Short Title: CITY AND FESTIVAL
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How do social events, festivals, cult practices, public spectacles shape a city? The course will explore what makes a city in the first place, and attempt to make sense of the fragmentary archaeological evidence from the ancient Greco-Roman world in understanding, reconstructing cities. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester.

HART 517 - MODERN ART AND MONSTROSY
Short Title: MODERN ART AND MONSTROSY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Why is it that in the modern era, beginning around the middle of the eighteenth century, artists begin to see various forms of monstrosity in aesthetic terms – as something beautiful? What is it about the modern period that accounts for this shift in how monstrosity is represented and understood and how does it differ from earlier historical images of the monster? This class will examine the modernist fascination with monstrosity, asking why it became a topic of such interest to artists, writers, and filmmakers during this time, and what it can tell us about modernist aesthetics more broadly. Examining a range of representations from the 18th century on, we will look at visual artists, filmmakers, and novelists who depict various forms of monsters, be they human (Jack the Ripper) or non-human (the Golem). From Mary Shelley's Frankenstein and the myth of the vampire, to Picasso's monstrous images of 1920s, to the distinctly modern phenomenon of serial killing, this course will chart the dark monstrous underside to modern art. Graduate students will be required to give two twenty-minute presentations in class, and write two papers, one short (10-12 pages) and one long (20-30 pages). Graduate/Undergraduate Equivalency: HART 517. Mutually Exclusive: Cannot register for HART 517 if student has credit for HART 317.

HART 518 - LITERATURE AND VISUAL ART
Short Title: LITERATURE AND VISUAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the relationship between literature and visual art. It covers a variety of textual and visual sources; theoretical materials will include works from literary studies, visual culture, art history, critical theory and aesthetics. Cross-list: ENGL 525. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
HART 519 - ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES

Short Title: ARCHITECTURE ISLAMIC EMPIRES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: During the early modern period, ca. 1500-1800, around one-third of the world's human population inhabited territories that were ruled by three empires: the Ottomans in the eastern Mediterranean, the Safavids in the Iranian plateau, and the Mughals in South Asia. This period saw a surge in production of architectural monuments (such as the Taj Mahal), the emergence of cosmopolitan cities (such as Istanbul and Isfahan), and the expansion of the public sphere in gardens, promenades, and coffeehouses. This course examines the architecture, urbanism, and material culture of these three empires in the context of global trade, representations of power, and urban life in the capital cities of Istanbul, Isfahan, and Delhi. Graduate students will be expected to write short paper during the semester as well as a 20-page research paper at the end of the semester. Graduate/Undergraduate Equivalency: HART 321.

HART 521 - IMPERIAL CITY: ISTANBUL 1453-1922

Short Title: ISTANBUL IMPERIAL CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman Empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: ARCH 521. Graduate/Undergraduate Equivalency: HART 321. Mutually Exclusive: Cannot register for HART 521 if student has credit for HART 321.

HART 522 - JERUSALEM TO ISFAHAN

Short Title: JERUSALEM TO ISFAHAN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester.

HART 523 - THE MEDITERRANEAN WORLD

Short Title: THE MEDITERRANEAN WORLD
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester.

HART 524 - PERSIANATE ARTS OF THE BOOK

Short Title: PERSIANATE BOOK ARTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester.

HART 525 - THE MEDITERRANEAN WORLD

Short Title: THE MEDITERRANEAN WORLD
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester.
HART 525 - LOOKING AT PRINTS 1400-1700
Short Title: LOOKING AT PRINTS 1400-1700
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The class has several goals: to gain a thorough historical understanding of prints by major masters as Schongauer, Mantegna, Durer, and Rembrantd as well as more popular prints, explore key issues in the study of prints, such as how they revolutionized European culture, their patronage, markets, functions, and techniques; and to examine the prints first-hand. Graduate students are expected to complete all the requirements in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 333. Mutually Exclusive: Cannot register for HART 525 if student has credit for HART 333.

HART 526 - BRAZIL BUILT: THE CLINIC, THE TROPICAL AND THE AESTHETIC
Short Title: BRAZIL BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: From Brazil Builds, MOMA's 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today's worldwide attention on Brazil, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: ARCH 515. Graduate/Undergraduate Equivalency: HART 310. Mutually Exclusive: Cannot register for HART 526 if student has credit for HART 310.

HART 527 - VISUAL CULTURE OF MEDIEVAL PILGRIMAGE
Short Title: MEDIEVAL PILGRIMAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the rich visual culture associated with Medieval pilgrimage between the fourth and fifteenth centuries. The experience of pilgrimage was shaped by symbols, images, and places encountered along the routes to sites of sacred significance, especially the roads to Jerusalem, Rome, Santiago, and Canterbury. We will examine the theological, practical, visual, and experiential aspects of pilgrimage in Western Europe and the Holy Land as understood through visual culture and contemporary texts. Graduate students will meet with the professor every other week to discuss 16 additional recommended readings - beyond those assigned to the undergraduates - and to discuss the progress of their 20-25 page research paper. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 427. Mutually Exclusive: Cannot register for HART 527 if student has credit for HART 427.

HART 529 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: ARCH 529. Graduate/Undergraduate Equivalency: HART 329. Mutually Exclusive: Cannot register for HART 529 if student has credit for HART 329.

HART 530 - EARLY MEDIEVAL ART
Short Title: EARLY MEDIEVAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 330. Mutually Exclusive: Cannot register for HART 530 if student has credit for HART 330.

HART 531 - GOTHIC ART
Short Title: GOTHIC ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 331. Mutually Exclusive: Cannot register for HART 531 if student has credit for HART 331.
HART 532 - ART OF THE COURTS  
Short Title: ART OF THE COURTS  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 332. Mutually Exclusive: Cannot register for HART 532 if student has credit for HART 332.

HART 533 - THE BAYEUX TAPESTRY AND THE ANGLO-NORMAN WORLD  
Short Title: THE BAYEUX TAPESTRY  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course focuses on the most important secular work from the Middle Ages—a 230-foot long embroidery depicting the Battle of Hastings. We will consider the relationship between the textual and visual narratives of the historical events; the tapestry as an artifact and its history; its origin, date, purpose and patronage; the artistic context of the tapestry in the eleventh century; issues of narratology; and reception and visuality. Several eleventh- and twelfth-century texts such as the "Chanson de Roland," the "Lais" and the "Fables" of Marie de France, "Le Jeu d'Adam" and "La Vie de Saint Alexis" will be examined with particular attention to the authors' desire to create a visual experience for the audience. Graduate students will work on a more advanced level than undergraduate students with higher expectations and additional readings. They will meet on a regular basis outside of the weekly class to advance discussion of issues brought up in the class. Research projects undertaken by graduate students are expected to be done in multiple languages (especially French and German), and in addition to demonstrating a knowledge of the subject matter as it appears in the scholarship, they will be expected to critically evaluate this scholarship and begin to draw their own conclusions. Graduate/Undergraduate Equivalency: HART 433. Mutually Exclusive: Cannot register for HART 533 if student has credit for HART 433.

HART 534 - SEEING SEX IN EUROPEAN ART, 1400-1700  
Short Title: SEEING SEX IN EUROPEAN ART  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: SWGS 534. Graduate/Undergraduate Equivalency: HART 434. Mutually Exclusive: Cannot register for HART 534 if student has credit for HART 434.

HART 535 - MULTICULTURAL EUROPE, 1400-1700  
Short Title: MULTICULTURAL EUROPE,1400-1700  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The art of Europe was never the product of a single culture working in isolation. This seminar will explore the multicultural aspects of medieval and early modern Europe by focusing on the visual culture of groups who defined themselves or are today defined by nationality, race, or religion. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all the readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss the interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 435. Mutually Exclusive: Cannot register for HART 535 if student has credit for HART 435.

HART 536 - CINEMA AND THE CITY  
Short Title: CINEMA AND THE CITY  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 336. Mutually Exclusive: Cannot register for HART 536 if student has credit for HART 336.
HART 538 - RENAISSANCE GOTHIC ARCHITECTURE
Short Title: RENAISSANCE GOTHIC ARCHITECTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the architecture constructed in northern Europe between 1450 and 1550 bridging the gap between the end of the Middle Ages and the Early Modern Period. The ambiguous term of "Renaissance Gothic" has been coined to describe a form of architecture that straddles two fundamentally different periods with radically different approaches to the meaning, function and form of architecture. We will explore why and how Gothic architecture, the dominant style of church building for almost 350 years, was abandoned in favor of a new imported form.

HART 539 - AMERICAN ART AND ARCHITECTURE I: 1620-1800
Short Title: AMERICAN ART: 1620-1800
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Painting, architecture, urban design, and the decorative arts in the colonies and early United States. Highlights will include design at Monticello and Mount Vernon; the portraiture of John Singleton Copley; Georgian and Federal-period architecture in Boston, New York, Williamsburg, and Philadelphia; and Spanish and Dutch colonial art and architecture. Graduate/Undergraduate Equivalency: HART 339. Mutually Exclusive: Cannot register for HART 539 if student has credit for HART 339.

HART 540 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Cross-list: MUCH 508. Graduate/Undergraduate Equivalency: HART 312. Mutually Exclusive: Cannot register for HART 540 if student has credit for MUCH 508.

HART 541 - EARLY RENAISSANCE ART IN ITALY
Short Title: EARLY RENAISSANCE ART IN ITALY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the High Renaissance, with emphasis on its leading masters (e.g., Leonardo, Raphael, Bramante, Michelangelo, and Titian). Includes a study of mannerism, the stylish art produced after the first quarter of the 16th century. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 341. Mutually Exclusive: Cannot register for HART 541 if student has credit for HART 341.

HART 542 - THE HIGH RENAISSANCE AND MANNERISM IN ITALY
Short Title: HIGH RENAISSANCE/MANNERISM ITALY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of Italian art and architecture from Giotto to Botticelli, with emphasis on painting and sculpture in the 15th century. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 342. Mutually Exclusive: Cannot register for HART 542 if student has credit for HART 342.

HART 543 - MASTERS OF THE BAROQUE ERA
Short Title: MASTERS OF THE BAROQUE ERA
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 343. Mutually Exclusive: Cannot register for HART 543 if student has credit for HART 343.
HART 544 - CAPITALISM AND CULTURE
Short Title: CAPITALISM AND CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the way European culture, especially art, was shaped by the rise of the monetary economy and capitalism, beginning in the late Middle Ages and continuing into modern times. Faculty will meet separately on a bi-weekly basis with graduate students in the class who will also be assigned extra readings. Graduate work will be evaluated on a more challenging scale, with particular attention to methodological and interpretive rigor. Graduate/Undergraduate Equivalency: HART 344. Mutually Exclusive: Cannot register for HART 544 if student has credit for HART 344.

HART 545 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: ARCH 525. Graduate/Undergraduate Equivalency: HART 225. Mutually Exclusive: Cannot register for HART 545 if student has credit for HART 225.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 546 - PICASSO, POLLOCK, WARHOL
Short Title: PICASSO, POLLOCK, WARHOL
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will look in detail at three of the twentieth century’s most important artists: Pablo Picasso, Jackson Pollock, and Andy Warhol. Our central focus in doing so will be painting, in particular, the means by which these three artists tested, expanded or even "destroyed" the medium. What did it mean to make (or reject) painting in 1910, 1950, and 1965? Special attention will be paid to recent scholarly literature and close looking at works in local collections. Graduate/Undergraduate Equivalency: HART 334. Mutually Exclusive: Cannot register for HART 546 if student has credit for HART 334.

HART 547 - CONSTABLE AND TURNER
Short Title: CONSTABLE AND TURNER
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will explore critical issues surrounding the careers of John Constable and J.M.W. Turner, arguably the greatest landscape painters of the early 19th century. We will look at both similarities and differences in the work of these two rivals, while considering their work in the context of great historical change in England. Graduate students will be required to do additional reading in addition to those already assigned. Graduate/Undergraduate Equivalency: HART 357. Mutually Exclusive: Cannot register for HART 547 if student has credit for HART 357.

HART 548 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. This course is taught in Spanish. Graduate students will be required to complete all the requirements for the course in addition to writing a substantial research paper at the end of the semester. This is the credit for the actual trip to Cuba. Graduate/Undergraduate Equivalency: HART 348. Mutually Exclusive: Cannot register for HART 548 if student has credit for HART 348.

HART 549 - TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING, 13TH-20TH CENTURIES
Short Title: TECHNICAL ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Art historians, especially in the United States, tend to rely on photographs, but a study of the actual object is invaluable in studying works of art. This course aims to inform students about the technical study of art, which in the last fifty years has become a major field of research. Most classes will be held at the Museum of Fine Arts, Houston, or other Houston collections. Graduate/Undergraduate Equivalency: HART 307. Mutually Exclusive: Cannot register for HART 549 if student has credit for HART 307.
HART 551 - MODELS OF ABSTRACTION  
Short Title: MODELS OF ABSTRACTION  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine a range of different models of abstract painting and sculpture as they appear throughout the twentieth century. Looking closely at the historical contexts that gave rise to abstraction particular attention will be paid to how apparently similar forms of abstraction can denote very different kinds of meaning. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 451. Mutually Exclusive: Cannot register for HART 551 if student has credit for HART 451.

HART 552 - MANET(S) AND MODERNISM(S)  
Short Title: MANET(S) AND MODERNISM(S)  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar considers the pivotal figure of Edouard Manet. Combining a study of paintings from throughout his career, with close readings of primary sources, we will assess the key aspects of his style and subject matter. We will also consider art historical to his work and relationship to modernity. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 354. Mutually Exclusive: Cannot register for HART 552 if student has credit for HART 354.

HART 553 - NORTHERN RENAISSANCE ART  
Short Title: NORTHERN RENAISSANCE ART  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 340. Mutually Exclusive: Cannot register for HART 553 if student has credit for HART 340.

HART 554 - AGE OF ROMANTICISM IN EUROPE  
Short Title: AGE OF ROMANTICISM IN EUROPE  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will consider the emergence and flourishing of Romanticism in the visual arts in Europe. We will consider artists from France, Germany and Britain, including Eugene Delacroix, J.M.W. Turner, John Constable and Caspar David Friedrich. We will combine study of paintings with readings of contemporaneous philosophers and writers, including Hegel and Byron. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 355. Mutually Exclusive: Cannot register for HART 554 if student has credit for HART 355.

HART 555 - JACQUES-LOUIS DAVID: REVOLUTION  
Short Title: JACQUES-LOUIS DAVID: REVOLUTION  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 355. Mutually Exclusive: Cannot register for HART 555 if student has credit for HART 355.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>HART 556</td>
<td>SEX AND MONEY: THE SPECIES DIVIDE</td>
<td>SEX &amp; MONEY:THE SPECIES DIVIDE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This course will explore issues surrounding sex and money in medieval and early modern Europe and their impact on visual representations of both humans and non-humans. It will introduce students to such theories as feminism, Marxism, and posthumanism as well as medieval beliefs about the Seven Deadly Sins. Some course meetings will take place at Houston-area museums where students will engage with artworks in person. Graduate students will work on a more advanced level than undergraduate students with higher expectations and additional readings. Graduate students will be expected to complete all requirements of the class and will meet an additional seven times to discuss the interpretive and methodological ideas associated with the readings and their research papers. Graduate/Undergraduate Equivalency: HART 356.</td>
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<td>HART 557</td>
<td>VIDEO AND EXPANDED CINEMA</td>
<td>VIDEO AND EXPANDED CINEMA</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This seminar explores the emergence of video and “expanded cinema” as a primary field of artistic practice over the course of the 1960s and 1970s. We will examine seminal works by artists including Andy Warhol, Dan Graham, and Robert Whitman as well as the shifting aesthetic, political, and media landscapes in which this work emerged. For each lecture, Graduate students will be assigned readings. They will write an annotated bibliography of all the readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 457. Mutually Exclusive: Cannot register for HART 557 if student has credit for HART 457.</td>
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<td>HART 558</td>
<td>IMPRESSIONISM AND POST-IMPRESSIONISM</td>
<td>IMPRESSIONISM/POST-IMP</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This class will explore painting in France from approximately 1865 to 1900. Mixing lectures and classroom discussion, we will focus on individual artists including Claude Monet, Edgar Degas, Mary Cassatt, Georges Seurat, Vincent van Gogh, and Paul Czanne. We will also consider and discuss a set of critical issues surrounding these painters, including the politics of gender and class within the changing urban setting of Paris. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 358. Mutually Exclusive: Cannot register for HART 558 if student has credit for HART 358.</td>
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<td>HART 559</td>
<td>ART OF THE 60s AND 70s</td>
<td>ART OF THE 60s AND 70s</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This course will explore the momentous shift from the international dominance of American Abstract Expressionism in the 1950s to a wide array of global counter-movements in the 1960s and 70s. Possible topics include: Happenings, Minimalism, Fluxus, Conceptualism, Nouveau Realisme, Body Art, Structuralist Film, Gutai, Light and Space, Noeconretism, Arte Povera, The Situationist International, etc. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper. Graduate/Undergraduate Equivalency: HART 461. Mutually Exclusive: Cannot register for HART 559 if student has credit for HART 461.</td>
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<tr>
<td>HART 560</td>
<td>WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS</td>
<td>WHAT IS CINEMA?</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Using a variety of readings now considered classics as our guide, this class will look closely at a broad range of films and film movements discussed by critics and theorists such as Rudolf Arnheim, Jean Epstein, Sergei Fisenstein, Walter Benjamin and Andre Bazin. Graduate students will be assigned additional readings and will be required to write a substantial research paper (20-25 pages). Graduate/Undergraduate Equivalency: HART 361. Mutually Exclusive: Cannot register for HART 560 if student has credit for HART 360.</td>
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HART 562 - UPCYCLING: MEANINGFUL REUSE IN ART AND MONUMENTS FROM ANTIQUITY TO TODAY
Short Title: UPCYCLING
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this seminar, we will explore the phenomenon of upcycling - intentionally meaningful reuse - by investigating the intersection of reuse and memory in the art and monuments of many different times, places, and people, from prehistory to the modern art that surrounds us on the Rice campus. Graduate students will be assigned up to 10 additional readings over the semester and complete a 15-20 page final paper. Graduate/Undergraduate Equivalency: HART 362. Mutually Exclusive: Cannot register for HART 562 if student has credit for HART 362.

HART 563 - PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY
Short Title: PRACTICING UTOPIA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will explore the alliance between aesthetics, science, and ideology at the core of French and Latin American modernism. Focusing on early twentieth-century scientific and cultural dialogues between France and Latin America, this seminar will have as main territories of exploration: Paris, Rio de Janeiro, Buenos Aires, Havana, and Caracas. Graduate/Undergraduate Equivalency: HART 463. Mutually Exclusive: Cannot register for HART 563 if student has credit for HART 362.

HART 564 - GENDER AND SEXUALITY IN FILM
Short Title: GENDER AND SEXUALITY IN FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines how cinema has reflected, shaped and critiqued cultural understandings of gender and sexuality over the last 100 years. By pairing film analysis with critical readings in gender and sexuality studies, we will explore the development of sexual and gender conventions--as well as their transgressions--on screen across diverse historical periods and cultures. Each graduate student will be required to submit a final 20-25 pp. paper. Graduate/Undergraduate Equivalency: HART 364.

HART 565 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. Course taught in Spanish. Graduate students will be expected to complete all the requirements of the course in addition to writing a research paper at the end of the semester. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 304. Mutually Exclusive: Cannot register for HART 565 if student has credit for HART 304.

HART 566 - LATIN AMERICAN BODIES: ON MODERNISM
Short Title: LATIN AMER BODIES: ON MODERNISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine theories and practices of modernism and modernization within Latin America-Europe Dialogues. Designed as a laboratory of ideas and forms, this seminar will probe critical perspectives on art and architecture's relation to society and science. Each week, we will examine a theorist, an artist, and an architect. Graduate students will be expected to complete all the requirements in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 465. Mutually Exclusive: Cannot register for HART 566 if student has credit for HART 465.
HART 567 - ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE  
**Short Title:** ARCHITECTURES POWER RESISTANCE  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This seminar adopts a global approach to examine architecture and the built environment as sites of power, resistance, and coexistence. Through a series of case studies spanning the globe, from Central Asia to the Mediterranean to the Americas, we will explore how architectural works--monuments, buildings, urban plans, indigenous settlements, refugee camps--exercised authority, resisted domination, and/or created settings for coexistence. Topics to discuss include cross-cultural interactions in medieval Iberia (Spain/Portugal); Nineteenth-century Orientalist architecture and its discontents; the interwoven complexity of infrastructures, race, and gender in early twentieth century South America; the spaces and politics of U.S. assistance programs during the era of "development" across the Global South; and environmental diasporas and indigenous reclamation from the Amazon to Sub-Saharan Africa in present days. Graduate students will submit an in-depth research proposal and paper and will give a formal presentation on their research paper in the seminar. This course occasionally meets at an area museum during the semester. Graduate/Undergraduate Equivalency. HART 367. Mutually Exclusive: Cannot register for HART 567 if student has credit for HART 467.

HART 568 - FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE  
**Short Title:** ART, ARCHITECTURE AND NATURE  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This seminar considers theories and narratives of nature in the crafting of modern and contemporary art and architecture in the Americas. Artists and architects will include Maria Fernanda Cardoso, Rogelio Salmona (Colombia); Ana Mendieta, Ricardo Porro (Cuba); Ana Maria Tavaraes, Lina Bo Bardi (Brazil); Mark Dion and Buckminster Fuller (USA). For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 302. Mutually Exclusive: Cannot register for HART 568 if student has credit for HART 302.

HART 569 - STATE OF THE ART  
**Short Title:** STATE OF THE ART  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** What is the current state of the art historical field? Looking at contemporary scholarship across a range of historical periods, the class will introduce students to a selection of some of the most important, ground-breaking, and/or influential writings in art history produced in the last 25 years or so. Paying particular attention to an array of recent trends, methodologies, and political interventions, this class will examine some of the most pressing questions, debates, and advanced interdisciplinary theories within current art historical practice. In addition to the presentations and short-analysis paper (4-5 pages) required for the undergraduate-level course, the graduate-level course requires a final paper of 20-25 pages. Graduate/Undergraduate Equivalency: HART 369. Mutually Exclusive: Cannot register for HART 569 if student has credit for HART 369. Repeatable for Credit.

HART 570 - TRENDS IN CONTEMPORARY ART  
**Short Title:** TRENDS IN CONTEMPORARY ART  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This seminar will map the terrain of contemporary art as it has developed in the wake of political and theoretical engagements of the 1990's. For many critics, Contemporary Art practice has given way to the worst aspects of spectacular culture losing sight of the political, theoretical, and artistic rigor that characterized the historical and neo-avant-garde. Graduate students will be assigned 1-2 additional readings each week and prepare a final seminar paper of 20-30 pages. Graduate/Undergraduate Equivalency: HART 349. Mutually Exclusive: Cannot register for HART 570 if student has credit for HART 349.

HART 571 - CHINESE PAINTING  
**Short Title:** CHINESE PAINTING  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course examines Chinese painting from ancient times to the early twentieth century. Issues of examination include themes, styles, and functions of Chinese painting; the interrelationship between paintings and the intended viewers; regionalism; images and words; foreign elements in Chinese painting. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 371. Mutually Exclusive: Cannot register for HART 571 if student has credit for HART 371.
HART 573 - EVOLUTION CUSTOM BUILT: ARCHITECTURE, GENETICS, AND THE ANTHROPOCENE

Short Title: EVOLUTION CUSTOM BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Description: In the twentieth century, architects, scientists, engineers and technocrats attempted to free humanity from the constraints of nature and were met with developments in science and technology sufficient to do so. Tracking the late nineteenth- and twentieth-century techno-scientific impetus to re/design the shape of the future, from the level of genes to the scale of the built environment, this seminar combines investigations and theories of landscape, object-oriented ontology, architecture and ecocriticism. In the first part of the course, we'll unpack the history of modern agrilogistic thought, which projected empty, unoccupied space for opportunity and development onto otherwise occupied chromosomes, cultures and landscapes. The second section of this seminar traces the drive to order the biological world, using logics of efficiency and accountability, by rereading developments in energy, industry and resource development through the lens of object oriented ontology. Finally, we'll reconsider developments in the plant, animal and human sciences that bolstered humanity's twentieth-century hubris, from the birth of genetics to the role radiation played in liberating plant breeding from the confines of Mendelian crosses. Graduate students will have six additional readings and extra presentations of the landscape and architecture projects. Graduate/Undergraduate Equivalency: HART 473. Mutually Exclusive: Cannot register for HART 573 if student has credit for HART 473.

HART 574 - THE VISUAL CULTURE OF THE FRENCH REVOLUTION

Short Title: ART OF THE FRENCH REVOLUTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Description: This course will address the central role that art and visual culture played in the French Revolution. While engaging in a detailed study of the causes, progress and outcome of the Revolution we will pay attention to painting, prints, festivals and the wide range of visual culture that not only reflected the Revolution but helped fuel it. Graduate students will have extensive readings, a graduate discussion section in addition to the usual class meeting times. Three short reaction papers and a final original research seminar paper (15-20 pages) will also be required. Graduate/Undergraduate Equivalency: HART 374. Mutually Exclusive: Cannot register for HART 574 if student has credit for HART 374.

HART 575 - ART BETWEEN THE WARS: EUROPEAN MODERNISM, 1918-1940

Short Title: ART BETWEEN WARS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Description: Beginning in the aftermath of the First World War, a conflict that devastated the physical and psychological landscape of Europe, and ending with the rise of various totalitarian regimes (Fascism, Stalinism) this seminar will examine European art of the interwar period, from 1918-1940. Potential topics will include Surrealism, The Russian avant-garde, the return to order, Esprit-Nouveau, the machine aesthetic, De Stijl, avant-garde cinema, etc. Graduate/Undergraduate Equivalency: HART 365. Mutually Exclusive: Cannot register for HART 575 if student has credit for HART 365.

HART 576 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE

Short Title: EAST AND WEST
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional hour every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 376. Mutually Exclusive: Cannot register for HART 576 if student has credit for HART 376.

HART 577 - MEDIEVAL MANUSCRIPTS

Short Title: MEDIEVAL MANUSCRIPTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Description: This seminar explores illuminated European manuscripts from late antiquity through the early sixteenth century. It examines manuscripts' functions, patrons, makers, and materials and technique, as well as such issues as the relationship between text and image and the manuscript's ideological stance. Students have the opportunity to study original medieval illuminations. Graduate/Undergraduate Equivalency: HART 377. Mutually Exclusive: Cannot register for HART 577 if student has credit for HART 377.
HART 578 - DUTCH ART IN THE AGE OF REMBRANDT
Short Title: DUTCH ART IN AGE OF REMBRANDT
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine Dutch and Flemish seventeenth-century art, including major masters, such as Rembrandt, Rubens, and Vermeer, and major developments, such as the rise of still life, genre, and landscape painting. It will also explore women artists, Delft tiles, doll's houses, and multicultural aspects of art production. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 378. Mutually Exclusive: Cannot register for HART 578 if student has credit for HART 378.

HART 579 - THE AESTHETICS OF REALISM: FROM COURBET TO THE WIRE
Short Title: THE AESTHETICS OF REALISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will consider both the historical roots and contemporary manifestations of an aesthetics of realism. As a form of art concerned with the world as it is, in all its imperfection, realism is often assumed to ignore ideas of beauty, and even to court harsh, rough or ugly appearances. But as we will see there is both theoretical basis for an aesthetics of realism and a long history of its visual development. Graduate students will read approximately 200-250 pages per week, which will be discussed in an additional hour-long session each week. Graduate students will write two 5-7 page short papers and one 18-20 page final term paper. Graduate/Undergraduate Equivalency: HART 379.

HART 581 - COLLAGE AND ITS HISTORIES
Short Title: COLLAGE AND ITS HISTORIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will explore the centrality of collage to the development of the 20th century art and film. Beginning with the seminal achievements of Picasso and Braque, we will examine works across geographical and medium boundaries, including Dada photomontage, early avant-garde film, 1960s happenings, and the reformulation of collage aesthetics in 1980s postmodernism. For each lecture, Graduate students will be assigned additional readings. They will write an annotated bibliography of all the readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss the interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 381. Mutually Exclusive: Cannot register for HART 581 if student has credit for HART 381.

HART 582 - CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE
Short Title: CAESAR'S PALACE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Described as both a “Hall of Despotism” and a “Citadel of Majesty” the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperorship. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Graduate students will have additional readings. Graduate/Undergraduate Equivalency: HART 482. Mutually Exclusive: Cannot register for HART 582 if student has credit for HART 482.
HART 586 - DADA
Short Title: DADA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Inaugurated against the calamitous backdrop of the First World War, "Dada," the artist Francis Picabia claimed, "smells of nothing, it is nothing, nothing, nothing." This seminar will examine the aesthetics of shock and nihilism (literally, 'nothingness'), developed by Dada in six cities: Zurich, Berlin, Cologne, Hannover, New York, and Paris. For each lecture Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 386. Mutually Exclusive: Cannot register for HART 586 if student has credit for HART 386.

HART 587 - ARCHITECTURE, ART, AND LITERATURE IN ISLAMIC CULTURES
Short Title: ARCH AND LIT ISLAMIC CULTURES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Buildings, objects, and texts are all cultural artifacts. When they intersect—when a building is inscribed with a poem or a literary text engages with a spatial reality—the result is a sophisticated product that combines visual and verbal modes of communication. Visual cultures of the Islamic lands abound with such examples, ranging from poetic epigraphy on buildings (as in the Alhambra) to versified descriptions of cities and monuments. This seminar will examine select works of Islamic art and architecture in relation to literary texts that engage with their aesthetic and functional aspects. Graduate students will submit a research paper that is 20-25 pages; undergraduate students will submit a 15-page research paper. Graduate/Undergraduate Equivalency: HART 385. Mutually Exclusive: Cannot register for HART 587 if student has credit for HART 385.

HART 588 - POST WAR EUROPEAN CINEMA
Short Title: POST WAR EUROPEAN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class surveys major developments in European cinema from the late 1940s to the late 1960s. Our study will include such movements as Italian Neorealism, German Rubble Films, French New Wave, and Soviet cinema in the Thaw. Particular attention will be paid to issues such as cinema and post-war reconstruction, memory and nation, and body and space. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional hour every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 388. Mutually Exclusive: Cannot register for HART 588 if student has credit for HART 388.

HART 589 - JUSTICE AND CINEMA
Short Title: JUSTICE AND CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Why have film directors been drawn to criminal investigations and the search for justice since cinema's early years? This course examines films that represent court trials, investigate crimes and seek truth across different cultures over the last 100 years. Graduate students will write a 20-page research paper. Graduate/Undergraduate Equivalency: HART 389.

HART 590 - METHODS OF ART HISTORY
Short Title: METHODS OF ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar surveys approaches the study of art and visual culture from art history's origins as a discipline to the present day. We will study a range of works of art and interrogate many of the essential terms of art historical study. Frequent guest lectures will be featured. Instructor Permission Required.
HART 593 - WALTER BENJAMIN
Short Title: WALTER BENJAMIN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the key theoretical writings on media and modernity by Walter Benjamin, one of the first twentieth-century critics to place new forms of visual experience and technology at the center of his understanding of modern life. The course will pay particular attention to Benjamin's writings on urbanism, film and photography, and the ways in which these relate to avant-garde practices such as Dada, Surrealism, and New Objectivity (Neue Sachlichkeit). For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional hour every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 493. Mutually Exclusive: Cannot register for HART 593 if student has credit for HART 493.

HART 594 - STUDIES IN CONTEMPORARY LITERATURE AND CULTURE
Short Title: CONTEMP. LIT AND CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Global English; Globalization and its Discontents; and Critical Regionalisms. Cross-list: ENGL 594. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

HART 595 - READINGS IN MEDIA HISTORY AND THEORY
Short Title: READINGS IN MEDIA HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Understanding "media" broadly, this class explores a range of historical and theoretical readings around the term. Typewriters, photography and television will be among our topics, guided by two primary questions: how have developments in media affected, even determined, human perception and communication, and how have artists and critics responded to such changes? In addition to all undergraduate requirements, graduate students will be assigned additional weekly readings and asked to write a final research paper of 20-30 pages. Graduate/Undergraduate Equivalency: HART 495. Mutually Exclusive: Cannot register for HART 595 if student has credit for HART 495.

HART 596 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY
Short Title: FROM EXPRESSIONISM TO FASCISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 398. Mutually Exclusive: Cannot register for HART 596 if student has credit for HART 398.

HART 597 - SPECIAL TOPICS IN MUSEUM CURATORIAL STUDIES
Short Title: SPECIAL TOPICS: MUSEUM STUDIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Special Topics class taught by visiting Curators from the MFAH. FA 2016: Intro to Islamic Art at the MFAH: This course explores the dynamic, multifaceted character of Islamic art and architecture across the globe. Travel from Spain to India studying original art at the Museum of Fine Arts. Gain understanding of the historical, religious, social, craft, and visual contexts of the art. Graduate/Undergraduate Equivalency: HART 297. Mutually Exclusive: Cannot register for HART 597 if student has credit for HART 297.

HART 600 - PREPARATION FOR CANDIDACY I
Short Title: PREPARATION FOR CANDIDACY I
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Preparation for qualifying exams.

HART 601 - PREPARATION FOR CANDIDACY II
Short Title: PREPARATION FOR CANDIDACY II
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Preparation for qualifying exams and dissertation prospectus.
HART 603 - BAYOU BEND GRADUATE INTERNSHIP I
Short Title: BAYOU BEND GRAD INTERNSHIP I
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate Internship at Bayou Bend, the American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 406. Mutually Exclusive: Cannot register for HART 603 if student has credit for HART 400. Repeatable for Credit.

HART 604 - BAYOU BEND GRADUATE INTERNSHIP II
Short Title: BAYOU BEND GRAD INTERNSHIP II
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate Internship at Bayou Bend and The American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 401. Mutually Exclusive: Cannot register for HART 604 if student has credit for HART 401. Repeatable for Credit.

HART 606 - ICONOCLASMS: THE DESTRUCTION OF IMAGES
Short Title: ICONOCLASMS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: With a focus on the modern period, this seminar will examine iconoclastic theory and practice from antiquity to the present. Why, we will ask, have people so incessantly felt compelled to ban or destroy images, and what can this compulsion tell us about the nature of visual representation itself? Graduate/Undergraduate Equivalency: HART 406. Mutually Exclusive: Cannot register for HART 606 if student has credit for HART 406.

HART 607 - POP ART
Short Title: POP ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the history and significance of Pop art by looking in detail at three or four primary figures associated with the term; likely subjects include Andy Warhol, Gerhard Richter, Ed Ruscha, Richard Hamilton, and others. Visits to local museum collections and attention to theoretical writings on art and mass culture are planned. Graduate/Undergraduate Equivalency: HART 407. Mutually Exclusive: Cannot register for HART 607 if student has credit for HART 407.

HART 612 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: ARCH 612. Graduate/Undergraduate Equivalency: HART 412. Mutually Exclusive: Cannot register for HART 612 if student has credit for HART 412. Repeatable for Credit.

HART 626 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 626. Graduate/Undergraduate Equivalency: HART 326. Mutually Exclusive: Cannot register for HART 626 if student has credit for HART 326.

HART 627 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Graduate/Undergraduate Equivalency: HART 327. Mutually Exclusive: Cannot register for HART 627 if student has credit for HART 327.
HART 630 - INDEPENDENT STUDY - FOURTEENTH CENTURY GOTHIC ARCHITECTURE
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual readings in 14th century gothic art and architecture. Instructor Permission Required.

HART 638 - HART IN THE WORLD SPRING SEMINAR
Short Title: HART IN THE WORLD SEM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar serves as required preparation for the planned “HART in the World” research travel course (HART 697) offered in the immediately following summer session. Students will study a range of materials—including works of art, literature, films, and historical studies—related to the planned destination city. Graduate students will be required to do additional reading, give two presentations, and submit a 25-35 page paper. To be offered every other year. Graduate/Undergraduate Equivalency: HART 338. Mutually Exclusive: Cannot register for HART 638 if student has credit for HART 338. Repeatable for Credit.
Course URL: www.arthistory.rice.edu/opportunities/hart-world (http://www.arthistory.rice.edu/opportunities/hart-world/)

HART 640 - ISSUES IN THE HISTORY OF PRINTS, PRE-MODERN TO PRESENT
Short Title: ISSUES IN HISTORY OF PRINTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: With their distinctive technical, social, and commercial associations, prints are often sidelined in traditional art histories. This course will introduce recent scholarship on the multiple image from the late middle ages to the present, with stress on the transformations of printmaking from the development of photography into our digital age. Graduate/Undergraduate Equivalency: HART 440. Mutually Exclusive: Cannot register for HART 640 if student has credit for HART 440.

HART 645 - FOUNDATIONS AND THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: ARCH 645.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 651 - ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES
Short Title: ART, REVOLUTION, WAR
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar examines the ambition (or lack thereof) of modern art to play an active role during periods of violent conflict. From the French Revolution to the recent disastrous American engagements in the Middle East wars to the never-ending war on terror, artists have produced images that attempt to actively engage in these conflicts. This class will examine the relative successes and failures of art during times of violent revolution and war within the modern era. Graduate/Undergraduate Equivalency: HART 351. Mutually Exclusive: Cannot register for HART 651 if student has credit for HART 351.

HART 653 - ART AND EMOTION
Short Title: ART AND EMOTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the role played by emotion in our response to works of art. What is the relationship of emotion to the specific formal properties of a given work of art, such as color, texture, shape, line quality, sound, and so on? What role does our cognitive faculties play in determining our emotional response to art? Are there political stakes to emotional affect? These and other questions will be examined. Graduate/Undergraduate Equivalency: HART 353. Mutually Exclusive: Cannot register for HART 653 if student has credit for HART 353.
HART 659 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: ARCH 654. Graduate/Undergraduate Equivalency: HART 359. Mutually Exclusive: Cannot register for HART 659 if student has credit for HART 359.

HART 661 - CHINESE BUDDHIST WOODCUTS 850-1450
Short Title: CHINESE BUDDHIST WOODCUTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): HART 571 or HART 623
Description: This course will study woodblock print illustrations in the context of cultural change. Buddhism and printing have been closely related since the dawn of the age of print. Many scriptures reproduced by woodblock printing were imbedded with illustrations, which themselves offer an effective tool to study cultural transformation. The seminar draws sources from both images and texts. Its cross-cultural perspective highlights nomads and non-Chinese peoples as agents of cultural transformation, with additional visual comparisons from Korean, Japanese, and Islamic traditions. In addition to weekly discussions, the final evaluation includes a 25-page research paper and a 30-minute presentation. Students should have an advanced background in Chinese art to take this seminar. Course will be taught in English and Chinese. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 460. Mutually Exclusive: Cannot register for HART 661 if student has credit for HART 460.

HART 665 - A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA
Short Title: ART/ POLITICS MOD LATIN AMER
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Providing an alternative understanding of modernity and its artistic partner, modernism, this survey course traverses the political, social and cultural landscapes that informed and formed the art and architecture of Latin America, from the early twentieth century to the present. Graduate students will be expected to write a more extensive research paper (20-25 page-long paper rather than the 8-10 page - paper required to undergraduate students. The use of primary sources is mandatory. Graduate/Undergraduate Equivalency: HART 265. Mutually Exclusive: Cannot register for HART 665 if student has credit for HART 265.

HART 675 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES
Short Title: LATIN-EUROPE/LATIN-AMERICA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course challenges our pre-conceived maps of the world, highlighting Latin America's place within our understanding of modernity as a product of transnational interconnections. Transversing the Atlantic, this course traces the interactions of capitalism and culture, science and aesthetics, and the ideologies that informed and formed the urban fabric and spatial politics of important cities in the modern Latin world - Paris, Rio de Janeiro, Rome, Buenos Aires, Barcelona, Havana, and Brasilia. Cross-list: ARCH 675. Graduate/Undergraduate Equivalency: HART 375. Mutually Exclusive: Cannot register for HART 675 if student has credit for HART 375.

HART 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HART 689 - INDEPENDENT STUDY IN FILM AND MEDIA STUDIES
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent study, reading, or special research in film & media studies on the graduate level. Repeatable for Credit.
HART 691 - MIDDLE EASTERN EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Art History
Grade Mode: Audit
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser-known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: ANTH 578. Graduate/Undergraduate Equivalency: HART 391. Mutually Exclusive: Cannot register for HART 691 if student has credit for HART 391.

HART 695 - ROMAN ARCHAEOLOGY FIELD SCHOOL
Short Title: ROMAN ARCHAEOLOGY FIELD SCHOOL
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a traditional archaeological field course, taught in the Roman Forum. Techniques and advanced technologies for processing, conserving, and recording archeological materials are emphasized. Students will become familiar with procedures for ceramics, metals, plant and animal remains and building materials. Course work include lectures, hands-on excavation, and informal discussion. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 395. Recommended Prerequisite(s): HART 201 or ANTH 205 or ANTH 303. Mutually Exclusive: Cannot register for HART 695 if student has credit for HART 395.

HART 697 - HART IN THE WORLD FIELD STUDY
Short Title: FIELD STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Through on-site lectures, seminar discussions, museum visits, architectural itineraries, and field trips, this course will explore the complex political, social, and cultural histories of a major international metropolis. The city visited changes each time the course is offered; past locations have included Istanbul, Rome, and Rio de Janeiro. More information on upcoming locations is available at http://arthistory.rice.edu/opportunities/hart-world. Graduating students are not eligible. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 397. Mutually Exclusive: Cannot register for HART 697 if student has credit for HART 397. Repeatable for Credit.
Course URL: www.arthistory.rice.edu/opportunities/hart-world (http://www.arthistory.rice.edu/opportunities/hart-world/)

HART 700 - SUMMER RESEARCH FOR PH.D.
Short Title: SUMMER RESEARCH FOR PH.D.
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Summer Research of Ph.D. Repeatable for Credit.

HART 800 - Ph.D. RESEARCH
Short Title: DISSERTATION RESEARCH
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Dissertation Research for Ph.D. candidates. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject: HART

Department Description and Code
- Art History: HART

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Art History: HART

Undergraduate Major Areas of Specialization Descriptions and Attribute Codes*
- Area of Specialization in Art History: AHAH
- Area of Specialization in History of Architecture: AHHA

Please Note: Areas of Specialization are department/program-specific and are not formally recognized academic credentials. Unlike Major Concentrations, Areas of Specialization do not appear on the student's official academic transcript, etc.

Undergraduate Minor Description and Code
- Minor in Cinema and Media Studies: CMST
- Minor in Art History: HRTM

Graduate Degree Descriptions and Codes
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
- Degree Program in Art History: HART
Bachelor of Arts (BA) Degree with a Major in Art History

Program Learning Outcomes for the BA Degree with a Major in Art History

Upon completing the BA degree with a major in Art History, students will be able to:

1. Understand the historical, social, cultural and political contexts and traditions of art. Students will develop an understanding of the multiple contexts of art, including its relationship to religion, politics, gender and sexuality, urbanism, history, culture, and other domains of human social experience.
2. Demonstrate effective use of specialized disciplinary vocabulary and appropriate methodologies to analyze works of art and communicate their form, function, and meaning orally and in writing.
3. Demonstrate ability to perform comparative analyses of art works based on differences or similarities in cultural context, form, content, artist, materials, and time and place of production.
4. Demonstrate specialized knowledge about, and be able to identify, art from specific geographical locations, periods, artists, and/or artistic movements.
5. Evaluate and use primary and secondary sources to generate and answer original research questions and produce independent research.
6. Understand major artistic movements, common themes, trends, and the styles of major artists. They will demonstrate generalized knowledge of major figures in art history, major art movements and traditions, and major artistic styles.

Requirements for the BA Degree with a Major in Art History

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Art History must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 257) tab.

The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Art History, students must additionally identify and declare one of two areas of specialization, either in:

- Art History (p. 252), or
- History of Architecture (p. 252).

It is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The department of Art History also offers a unique departmental Honors Program. For more information, including Honors Program requirements, see the Opportunities (p. 258) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Art History</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Art History</td>
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### Degree Requirements

<table>
<thead>
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<th>Code</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Area of Specialization</td>
<td>30</td>
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</tbody>
</table>

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

- Art History
- History of Architecture

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Art History</td>
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<tr>
<td></td>
<td>Additional Credit Hours to Complete Degree Requirements</td>
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<tr>
<td></td>
<td>University Graduation Requirements (p. 29)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>120</td>
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</tbody>
</table>

Footnotes and Additional Information

- Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Areas of Specialization

Students must complete a total of 10 courses (30 credit hours) as listed in the requirements for one of the Art History areas of specialization.
Note that the course lists to satisfy each requirement can be found below the specialization requirements.

Area of Specialization: Art History
To satisfy the requirements for the Art History Specialization, Art History majors must complete 10 courses (30 credit hours) as listed below.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Ancient–Medieval (Pre-Modern)</td>
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</tr>
<tr>
<td></td>
<td>Select a minimum of 1 course at the 200-level or above (see below for course list)</td>
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</tr>
<tr>
<td></td>
<td>Renaissance–18th century (Early Modern)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 1 course at the 200-level or above (see below for course list)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>19th century–Present (Modern through Contemporary)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 1 course at the 200-level or above (see below for course list)</td>
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</tr>
<tr>
<td></td>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 2 courses (see below for course list)</td>
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</tr>
<tr>
<td></td>
<td>Outside European and American Traditions</td>
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</tr>
<tr>
<td></td>
<td>Select a minimum of 1 course at the 200-level or above (see below for course list)</td>
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</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
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</tr>
<tr>
<td></td>
<td>Select a minimum of 4 additional courses as Electives from departmental (HART) course offerings</td>
<td>12</td>
</tr>
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</table>

Total Credit Hours 30

Footnotes and Additional Information
1. Transfer credit for HART 100 received via the articulation of advanced placement credit (AP) credit, international baccalaureate (IB) credit, or A-level credit will not count toward any major requirements, including elective requirements.

Area of Specialization: History of Architecture
To satisfy the requirements for the History of Architecture Specialization, Art History majors must complete 10 courses (30 credit hours) as listed below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>History of Architecture</td>
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</tr>
<tr>
<td></td>
<td>Select a minimum of 6 courses (see below for course list)</td>
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</tr>
<tr>
<td></td>
<td>Seminars</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 2 courses (see below for course list)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Outside European and American Traditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 1 course at the 200-level or above (see below for course list)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 2 additional courses at the 200-level or above as Electives from two of the following chronological categories (see below for course lists):</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Ancient-Medieval (Pre-Modern)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Renaissance-18th Century (Early Modern)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19th century-Present (Modern through Contemporary)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 30

Footnotes and Additional Information
1. Transfer credit for HART 100 received via the articulation of advanced placement credit (AP) credit, international baccalaureate (IB) credit, or A-level credit will not count toward any major requirements, including elective requirements.
2. Courses listed in the Seminar Courses list can also satisfy a requirement in the History of Architecture, Outside European and American Traditions, or the three chronological categories requirements.
### Renaissance–18th century (Early Modern) Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HART 307</td>
<td>TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING,</td>
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<tr>
<td></td>
<td>13TH-20TH CENTURIES</td>
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<tr>
<td>HART 308</td>
<td>LIVING IN THE CITY IN THE OTTOMAN EMPIRE</td>
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<tr>
<td>ARCH 318</td>
<td></td>
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<tr>
<td>HART 319</td>
<td>ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES</td>
<td>3</td>
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<tr>
<td>HART 321</td>
<td>IMPERIAL CITY: ISTANBUL 1453-1922</td>
<td>3</td>
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<tr>
<td>ARCH 331</td>
<td></td>
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<tr>
<td>HART 322</td>
<td>JERUSALEM TO ISFAHAN</td>
<td>3</td>
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<tr>
<td>ARCH 332</td>
<td></td>
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<td>HART 324</td>
<td>PERSIANATE ARTS OF THE BOOK</td>
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<tr>
<td>HART 326</td>
<td>MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE</td>
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<tr>
<td>ARCH 326</td>
<td>IN ANCIENT ROME</td>
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<tr>
<td>CLAS 326</td>
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<tr>
<td>HART 333</td>
<td>LOOKING AT EUROPEAN PRINTS 1400-1700</td>
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<tr>
<td>HART 339</td>
<td>AMERICAN ART AND ARCHITECTURE I: 1620-1800</td>
<td>3</td>
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<tr>
<td>HART 340</td>
<td>NORTHERN RENAISSANCE ART</td>
<td>3</td>
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<tr>
<td>MDEM 340</td>
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<tr>
<td>HART 341</td>
<td>EARLY RENAISSANCE ART IN ITALY</td>
<td>3</td>
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<tr>
<td>HART 342</td>
<td>THE HIGH RENAISSANCE AND MANNERISM IN ITALY</td>
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<tr>
<td>HART 343</td>
<td>MASTERS OF THE BAROQUE ERA</td>
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<td>MDEM 343</td>
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<tr>
<td>HART 344</td>
<td>CAPITALISM AND CULTURE</td>
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<td>HART 345</td>
<td>FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)</td>
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<tr>
<td>ARCH 345</td>
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<tr>
<td>HART 346</td>
<td>SEMINAR ON LOVE: MAKING LOVE IN MODERN ART AND THOUGHT</td>
<td>3</td>
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<td>SWGS 346</td>
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<td>HART 354</td>
<td>AGE OF ROMANTICISM IN EUROPE</td>
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<td>HART 355</td>
<td>JACQUES-LOUIS DAVID: REVOLUTION</td>
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<tr>
<td>HART 374</td>
<td>THE VISUAL CULTURE OF THE FRENCH REVOLUTION</td>
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<tr>
<td>HART 378</td>
<td>DUTCH ART IN THE AGE OF REMBRANDT</td>
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</tr>
<tr>
<td>MDEM 378</td>
<td></td>
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<tr>
<td>HART 400</td>
<td>BAYOU BEND UNDERGRADUATE INTERNSHIP I</td>
<td>3</td>
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<tr>
<td>HART 401</td>
<td>BAYOU BEND UNDERGRADUATE INTERNSHIP II</td>
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<tr>
<td>HART 406</td>
<td>ICONOCLASMS: THE DESTRUCTION OF IMAGES</td>
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### 19th century–Present (Modern through Contemporary) Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HART 202</td>
<td>AVANT-GARDE AND AFTER: MODERN ART IN EUROPE, 1900-1945</td>
<td>3</td>
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<tr>
<td>HART 205</td>
<td>ART SINCE 1945</td>
<td>3</td>
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<tr>
<td>HART 207</td>
<td>FOURTEEN ARTWORKS AT THE MFAH</td>
<td>3</td>
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<tr>
<td>HART 225</td>
<td>INTRODUCTION TO ARCHITECTURAL THINKING</td>
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<tr>
<td>ARCH 225</td>
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<tr>
<td>HART 250</td>
<td>CONTEMPORARY EUROPEAN CINEMA</td>
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<tr>
<td>FILM 250</td>
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<tr>
<td>HART 257</td>
<td>ART AND ART HISTORY OF THE LONG NINETEENTH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>HART 263</td>
<td>EPISODES IN THE HISTORY OF PHOTOGRAPHY: FROM INVENTION TO THE</td>
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<tr>
<td>FOTO 263</td>
<td>PRESENT</td>
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<tr>
<td>HART 265</td>
<td>A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN</td>
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<tr>
<td>AMERICA</td>
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<tr>
<td>HART 280</td>
<td>HISTORY &amp; AESTHETICS OF FILM</td>
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<tr>
<td>ARTS 280</td>
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<td>FILM 280</td>
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<tr>
<td>HART 281</td>
<td>THE BEGINNINGS OF CINEMA</td>
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<td>FILM 281</td>
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<td>HART 283</td>
<td>AUTEUR FILM: CASE STUDIES OF THREE AUTEURS</td>
<td>3</td>
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<td>FILM 285</td>
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<tr>
<td>HART 284</td>
<td>NONFICTION FILM</td>
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<td>FILM 284</td>
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<tr>
<td>HART 286</td>
<td>CLASSICAL AND CONTEMPORARY FILM AND THEORY</td>
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<td>ENGL 286</td>
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<tr>
<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
<td>3</td>
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<tr>
<td>HART 304</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
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<td>FILM 339</td>
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<tr>
<td>SPPO 375</td>
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<tr>
<td>HART 305</td>
<td>POST WAR: ART IN EUROPE, 1945-2000</td>
<td>3</td>
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<tr>
<td>HART 307</td>
<td>TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING,</td>
<td>3</td>
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<tr>
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**Seminar Courses**

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<td>POST WAR: ART IN EUROPE, 1945-2000</td>
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<td>Picasso, Pollock, Warhol</td>
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<td>What is Cinema? Classic Readings of Classic Films</td>
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<td>Chinese Painting</td>
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<td>Architecture and Literature in Islamic Cultures</td>
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<td>Justice and Cinema</td>
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<td>Place and Memory in Middle Eastern and European Cinema</td>
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<td>READINGS IN MEDIA HISTORY AND THEORY</td>
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### Outside European and American Traditions Courses

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<td>ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS</td>
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### History of Architecture Courses

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<td>A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA</td>
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<td>Course Title</td>
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<tr>
<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
<td>3</td>
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<tr>
<td>HART 304</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>FILM 339</td>
<td></td>
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<tr>
<td>SPO 375</td>
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<tr>
<td>HART 310</td>
<td>BRAZIL BUILT THE CLINIC, THE TROPICAL, AND THE AESTHETIC</td>
<td>3</td>
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<tr>
<td>ARCH 315</td>
<td></td>
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<tr>
<td>HART 311</td>
<td>ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST</td>
<td>3</td>
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<tr>
<td>ANTH 331</td>
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<tr>
<td>HART 316</td>
<td>VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES</td>
<td>3</td>
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<tr>
<td>ANTH 346</td>
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<tr>
<td>ARCH 310</td>
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<tr>
<td>COMP 316</td>
<td></td>
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<tr>
<td>HART 318</td>
<td>SPECIAL TOPICS IN ANCIENT ART</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 321</td>
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<td></td>
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<tr>
<td>HART 319</td>
<td>ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES</td>
<td>3</td>
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<tr>
<td>HART 322</td>
<td>JERUSALEM TO ISFAHAN</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 332</td>
<td></td>
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<tr>
<td>HART 326</td>
<td>MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT</td>
<td>3</td>
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<tr>
<td>ARCH 326</td>
<td>ROME</td>
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<td>CLAS 326</td>
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<tr>
<td>HART 330</td>
<td>EARLY MEDIEVAL ART</td>
<td>3</td>
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<tr>
<td>MDEM 330</td>
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<tr>
<td>HART 331</td>
<td>GOTHIC ART</td>
<td>3</td>
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<tr>
<td>MDEM 331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 332</td>
<td>ART OF THE COURTS</td>
<td>3</td>
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<tr>
<td>MDEM 332</td>
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<tr>
<td>HART 339</td>
<td>AMERICAN ART AND ARCHITECTURE I: 1620-1800</td>
<td>3</td>
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<td>HART 345</td>
<td>FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)</td>
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<td>ARCH 345</td>
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<td>HART 348</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
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<td>HART 367</td>
<td>ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE</td>
<td>3</td>
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<tr>
<td>HART 372</td>
<td>CHINESE ART AND VISUAL CULTURE</td>
<td>3</td>
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<td>ASIA 372</td>
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<td>MDEM 373</td>
<td></td>
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<tr>
<td>HART 375</td>
<td>LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES</td>
<td>3</td>
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<tr>
<td>ARCH 375</td>
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<td>HART 385</td>
<td>ARCHITECTURE AND LITERATURE IN ISLAMIC CULTURES</td>
<td>3</td>
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<tr>
<td>HART 395</td>
<td>ROMAN ARCHAEOLOGY: FIELD SCHOOL</td>
<td>3</td>
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<tr>
<td>HART 412</td>
<td>ADVANCED SEMINAR IN ARCHITECTURE</td>
<td>3</td>
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<tr>
<td>ARCH 412</td>
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<tr>
<td>HART 431</td>
<td>ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH</td>
<td>3</td>
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<tr>
<td>MDEM 431</td>
<td>CENTURY</td>
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<td>HART 463</td>
<td>PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY</td>
<td>3</td>
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<tr>
<td>ARCH 452</td>
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<tr>
<td>HART 465</td>
<td>LATIN AMERICAN BODIES: ON MODERNISM</td>
<td>3</td>
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</tr>
</tbody>
</table>

### Policies for the BA Degree with a Major in Art History

#### Program Restrictions and Exclusions

Students pursuing the major in Art History should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

### Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines

Students pursuing the major in Art History should be aware of the following departmental transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
- Transfer credit received via the articulation of advanced placement (AP) credit (HART 100), international baccalaureate (IB) credit, or A-level credit will not be considered towards major requirements.

#### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Art History (HART) introduce students to fundamental historical and/or methodological concepts for the study of art, architecture, and material culture. They aim to develop key skills in looking at, writing about, and discussing works of art and their historical roles. These courses may introduce a broad historical overview...
(Renaissance to the present, etc.), a more specific historical period or concept (Baroque, modernism, ancient Rome, etc.), or a cultural idea or practice that has been important for art’s history (pilgrimage, iconoclasm, etc.).

### Additional Information

For additional information, please see the Art History website: [https://arthistory.rice.edu/](https://arthistory.rice.edu/)

### Opportunities for the BA Degree with a Major in Art History

#### Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see [Latin Honors](#) (summa cum laude, magna cum laude, and cum laude) and [Distinction in Research and Creative Work](#) (p. 51). Some departments have department-specific Honors awards or designations.

#### Departmental Honors Program in Art History

The departmental honors designation is reserved for those accepted into the Art History Honors Program. Students apply (via the departmental Director of Undergraduate Studies) no earlier than spring of the sophomore year and no later than spring of the junior year, and once accepted, they will be assigned to a faculty mentor. Financial assistance is available for honors students to conduct research between their junior and senior years. Students pursuing this opportunity will have a stronger engagement with art historical research to better prepare for a graduate degree in art history.

To remain in the Honors Program, students must maintain an overall grade point average of 3.30 or higher and receive an A (4.00 grade points) or A (3.67 grade points) in both semesters of the Honors Thesis (HART 402 and HART 403) taken in their senior year. Students who maintain a grade point average of 3.70 or higher and who receive an A (4.00 grade points) in both semesters of the Honors Thesis (HART 402 and HART 403) may be awarded high honors by vote of the department. If students are not able to maintain the requirements of the Departmental Honors Program, they can still graduate with the Art History major.

#### Departmental Honors Program Requirements

To satisfy the requirements for the Honors Program in Art History, Art History majors must complete 12 courses (36 credit hours) as listed below. A minimum of 6 courses (18 credit hours) must be taken at the 300-level or above.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient-Medieval (Pre-Modern)</td>
<td>Select a minimum of 2 courses at the 200-level or above (see Requirements tab for course list)</td>
<td>6</td>
</tr>
<tr>
<td>Renaissance-18th century (Early Modern)</td>
<td>Select a minimum of 2 courses at the 200-level or above (see Requirements tab for course list)</td>
<td>6</td>
</tr>
<tr>
<td>19th century-Present (Modern through Contemporary)</td>
<td>Select a minimum of 2 courses at the 200-level or above (see Requirements tab for course list)</td>
<td>6</td>
</tr>
<tr>
<td>Outside European and American Traditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Doctor of Philosophy (PhD) Degree in the field of Art History

#### Program Learning Outcomes for the MA and PhD Degrees in the field of Art History

Upon completing the MA and PhD degrees in the field of Art History, students will be able to:

1. Apply disciplinary methods for the visual interpretation and critique of art to produce scholarship and communicate about art using...
appropriate disciplinary vocabularies and primary and secondary texts where appropriate.
2. Understand art not as an isolated incident but in relation to the contexts that not only shape art, but are shaped by art, including: history, society, culture, geography, and politics.
3. Understand art as a multicultural issue.
4. Develop and apply understanding of major artistic movements, artists, and art pieces by identifying and situating individual artists and works of art within major movements.

Requirements for the MA and PhD Degrees in the field of Art History

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The PhD in Art History program at Rice University trains students for academic research and teaching, curatorial positions, and other careers in the visual arts. Program requirements include two years of coursework and the demonstration of two language proficiencies in addition to English, as well as the successful completion of a graduate research paper, oral and written qualifying exams, a thesis prospectus, and a doctoral thesis. All students entering the PhD program must complete the full curriculum, regardless of the degrees and coursework completed prior to the student's admission to Rice's doctoral program.

The MA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although all students are admitted into the doctoral program, and no MA program is available, an MA degree may be conferred upon the successful completion of the first two years of coursework, the passing of at least one language exam, and the completion of the graduate research paper.

In addition to the traditional degree timeline, the department also offers a Museum Professionals area of specialization, which is designed for students who currently hold professional appointments at local museums. All requirements for the program remain the same; however, graduate students who continue to hold their position at museums have a longer timetable for completing requirements.

The program is overseen by the Graduate Committee in Art History. The committee is comprised of department faculty and supervised by a Director of Graduate Studies (DGS). The DGS is responsible for advising students on coursework and degree requirements, and the department's Graduate Program Administrator oversees completion and documentation of program requirements, as well as financial matters concerning graduate students.

All incoming students will be assigned to the DGS for the first semester of enrollment. The DGS will assist in explaining departmental guidelines, choosing courses, and beginning to strategize about primary and secondary fields. Primary and secondary fields are later finalized by the student in consultation with the student's advisor and with a view towards the requirements of the job market. First-year students need to identify a potential faculty advisor in their primary field, approach the faculty member for permission, and, with the advisor's agreement, declare a permanent advisor by the end of the first week of classes in the Spring semester of the first year.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>HART 590</td>
<td>METHODS OF ART HISTORY</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART 590</td>
<td>METHODS OF ART HISTORY</td>
<td>3</td>
</tr>
</tbody>
</table>

Coursework

Satisfactory completion (grade C+ or above) of at least 36 credit hours (12 courses) of graduate coursework (500-level or 600-level) is required; at least half of these courses must be seminars. All incoming students are required to take HART 590 (Methods in Art History), an introductory seminar, in the Fall term of their first year, as well as HART 503 (Graduate Research Paper), an independent study, in the second or third year, according to the degree timeline. Both of these courses count toward the 12-course requirement.

Of the 12 required courses, at least 4 courses must be taken in the student's primary field of interest and at least 2 courses in the secondary field. Students should work with their advisors to identify primary and secondary fields by the end of the second year. Up to 3 graduate courses may be taken outside the department, as approved by the student's advisor.

If a student chooses to enroll in an independent study course, the student and course supervisor should establish and document the format and expectations for the course by the second week of the term.

Additionally, research hours leading to candidacy and a thesis are also required, but do not count toward the 12-course requirement. HART 600 (Qualifying Exams) and HART 601 (Thesis Prospectus) are taken in preparation for candidacy, and HART 800 (Thesis Research) is taken in preparation for the thesis and for defense.

Foreign Languages

Reading knowledge of at least two languages other than English is required. These languages should be relevant to research in the student's field of study and must be approved by the student's advisor. A third language may also be strongly recommended by the student's advisor. The first language proficiency exam must be taken by December 15 of the first year. The second exam must be passed for the student to enter into candidacy, and no later than September 15th of the fourth year. If necessary, students are strongly encouraged to begin study of their second language at the start of their first year.

Graduate Research Paper

In the Spring term of their second year, students are required to complete a substantial research paper, as part of HART 503 (Graduate Research
Paper). In preparation for this paper, the student should submit a topic and preliminary bibliography for the graduate research paper to the student’s advisor by the end of Fall term of the second year. The purpose of the paper is to demonstrate research skills in art history including the ability to develop a convincing argument, to use visual evidence, to undertake research in foreign languages where applicable, and to develop an original thesis. The paper topic should be the result of careful thought and planning between student and advisor. It should not be thought of as a preliminary version of a thesis, but rather an opportunity to explore in depth a topic of interest, perhaps related to course work. It need not, however, be outside of the student’s primary field of study and may end up being related to an eventual thesis topic. The topic of the paper, and a preliminary bibliography, should be discussed with the advisor before the end of the Fall semester of the second year.

Teaching and Research Assistantships
All students in their third year will serve as Teaching Assistants (TAs). TAs will be assigned to courses based on course enrollments and numbers of TAs available, but in each semester some TAs will be assigned to HART 101 or HART 102. In some semesters, a TA may be assigned to a different course, based on interest/experience, combined with course size and professors’ needs. In both cases, the focus will be on a collaborative process in which TAs are an integral part of the department’s teaching, and will be supervised and trained in ways which will help in the development of their pedagogical skills. Students will gain experience by either leading discussion sections or taking over class sessions during the semester and the TA will be observed and given feedback. After the first year, each student will also serve as a Research Assistant to a faculty member in the department for one semester.

Qualifying Exams
The doctoral qualifying exams (HART 600 and HART 601) consist of two written exams, followed by an oral exam. Preparation of the qualifying exams will begin during the summer term between the second and third years, and continue throughout the third year. The written and oral exams must be completed in the Spring semester of the third year. The exams will cover topics in the student’s primary field of study and secondary field, as agreed upon with the student’s advisor and based on the student’s interests and intended area of study for the doctoral thesis. Passing the qualifying exams is necessary for continuation in the program into the thesis phase.

Thesis Prospectus
In the Spring semester of the third year, students will enroll in HART 601 and prepare a prospectus of 10-12 pages plus bibliography on their thesis topic to be presented to their advisor and thesis committee. Students are encouraged to think of the thesis prospectus as a base document for their thesis research and writing phases. It should clearly present the thesis topic, significance and contribution to the field(s), historical context, methodology and archival sources, and preliminary structure. Format details should be agreed upon with the thesis advisor, and the thesis committee should be approved by the department’s graduate committee. Once the student has passed the doctoral exams and had the prospectus approved by the thesis committee, the student will file a petition for approval of candidacy for the PhD with the Office of Graduate Studies.

Thesis
A thesis represents independent and original research, equivalent to a publishable book, which makes a significant contribution to the current body of knowledge in the field. It must show a mastery of the literature in the subject, be written in acceptable literary style, and conform to the standards outlined on the Rice University Office of Graduate Studies website. Theses may be written on any subject that falls within the supervisory competence of a permanent member of the department.

Policies for the PhD Degree in the field of Art History

Department of Art History Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, including more detailed information regarding the PhD degree program policies and requirements, evaluation of student progress, and recommended timetable for degree completion for traditional students and those in the Museum Professionals Track, please see the Department of Art History Graduate Program Handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Art_History_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Art_History_Graduate_Handbook.pdf)

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Art History should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Art History website: [https://arthistory.rice.edu](https://arthistory.rice.edu).

Opportunities for the PhD Degree in the field of Art History

Co-Teaching
A competitive co-teaching program will be available to in-residence students beginning in their fifth year, with applications due by January 15 of the preceding year. This is a chance to build on the teaching assistant experience of the third year, while giving students a means to build their teaching résumé during the thesis stage of the program and as they prepare to go into the job market.

Exhibitions, Lectures, and Arts Programs at Rice and in Houston
Houston is fortunate to have some of the best art collections in the United States. The department enjoys a strong and ongoing relationship with the local museums, in particular the Menil Collection and the Museum of Fine Arts, Houston. The department offers opportunities for students to study with local museums, galleries, and alternative art spaces by way of internship courses, summer internship working opportunities, fellowships, or collaborative events. The collections and special exhibitions of local museums are often the focus of class lectures and research papers in art history.

The department sponsors the Katherine Tsanoff Brown Lecture Series, which brings leading scholars to Rice to speak on a wide variety of topics. The department also hosts occasional symposia and lectures.
in collaboration with other departments, presenting the ideas of top scholars, critics, and artists.

The Department of Art History houses the Visual Resources Center, which currently offers a broad and extensive collection of digital images related to the arts for teaching and research, serving both the department and the university at large. Additionally, exhibitions and related activities organized by the Rice University Moody Center for the Arts enrich the university and the Houston community. The Department of Visual and Dramatic Arts mounts several art and photography exhibitions each year and sponsors Rice Cinema, a public alternative film program.

Prizes and Awards
Information regarding graduate prizes and awards, as well as fellowship and internship opportunities at local museums, can be found on the department website, under the Funding and Additional Opportunities section: https://arthistory.rice.edu/graduate/funding-additional-opportunities (https://arthistory.rice.edu/graduate/funding-additional-opportunities/).

Additional Information
For additional information, please see the Art History website: https://arthistory.rice.edu.

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this degree.

Minor in Art History
Program Learning Outcomes for the Minor in Art History
Upon completing the minor in Art History, students will be able to:

1. Understand the historical, social, cultural, and political contexts and traditions of art and/or architecture. Students will develop an understanding of the multiple contexts of art, which might include its relationship to religion, politics, gender and sexuality, urbanism, landscape, history, culture, and/or other domains of human social experience.

2. Demonstrate specialized knowledge about, and be able to identify, art from specific geographical locations, periods, artists, and/or artistic movements.

Requirements for the Minor in Art History
Students pursuing the minor in Art History must complete

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 266) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Art History</td>
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Minor Requirements

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<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements 1</td>
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</tr>
<tr>
<td>HART 221</td>
<td>INTRODUCTION TO ISLAMIC ART AND ARCHITECTURE</td>
<td>3</td>
</tr>
<tr>
<td>HART 265</td>
<td>A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA</td>
<td>3</td>
</tr>
<tr>
<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
<td>3</td>
</tr>
<tr>
<td>HART 304 / FILM 339 / SPPO 375</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>HART 314</td>
<td>POLITICS OF CULTURAL HERITAGE IN THE MODERN MIDDLE EAST, 1800 TO THE PRESENT</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. A minimum of 3 courses (9 credit hours) must be taken at the 300-level or above to satisfy minor requirements.

2. A maximum of 2 courses (6 credit hours) can be taken outside of departmental (HART) course offerings, including courses from study abroad or transfer credit. Courses taken outside HART course offerings must be approved by the Director of Undergraduate Studies to be eligible for credit towards the minor.
Ancient-Medieval (Pre-Modern) Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART 201</td>
<td>ART AND ARCHITECTURE OF ANCIENT ROME</td>
<td>3</td>
</tr>
<tr>
<td>HART 216 / CLAS 218</td>
<td>CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>HART 220</td>
<td>INTRODUCTION TO MEDIEVAL ART AND ARCHITECTURE OF WESTERN EUROPE</td>
<td>3</td>
</tr>
<tr>
<td>HART 309 / CLAS 309</td>
<td>THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETERNAL CITY</td>
<td>3</td>
</tr>
<tr>
<td>HART 311 / ANTH 331</td>
<td>ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST</td>
<td>3</td>
</tr>
<tr>
<td>HART 312 / HURC 308</td>
<td>ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION</td>
<td>3</td>
</tr>
<tr>
<td>HART 316 / ANTH 346 / ARCH 310 / COMP 316</td>
<td>VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES</td>
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<td>HART 318 / CLAS 321</td>
<td>SPECIAL TOPICS IN ANCIENT ART</td>
<td>3</td>
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<tr>
<td>HART 324</td>
<td>PERSIANATE ARTS OF THE BOOK</td>
<td>3</td>
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<td>HART 326 / ARCH 326 / CLAS 326</td>
<td>MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME</td>
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<td>HART 327 / CLAS 324</td>
<td>THE GENESIS OF ROMAN ART</td>
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<tr>
<td>HART 330 / MDEM 330</td>
<td>EARLY MEDIEVAL ART</td>
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<tr>
<td>HART 331 / MDEM 331</td>
<td>GOTHIC ART</td>
<td>3</td>
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<td>HART 332 / MDEM 332</td>
<td>ART OF THE COURTS</td>
<td>3</td>
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<td>HART 356</td>
<td>SEX AND MONEY: THE SPECIES DIVIDE</td>
<td>3</td>
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<td>HART 376 / ASIA 376 / MDEM 376</td>
<td>EAST &amp; WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE</td>
<td>3</td>
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<td>HART 395</td>
<td>ROMAN ARCHAEOLOGY: FIELD SCHOOL</td>
<td>3</td>
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<tr>
<td>HART 427</td>
<td>VISUAL CULATURE OF MEDIEVAL PILGRIMAGE</td>
<td>3</td>
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<td>HART 431 / MDEM 431</td>
<td>ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH CENTURY</td>
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<td>HART 433</td>
<td>THE BAYEUX TAPESTRY AND THE ANGLO-NORMAN WORLD</td>
<td>3</td>
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<tr>
<td>HART 460</td>
<td>CHINESE BUDDHIST WOODCUTS 850-1450</td>
<td>3</td>
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<td>HART 482 / CLAS 482</td>
<td>CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE</td>
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Renaissance–18th century (Early Modern) Courses

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<th>Title</th>
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<tr>
<td>HART 307</td>
<td>TECHNICAL ART HISTORY, STUDYING THE TECHNIQUES OF WESTERN PAINTING, 13TH-20TH CENTURIES</td>
<td>3</td>
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<tr>
<td>HART 308 / ARCH 318</td>
<td>LIVING IN THE CITY IN THE OTTOMAN EMPIRE</td>
<td>3</td>
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<td>HART 319</td>
<td>ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES</td>
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<td>HART 321 / ARCH 331</td>
<td>IMPERIAL CITY: ISTANBUL 1453-1922</td>
<td>3</td>
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<td>HART 322 / ARCH 332</td>
<td>JERUSALEM TO ISFAHAN</td>
<td>3</td>
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<td>HART 324</td>
<td>PERSIANATE ARTS OF THE BOOK</td>
<td>3</td>
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2021-2022 General Announcements PDF Generated 09/22/21
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<tr>
<td>HART 202</td>
<td>AVANT-GARDE AND AFTER: MODERN ART IN EUROPE, 1900-1945</td>
<td>3</td>
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<tr>
<td>HART 205</td>
<td>ART SINCE 1945</td>
<td>3</td>
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<td>HART 207</td>
<td>FOURTEEN ARTWORKS AT THE MFAH</td>
<td>3</td>
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<td>HART 225</td>
<td>INTRODUCTION TO ARCHITECTURAL THINKING</td>
<td>3</td>
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<tr>
<td>HART 250</td>
<td>CONTEMPORARY EUROPEAN CINEMA</td>
<td>4</td>
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<td>HART 257</td>
<td>ART AND ART HISTORY OF THE LONG NINETEENTH CENTURY</td>
<td>3</td>
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<td>HART 263</td>
<td>EPISODES IN THE HISTORY OF PHOTOGRAPHY: FROM INVENTION TO THE PRESENT</td>
<td>3</td>
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<tr>
<td>HART 265</td>
<td>A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA</td>
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<tr>
<td>HART 280</td>
<td>HISTORY &amp; AESTHETICS OF FILM</td>
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<td>HART 281</td>
<td>THE BEGINNINGS OF CINEMA</td>
<td>3</td>
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<td>HART 283</td>
<td>AUTEUR FILM: CASE STUDIES OF THREE AUTEURS</td>
<td>3</td>
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<td>HART 284</td>
<td>NONFICTION FILM</td>
<td>4</td>
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<tr>
<td>HART 286</td>
<td>CLASSICAL AND CONTEMPORARY FILM AND THEORY</td>
<td>3</td>
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<td>HART 288</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
<td>3</td>
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<td>HART 289</td>
<td>POST WAR: ART IN EUROPE, 1945-2000</td>
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<td>TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING,</td>
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<tr>
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<td>13TH-20TH CENTURIES</td>
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<td>LIVING IN THE CITY IN THE OTTOMAN EMPIRE</td>
<td>3</td>
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<td>HART 310</td>
<td>BRAZIL BUILT: THE CLINIC, THE TROPICAL, AND THE AESTHETIC</td>
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<td>POLITICS OF CULTURAL HERITAGE IN THE MODERN MIDDLE EAST, 1800 TO THE</td>
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<td>ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS</td>
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<td>HART 317</td>
<td>MODERN ART AND MONSTROSITY</td>
<td>3</td>
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<td>HART 321</td>
<td>IMPERIAL CITY: ISTANBUL 1453-1922</td>
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<td>HART 322</td>
<td>JERUSALEM TO ISFAHAN</td>
<td>3</td>
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<td>MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE</td>
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<td>CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME</td>
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<td>HART 328</td>
<td>EPITHANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE</td>
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<td>HART 329</td>
<td>STREETS AND URBAN LIFE: PARIS TO ISTANBUL</td>
<td>3</td>
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<td>HART 334</td>
<td>PICASSO, POLLOCK, WARHOL</td>
<td>3</td>
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<td>HART 336</td>
<td>CINEMA AND THE CITY</td>
<td>3</td>
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<td>HART 345</td>
<td>FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)</td>
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<td>HART 346</td>
<td>SEPIAN: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE</td>
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<td>HART 347</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
<td>3</td>
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<tr>
<td>HART 348</td>
<td>TRENDS IN CONTEMPORARY ART</td>
<td>3</td>
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19th century–Present (Modern through Contemporary) Courses
<table>
<thead>
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<th>Code</th>
<th>Title</th>
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<tr>
<td>HART 351</td>
<td>ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES</td>
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<tr>
<td>HART 352</td>
<td>BLACK CONTEMPORARY ART</td>
<td>3</td>
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<td>HART 354</td>
<td>AGE OF ROMANTICISM IN EUROPE</td>
<td>3</td>
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<td>HART 355</td>
<td>JACQUES-LOUIS DAVID: REVOLUTION</td>
<td>3</td>
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<tr>
<td>HART 357</td>
<td>CONSTABLE AND TURNER</td>
<td>3</td>
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<td>HART 358</td>
<td>IMPRESSIONISM AND POST-IMPRESSIONISM</td>
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<td>HART 359</td>
<td>CINEMAS OF URBAN ALIENATION</td>
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<td>WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS</td>
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<td>HART 365</td>
<td>ART BETWEEN THE WARS: EUROPEAN MODERNISM, 1918-1940</td>
<td>3</td>
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<td>HART 367</td>
<td>ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE</td>
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<td>LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES</td>
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<td>HART 379</td>
<td>THE AESTHETICS OF REALISM: FROM COURBET TO THE WIRE</td>
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<td>HART 380</td>
<td>SURVEY OF AMERICAN FILM AND CULTURE</td>
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<td>HART 381</td>
<td>COLLAGE AND ITS HISTORIES</td>
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<td>HART 382</td>
<td>MODALITIES OF CINEMA</td>
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<td>HART 383</td>
<td>GLOBAL CINEMA</td>
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<td>HART 386</td>
<td>DADA</td>
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<td>HART 387</td>
<td>HOLOCAUST MEMORY IN MODERN GERMANY</td>
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<td>HART 388</td>
<td>POST WAR EUROPEAN CINEMA</td>
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<td>HART 389</td>
<td>JUSTICE AND CINEMA</td>
<td>3</td>
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<td>PLACE AND MEMORY IN MIDDLE EASTAN AND EUROPEAN CINEMA</td>
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<td>FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY</td>
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<td>HART 400</td>
<td>BAYOU BEND UNDERGRADUATE INTERNSHIP I</td>
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<td>HART 401</td>
<td>BAYOU BEND UNDERGRADUATE INTERNSHIP II</td>
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<td>HART 406</td>
<td>ICONOCLASMS: THE DESTRUCTION OF IMAGES</td>
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<td>HART 407</td>
<td>POP ART</td>
<td>3</td>
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<td>HART 413</td>
<td>MURDER AND MODERNISM</td>
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<td>HART 451</td>
<td>MODELS OF ABSTRACTION</td>
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<td>HART 452</td>
<td>MANET(S) AND MODERNISM(S)</td>
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<td>HART 457</td>
<td>VIDEO AND EXPANDED CINEMA</td>
<td>3</td>
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<tr>
<td>HART 461</td>
<td>ART OF THE 60s AND 70s</td>
<td>3</td>
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<td>HART 463</td>
<td>PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY</td>
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<td>HART 465</td>
<td>LATIN AMERICAN BODIES: ON MODERNISM</td>
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<td>EVOLUTION CUSTOM BUILT: ARCHITECTURE, GENETICS, AND THE ANTHROPOCENE</td>
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<td>HART 480</td>
<td>SEMINAR ON FILM AUTHORSHIP: THE NEW HOLLYWOOD</td>
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<td>AUTEUR FILM: CASE STUDIES OF THREE AUTEURS</td>
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<td>HART 493</td>
<td>WALTER BENJAMIN, MEDIA &amp; MODERNITY</td>
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<td>HART 495</td>
<td>READINGS IN MEDIA HISTORY AND THEORY</td>
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### Seminar Courses

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<thead>
<tr>
<th>Code</th>
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<tr>
<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART; ARCHITECTURE AND NATURE</td>
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<tr>
<td>HART 304</td>
<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
<td>3</td>
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<tr>
<td>HART 305</td>
<td>POST WAR: ART IN EUROPE, 1945-2000</td>
<td>3</td>
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<tr>
<td>HART 309</td>
<td>THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETHERAL CITY</td>
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<td>HART 310</td>
<td>BRAZIL BUILT: THE CLINIC, THE TROPICAL, AND THE AESTHETIC</td>
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<td>HART 312</td>
<td>ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION</td>
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<td>HART 314</td>
<td>POLITICS OF CULTURAL HERITAGE IN THE MODERN MIDDLE EAST, 1800 TO THE PRESENT</td>
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<td>HART 315</td>
<td>ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS</td>
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<td>VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES</td>
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<td>HART 317</td>
<td>MODERN ART AND MONSTROSITY</td>
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<td>HART 318</td>
<td>SPECIAL TOPICS IN ANCIENT ART</td>
<td>3</td>
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<td>HART 319</td>
<td>ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES</td>
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<td>HART 321</td>
<td>IMPERIAL CITY: ISTANBUL 1453-1922</td>
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<td>HART 322</td>
<td>JERUSALEM TO ISFAHAN</td>
<td>3</td>
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<td>HART 323</td>
<td>BUDDHIST AND DAOIST ART IN CHINA</td>
<td>3</td>
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<td>PERSIANATE ARTS OF THE BOOK</td>
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<td>MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME</td>
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<td>CLAS 326</td>
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<td>EPHINANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE</td>
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<td>LOOKING AT EUROPEAN PRINTS 1400-1700</td>
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<tr>
<td>HART 334</td>
<td>PICASSO, POLLOCK, WARHOL</td>
<td>3</td>
</tr>
<tr>
<td>HART 336 /</td>
<td>CINEMA AND THE CITY</td>
<td>3</td>
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<td>ASIA 355 /</td>
<td></td>
<td></td>
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<td>FILM 336</td>
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<td>HART 338</td>
<td>HART IN THE WORLD SPRING SEMINAR</td>
<td>3</td>
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<tr>
<td>HART 344</td>
<td>CAPITALISM AND CULTURE</td>
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<td>HART 346 /</td>
<td>SEMINAR ON LOVE: MAKING LOVE IN MODERN ART AND THOUGHT</td>
<td>3</td>
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<td>SEMINAR ON LOVE</td>
<td>3</td>
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<td>A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE</td>
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<td>TRENDS IN CONTEMPORARY ART</td>
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<td>ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES</td>
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<td>HART 352</td>
<td>BLACK CONTEMPORARY ART</td>
<td>3</td>
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<tr>
<td>HART 353</td>
<td>ART AND EMOTION</td>
<td>3</td>
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<td>AGE OF ROMANTICISM IN EUROPE</td>
<td>3</td>
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<td>HART 355</td>
<td>JACQUES-Louis David: Revolution</td>
<td>3</td>
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<td>HART 356</td>
<td>SEX AND MONEY: THE SPECIES DIVIDE</td>
<td>3</td>
</tr>
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<td>HART 357</td>
<td>CONSTABLE AND TURNER</td>
<td>3</td>
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<tr>
<td>HART 359 /</td>
<td>CINEMAS OF URBAN ALIENATION</td>
<td>4</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>FILM 359</td>
<td></td>
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<tr>
<td>HART 361 /</td>
<td>WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS</td>
<td>3</td>
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<td>FILM 361</td>
<td></td>
<td></td>
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<td>HART 362</td>
<td>UPCYCLING: MEANINGFUL REUSE IN ART AND MONUMENTS FROM ANTIQUITY TO TODAY</td>
<td>3</td>
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<td>HART 365</td>
<td>ART BETWEEN THE WARS: EUROPESE MODERNISM, 1918-1940</td>
<td>3</td>
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<tr>
<td>HART 367</td>
<td>ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE</td>
<td>3</td>
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<td>HART 369</td>
<td>STATE OF THE ART</td>
<td>3</td>
</tr>
<tr>
<td>HART 371 /</td>
<td>CHINESE PAINTING</td>
<td>3</td>
</tr>
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<td>ASIA 371</td>
<td></td>
<td></td>
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<td>HART 374</td>
<td>THE VISUAL CULTURE OF THE FRENCH REVOLUTION</td>
<td>3</td>
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<td>HART 375 /</td>
<td>LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES</td>
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<tr>
<td>ARCH 375</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 376 /</td>
<td>EAST &amp; WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE</td>
<td>3</td>
</tr>
<tr>
<td>ASIA 376 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDEM 376</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 377 /</td>
<td>MEDIEVAL MANUSCRIPTS</td>
<td>3</td>
</tr>
<tr>
<td>MDEM 377</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 379</td>
<td>THE AESTHETICS OF REALISM: FROM COURBET TO THE WIRE</td>
<td>3</td>
</tr>
<tr>
<td>HART 380 /</td>
<td>SURVEY OF AMERICAN FILM AND CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 373 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILM 373</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 381</td>
<td>COLLAGE AND ITS HISTORIES</td>
<td>3</td>
</tr>
<tr>
<td>HART 382 /</td>
<td>MODALITIES OF CINEMA</td>
<td>3</td>
</tr>
<tr>
<td>FILM 382</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 383 /</td>
<td>GLOBAL CINEMA</td>
<td>4</td>
</tr>
<tr>
<td>FILM 383</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 385</td>
<td>ARCHITECTURE AND LITERATURE IN ISLAMIC CULTURES</td>
<td>3</td>
</tr>
<tr>
<td>HART 386</td>
<td>DADA</td>
<td>3</td>
</tr>
<tr>
<td>HART 387 /</td>
<td>HOLOCAUST MEMORY IN MODERN GERM</td>
<td>3</td>
</tr>
<tr>
<td>GERM 351</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>HART 388 /</td>
<td>POST WAR EUROPEAN CINEMA</td>
<td>4</td>
</tr>
<tr>
<td>FILM 388</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 389</td>
<td>JUSTICE AND CINEMA</td>
<td>3</td>
</tr>
<tr>
<td>HART 391 /</td>
<td>PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPE CINEMA</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 378 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILM 378</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 396</td>
<td>MEDICAL HUMANITIES VISUAL CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>HART 397</td>
<td>HART IN THE WORLD FIELD STUDY</td>
<td>3</td>
</tr>
<tr>
<td>HART 398 /</td>
<td>FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 339</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 399 /</td>
<td>EXHIBITING SEXUALITIES</td>
<td>3</td>
</tr>
<tr>
<td>SWGS 321</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 406</td>
<td>ICONOCLASMS: THE DESTRUCTION OF IMAGES</td>
<td>3</td>
</tr>
<tr>
<td>HART 407</td>
<td>POP ART</td>
<td>3</td>
</tr>
<tr>
<td>HART 412 /</td>
<td>ADVANCED SEMINAR IN ARCHITECTURE</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 412</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 413</td>
<td>MURDER AND MODERNISM</td>
<td>3</td>
</tr>
<tr>
<td>HART 427</td>
<td>VISUAL CULTURE OF MEDIEVAL PILGRIMAGE</td>
<td>3</td>
</tr>
<tr>
<td>HART 430 /</td>
<td>THE GROTESQUE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 438</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 431 /</td>
<td>ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MDEM 431</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 433</td>
<td>THE BAYEUX TAPESTRY AND THE ANGLO-NORMAN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>HART 435 /</td>
<td>MULTICULTURAL EUROPE, 1400-1700</td>
<td>3</td>
</tr>
<tr>
<td>HIST 443 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDEM 435</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 451</td>
<td>MODELS OF ABSTRACTION</td>
<td>3</td>
</tr>
<tr>
<td>HART 452</td>
<td>MANET(S) AND MODERNISM(S)</td>
<td>3</td>
</tr>
<tr>
<td>HART 457 /</td>
<td>VIDEO AND EXPANDED CINEMA</td>
<td>3</td>
</tr>
<tr>
<td>FILM 455</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 460</td>
<td>CHINESE BUDDHIST WOODCUTS 850-1450</td>
<td>3</td>
</tr>
<tr>
<td>HART 461</td>
<td>ART OF THE 60s AND 70s</td>
<td>3</td>
</tr>
<tr>
<td>HART 463 /</td>
<td>PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 452</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART 465</td>
<td>LATIN AMERICAN BODIES: ON MODERNISM</td>
<td>3</td>
</tr>
<tr>
<td>HART 473</td>
<td>EVOLUTION CUSTOM BUILT: ARCHITECTURE, GENETICS, AND THE ANTHROPOCENE</td>
<td>3</td>
</tr>
</tbody>
</table>
Policies for the Minor in Art History

Program Restrictions and Exclusions

Students pursuing the minor in Art History should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Art History should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
- Transfer credit received via the articulation of advanced placement (AP) credit (HART 100), international baccalaureate (IB) credit, or A-level credit will not be considered towards minor requirements.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Additional Information

For additional information, please see the Art History website: https://arthistory.rice.edu/

Opportunities for the Minor in Art History

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Art History website: https://arthistory.rice.edu/

Transnational Asian Studies

Contact Information

Transnational Asian Studies
https://asianstudies.rice.edu/
305 Lovett Hall
713-348-5843
Lisa A. Balabanlilar
Department Chair and Director, Chao Center
balabanlilar@rice.edu

Rice's Asian Studies program, and the Transnational Asian Studies department, focuses on transnational, transhistoric, diasporic, and global movements of peoples and cultures of Asia.

The Department of Transnational Asian Studies houses the BA degree with a major in Asian Studies, which offers a comprehensive overview of the geography, history, people, movements, and cultures of Asia at the undergraduate level. The program is structured to train its students as strong researchers. Additionally, the department offers a minor in Asian Studies.

Bachelor's Program

- Bachelor of Arts (BA) Degree with a Major in Asian Studies (p. 277)

Minor

- Minor in Asian Studies (p. 280)

Asian Studies (and the Transnational Asian Studies department) does not currently offer an academic program at the graduate level.

Department Chair

Lisa A. Balabanlilar

Director, Chao Center

Lisa A. Balabanlilar

Associate Directors and Advisors

Haejin E. Koh
Steven W. Lewis
Asian Studies (ASIA)

ASIA 201 - UNDERSTANDING GANDHIAN NONVIOLENCE: AN EXPLORATION OF HINDUISM, JAINISM, AND CHRISTIANITY
Short Title: GANDHIAN NONVIOLENCE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level

ASIA 202 - RACE, NATION, AND EMPIRE IN MODERN ASIA
Short Title: RACE IN MODERN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines histories of racial thinking (since the mid-19th century) in contemporary Asia. It draws on interdisciplinary scholarship, as well as film, television, and literary texts. This course asks how is race produced, perceived, and experienced in relation to imperialism, nationalism, revolution, war, and globalization in the region?

ASIA 212 - PERSPECTIVES ON MODERN ASIA
Short Title: PERSPECTIVES ON MODERN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level

ASIA 213 - TRANSNATIONAL ART AND CULTURE IN ASIA BEFORE THE TWENTIETH CENTURY
Short Title: TRANSNATIONAL ART AND CULTURE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This introductory course to art and culture in Asia explores transnational connections and exchanges before the twentieth century. Major topics include the Silk Road, Buddhist grottoes, maritime trade routes and shipwrecks, cosmopolis and urban lives, court art, literati culture, ink painting, gardens, the Mongol Empire, Jesuit influence, and East-West connections.
ASIA 218 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA
Short Title: EAST/NORTHEAST ASIA FILM HIST
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Cross-list: RELI 231.

ASIA 221 - THE LIFE OF THE PROPHET MUHAMMAD
Short Title: LIFE OF PROPHET MUHAMMAD
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur'an, Ibn Hisham, and Haykal. Cross-list: RELI 221.

ASIA 222 - THE WORLD AND SOUTH ASIA
Short Title: WORLD AND SOUTH ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to important 20th and 21st-century writers in English from South Asia - the region that includes India, Pakistan, Bangladesh and Sri Lanka. Readings include award-winning and bestselling works (fiction and non-fiction) by writers who address a wide range of issues including national and cultural identity, colonialism, sexuality, religion, globalization and political violence. Cross-list: ENGL 222.

Course URL: www.english.rice.edu (http://www.english.rice.edu)

ASIA 230 - ASIAN RELIGIONS IN AMERICA
Short Title: ASIAN RELIGIONS IN AMERICA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey course on Hinduism, Buddhism, Taoism, and Jainism in America, from the colonial period to the present, with a special focus on American metaphysical religion, the counterculture, the New Age, and the history of Western Colonialism, transcultural encounter, translation and immigration. Cross-list: RELI 230.

ASIA 231 - AMERICAN METAPHYSICAL RELIGION
Short Title: AMERICAN METAPHYSICAL RELIGION
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Beginning with a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, California, as a unique window into some of the different ways the tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Cross-list: RELI 231.

ASIA 232 - RELIGIONS FROM INDIA
Short Title: RELIGIONS FROM INDIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Cross-list: RELI 232.

ASIA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory, Lecture/Laboratory, Independent Study, Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

ASIA 251 - SEX, MONEY, AND POWER AROUND THE WORLD
Short Title: SEX, MONEY, AND POWER
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An interdisciplinary course exploring lives and well-being in the context of gendered international and domestic politics and economic processes. Emphasis on the implications of power relations at levels from the household to the global for women and men around the world (with particular attention to Asia). Cross-list: POLI 250, SWGS 250.
ASIA 282 - TRANSNATIONAL ASIAN FOOD: DIVERSITY AND AUTHENTICITY
Short Title: TRANSNATIONAL ASIAN FOOD
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Can food be both authentic and transnational at the same time? By looking into diverse Asian food items, their traditions, changing recipes and consumption, and the meanings attached to them in diaspora, this class invites students to inquire into the concepts of authenticity and diversity.

ASIA 295 - INTRODUCTION TO TRANSNATIONAL ASIAN STUDIES
Short Title: INTRO TO TRANSNATIONAL ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: As a gateway course for the Asian Studies major, Introduction to Transnational Asia is designed to give students diverse perspectives of learning about Asia. The course combines lecture, historical and contemporary textual analysis, group study, mini research project, and presentation.

ASIA 299 - DISCOVER ASIA IN HOUSTON
Short Title: DISCOVER ASIA IN HOUSTON
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The goal of this course is to help students learn about others' cultures, leading them to critically reflect on their own culture. Through readings, audio-visual and hands-on materials, guest lectures, and field trips, students are exposed to diverse cultures of Asia in Houston. International students and domestic students are paired to form a team for the final presentation. Department Permission Required.

ASIA 301 - EXPLORE & EXPERIENCE HISTORY, CULTURE, RITUALS, DEVOTION, AND MEDITATION THROUGH THE JAIN TRADITION
Short Title: THE JAIN WORLDVIEW
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Beginning with Jainism's roots in India, we will understand the rich and diverse beliefs and practices of Jainism and then reflect upon its transnational form. Students will further inquire into the dichotomy of tradition and modernity, preservation and transformation to argue how religions migrate, as a result of their adherents. Distribution 1 credit effective Fall 2021.

ASIA 302 - STUDIES IN ASIAN PHILOSOPHY
Short Title: STUDIES IN ASIAN PHILOSOPHY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores key themes of philosophy, such as the nature of existence, analysis of language and cognition, and social and ecological ethics, in traditions such as Buddhism, Hinduism, Jainism, Daoism, and Confucianism. Emphasis is placed on how philosophy changes over time and is applied to diverse real-world agendas.

ASIA 304 - HUMAN MOBILITY IN THE ASIA-PACIFIC
Short Title: HUMAN MOBILITY IN ASIA-PACIFIC
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the cross-disciplinary study of human mobility in the Asia-Pacific. Intra-Asia flows of people will be examined in order to trace their multifaceted implications. On completing the course, students should be able to present their own thinking on complex issues related to global migration.
ASIA 305 - ETHNOGRAPHIC RESEARCH IN/OF HOUSTON ASIA
Short Title: ETHNOGRAPHY IN/OF HOUSTON ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers comprehensive training to students interested in learning about ethnographic research, analysis, and writing in/of the contemporary Asia in a global context, with a special focus on Houston. Seminar-style discussion on ethnographic research methods and hands-on field research on several Asian-American communities will comprise the major course activities.

ASIA 315 - GENDER AND ISLAM
Short Title: GENDER AND ISLAM
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the lives of Muslim women in Asia, the Middle East, Europe, and North America; analyzes constructions of gender in the Islamic world overtime; the challenges faced from such diverse quarters as colonial administrators, Western feminists, and states; as well as movements and individuals within the Muslim world. Cross-list: RELI 315, SWGS 315.

ASIA 322 - INTRODUCTION TO BUDDHISM: ARTS FOR LIFE
Short Title: INTRODUCTION TO BUDDHISM
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Cross-list: RELI 322.

ASIA 323 - BUDDHIST AND DAOIST ART IN CHINA
Short Title: BUDDHIST & DAOIST ART IN CHINA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual materials that shed light on pre-modern China's Buddhist, Daoist, and other diverse religious and ritual practices. We will examine the range of social and ethnic backgrounds that participated in the making, spreading, and use of religious visual culture in traditional China. Topics may include: funeral art and ritual; images of heaven, hell, and rebirth; and representations of gender, among others. Students will develop analytical skills, critical thinking skills, and holistic views regarding the meaning, function, and style of the arts of diverse religious traditions in China. Cross-list: HART 323, MDEM 323.

ASIA 328 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook "The Modern Girl Around the World," this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: HIST 384, SWGS 384.

ASIA 330 - INTRODUCTION TO TRADITIONAL CHINESE POETRY
Short Title: INTRO TO TRAD CHINESE POETRY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation. Cross-list: CHIN 330, MDEM 370.
ASIA 332 - MODERN CHINESE LITERATURE AND ITS MOVIE ADAPTATIONS
Short Title: FILM & MODERN CHINESE LIT
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings in English translation. Cross-list: CHIN 335, MDEM 375.

ASIA 334 - TRADITIONAL CHINESE TALES AND SHORT STORIES
Short Title: TRADITIONAL CHINESE TALES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Learning Chinese literature and culture through reading vernacular stories, fantastic tales, biographies, and philosophical parables. Discussion topics: literature and Confucianism, Taoism and Buddhism; literature and history; self and other; fantastic world and reality; women as domestic aliens and aliens portrayed as women, etc. Readings are in English translation. Cross-list: CHIN 334.

ASIA 335 - INTRODUCTION TO CLASSICAL CHINESE NOVELS
Short Title: CLASSICAL CHINESE NOVELS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings in English translation. Cross-list: CHIN 335, MDEM 375.

ASIA 337 - GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Short Title: GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines fundamental concepts of South Asian religious geography in a variety of historical periods and from diverse theoretical approaches. Using early texts, contemporary ethnographies, and numerous objects of visual and material culture, we explore diverse religious experiences of landscape in Buddhism, Hinduism, and Jainism. Graduate/Undergraduate Equivalency: ASIA 537. Mutually Exclusive: Cannot register for ASIA 337 if student has credit for ASIA 537.

ASIA 349 - URBAN LAB ISTANBUL
Short Title: URBAN LAB ISTANBUL
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 355 (may be taken concurrently) or POLI 362 (may be taken concurrently) or POLI 464 (may be taken concurrently) or POLI 562 (may be taken concurrently)
Description: This course examines the dynamics of urban politics and policy in an emerging global city - Istanbul. In addition to social, political and economic issues, we will also focus on history, culture, language, architecture and the arts. Weekly class sessions will include lectures, case studies, guest lecturers, and group work on research projects. The lab also features an 8-day field research trip to Istanbul. Prerequisites may be taken the same semester as POLI 349/ASIA 349. Instructor Permission Required. Cross-list: POLI 349.

ASIA 353 - EAST ASIAN DEMOCRACIES
Short Title: EAST ASIAN DEMOCRACIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the functioning of the political system in the three principal East Asian democracies: Japan, South Korea, and Taiwan. Particular focus is paid to each country's democratic institutions, electoral politics, and political party system. Cross-list: POLI 353.
ASIA 355 - CINEMA AND THE CITY
Short Title: CINEMA AND THE CITY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class explores representations of the city in 20th and 21st century world cinema. Central concerns will include the city as cinematic protagonist, parallels between urban and cinematic space and the intertwined histories of both film and urban design over the last century. Cross-list: FILM 336, HART 336.

ASIA 356 - GENOMIC GOVERNANCE IN ASIA
Short Title: GENOMIC GOVERNANCE IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What are the genomic sciences and what impact are they having upon society? This class explores the impact of genomics—the study of genes and their functions—on society with a particular emphasis on India, China, and the U.S. where technological advances have outpaced regulatory oversight and social debate. The course develops skills to think critically about how genomics is reshaping the relationship between self and society, and the very nature of the social itself. The equivalent graduate course requires the final research paper to be about twice as long as the final research paper in this undergraduate course (10,000 vs. 5,000 words). Graduate/Undergraduate Equivalency: ASIA 556.

ASIA 357 - ALGORITHMIC CULTURES IN ASIA
Short Title: ALGORITHMIC CULTURES IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Algorithms are a series of step-by-step instructions in a procedure that finishes and which is shown to work in all cases. This course addresses the formation of algorithmic cultures through the domains of digitality and ontology in South Asia and the Middle East. It introduces students to the concepts of algorithmic neutrality, discrimination, management and governance. The course explores how deep-learning algorithms may undergird an intensification of surveillance and securitization technologies with profound effects on human and post-human futures. Graduate/Undergraduate Equivalency: ASIA 557.

ASIA 371 - CHINESE PAINTING
Short Title: CHINESE PAINTING
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines Chinese painting from ancient times to the early twentieth century. Issues of examination include themes, styles, and functions of Chinese painting; the interrelationship between paintings and the intended viewers; regionalism; images and words; foreign elements in Chinese painting. Cross-list: HART 371.

ASIA 372 - CHINESE ART AND VISUAL CULTURE
Short Title: CHINESE ART AND VISUAL CULTURE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Chinese Art and Visual Culture is an introductory seminar studying the history of traditional Chinese art and visual culture from ancient times to the nineteenth century. This course draws upon masterpieces and monuments from both archaeological finds and museum collections, including bronze vessels, funeral objects, painting, calligraphy, sculptures, architecture, ceramics, and so on. Designed for students who have no background in Chinese art, Chinese history, or art history, the seminar uses diverse teaching materials in multiple media beyond traditional textbook-based readings to achieve four main goals: 1) Develop visual literacy through a direct encounter with objects. The development of specialized vocabulary to describe, analyze, and communicate function, composition, and meaning in art. 2) Understand major artistic movements of art and architecture within historical, social, political contexts. 3) Develop specialized knowledge in art from specific geographical locations (e.g. China), time periods, artists or artistic movements. 4) Evaluate and use primary and secondary source materials. Cross-list: HART 372, MDEM 373.

ASIA 376 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE
Short Title: EAST AND WEST
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: HART 376, MDEM 376.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASIA 377</td>
<td>CHINESE POLITICS IN COMPARATIVE PERSPECTIVE</td>
<td>CHINESE POLITICS</td>
<td>Asian Studies</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students</td>
<td>Undergraduate Upper-Level</td>
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<tr>
<td>Description: This course explores the range of theories and empirical research methodologies from comparative political science, political-economy, and Asian studies commonly applied to understanding Chinese politics: political participation, political organizations, collective action and popular protest, political culture, and political institutional change. This course will be a seminar requiring weekly presentations, extensive readings at the graduate level in social science, and an original research paper. There is no prerequisite for this course, but participants are assumed to already possess extensive knowledge of Chinese history, culture, and society. Cross-list: POLI 377. Mutually Exclusive: Cannot register for ASIA 377 if student has credit for ASIA 489/POLI 489.</td>
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<td>ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
<td>CROSS-CULTURAL ASIAN MUSIC</td>
<td>Asian Studies</td>
<td>Standard Letter</td>
<td>Seminar</td>
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<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students</td>
<td>Undergraduate Upper-Level</td>
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<td>Description: This course will focus on traditional and contemporary art music from Asia. The classroom lectures are designed to introduce and accompany one or two events which will include live performances, workshops, lectures by invited performers and scholars. This course may be repeated since each year the countries and invited guest performers/scholars will represent different geographical areas. Cross-list: MUSI 378. Repeatable for Credit.</td>
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<td>ASIA 381</td>
<td>SOUTH ASIAN DIASPORAS</td>
<td>SOUTH ASIAN DIASPORAS</td>
<td>Asian Studies</td>
<td>Standard Letter</td>
<td>Seminar</td>
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<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students</td>
<td>Undergraduate Upper-Level</td>
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<tr>
<td>Description: People of South Asian heritage constitute one of the largest, and most religiously, culturally, linguistically diverse diasporas in the world. This upper-division seminar examines the historical and contemporary experiences of South Asian men and women who established communities in Africa, the Americas, Australia, Europe, the Middle East, and Southeast Asia.</td>
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<td>ASIA 382</td>
<td>RUTH BENEDICT AND JAPAN: THE TEXT THAT SHAPED POSTWAR JAPANESE CULTURE</td>
<td>RUTH BENEDICT AND JAPAN</td>
<td>Asian Studies</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students</td>
<td>Undergraduate Upper-Level</td>
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<td>Description: Written during WWII as part of enemy studies, Ruth Benedict’s Chrysanthemum and the Sword guided the postwar US occupation of Japan. Since its 1948 translation into Japanese, the book has remained one of the longest-selling titles in Japan. This course examines the historical influence of this book in (re)building postwar Japanese cultural identity against the backdrop of the changing US-Japan relations, focusing on the dramatic shift in Japan’s position from existential enemy of the US to staunch ally in the Cold War in East Asia.</td>
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<td>ASIA 387</td>
<td>ASIAN AMERICAN CONTEMPORARY COMMUNITIES</td>
<td>ASIAN AMERICAN COMMUNITIES</td>
<td>Asian Studies</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students</td>
<td>Undergraduate Upper-Level</td>
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<td>Description: This interdisciplinary course will investigate the diverse cultural traditions and shared experiences of Asian Americans in the United States. By analyzing historical works, literary texts, and films, we will explore a range of topics including Asian immigration, gender roles, identity formation, and ethnic media. Cross-list: ANTH 387.</td>
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<td>ASIA 389</td>
<td>INDIAN OCEAN WORLD HISTORY</td>
<td>INDIAN OCEAN WORLD HISTORY</td>
<td>Asian Studies</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students</td>
<td>Undergraduate Upper-Level</td>
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<tr>
<td>Description: The Indian Ocean World presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. Course introduces the region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Cross-list: HIST 389.</td>
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</table>
ASIA 399 - WOMEN IN CHINESE LITERATURE
Short Title: WOMEN IN CHINESE LITERATURE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Cross-list: MDEM 379, SWGS 399.

ASIA 401 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading or research project to be determined by discussions between student(s) and faculty member(s). Department Permission Required.

ASIA 402 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading or research project to be determined by discussions between student(s) and faculty member(s). Department Permission Required.

ASIA 422 - THE ORIGINAL BEAUTY OF CHINESE LITERATURE
Short Title: ORIGINAL BEAUTY OF CHINESE LIT
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will expose students to the best literary works created in the Chinese tradition, both classical and modern, and give them a general introduction to different genres, including poetry, fiction, drama, and philosophical essays. It will improve their language proficiency through reading original texts of Chinese literature. Cross-list: CHIN 422.

ASIA 441 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism, and Christianity. Cross-list: RELI 441.

ASIA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASIA 488 - ASIA AND ENERGY
Short Title: ASIA AND ENERGY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multi-disciplinary study of Asian countries and cultures as to a way to explain production, exchange, consumption and influence of energy on political, economic and social/cultural institutions, including energy security and energy policy formation and resource use theories. Assumes basic knowledge of history and politics of Asian societies and economies.

ASIA 494 - SPECIAL TOPICS IN ASIAN STUDIES
Short Title: SPECIAL TOPICS ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar course explores various cultural topics, not covered in other Asia courses, in Asian studies. The fields may include history, film, linguistics, sociology as well as other fields in the humanities and social sciences. Department Permission Required. Repeatable for Credit.
ASIA 495 - ASIAN STUDIES RESEARCH SEMINAR
Short Title: ASIAN STUDIES RESEARCH SEM
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ASIA 295
Description: This course is designed to elevate the knowledge on Asia acquired by Asian Studies majors in their first two years of study to a higher level and to train them in executing their original research an producing a substantial research paper. Department Permission Required. Graduate/Undergraduate Equivalency: ASIA 695. Mutually Exclusive: Cannot register for ASIA 495 if student has credit for ASIA 695. Repeatable for Credit.

ASIA 501 - ASIAN STUDIES ADVANCED FIELD RESEARCH
Short Title: ADVANCED FIELD RESEARCH
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will learn to gather data first hand either by ethnographic fieldwork or by primary archival source research. Department Permission Required.

ASIA 511 - PRO-SEMINAR ON ADVANCED TRANSCONTINENTAL ASIAN STUDIES
Short Title: PROSEMINAR ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Targeted to be the MA gateway course. This course covers a broad range of topics and debates which have marked the tradition of Asian Studies as well as contemporary scholarship. As the course will cover areas and topics beyond students' immediate thesis subjects, it will equip students with the breadth of reference points befitting a graduate degree holder in Asian Studies. Instructor Permission Required. Repeatable for Credit.

ASIA 521 - ADVANCED READING AND WRITING IN ASIAN STUDIES
Short Title: ADV ASIAN READING & WRITING
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course requires students to closely read and thoroughly comprehend a substantial amount of text written in Asian language(s). By so doing, the course will help students to: 1) refine translation and comprehension skills and 2) understand how to select and logically reference Asian-language texts for their research. Instructor Permission Required. Repeatable for Credit.

ASIA 531 - ASIAN STUDIES METHODOLOGY SEMINAR I
Short Title: METHODOLOGY SEMINAR I
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to 1) introduce students to a wide range of humanistic and social scientific research methods and their theoretical implications, and 2) offer students practice in a method of their own choice on a mini-research practicum. Department Permission Required. Repeatable for Credit.

ASIA 532 - ASIAN STUDIES METHODOLOGY SEMINAR II
Short Title: METHODOLOGY SEMINAR II
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to 1) introduce students to a wide range of humanistic and social scientific research methods and their theoretical implications, and 2) offer students practice in a method of their own choice on a mini-research practicum. Department Permission Required. Repeatable for Credit.

ASIA 537 - GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Short Title: GEOGRAPHIES OF RELI IN S ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines fundamental concepts of South Asian religious geography in a variety of historical periods and from diverse theoretical approaches. Using early texts, contemporary ethnographies, and numerous objects of visual and material culture, we explore diverse religious experiences of landscape in Buddhism, Hinduism, and Jainism. The graduate course requires the final research paper to be about twice as long as the final research paper in the undergraduate course (5,000 vs. 2,100-2,700 words). Graduate/Undergraduate Equivalency: ASIA 337. Mutually Exclusive: Cannot register for ASIA 337 if student has credit for ASIA 337.

ASIA 541 - THESIS RESEARCH IN ASIAN STUDIES
Short Title: THESIS RESEARCH IN ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to guide students to identify the most optimal topic of research/thesis proportionate to their interest as well as ability, Department Permission Required. Repeatable for Credit.
ASIA 551 - ASIAN STUDIES GRADUATE SEMINAR
Short Title: ASIAN STUDIES GRADUATE SEMINAR
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will learn to present their research in an exciting broadly persuasive manner to a mixed audience. Department Permission Required. Repeatable for Credit.

ASIA 556 - GENOMIC GOVERNANCE IN ASIA
Short Title: GENOMIC GOVERNANCE IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What are the genomic sciences and what impact are they having upon society? This course explores the impact of genomics—the study of genes and their functions—on society with a particular emphasis on India, China, and the U.S. where technological advances have outpaced regulatory oversight and social debate. The course develops skills to think critically about how genomics is reshaping the relationship between self and society, and the very nature of the social itself. This graduate course requires the final research paper to be about twice as long as the final research paper in the equivalent undergraduate course (10,000 vs. 5,000 words). Graduate/Undergraduate Equivalency: ASIA 356.

ASIA 557 - ALGORITHMIC CULTURES IN ASIA
Short Title: ALGORITHMIC CULTURES IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Algorithms are a series of step by step instructions in a procedure that finishes and which is shown to work in all cases. The course explores the formation of algorithmic cultures through the domains of digitality and ontology in South Asia and the Middle East. It introduces students to the concepts of algorithmic neutrality, discrimination, management and governance. The course explores how deep-learning algorithms may undergird an intensification of surveillance and securitization technologies with profound effects on human and post-human futures. The graduate course requires the final research paper to be about twice as long as the final research paper in the undergraduate course (10,000 vs. 5,000 words). Graduate/Undergraduate Equivalency: ASIA 357.

ASIA 561 - THESIS WRITING: INDEPENDENT STUDY IN ASIAN STUDIES
Short Title: THESIS WRITINGS: IND STUDY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A continuation of ASIA 541, this course is designed to guide students in writing a complete thesis on their chosen topic proportionate to their interest as well as ability. Department Permission Required. Repeatable for Credit.

ASIA 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory, Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASIA 695 - ASIAN STUDIES RESEARCH SEMINAR
Short Title: ASIAN STUDIES RESEARCH SEM
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: To elevate the knowledge on Asia acquired by AS majors in their undergraduate years to a graduate level with more depth and focus, and to train AS majors in designing and executing their original research and offer them an opportunity to produce a substantial research paper based on bibliographic research and other forms of data-gathering. In 695 (vs. 495), students will be assigned one additional reading per week throughout the semester. Department Permission Required. Graduate/Undergraduate Equivalency: ASIA 495. Mutually Exclusive: Cannot register for ASIA 695 if student has credit for ASIA 495. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject: ASIA

Program Description and Code
- Asian Studies: ASIA

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Asian Studies: ASIA
Undergraduate Minor Description and Code

• Minor in Asian Studies: ASIM

CIP Code and Description

• ASIA Major/Program: CIP Code/Title: 05.0103 - Asian Studies/Civilization
• ASIM Minor: CIP Code/Title: 05.0103 - Asian Studies/Civilization

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Asian Studies

Program Learning Outcomes for the BA Degree with a Major in Asian Studies

Upon completing the BA degree with a major in Asian Studies, students will be able to:

1. Develop a broad historical and geographic knowledge about Asia as a transnational region.
2. Design and execute independent research on Asia by using either social scientific or humanistic methods.
3. Demonstrate the ability to incorporate Asian-language sources into academic research.

Requirements for the BA Degree with a Major in Asian Studies

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Asian Studies must complete:

• A minimum of 10 courses (30 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 4 courses (12 credit hours) taken at the 300-level or above.
• Demonstration of advanced language proficiency in an Asian language.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>Total Credit Hours Required for the Major in Asian Studies</td>
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<tr>
<td>Total Credit Hours Required for the BA degree with a Major in Asian Studies</td>
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Degree Requirements

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<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>ASIA 295</td>
<td>INTRODUCTION TO TRANSPORTATIONAL ASIAN STUDIES</td>
<td>3</td>
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Elective Requirements

Select 8 elective courses from course offerings with predominantly Asian content (see course list below) 1,2

Capstone Course

ASIA 495 ASIAN STUDIES RESEARCH SEMINAR 3

Advanced Language Proficiency

Students must demonstrate advanced language proficiency in an Asian language 1

Total Credit Hours Required for the Major in Asian Studies 30

Additional Credit Hours to Complete Degree Requirements 2

University Graduation Requirements (p. 29) 2

Total Credit Hours 30

Footnotes and Additional Information

Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Students must demonstrate advanced language proficiency in an Asian language, and this proficiency requirement may be fulfilled by courses taken at Rice University, through AP credit received, or other means. Up to 4 of the 8 required elective courses may be Asian language courses (Arabic, Chinese, Japanese, Korean, or Russian). Students are encouraged to consult with a major advisor regarding this point.

2 A minimum of 3 courses (9 credit hours) must be taken from at least three different subject codes (i.e., HART, HIST, RELI, etc.) to meet Elective Requirements.

Course List to Satisfy Requirements

Elective Requirements

Students must complete a total of 8 courses (24 credit hours) from course offerings with predominantly Asian content, which can be found below. Of these 8 courses, up to 4 may be Asian language courses (Arabic, Chinese, Japanese, Korean, or Russian), and at least 3 courses (9 credit hours) must be taken from different subject codes (i.e., HART, HIST, RELI, etc.).

Architecture

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2021-2022 General Announcements PDF Generated 09/22/21
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### Asian Studies

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<td>INTRODUCTION TO TRADITIONAL CHINESE POETRY</td>
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<td>INTRODUCTION TO CLASSICAL CHINESE NOVELS</td>
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### Footnotes and Additional Information

In addition to the courses listed here, all ASIA program course offerings, many of which are cross-listed, may be used to satisfy requirements.

### English

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<td>THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING</td>
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<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
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<td>STATE, SOCIETY, AND THE ECONOMY IN THE MODERN MIDDLE EAST</td>
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<td>COMPARATIVE MODERNIZATION OF CHINA AND JAPAN</td>
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<td>HIST 496</td>
<td>CHINESE WOMEN THROUGH TIME</td>
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### Policies for the BA Degree with a Major in Asian Studies

#### Program Restrictions and Exclusions

Students pursuing the major in Asian Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the major in Asian Studies should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s transfer credit advisor) on an individual case-by-case basis.

### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process ([https://registrar.rice.edu/facstaff/courseprocess/](https://registrar.rice.edu/facstaff/courseprocess/)). Additionally, as part of an annual roll call ([https://registrar.rice.edu/facstaff/distribution_credit/](https://registrar.rice.edu/facstaff/distribution_credit/)) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Asian Studies (ASIA) develop students’ critical and aesthetic understanding of texts and the arts. They lead students to the analytical examination of ideas and values and introduce students to the variety of approaches and methods with which different disciplines approach intellectual problems. Additionally, they engage students with words of culture that have intellectual importance by virtue of the ideas they express, their historical influence, their mode of expression, or their critical engagement with established cultural assumptions and traditions.

### Additional Information

For additional information, please see the Asian Studies website: [https://asianstudies.rice.edu/](https://asianstudies.rice.edu/).
Opportunities for the BA Degree with a Major in Asian Studies

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Asian Studies website: https://asianstudies.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Minor in Asian Studies

Program Learning Outcomes for the Minor in Asian Studies

Upon completing the minor in Asian Studies, students will be able to:

1. Define and apply appropriate disciplinary and/or interdisciplinary methodologies, vocabularies, concepts, and theories to respond critically to questions within the field of transnational Asian studies.
2. Define and respond to research questions and scholarly debates within the field, including analyzing primary and secondary sources, draw conclusions from the analysis of these sources, and cite evidence in support of conclusions.

Requirements for the Minor in Asian Studies

Students pursuing the minor in Asian Studies must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 282) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Minor Requirements

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Elective Requirements

Select 5 courses from course offerings with predominantly Asian content (see course lists below)

Footnotes and Additional Information

1 A minimum of 3 courses (9 credit hours) of Elective Requirements must be selected at the 300-level or above.
2 A maximum of 2 courses (6 credit hours) from Asian language study (Arabic, Chinese, Japanese, Korean, or Russian) may apply toward minor requirements.

Course List to Satisfy Requirements

Elective Requirements

Students must complete a total of 5 courses (15 credit hours) from course offerings with predominantly Asian content, which can be found below. Of these 5 courses, up to 2 may be Asian language courses (Arabic, Chinese, Japanese, Korean, or Russian), and at least 3 courses (9 credit hours) must be taken from different subject codes (i.e., HART, HIST, RELI, etc.). Course offerings may vary from year to year, and students are urged to consult with the undergraduate advisor or with the director at the beginning of each semester. Please note that not all courses listed below are offered every academic year.

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**Footnotes and Additional Information**

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<td>CONTEMPORARY CHINA</td>
<td>3</td>
</tr>
<tr>
<td>HIST 213</td>
<td>THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING</td>
<td>3</td>
</tr>
<tr>
<td>HIST 219</td>
<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
<td>3</td>
</tr>
<tr>
<td>HIST 236</td>
<td>STATE, SOCIETY, AND THE ECONOMY IN THE MODERN MIDDLE EAST</td>
<td>3</td>
</tr>
<tr>
<td>HIST 240</td>
<td>ANCIENT CHINESE THOUGHT</td>
<td>3</td>
</tr>
<tr>
<td>HIST 271</td>
<td>HISTORY OF SOUTH ASIA</td>
<td>3</td>
</tr>
<tr>
<td>HIST 275</td>
<td>MODERN MIDDLE EAST</td>
<td>3</td>
</tr>
<tr>
<td>HIST 278</td>
<td>MODERN ARAB HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 281 / MDEM 281</td>
<td>GOLDEN AGE OF ISLAM</td>
<td>3</td>
</tr>
<tr>
<td>HIST 303</td>
<td>OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>HIST 309</td>
<td>CHINESE INTELLECTUAL HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 320</td>
<td>IMPERIAL GARDENS: A CULTURAL COMPARISON</td>
<td>3</td>
</tr>
<tr>
<td>HIST 342</td>
<td>MODERN CHINA</td>
<td>3</td>
</tr>
<tr>
<td>HIST 378</td>
<td>MODERN ARAB HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 402</td>
<td>CHINESE WOMEN THROUGH TIME</td>
<td>3</td>
</tr>
<tr>
<td>HIST 408</td>
<td>THE JAPANESE EMPIRE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 424</td>
<td>RAJ AND RESISTANCE</td>
<td>3</td>
</tr>
<tr>
<td>HIST 433</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
<td>3</td>
</tr>
<tr>
<td>HIST 434</td>
<td>ISLAM AND THE WEST</td>
<td>3</td>
</tr>
<tr>
<td>HIST 436</td>
<td>AMERICA IN THE MIDDLE EAST</td>
<td>3</td>
</tr>
<tr>
<td>HIST 491</td>
<td>COEXISTENCE AND SECTARIANISM IN THE MIDDLE EAST</td>
<td>3</td>
</tr>
<tr>
<td>HIST 494</td>
<td>RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA</td>
<td>3</td>
</tr>
</tbody>
</table>
Departmental Transfer Credit Guidelines

Students pursuing the minor in Asian Studies should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Asian Studies (ASIA) develop students’ critical and aesthetic understanding of texts and the arts. They lead students to the analytical examination of ideas and values and introduce students to the variety of approaches and methods with which different disciplines approach intellectual problems. Additionally, they engage students with words of culture that have intellectual importance by virtue of the ideas they express, their historical influence, their mode of expression, or their critical engagement with established cultural assumptions and traditions.

Additional Information

For additional information, please see the Asian Studies website: https://asianstudies.rice.edu

Opportunities for the Minor in Asian Studies

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Asian Studies website: https://asianstudies.rice.edu

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.
To train the next generation of leaders in bioengineering, Rice’s Bioengineering department has created an innovative teaching program that transcends boundaries between bioengineering, basic science, and clinical medicine, integrating the academic, industrial, and societal perspectives. Our hands-on approach to education is supported by a long standing tradition of cross-disciplinary research and education.

The Rice Bioengineering program is a comprehensive training program that provides students with:

- A fundamental understanding of the life and medical sciences.
- Advanced analytical and engineering capabilities.
- Translational research capability for transferring biotechnical advances from bench to bedside.

With this educational background, graduates will be well prepared to participate in independent or collaborative research and development endeavors in industry or academia.

Graduate studies in bioengineering include areas such as biomaterials, biofabrication, and mechanobiology; biomedical imaging and instrumentation; cellular and molecular engineering and synthetic biology; and computational and theoretical bioengineering and biophysics. Research areas include biomechanics, biological systems modeling, bioinformatics, cellular and molecular engineering, controlled release technologies, metabolic engineering, spectroscopy, statistical mechanics, synthetic biology, systems engineering and instrumentation, thrombosis, tissue engineering, and transport processes.

**Bachelor’s Program**

- Bachelor of Science in Bioengineering (BSBE) Degree (p. 305)

**Master's Programs**

- Master of Bioengineering (MBE) Degree (p. 310)
- Master of Science (MS) Degree in the field of Bioengineering*

**Doctoral Program**

- Doctor of Philosophy (PhD) Degree in the field of Bioengineering (p. 308)

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* Although students are not normally admitted to a Master of Science (MS) degree program, graduate students may earn the MS as they work towards the PhD.

**Chair**

Gang Bao

**Professors**

Gang Bao
Rebekah Anna Drezek
Kathryn Jane Grande-Allen
Oleg A. Igoshin
Antonios G. Mikos
Rebecca Richards-Kortum
Ka-Yiu San
Tomasz Tkaczyk

**Associate Professors**

Michael Diehl
Robert M. Raphael
Jeffrey J. Tabor
David Zhang

**Assistant Professors**

Caleb Bashor
Isaac Hilton
George Lu
Kevin McHugh
Jordan Miller
Jerzy Szablowski
Omid Veiseh

**Teaching Professor**

Z. Maria Oden

**Associate Teaching Professors**

Renata Ramos
Matthew Wettergreen

**Assistant Research Professors**

Buhle Moyo
Qingbo Zhang

**Lecturers**

Sabia Abidi
Bilal Ghosn
David Li
Irena Petsche
Adjunct Lecturers
Lance Black
Meghan Bond
Richard Schwarz

Professors, Joint Appointments
Caroline Ajo-Franklin
Benjamin J. Fregly
Fathi Ghorbel
Naomi J. Halas
Jeffrey D. Hartgerink
C. Fred Higgs, III
Lydia Kavraki
Marek Kimmel
Peter Lillhoj
Angel Marti-Arbona
Jonathan Silberg
Kyriacos Zygourakis

Associate Professors, Joint Appointments
Matthew Bennett
Caleb Kemere
Ching-Hwa Kiang
Jacob Robinson
Aryeh Warmflash
Chong Xie

Assistant Professors, Joint Appointments
James Chappell
Xue Gao
Lan Luan
Akane Sano
Ross Thyer
Han Xiao

Adjunct Professors
Sharmila Anandasabapathy
James Bankson
Maria Elena Bottazzi
Suneet Chauhan
Margaret Shun Cheung
Elizabeth Cosgriff-Hernandez
Miguel Cruz
Mary E. Dickinson
Cindy Farach-Carson
Ann M. Gillenwater
Ramon Gonzalez
Peter Jay Hotez
Raghu Kalluri
Chester Koh
Herbert Levine
Anirban Maitra
David R. Piwnica-Worms
Ann Saterbak
Konstantin Sokolov
Mark Wong

Adjunct Associate Professors
Jean Bismuth
M. Waleed Gaber
Irina Larina
Stephen H. Little
Joseph A. Ludwig, IV
Mehdi Razavi

Adjunct Assistant Professors
Stuart Corr
Daniel Harrington
Courtney Hodges
Robert Krencik
Rohith Malya
Sarah Sartain
Rachael Siriani
Farzad Soleimani
Andrew Yee
Simon Young

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's
Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s
Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Bioengineering (BIOE)
BIOE 202 - CAREERS IN BIOENGINEERING
Short Title: CAREERS IN BIOENGINEERING
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar is suitable for freshman, sophomores, and non-
majors. A series of guest lectures will introduce students to a variety of
career options in bioengineering. Students will participate in at least one
field trip to an industry partner or hospital to learn more about careers in
bioengineering.

BIOE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact
department for current semester’s topic(s). Repeatable for Credit.
BIOE 252 - BIOENGINEERING FUNDAMENTALS
Short Title: BIOENGINEERING FUNDAMENTALS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and MATH 211 (may be taken concurrently) and (CHEM 112 or CHEM 122) and CAAM 210 and (PHYS 101 or PHYS 125 or PHYS 111) and (PHYS 102 or PHYS 126 or PHYS 112)
Description: Introduction to material, energy, charge, and momentum balances in biological systems. Steady state and transient conservation equations for mass, energy, charge and momentum will be derived and applied using basic mathematical principles, physical laws, stoichiometry, and thermodynamic properties. Problem based learning groups will solve open-ended problems. Required for students intending to major in bioengineering. MATH 211 is a concurrent prerequisite and may be taken the same semester.

BIOE 302 - SYSTEMS PHYSIOLOGY
Short Title: SYSTEMS PHYSIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): BIO 201 and (PHYS 101 and PHYS 102) or (PHYS 125 and PHYS 126)
Description: This course will teach the fundamentals of human physiology with a specific focus on the nervous, cardiovascular, respiratory, and urinary systems. Basic introductory engineering principles will be applied to the study of physiological systems. The course is aimed to be accessible to students with non-engineering backgrounds. Students may receive credit for only one of BIOE 302, BIOE 322, and BIOC 332. Mutually Exclusive: Cannot register for BIOE 302 if student has credit for BIOE 322.

BIOE 320 - SYSTEMS PHYSIOLOGY LAB MODULE
Short Title: SYSTEMS PHYSIOLOGY LAB MODULE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOC 322 or BIOE 322 (may be taken concurrently) or BIOC 332 (may be taken concurrently))
Description: Exploration of physiologic systems through measurement of biologic signals. EEG, ECG, EMG pulmonary function tests, etc. are performed and analyzed. Students will explore physiologic concepts through computer simulations, data collection, and analysis. Enrollment in or completion of BIOE 322/BIOC 332 is expected and maybe taken the same semester as BIOE 320. For students intending to major in Bioengineering. Instructor Permission Required.

BIOE 321 - CELLULAR ENGINEERING
Short Title: CELLULAR ENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252
Description: Introduction to engineering principles and modeling regulation and circuitry at the cellular level. Topics include genetic metabolic networks and cell surface interactions.

BIOE 322 - FUNDAMENTALS OF SYSTEMS PHYSIOLOGY
Short Title: FUND OF SYSTEMS PHYSIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and MATH 211
Description: This course will teach the fundamentals of human physiology from an engineering perspective, with specific focus on the nervous, cardiovascular, respiratory and urinary systems. Lectures, assignments and exams will be quantitative and will introduce engineering principles, such as conservation of mass and energy, controls and system analysis, thermodynamics and mass transport, and apply them to the study of physiologic systems. This course is limited to undergraduates. Students may receive credit for only one of BIOE 302, BIOE 322, and BIOC 332. Mutually Exclusive: Cannot register for BIOE 322 if student has credit for BIOC 332/BIOE 302.

BIOE 330 - BIOREACTION ENGINEERING
Short Title: BIOREACTION ENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOC 201 or BIOS 201)
Description: Application of engineering principles to biological processes. Mathematical and experimental techniques for quantitative descriptions of enzyme kinetics, metabolic and genetic networks, cell growth kinetics, bioreactor design and operation.
BIOE 332 - BIOENGINEERING THERMODYNAMICS
Short Title: BIOENGINEERING THERMODYNAMICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and MATH 212
Description: This course provides a mathematically rigorous and quantitative coverage of the fundamentals of thermodynamics with applications drawn from contemporary bioengineering problems. Fundamental topics will include the Zeroth, First and Second Law, Entropy Inequality, Gibbs and Helmholtz Free Energies, The Third Law, Maxwell Relations, chemical potential, equilibrium, phase transitions, solution thermodynamics, protein-ligand binding and statistical mechanics. Advanced topics will include transcription factor-DNA binding, nucleic acid hybridization, translation initiation and genetic circuits. The course will cover the role that thermodynamics plays in molecular engineering and synthetic biology.

BIOE 333 - MOLECULAR BIOTECHNOLOGY
Short Title: MOLECULAR BIOTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOC 201 and BIOE 252
Description: This course will introduce the students to modern biotechnology. The course will cover fundamental technologies with emphasis on modern genome engineering, sequencing and bioinformatics, molecular diagnostics, design of therapeutics, and recombinant microorganisms for industrial and environmental applications. The course includes discussion of bioethical issues, societal impact, and intellectual properties.

BIOE 341 - CELL AND MOLECULAR BIOLOGY FOR ENGINEERS
Short Title: CELL & MOL BIOL FOR ENGINEERS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOC 341 or BIOE 341) and (BIOE 342 (may be taken concurrently) or BIOC 320 (may be taken concurrently))
Description: Understanding the behaviors of cells and biomolecules in health and disease is a prerequisite to appropriately applying modern bioengineering principles. In this course, students will learn the fundamentals of cell and molecular biology and how transformative new technologies permit measuring and engineering these alterations to improve human health and uncover biological insights. Graduate/Undergraduate Equivalency: BIOE 541. Mutually Exclusive: Cannot register for BIOE 341 if student has credit for BIOE 541.

BIOE 342 - LABORATORY IN TISSUE CULTURE
Short Title: LABORATORY IN TISSUE CULTURE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 440 or STAT 440 or BIOC 311
Description: Introduction to tissue culture techniques, including cell passage, cell viability, and cell attachment and proliferation assays. Students complete quantitative analysis of their data. Engineering design and applications are featured in graded work. Sections 1 and 2 are taught during the first half of the semester. Sections 3 and 4 are taught during the second half of the semester. Students may be required to attend lab on a university holiday. Instructor Permission Required.

BIOE 348 - MOLECULAR TECHNIQUES IN BIOENGINEERING
Short Title: MOLECULAR TECHNIQUES IN BIOE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOC 201 or BIOS 201)
Description: This course will introduce the students to modern biotechnology. The course will cover fundamental technologies with emphasis on modern genome engineering, sequencing and bioinformatics, molecular diagnostics, design of therapeutics, and recombinant microorganisms for industrial and environmental applications. The course includes discussion of bioethical issues, societal impact, and intellectual properties.

BIOE 360 - APPROPRIATE DESIGN FOR GLOBAL HEALTH
Short Title: APPRO DESIGN FOR GLOBAL HEALTH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 201
Description: Seminar-style introductory design course covering epidemiology, pathophysiology, health systems, health economics, medical ethics, humanitarian emergencies, scientific and engineering design methods, and appropriate health technology case studies. To register, you must be enrolled in the GLHT minor and submit a 250 statement to beyondtraditionalborders@rice.edu by Monday of preregistration. The minor and course prerequisite is waived for students majoring in Bioengineering. Instructor Permission Required. Cross-list: GLHT 360.
BIOE 365 - SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
Short Title: SUST WTR PURIF FOR DEV WORLD
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an overview of sustainable strategies for safe water supply in off-the-grid, low-income regions. Topics covered include water quality and treatment, sustainability and WASH (water, sanitation and hygiene). A major element of the course is a project to solve a water-related issue in a real-world context. Cross-list: CEVE 314, GLHT 314. Repeatable for Credit.

BIOE 370 - BIOMATERIALS
Short Title: BIOMATERIALS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and CHEM 211 and (MECH 202 (may be taken concurrently) or MECH 211 (may be taken concurrently) or CEVE 211 (may be taken concurrently))
Description: This course will introduce both basic materials science and biological concepts with an emphasis on application of basic quantitative engineering principles to understanding the interactions between materials and biological systems. Topics covered include chemical structure of biomaterials, physical, mechanical, and surface properties of biomaterials, biomaterial degradation, and biomaterial processing. Additional topics include protein and cell interactions with biomaterials, biomaterial implantation, and acute inflammation, wound healing and the presence of biomaterials immune responses to biomaterials, biomaterials, immune responses to biomaterials, biomaterials and thrombosis, as well as infection, tumorigenesis, and calcification of biomaterials that can collectively apply to design of biomaterials for myriad applications. MECH 211 or CEVE 211 or MECH 202 may be taken concurrently with BIOE 370.

BIOE 372 - BIOMECHANICS
Short Title: BIOMECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and MATH 212 and (MECH 202 or MECH 211 or CEVE 211)
Description: This course introduces the fundamental principles of mechanics applied to the analysis and characterization of biological systems. Topics covered include normal and shear stresses, normal and shear strains, mechanical properties of materials, load, deformation, elasticity and elastoplastic behavior. Quantitative analysis of statically determinate and indeterminate structures subjected to tension, compression, torsion and bending will be covered. Additionally, aspects of blood rheology, viscoelasticity, and musculoskeletal mechanics will be addressed. Graduate/Undergraduate Equivalency: BIOE 572. Mutually Exclusive: Cannot register for BIOE 372 if student has credit for BIOE 572.

BIOE 380 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY
Short Title: INTRO TO NEUROENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Cross-list: ELEC 380, NEUR 383.

BIOE 383 - BIOMEDICAL ENGINEERING INSTRUMENTATION
Short Title: BIOMED ENGINEER INSTRUMENTTION
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and ELEC 243 and (BIOC 201 or BIOS 201) and (PHYS 102 or PHYS 125 or PHYS 142)
Corequisite: BIOE 385
Description: This is an introductory level course on fundamentals of biomedical engineering instrumentation and analysis. Topics include measurement principles; fundamental concepts in electronics including circuit analysis, data acquisition, amplifiers, filters and A/D converters; Fourier analysis; temperature, pressure, and flow measurements in biological systems.
BIOE 385 - BIOMEDICAL INSTRUMENTATION LAB
Short Title: BIOMEDICAL INSTRUMENTATION LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: BIOE 383
Description: Students will gain hands on experience with building biomedical instrumentation circuits and systems. Students will learn the basics of lab view programming and signal analysis. Instructor Permission Required.

BIOE 391 - NUMERICAL METHODS
Short Title: NUMERICAL METHODS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and CAAM 210 and MATH 211 and MATH 212 (may be taken concurrently)
Description: Introduction to numerical approximation techniques with bioengineering applications. Topics include error propagation, Taylor's Series expansions curre fitting, roots of equations, optimization numerical differentiation and integration, ordinary differential equations, and partial differential equations. Matlab and other software will be used for solving equations. Math 212 may be taken concurrently with BIOE 391.

BIOE 392 - NEEDS FINDING AND DEVELOPMENT IN BIOENGINEERING
Short Title: NEEDS FINDING & DEV IN BIOE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will learn and develop the engineering skill of needs finding in the field of bioengineering focused on designing for disabilities. Students will work in groups with patients with disabilities to identify daily needs and develop design criteria to meet those needs including preliminary prototype development. Instructor Permission Required. Cross-list: GLHT 392.

BIOE 400 - ENGINEERING UNDERGRADUATE RESEARCH
Short Title: ENGINEERING UG RESEARCH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern bioengineering research under the direction of a selected faculty member. Research project has a strong engineering component. Repeatable for Credit.

BIOE 401 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern bioengineering research under the direction of a selected faculty member. Department Permission Required. Repeatable for Credit.

BIOE 403 - ADVANCES IN BIONANOTECHNOLOGY
Short Title: ADVANCES IN BIONANOTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 370 (may be taken concurrently)
Description: This course covers nanotechnology applications in bioengineering. Students learn about cutting edge research that uses the tools of nanotechnology to tackle medical problems. Topics include bionanotechnology-related research for diagnosis, detection, and treatment of disease; cell targeting; drug design and delivery; gene therapy; prostheses and implants and tissue regeneration. (REGISTRATION NOTE: The prerequisite BIOE 370 can also be taken concurrently with BIOE 403)

BIOE 408 - SYNTHETIC BIOLOGY
Short Title: SYNTHETIC BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 370 (may be taken concurrently)
Description: Design of biology at scales from molecules to multicellular organisms will be covered by lecture, primary literature, and student presentations. Students will execute a team based design challenge. Graduate/Undergraduate Equivalency: BIOE 508. Mutually Exclusive: Cannot register for BIOE 408 if student has credit for BIOE 508.
BIOE 419 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Cross-list: ELEC 419. Graduate/Undergraduate Equivalency: BIOE 534. Mutually Exclusive: Cannot register for BIOE 419 if student has credit for BIOE 534. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)

BIOE 420 - TRANSPORT PHENOMENA IN BIOENGINEERING
Short Title: TRANSPORT PHENOMENA IN BIOE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MATH 212 and BIOE 391 and (BIOE 332 or CHBE 411)
Description: BIOE/CHBE 420 covers transport phenomena as applied to biological systems and biomedical devices. Conservation of momentum and mass equations are first derived and then used to analyze transport of momentum and mass in biology, physiology, and in biomedical devices. This course is designed for senior bioengineering students. Cross-list: CHBE 420.

BIOE 421 - MICROCONTROLLER APPLICATIONS
Short Title: MICROCONTROLLER APPLICATIONS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and (BIOS 201 or BIOC 201)
Description: This class covers the usage of microcontrollers in a laboratory setting. We will start with basic electronics and, in the lab component, design, program, and build systems utilizing widely-available microcontrollers (e.g. Arduino, Raspberry Pi). Units in motion control, sensors (light, temperature, humidity, UV/Vis absorbance), and actuation (pneumatics, gears, and motors) will provide students with functional knowledge to design and prototype their own experimental systems for laboratory-scale automation. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 521. Mutually Exclusive: Cannot register for BIOE 421 if student has credit for BIOE 521.

BIOE 422 - GENE THERAPY
Short Title: GENE THERAPY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and BIOE 385
Description: This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

BIOE 431 - BIOMATERIALS APPLICATIONS
Short Title: BIOMATERIALS APPLICATIONS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 211 or CHEM 251) and BIOE 370
Description: Emphasis will be placed on issues regarding the design, synthesis, evaluation, regulation and clinical translation of biomaterials for specific applications. An overview of significant biomaterials engineering applications will be given, including topics such as ophthalmologic, orthopedic, cardiovascular and drug delivery applications, with attention to specific case studies. Regulatory issues concerning biomaterial will also be addressed. Assignments for this class will include frequent readings of the scientific literature with occasional homework questions, one midterm and cumulative final, a group project, a seminar report and individual presentations. Graduate/Undergraduate Equivalency: BIOE 631. Mutually Exclusive: Cannot register for BIOE 431 if student has credit for BIOE 631.
**BIOE 439 - APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY**

**Short Title:** APPLIED STAT FOR BIOE BIOTECH  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 342 or (BIOC 320 or BIOS 320) and (BIOE 440 or STAT 440)  
**Description:** Students design and build a biomedical instrumentation project.  

**BIOE 440 - STATISTICS FOR BIOENGINEERING**

**Short Title:** STATISTICS FOR BIOENGINEERING  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** Course covers application of statistics to bioengineering. Topics include descriptive statistics, estimation, hypothesis testing, ANOVA, and regression. BIOE 252 may be taken concurrently with BIOE 440. BIOE 440/STAT 440 and BIOE 439 cannot both be taken for credit. Cross-list: STAT 440. Mutually Exclusive: Cannot register for BIOE 439 if student has credit for BIOE 440/BIOE 539/STAT 440.  

**BIOE 443 - BIPROCESSING LAB MODULE**

**Short Title:** BIPROCESSING LAB MODULE  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (BIOE 342 or BIOC 320 or BIOS 320) and (BIOE 440 or STAT 440)  
**Description:** Students design and conduct a series of experiments to observe the growth of E. coli under different conditions, including agar plates, shake flasks, and a small-scale bioreactor. The E. coli has been transformed with a plasmid that produces beta-galactosidase. Engineering applications are emphasized. Some work “off hours” (early evening) is required. Sections 1 and 2 are taught in the first half of the semester and Sections 3 and 4 are taught in the second half of the semester. Section sign-up is required by the instructor in Keck 108 during preregistration week.  

**BIOE 444 - MECHANICAL TESTING LAB MODULE**

**Short Title:** MECHANICAL TESTING LAB MODULE  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 372 (may be taken concurrently) and (BIOE 440 or STAT 440)  
**Description:** Students design and conduct a series of tests to elucidate the mechanical and material properties of animal tissue using the Instron. BIOE 372 may be taken concurrently with BIOE 444.  

**BIOE 445 - ADVANCED INSTRUMENTATION LAB MODULE**

**Short Title:** ADVANCED INSTRMENTN LAB MODULE  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 383 and BIOE 385 and (BIOE 440 or STAT 440)  
**Description:** Students design and build a biomedical instrumentation device. Sign up is required in Keck 108 during preregistration week.
BIOE 446 - COMPUTATIONAL MODELING LAB
Short Title: COMPUTATIONAL MODELING LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 391
Description: This course offers a hands-on application to systems biology modeling. Students will learn a range of modeling methods, and apply them directly in class to current bioengineering problems. Weekly tutorials will be offered, and a laptop is required (or can be loaned). Topics covered include in silico drug delivery and design studies, integrating multiscale models with high-resolution imaging, experimental design via computer modeling, and patient-specific simulations. Modeling methods include protein-protein interaction networks, biocircuits, stochastic differential equations, agent-based modeling, computational fluid dynamics, and finite element modeling.

BIOE 447 - DIGITAL DESIGN & VISUALIZATION
Short Title: DIG DES & VIS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will acquire basic to intermediate-level digital design proficiency for bioengineering-related applications. Programs for the design of patient-specific therapies including image reconstruction, computer aided design, and parameter modeling will be used to create models. Section sign up is required during pre-registration week. Instructor Permission Required.

BIOE 449 - TROUBLESHOOTING WORKSHOP FOR CLINICALLY-RELEVANT BIOMEDICAL EQUIPMENT
Short Title: MED BIOENGINEERING WORKSHOP
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 243
Description: Bioengineering course in the troubleshooting, repair, and maintenance of standard biomedical equipment used in hospitals in the developed and developing worlds. Cross-list: GLHT 449. Repeatable for Credit.

BIOE 451 - BIOENGINEERING DESIGN I
Short Title: BIOENGINEERING DESIGN I
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 383 and BIOE 385 and (BIOE 332 or BIOE 372)
Description: Senior Bioengineering students will design devices in biotechnology or biomedicine. This project-based course covers systematic design processes, engineering economics, FDA requirements, safety, engineering ethics, design failures, research design, intellectual property rights, environmental impact, business planning and marketing. Students will be expected to compile documentation and present orally progress of their teams. BIOE 451 and 452 must be taken the same academic year. Instructor Permission Required.

BIOE 452 - BIOENGINEERING DESIGN II
Short Title: BIOENGINEERING DESIGN II
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 451
Description: Senior Bioengineering students will design devices in biotechnology or biomedicine. This project-based course covers systematic design processes, engineering economics, FDA requirements, safety, engineering ethics, design failures, research design, intellectual property rights, environmental impact, business planning and marketing. Students will be expected to compile documentation and present orally progress of their teams. BIOE 451 and 452 must be taken the same academic year. Instructor Permission Required.

BIOE 454 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: CEVE 454, MECH 454. Graduate/Undergraduate Equivalency: BIOE 554. Mutually Exclusive: Cannot register for BIOE 454 if student has credit for BIOE 554.
**BIOE 464 - EXTRACELLULAR MATRIX**
*Short Title:* EXTRACELLULAR MATRIX  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* BIOS 341 or BIOE 341  
*Description:* This course will address the biology, organization, mechanics, and turnover of extracellular matrix. There will be an emphasis on cells and cell-matrix interactions, matrix distribution within and design of connective tissues and organs techniques for quantitative analysis of matrix, techniques for measurement and modeling of connective tissue biomechanics, changes with growth and aging and tissue/matrix degradation. Graduate/Undergraduate Equivalency: BIOE 524. Recommended Prerequisite(s): BIOE 372, BIOE/BIOC 341. Mutually Exclusive: Cannot register for BIOE 464 if student has credit for BIOE 524.

**BIOE 477 - SPECIAL TOPICS**
*Short Title:* SPECIAL TOPICS  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Internship/Practicum, Seminar, Lecture, Laboratory  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**BIOE 484 - BIOPHOTONICS INSTRUMENTATION AND APPLICATIONS**
*Short Title:* BIOPHOTONICS INSTRUMENTATION  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* BIOE 383  
*Description:* This course is an introduction to the fundamentals of Biophotonics instrumentation related to coherent light generation, transmission by optical components such as lenses and fibers, and modulation and detection. Interference and polarization concepts and light theories including ray and wave optics will be covered. A broad variety of optical imaging and detection techniques including numerous microscopy techniques, spectral imaging, polarization, OCT and others will be covered. The course will guide through the principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point out special requirements for bio-medical applications in optical sensing, diagnosis, and biomedical applications. Graduate/Undergraduate Equivalency: BIOE 512. Mutually Exclusive: Cannot register for BIOE 484 if student has credit for BIOE 512.

**BIOE 485 - FUNDAMENTALS OF MEDICAL IMAGING I**
*Short Title:* FUND MEDICAL IMAGING I  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Cross-list: COMP 485, ELEC 485. Graduate/Undergraduate Equivalency: BIOE 591. Recommended Prerequisite(s): MATH 211 and MATH 212. Mutually Exclusive: Cannot register for BIOE 485 if student has credit for BIOE 591.

**BIOE 486 - FUNDAMENTALS OF MEDICAL IMAGING II**
*Short Title:* FUND MEDICAL IMAGING II  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* ELEC 485 or BIOE 485 or COMP 485  
*Description:* This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site in also planned to gain experience with nuclear medicine imaging. Cross-list: COMP 486, ELEC 486. Graduate/Undergraduate Equivalency: BIOE 596. Mutually Exclusive: Cannot register for BIOE 486 if student has credit for BIOE 596.

**BIOE 490 - INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS**
*Short Title:* INTRO SYSTEMS BIOLOGY MODELING  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* (MATH 212 or MATH 213) and (BIOE 252 or CHBE 310) and BIOE 341 and CAAM 210  
*Description:* The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. Graduate/Undergraduate Equivalency: BIOE 552. Mutually Exclusive: Cannot register for BIOE 490 if student has credit for BIOE 552.
BIOE 492 - SENSORY NEUROENGINEERING
Short Title: SENSORY NEUROENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore how bioengineering techniques and principles are applied to understand and model sensory systems, with a focus on the auditory, vestibular, and visual systems. The interaction between the electrical, mechanical and optical aspects of these systems, and ways to modulate these interactions, will be explored. The course will also cover the design of current auditory, visual and somato-sensory neuroprosthetics (i.e. cochlear implants, retinal implants and brain-machine interfaces), as well as emerging technologies for neural stimulation. Graduate/Undergraduate Equivalency: BIOE 592. Mutually Exclusive: Cannot register for BIOE 492 if student has credit for BIOE 592.

BIOE 493 - BUILDING LIFE SCIENCES, BIOMEDICAL AND BIOTECHNOLOGY STARTUPS
Short Title: BIOTECH STARTUP
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate
Description: This semester-long course aims to provide entrepreneurial students with a hands-on experience in building a high-tech company based on novel biomedical technologies being developed at Rice University and in the Texas Medical Center. Students will form teams of 2-4, and identify a promising biomedical technology, perform intellectual property landscape analysis, identify a minimum viable product, build a business plan, construct 1 year and 5 year financial projections, conduct voice of customer interviews, and present a fundraising "pitch." Students are expected to spend 8-10 hours per week outside the classroom to complete tasks assigned during lectures, and will summarize their findings every 2 weeks in a 7-minute presentation. Graduate/Undergraduate Equivalency: BIOE 593. Mutually Exclusive: Cannot register for BIOE 493 if student has credit for BIOE 593.

BIOE 500 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BIOE 502 - PHYSICAL BIOLOGY
Short Title: PHYSICAL BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic introduction to a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Cross-list: BIOS 505, SSPB 501.

BIOE 504 - FIRST YEAR GRADUATE STUDENT LAB ROTATION
Short Title: GRADUATE LAB ROTATION
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides students the opportunity to experience different research projects and assists first-year students in choosing an advisor and a lab for conduction thesis research. Students must successfully complete rotations in three labs to receive a satisfactory grade. All new BIOE PhD students must take this course during their first semester.

BIOE 505 - MACROMOLECULAR ASSEMBLIES
Short Title: MACROMOLECULAR ASSEMBLIES
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There is increasing attention on the biological phenomena and engineering opportunities at the mesoscopic scale, which is between the size of a single protein and that of the large organelles. This course will cover a range of these phenomena, such as viral particles, ribosomes, bacterial microcompartments, amyloid fibrils, gas vesicles, and membraneless condensates. Additionally, the course will aim to formulate physical principles behind these phenomena, describe the experimental and computational approaches to study them, and discuss how to engineer these assemblies.

BIOE 506 - GRADUATE INDEPENDENT STUDY
Short Title: GRADUATE INDEPENDENT STUDY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent investigation of a specific topic in modern bioengineering research under the direction of a faculty member. Department Permission Required. Repeatable for Credit.
BIOE 507 - GRADUATE RESEARCH COMPONENTS I
Short Title: GRADUATE RESEARCH COMPONENTS I
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students take BIOE 507 as a Component I of research concentration of the MBE program. The class is 3 credit hours counting toward MBE degree. The project may vary depending on the mentor’s group focus and range from lab assay work, material studies, design and assembly of biomedical devices, simulations and many other. Instructor Permission Required. Mutually Exclusive: Cannot register for BIOE 507 if student has credit for BIOE 307.

BIOE 508 - SYNTHETIC BIOLOGY
Short Title: SYNTHETIC BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of biology at scales from molecules to multicellular organisms will be covered by lecture, primary literature, and student presentations. Students will write a research proposal at the end of the course. Cross-list: SSPB 503. Graduate/Undergraduate Equivalency: BIOE 408. Mutually Exclusive: Cannot register for BIOE 508 if student has credit for BIOE 408.

BIOE 509 - POINT-OF-CARE DIAGNOSTICS
Short Title: POINT-OF-CARE DIAGNOSTICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of diagnostic technologies that can be used at the point-of-care, including lateral flow assays, 2- and 3-D paper-based assays, and imaging based assays. Topics include the principles of assay design, validation and commercial development, with a focus on diagnostics for low-resource settings. The course includes a lecture and laboratory component, along with a team-based design project. Only graduate students may register for this course.

BIOE 510 - SEMINAR IN TROPICAL MEDICINE
Short Title: SEMINAR IN TROPICAL MEDICINE
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 8 week lecture series on topics in global health. The theme for this offering is one health; integrating efforts to obtain optimal health for humans, animals, and the environment. Offered in conjunction with the new National School of Tropical Medicine, the course will feature lectures by various experts on the public health issues most pressing in poor populations in the world today. Course open to all undergraduates and graduate students. Cross-list: GLHT 510. Repeatable for Credit.

BIOE 512 - BIOPHOTONICS INSTRUMENTATION AND APPLICATIONS
Short Title: BIOPHOTONICS INSTRUMENTATION
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to the fundamentals of Biophotonics instrumentation related to coherent light generation, transmission by optical components such as lenses and fibers, and modulation and detection. Interference and polarization concepts and light theories including ray and wave optics will be covered. A broad variety of optical imaging and detection techniques including numerous microscopy techniques, spectral imaging, polarimetry, OCT and others will be covered. The course will guide through the principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point out special requirements for bio-medical applications in optical sensing, diagnosis, and biomedical applications. In addition to the undergraduate requirements in BIOE 484, graduate students will be required to complete more complex problems on both homework and tests. Graduate students will also be required to submit a research paper with oral presentations. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 484. Mutually Exclusive: Cannot register for BIOE 512 if student has credit for BIOE 484.

BIOE 513 - STRATEGIC CAREER PREPAREDNESS FOR INDUSTRY JOBS
Short Title: CAREER PREP FOR INDUSTRY
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for MBE candidates and PhD students planning to graduate within the year who are interested in industry careers. The course will help students design a resume, cover letter, and other career development tools to strategically identify and market their skills to bioengineering industry partners.

BIOE 514 - INTRODUCTION TO BIOSTATISTICS
Short Title: INTRODUCTION TO BIOSTATISTICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presents basic and advanced methods of statistics as applied to problems in bioengineering. Demonstrates techniques for data organization, exploration, and presentation. Foundations of statistical estimation, inference, and testing are reviewed. Optimal planning of experiments is explored. Advanced techniques include multiple regression, variable selection, logistic regression, analysis of variance, survival analysis, multiple measurements and measurements over time. Additional topics, such as Bayesian methods, will be discussed as time allows. Labs will use the statistical software JMP and/or R. Cross-list: STAT 514.
BIOE 515 - ENGINEERING DRUG DELIVERY SYSTEMS
Short Title: ENGINEERING DRUG DELIVERY SYS.
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the application of innovative engineering approaches to enhance drug efficacy and/or reduce toxicity. Topics of emphasis include, but are not limited to, routes of administration, bioavailability, biodistribution, pharmacokinetics, pharmacodynamics, therapeutic drug windows, patient compliance, immunogenicity, the foreign body reaction, and solubility enhancement. A wide array of device types will be discussed, such as biodegradable microspheres, self-assembled lipid nanoparticles, microneedles, and osmotic pumps. Students will be expected to quantitatively evaluate drug release from complex devices and determine drug distribution and clearance using multi-compartment models. An additional project will be required of graduate level students.

BIOE 516 - MECHANICS, TRANSPORT, AND CELLULAR SIGNALING
Short Title: MECHANICS/TRANSPORT/SIGNALING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the fundamental principles of mechanics, thermodynamics, and transport in the context of classical and contemporary bioengineering problems. An overall goal will be to expose students to the integrated approaches that are necessary to solve complex research problems. Topics covered will include membrane transport, cell signaling, and mechanotransduction. This course is intended for first year BIOE PhD students only.

BIOE 517 - INSTRUMENTATION AND MOLECULAR ANALYSIS
Short Title: INSTRUMENT/ MOLECULAR ANALYSIS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the basic principles of optics, optical instrumentation, microscopy and molecular detection technologies. Emphasis will be placed on the application of advanced microscopy techniques to imaging problems in biology and medicine. This course is intended for first year BIOE PhD students only.

BIOE 518 - INTRODUCTION TO COMPUTATIONAL BIOLOGY
Short Title: INTRO TO COMPUTATION BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides students with the ability to use computational methods to understand and analyze biological data. This course will introduce students to advances in computational cell biology from an engineering perspective, and equip them with a suite of tools emerging from systems biology. Topics covered include computational cell engineering, high-throughput analysis, modeling of signaling pathways, network analysis, imaging coupled to modeling, and multi scale modeling. This course is intended for first year BIOE PhD students only.

BIOE 519 - BIOMATERIALS SYNTHESIS
Short Title: BIOMATERIALS SYNTHESIS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Biomaterials covers the design and synthesis of materials which interact with biologic phenomena such as cell-free, microbial, and mammalian systems. Topics covered include: surfaces and surface fractionalization, biomedical implants and them immune response, three dimensional cell culture systems, and regulatory hurdles (e.g., FDA clearance). The class will be rooted in a historical perspective, with a particular emphasis on the latest techniques in synthetic chemistry relating to biomaterials. This course is intended for first year BIOE PhD students only.

BIOE 521 - MICROCONTROLLER APPLICATIONS
Short Title: MICROCONTROLLER APPLICATIONS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 385
Description: This class covers the usage of microcontrollers in a laboratory setting. We will start with basic electronics and, in the lab component, design, program, and build systems utilizing widely-available microcontrollers (e.g. Arduino, Raspberry Pi). Units in motion control, sensors (light, temperature, humidity, UV/Vis absorbance), and actuation (pneumatics, gears, and motors) will provide students with functional knowledge to design and prototype their own experimental systems for laboratory-scale automation. BIOE 521 students will be expected to complete a final research paper. Instructor Permission Required.
Graduate/Undergraduate Equivalency: BIOE 421. Mutually Exclusive: Cannot register for BIOE 521 if student has credit for BIOE 421.
BIOE 522 - GENE THERAPY
Short Title: GENE THERAPY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Gene therapy suffered from major clinical setbacks in the late 1990's, putting the entire field of genetic medicine at a standstill. However, through perseverance and strategic re-thinking of how viruses and cells could be used as therapeutics, the field is currently experiencing a biotechnological revolution. In December of 2017, a virus-based gene therapy drug was approved by the FDA, making it the first of its kind for the treatment of an inherited disease. This landmark achievement is just the beginning of a new era of human therapeutics. This class will discuss the gene therapy field – where it was and where it is now. Clinically important vectors currently under human testing, and opportunities for the next generation of improved gene delivery vectors will be presented. The biological and physiological barriers to efficient gene delivery will be investigated in order to spur new ideas for improving vector efficiency and specificity. Graduate/Undergraduate Equivalency: BIOE 422. Mutually Exclusive: Cannot register for BIOE 522 if student has credit for BIOE 422.

BIOE 523 - BIOENGINEERING SYSTEMS AND CONTROL
Short Title: BIOENG SYSTEMS & CONTROLS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to basic principles of control theory and applications of these methods and tools to analyze the dynamics of biological systems with examples from metabolic pathway control, synthetic biology and physiological systems. Cross-list: CHBE 523.

BIOE 524 - EXTRACELLULAR MATRIX
Short Title: EXTRACELLULAR MATRIX
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the biology, organization, mechanics, and turnover of extracellular matrix. There will be an emphasis on cells and cell-matrix interactions, matrix distribution within and design of connective tissues and organs techniques for quantitative analysis of matrix, techniques for measurement and modeling of connective tissue biomechanics, changes with growth and aging and tissue/matrix degradation. Additional projects will be required of graduate level students. Graduate/Undergraduate Equivalency: BIOE 464. Recommended Prerequisite(s): BIOE 372, BIOC/BIOE 341. Mutually Exclusive: Cannot register for BIOE 524 if student has credit for BIOE 464.

BIOE 525 - NANOBIOENGINEERING AND NANOMEDICINE
Short Title: NANOBIOENG AND NANOMEDICINE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers broad range of topics in nanobioengineering and nanomedicine, including synthesis characterization and fractionalization of nanomaterials and nanostructures, nanoparticle-based molecular imaging probes, nanocarriers, for drug/gene delivery, and nanomachines for gene editing and regulation. Examples will be given to illustrate the applications of nanobioengineering and nanomedicine.

BIOE 526 - ADVANCES IN GENOME EDITING AND ENGINEERING
Short Title: ADVANCES IN GENOME EDITING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a course for graduate students who are interested in learning the emerging field of precision genome editing and its applications in biology and medicine. This is a lecture course consisting of classes that meet weekly for 3 hours; instruction is delivered both in a lecture setting and through projects.

BIOE 527 - HEALTHCARE INNOVATION AND ENTREPRENEURSHIP
Short Title: HEALTHCARE INNOV & ENTREPREN
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for healthcare entrepreneurs who want to build innovative medical technologies. During the course, students will learn how to identify customers, key stakeholders, and the market opportunity for a clinical need; apply design thinking, including low-fidelity prototyping, to quickly test and iterate on a concept; assess regulatory, reimbursement, and clinical trial requirements; identify key assumptions and develop a business model; create a financial model based on business model assumptions; determine capital requirements and funding sources for their venture; understand and evaluate term sheets; create a pitch presentation for investors. Instructor Permission Required.

BIOE 528 - MEDICAL ENGINEERING AND DESIGN LAB
Short Title: MED ENGINEERING & DESIGN LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this studio-based lab, students apply technical engineering and prototyping skills to medical design projects. Participants are taught and apply a range of topics including engineering design processes, medical materials, biocompatibility, design for manufacturing, rapid prototyping, medical equipment, sterility, manufacturing techniques, and quality system implementation.
BIOE 529 - HEALTHCARE INNOVATION AND ENTREPRENEURSHIP LAB
Short Title: INNOV & ENTREPRENEURSHIP LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this follow-on experiential Lab course, students work on refining and completing the plan for the venture they created in Health Innovation and Entrepreneurship. Teams receive guidance and Mentoring from faculty and mentors to develop the next steps of their business. The Lab takes place in the Liu Idea Lab for Innovation and Entrepreneurship, a purpose built state-of-the-art incubator and co-working space on the Rice campus.

BIOE 530 - MEDICAL ENGINEERING & DESIGN LAB 2
Short Title: MED ENGIN & DESIGN LAB 2
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 528
Description: In this studio-based lab, students apply technical engineering and prototyping skills to medical design projects. Participants are taught and apply a range of topics including engineering design processes, medical materials, biocompatibility, design for manufacturing, rapid prototyping, medical equipment, sterility, manufacturing techniques, and quality system implementation. This course is intended for only those students in Bioengineering.

BIOE 534 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 559. Graduate/Undergraduate Equivalency: BIOE 419. Mutually Exclusive: Cannot register for BIOE 534 if student has credit for BIOE 419. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)

BIOE 535 - ENGINEERING CELL-BASED THERAPEUTICS FOR THE TREATMENT OF DISEASE
Short Title: CELL-BASED THERAPEUTICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Once the stuff of science fiction, there is increasing attention on using engineered living cells as therapeutic agents. We will discuss how application of synthetic biology, genetic engineering, and systems biology can endow cells with the ability to detect and treat disease, identifying breakthroughs, challenges, and long-term possibilities for this exciting new field. Recommended Prerequisite(s): BIOE 321.

BIOE 536 - FRONTIERS IN IMMUNOENGINEERING
Short Title: IMMUNOENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce immunology concepts from an engineering perspective and covers various immune responses including to pathogens, self, allergens, cancer, and biomaterials. Using principles of engineering we will perform an in-depth analysis of these responses and the latest advances on the development of novel therapeutics. Topics include systems immunology, nanotechnology, hydrogels, biomaterials, vaccines, cancer immunotherapy, autoimmunity, tissue engineering, stem cells, viruses, and the microbiome. Instructor Permission Required.

BIOE 537 - GENETIC AND EPIGENETIC CONTROL
Short Title: GENETIC AND EPIGENETIC CONTROL
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: All human diseases are driven by alterations in genetic sequences, cellular transcription, and/or chromatin structure. In this course, students will learn how transformative new technologies permit measuring and manipulating these alterations, and how bioengineers can leverage these innovative tools to combat human diseases and catalyze advances in biotechnology.

BIOE 539 - APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY
Short Title: APPLIED STAT FOR BIOE BIOTECH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course will cover fundamentals of probability and statistics with emphasis on application to biomedical problems and experimental design. Recommended for students pursuing careers in medicine or biotechnology. Graduate/Undergraduate Equivalency: BIOE 439. Recommended Prerequisite(s): BIOE 252 Mutually Exclusive: Cannot register for BIOE 539 if student has credit for BIOE 439.
BIOE 541 - CELL AND MOLECULAR BIOLOGY FOR ENGINEERS  
Short Title: CELL & MOLECULAR BIOLOGY  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Understanding the behaviors of cells and biomolecules in health and disease is a prerequisite to appropriately applying modern bioengineering principles. In this course, students will learn the fundamentals of cell and molecular biology and how transformative new technologies permit measuring and engineering these alterations to improve human health and uncover biological insights. Graduate/Undergraduate Equivalency: BIOE 341. Mutually Exclusive: Cannot register for BIOE 541 if student has credit for BIOE 341.

BIOE 543 - DNA BIOTECHNOLOGY, BIOPHYSICS, AND MODELING  
Short Title: DNA BIOTECHNOLOGY  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Semester-long course on fundamental properties of DNA, and their role in DNA biotechnology. Students will develop, analyze, and simulate simple biophysical models of DNA reactions, as well as learn and model methods of modern DNA biotechnology. Proficiency with MATLAB required.

BIOE 548 - MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING  
Short Title: NEURAL SIGNAL PROCESSING  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The activity of a complex network of billions of interconnected neurons underlies our ability to sense, represent and store the details of experienced life, and enables us to interact with our environment and other organisms. Modern neuroscience techniques enable us to access this activity, and thus to begin to understand the processes whereby individual neurons enable complex behaviors. In order to increase this understanding and to design biomedical systems which might therapeutically interact with neural circuits, advanced statistical signal processing and machine learning approaches are required. This class will cover a range of techniques and their application to basic neuroscience and neural interfaces. Topics include latent variable models, point processes, Bayesian inference, dimensionality reduction, dynamical systems, and spectral analysis. Neuroscience applications include modeling neural firing rates, spike sorting, decoding, characterization of neural systems, and field potential analysis. Cross-list: ELEC 548.

BIOE 552 - INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS  
Short Title: INTRO SYSTEMS BIOLOGY MODELING  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. Same as 490 but with more emphasis on recent advances in the field - paper reading and presentations. Cross-list: SSPB 502. Graduate/Undergraduate Equivalency: BIOE 490. Recommended Prerequisite(s): Basic knowledge of biochemistry, cell biology, linear algebra, and ordinary differential equations is expected. Mutually Exclusive: Cannot register for BIOE 552 if student has credit for BIOE 490.

BIOE 553 - SYSTEMS BIOLOGY AND NEUROENGINEERING  
Short Title: SYS BIOLOGY & NEUROENGINEERING  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will introduce students to advances in computational biology relevant to neuroengineering, and equip them with a suite of tools emerging from systems biology to student neurological processes. Example class topics include: decoding multineuron activity, models for optogenetic control, and optimization of neuro-generative therapies.

BIOE 554 - COMPUTATIONAL FLUID MECHANICS  
Short Title: COMPUTATIONAL FLUID MECHANICS  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)  
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: CEVE 554, MECH 554. Graduate/Undergraduate Equivalency: BIOE 454. Mutually Exclusive: Cannot register for BIOE 554 if student has credit for BIOE 454.
BIOE 558 - INTRODUCTION TO GENOME EDITING AND ENGINEERING  
**Short Title:** GENOME EDITING AND ENGINEERING  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course provides an introduction to the recent advances in the genome editing and engineering field. Past and current stages of genome-editing technologies, the fundamental mechanisms of different classes of genome-editing proteins, and cutting-edge strategies for engineering novel genome-editing agents and their applications in synthetic biology and therapeutics. Cross-list: CHBE 558.

BIOE 564 - BIOINFORMATICS: NETWORK ANALYSIS  
**Short Title:** BIOINFORMATICS: NETWORKS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course covers computational aspects of biological network analysis, a major theme in the area of systems biology. The course discusses protein-protein interaction, signaling, metabolic, and functional networks, and covers issues related to constructing, analyzing various types of networks, as well as how they can be used for downstream applications. Cross-list: COMP 572.

BIOE 571 - PRINCIPLES OF VISUAL DESIGN  
**Short Title:** VISUAL DESIGN  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will instruct participants in conceptual and technical approaches for effective visual communication of data, technical information, and engineering / science concepts, and will develop strategies for improving presentation of materials from participants own research. Knowledge and skills will be developed through short lectures, in-class studio instruction, design assignments, presentations, and a final design project.

BIOE 572 - BIOMECHANICS  
**Short Title:** BIOMECHANICS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course introduces the fundamental principles of mechanics applied to the analysis and characterization of biological systems. Topics covered include normal and shear stresses, normal and shear strains, mechanical properties of materials, load, deformation, elasticity and elastoplastic behavior. Quantitative analysis of statically determinate and indeterminate structures subjected to tension, compression, torsion and bending will be covered. Additionally, aspects of blood rheology, viscoelasticity, and musculoskeletal mechanics will be addressed. Mutually Exclusive: Cannot register for BIOE 572 if student has credit for BIOE 372. Graduate/Undergraduate Equivalency: BIOE 372. Mutually Exclusive: Cannot register for BIOE 572 if student has credit for BIOE 372.

BIOE 574 - CONTINUUM BIOMECHANICS  
**Short Title:** CONTINUUM BIOMECHANICS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** BIOE 372  
**Description:** This course deals with elements of continuum mechanics relevant to bioengineering. The course covers important concepts in tensor calculus, kinematics, stress and strain, and constitutive theories of continua. Selected topics in bone, articular cartilage, blood and circulation, and cell biomechanics will be discussed to illustrate the application of continuum mechanism to bioengineering problems.

BIOE 578 - BIOTECHNOLOGY PRACTICUM  
**Short Title:** BIOTECHNOLOGY PRACTICUM  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course is part of the NIH Biotechnology Training Program and is limited to program participants. Students will receive exposure and training in cutting edge concepts and technologies.
BIOE 580 - PROTEIN ENGINEERING
Short Title: PROTEIN ENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Manipulation of gene expression in prokaryotic and eukaryotic cells. Rational design and directed evolution for cell and protein engineering. Selection and screening technologies and process optimization. Synthetic Biology: engineering and application of gene circuits. Molecular biotechnology applications: Diagnosis, Therapeutics and Vaccines. Cross-list: CHBE 580. Recommended Prerequisite(s): CHBE 310/510 or equivalent is highly recommended.

BIOE 586 - RESPIRATORY SYSTEM MECHANICS
Short Title: RESPIRATORY SYSTEM MECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Mechanics of ventilation, respiratory muscle mechanics, rib cage mechanics, mechanical coupling between the respiratory muscles and the rib cage, and inferences on mechanics from respiratory muscle anatomy. The class will meet in the Pulmonary Division at Baylor College of Medicine in the Texas Medical Center. Cross-list: MECH 586.

BIOE 587 - OPTICAL IMAGING AND NANOBIOPHOTONICS
Short Title: OPTIC IMAGING/NANOBIPHOTONICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course focuses on diagnostic and therapeutic applications of photonics-based technologies with particular emphasis on nanotechnology enabled optical approaches. This course emphasizes biomedical applications of optics and complements BIOE 484 which introduces fundamental principles of optics to bioengineers.

BIOE 589 - COMPUTATIONAL MOLECULAR BIOENGINEERING/BIOPHYSICS
Short Title: COMP MOLECULAR BIOENG/BIOPHYS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This is a course designed for students in computationally-oriented biomedical and bioengineering majors to introduce the principles and methods used for the simulations and modeling of macromolecules of biological interest. Protein conformation and dynamics are emphasized. Empirical energy function and molecular dynamics calculations are described. Specific biological problems are discussed to illustrate the methodology. Classic examples such as the cooperative mechanism of hemoglobin and more frontier topics such as the motional properties of molecular motors and ion channels as well as results derived from the current literature are covered. Instructor Permission Required. Recommended Prerequisite(s): MATH 212, (BIOS 301 or BIOC 301), BIOE 332.

BIOE 591 - FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 585. Graduate/Undergraduate Equivalency: BIOE 485. Mutually Exclusive: Cannot register for BIOE 591 if student has credit for BIOE 485.

BIOE 592 - SENSORY NEUROENGINEERING
Short Title: SENSORY NEUROENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course will explore how bioengineering techniques and principles are applied to understand and model sensory systems, with a focus on the auditory, vestibular, and visual systems. The interaction between the electrical, mechanical and optical aspects of these systems, and ways to modulate these interactions, will be explored. The course will also cover the design of current auditory, visual and somato-sensory neuroprosthetics (i.e. cochlear-implants, retinal implants and brain-machine interfaces), as well as emerging technologies for neural stimulation. Graduate/Undergraduate Equivalency: BIOE 492. Mutually Exclusive: Cannot register for BIOE 592 if student has credit for BIOE 492.
**BIOE 600 - GRADUATE BIOENGINEERING INDUSTRY INTERNSHIP**

**Short Title:** GRAD BIO INDUSTRY INTERNSHIP  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 6  
**Restrictions:** Enrollment limited to students in the MBE-GMI program. Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Description:** Students will participate in an industry internship or industry-sponsored project under the direction of Bioengineering faculty. This course is taken in the summer for six credits. Enrollment is limited to students in the Global Medical Innovation track of the MBE degree. Instructor permission is required. Instructor Permission Required.  

**BIOE 607 - RESEARCH CONCENTRATION – COMPONENT II**

**Short Title:** RES CONCENTRATION COMPONENT II  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 6  
**Restrictions:** Students in the MBE-GMI program may not enroll. Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Bioengineering degree.  

**Course Level:** Graduate  
**Prerequisite(s):** BIOE 507  
**Description:** Students take BIOE 607 as a Component II of research concentration of the MBE program. The class is 6 credit hours counting toward MBE degree. The project focuses on research project defined within Component I and its results. Results will be presented to open forum of students and faculty. The grade for this class is awarded based on the report and presentation.  

**BIOE 610 - METHODS OF MOLECULAR SIMULATION**

**Short Title:** METHODS OF MOLECULAR SIMUL  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Prerequisite(s):** CHBE 611 or BIOC 589 or BIOE 589 or BIOS 589 or CHEM 520 or PHYS 526  
**Description:** Modern simulation techniques for classical atomistic systems. Review of statistical mechanical systems. Monte Carlo and molecular dynamics simulation techniques. Extensions of the basic methods to various ensembles. Applications to simulations of large molecules such as proteins. Advanced techniques for simulation of complex systems, including constraint satisfaction, cluster moves, biased sampling, and random energy models. Cross-list: PHYS 610.
BIOE 615 - BIOENGINEERING AND CARDIAC SURGERY  
**Short Title:** BIOENGINEERING/CARDIAC SURGERY  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will address biomaterials and medical devices relevant to cardiac and vascular surgery and interventional cardiology in adult and pediatric patients. Mechanical and design considerations, notable successes and failures, and ethical issues will also be discussed, as will differences in cardiac disease and care due to health disparities.  
**Course URL:** goo.gl/forms/pJ0UMeJItO

BIOE 620 - TISSUE ENGINEERING  
**Short Title:** TISSUE ENGINEERING  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Study of cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Includes strategies to regenerate metabolic organ repair and structural tissues, as well as cell-based therapies to deliver proteins and other therapeutic drugs, with emphasis on issues related to cell and tissue transplantation such as substrate properties, angiogenesis, growth stimulation, cell differentiation, and immunoprotection. Cross-list: CHBE 620.  

BIOE 621 - BIOVENTURES  
**Short Title:** BIOVENTURES  
**Department:** Bioengineering  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** MGMT 633 or BIOE 633  
**Description:** A hands-on immersion into life science entrepreneurship through practical lessons that are applied to students’ group projects throughout the course. This practical course will provide the skills and resources to facilitate scientist-driven entrepreneurship in conceiving new life science ventures and translating research ideas into commercial ventures. This course will be taught in conjunction w/UTMB faculty on the Rice campus (BRC) and will meet from Feb 26 - April 30, 2015. To apply for the course, Rice students should fill out the online application located on the URL site listed above. Instructor Permission Required. Repeatable for Credit.  
**Course URL:** goo.gl/forms/pJ0UMeJItO (http://goo.gl/forms/pJ0UMeJItO/)

BIOE 628 - MEDICAL TECHNOLOGY DESIGN SEMINAR 2  
**Short Title:** MED TECH DESIGN SEMINAR 2  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course exposes participants to the wide variety of career paths in the medical technology industry including large to mid sized companies, consulting, biotech, pharma, diagnostics, hospital administration and more through guest lectures, case studies, and informational interviews. Additional topics include: Resume and LinkedIn refinement, Job Application Process, Interview Skills, Delivering Oral Presentations  

BIOE 627 - MEDICAL INNOVATION INDUSTRY SEMINAR  
**Short Title:** MED. INNOVATION INDUSTRY SEM.  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course exposes participants to the wide variety of career paths in the medical technology industry including large to mid sized companies, consulting, biotech, pharma, diagnostics, hospital administration and more through guest lectures, case studies, and informational interviews. Additional topics include: Resume and LinkedIn refinement, Job Application Process, Interview Skills, Delivering Oral Presentations  

BIOE 628 - MEDICAL TECHNOLOGY DESIGN SEMINAR 2  
**Short Title:** MED TECH DESIGN SEMINAR 2  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Students will learn to address unmet clinical needs thru methodical design. Concept generation principles & proof-of-concept prototyping will be discussed. Screening techniques will be taught that not only weigh technical merit of a concept, but regulatory, reimbursement, IP & business strategies. Students will participate in industry case studies & guest lectures from industry professionals.  

BIOE 631 - BIOMATERIALS APPLICATIONS  
**Short Title:** BIOMATERIALS APPLICATIONS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Emphasis will be placed on issues regarding the design, synthesis, evaluation, regulation and clinical translation of biomaterials for specific applications. An overview of significant biomaterials engineering applications will be given, including topics such as ophthalmologic, orthopedic, cardiovascular and drug delivery applications, with attention to specific case studies. Regulatory issues concerning biomaterial will also be addressed. Assignments for this class will include frequent readings of the scientific literature with occasional homework questions, one midterm and cumulative final, a group project, a seminar report and individual presentations. In addition, graduate students in BIOE 631 will have additional exam problems and an additional research paper. Graduate/Undergraduate Equivalency: BIOE 431. Mutually Exclusive: Cannot register for BIOE 631 if student has credit for BIOE 431.
BIOE 633 - ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS
Short Title: LIFE SCIENCE ENTREPRENEURSHIP
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This pragmatic course combines core lectures on entrepreneurship with special guest presentations by notable life science entrepreneurs. It explores the roles that physicians, scientists, engineers, and MBA's play in biotech, medical device, and healthcare companies, as well as major trends in Angel and Venture Capital Financings of Startups. Lectures on entrepreneurial team building, leadership and career planning are included. Cross-list: MGMT 633.

BIOE 643 - CELL MECHANICS, MECHANOTRANSDUCTION AND THE CELL MICROENVIRONMENT
Short Title: MECHANOTRANSDUCTION
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mechanotransduction is a fundamental process essential for living systems and plays a fundamental role in cell signaling, cancer metastasis and stem cell differentiation. Additionally, fundamental biological processes such as endocytosis cell fusion and cell migration are driven by a coordinated interplay of molecular interactions that drive membrane deformation. This course will survey the current understanding of mechanotransduction and the mechanical properties of cells and their microenvironment, including membrane and cytoskeletal mechanics. Experimental approaches for measuring and manipulating the material properties of cells and their environment; including optical, electrical and magnetic techniques will be covered. A variety of application will be covered, including manipulation in engineering of mechanotransduction pathways to drive cell migration and stem cell differentiation. Instructor Permission Required. Cross-list: PHYS 643.

BIOE 648 - MOLECULAR TECHNIQUES IN BIOENGINEERING
Short Title: MOLECULAR TECHNIQUES IN BIOENG
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the fundamental physical principles of light interaction with matter, separation (by charge, size, confirmation) and detection techniques utilized in the field of bioengineering. These include absorbance and fluorescence spectroscopy, light and fluorescence microscopy, flow cytometry, electrophoresis, PCR, Blotting, and ELISA. A research paper on new advancements on a technique/technology of their choice based on the ones covered. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 348. Mutually Exclusive: Cannot register for BIOE 648 if student has credit for BIOE 348.

BIOE 654 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 554 or CEVE 554 or MECH 554 or BIOE 454 or CEVE 454 or MECH 454

BIOE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BIOE 680 - NANO-NEUROTECHNOLOGY
Short Title: NANO-NEUROTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will review current nanofabricated technologies for measuring, manipulating, and controlling neural activity. The course will be based on reviewing current academic literature and topics will include nano-electronic, -photonic, -mechanical, and -fluidic neural devices. Cross-list: ELEC 680.

BIOE 682 - SYSTEMS BIOLOGY OF HUMAN DISEASES
Short Title: SYS BIO OF HUMAN DISEASES
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to concepts necessary for application of systems - Biology Approaches to Human Diseases. Topics include transcriptional and metabolic design principles, introduction to various regulatory network motifs in diseases and potential treatments using embryonic stem cells. Analysis of complex diseases using engineering concepts such as optimality, nonequilibrium thermodynamics, multiscale analysis and spatiotemporal transport. Cross-list: CHBE 682.
BIOE 690 - PROFESSIONAL DEVELOPMENT FOR BIOENGINEERS
Short Title: PROF DEVELOPMENT FOR BIOE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 517
Description: Professional development topics relevant to academic careers including applying for faculty positions, interviewing, negotiating offers, building a lab, obtaining funding and balancing professional obligations. Designed for graduate students planning academic careers in research-intensive bioengineering departments.

BIOE 695 - TRANSFER - FOUNDATIONS OF MEDICAL SCIENCE
Short Title: TRANSFER - FOUNDATIONS MED SCI
Department: Bioengineering
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is used for transfer credit from UTHSC-McGovern Medical School, and specifically for those students admitted and participating in the coordinated inter-institutional MD/MBE Dual Degree program.

BIOE 696 - TRANSFER - DOCTORING 1: HISTORY AND PHYSICAL EXAM
Short Title: TRANSFER - DOCTORING 1
Department: Bioengineering
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is used for transfer credit from UTHSC-McGovern Medical School, and specifically for those students admitted and participating in the coordinated inter-institutional MD/MBE Dual Degree program.

BIOE 698 - BIOENGINEERING COLLOQUIA
Short Title: BIOENGINEERING COLLOQUIA
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Recent research in bioengineering will be presented in this colloquium series. These colloquia provide an opportunity to learn about the research at other institutions, oftentimes in an area outside students’ specific dissertation specialty, and are an important part of graduate education. Graduate students in BIOE are expected to attend all regular Bioengineering colloquia. Repeatable for Credit.

BIOE 699 - BIOENGINEERING COLLOQUIA
Short Title: BIOENGINEERING COLLOQUIA
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Recent research in bioengineering will be presented in this colloquium series. These colloquia provide an opportunity to learn about the research at other institutions, oftentimes in an area outside students’ specific dissertation specialty, and are an important part of graduate education. Graduate students in BIOE are expected to attend all regular Bioengineering colloquia. Repeatable for Credit.

Description and Code Legend
Note: Internally the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject: BIOE

Department Description and Code
• Bioengineering: BIOE

Undergraduate Degree Description and Code
• Bachelor of Science in Bioengineering degree: BSBE

Undergraduate Major Description and Code
• Major in Bioengineering: BIOE

Graduate Degree Descriptions and Codes
• Master of Bioengineering degree: MBE
• Master of Science degree: MS
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Bioengineering: BIOE

Graduate Degree Program Option Descriptions and Codes*
• Degree Program Option - Applied Bioengineering (MBE degree only): MBE
• Degree Program Option - Global Medical Innovation (MBE degree only): MBE-GMI

CIP Code and Description
• BIOE Major/Program: CIP Code/Title: 14.0501 - Bioengineering and Biomedical Engineering

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Bachelor of Science in Bioengineering (BSBE) Degree

The program leading to the BSBE degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, https://www.abet.org (https://www.abet.org/).

Program Educational Objectives (Student Outcomes) for the BSBE Degree

Upon completing the BSBE degree, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program Educational Objectives (PEOs) that graduates are expected to seek after by top graduate and medical schools, as well as by companies equipping them with the conceptual and technical expertise sought

Requirements for the BSBE Degree

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BSBE degree must complete:

- A minimum of 37 courses (97-99 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 131 credit hours to satisfy degree requirements.
- A minimum of 20 courses (48 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Degree Requirements

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<td>Biosciences</td>
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<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I ²</td>
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<td>BIOS 341</td>
<td>CELL BIOLOGY ⁵</td>
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<td>&amp; CHEM 213</td>
<td>and ORGANIC CHEMISTRY DISCUSSION ²</td>
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<td>Computational and Applied Mathematics</td>
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<td>CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
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<td>Electrical Engineering</td>
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<td>MATH 212</td>
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Technical Electives

**Bioengineering Laboratory Courses**

- BIOE 452
- CHBE 420
- BIOE 391
- BIOE 383
- BIOE 370
- BIOE 342
- BIOE 332
- BIOE 322
- BIOE 320
- BIOE 252

**Bioengineering Core Courses**

Select 1 from the following:

- PHYS 101 & PHYS 103 MECHANICS (WITH LAB) and MECHANICS DISCUSSION
- PHYS 111 HONORS MECHANICS (WITH LAB)
- PHYS 125 GENERAL PHYSICS (WITH LAB)

Select 1 from the following:

- PHYS 102 & PHYS 104 ELECTRICITY & MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION
- PHYS 112 HONORS ELECTRICITY & MAGNETISM (WITH LAB)
- PHYS 126 GENERAL PHYSICS II (WITH LAB)

**Bioengineering Core Courses**

- BIOE 252 BIOENGINEERING FUNDAMENTALS
- BIOE 320 SYSTEMS PHYSIOLOGY LAB MODULE
- BIOE 322 FUNDAMENTALS OF SYSTEMS PHYSIOLOGY
- BIOE 330 BIOREACTION ENGINEERING
- BIOE 332 BIOENGINEERING THERMODYNAMICS
- BIOE 342 LABORATORY IN TISSUE CULTURE
- BIOE 370 BIOMATERIALS
- BIOE 372 BIOMECHANICS
- BIOE 383 BIOMEDICAL ENGINEERING INSTRUMENTATION
- BIOE 385 BIOMEDICAL INSTRUMENTATION LAB
- BIOE 391 NUMERICAL METHODS
- BIOE 420 / CHBE 420 BIOENGINEERING

Select 1 course from the following: BIOE 439 APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY

Select 2 courses from the following (different laboratory modules may be offered each year):

- BIOE 442 TISSUE ENGINEERING LAB MODULE
- BIOE 443 BIOPROCESSING LAB MODULE
- BIOE 444 MECHANICAL TESTING LAB MODULE
- BIOE 445 ADVANCED INSTRUMENTATION LAB MODULE
- BIOE 446 COMPUTATIONAL MODELING LAB
- BIOE 447 DIGITAL DESIGN & VISUALIZATION
- BIOE 449 / GLHT 449 TROUBLESHOOTING WORKSHOP FOR CLINICALLY-RELEVANT BIOMEDICAL EQUIPMENT

Select a minimum of 3 elective courses and 6 Engineering Points from the Technical Elective course offerings (see course list below)

**Total Credit Hours Required for the Major in Bioengineering** 97-99

**Additional Credit Hours to Complete Degree Requirements** 2-4

**University Graduation Requirements** (p. 29) 31

**Total Credit Hours** 131

**Footnotes and Additional Information**

1. Students should complete these courses during their freshman year.
2. Students should complete these courses during their sophomore year.
3. BIOE 400 can be counted in place of one of the required senior laboratory courses if taken for at least 3 credit hours at once. If used in this capacity, the student cannot also count that iteration of the course towards an Engineering Point or Technical Elective Requirement.
4. One of BIOE 330, BIOE 332, or BIOE 420 can be replaced with one or more additional Technical Elective courses of equal or greater BIOE Engineering Points value. Engineering points for the courses are: BIOE 330 (2 points), BIOE 332 (3 points), or BIOE 420 (3 points).
5. If BIOE 447 is taken as a Bioengineering Laboratory course, the student should note that ENGI 355, listed in the Technical Electives section, will not count as a course that satisfies the Technical Electives Requirement.
6. Students may choose to take BIOE 341 Cell and Molecular Biology for Engineers in place of BIOS 341.

**Course Lists to Satisfy Requirements**

**Technical Electives**

To fulfill the remaining BIOE major requirements, students must complete a minimum of 3 courses (9 credit hours) and 6 Engineering Points from the Technical Elective course offerings. A combination of Technical Electives must be selected that meets this minimum of 3 courses (9 credit hours) and 6 Engineering Points. If a student should choose to replace one of the optional core courses (BIOE 330, BIOE 332, or BIOE 420), then a minimum of 4 Technical Electives will be required as well as adequate Engineering Points for the replaced course's value (2 to 3 Engineering Points).

**Please Note:** The following list of courses are those that satisfy the approved Technical Electives requirement. In certain instances, courses not on this official list may be substituted upon approval of the department’s Director of Undergraduate Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Engineering Points**

Courses listed below may count toward the Technical Elective requirement (minimum of 3 courses (9 credit hours) and 6 Engineering Points), and will carry the following Engineering Point values.
Please Note: the list of courses and their associated Engineering Point values may change. Students should check with their academic advisor before registering for Technical Elective courses.

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<td><strong>Zero (0) Engineering Points</strong></td>
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<tr>
<td>BIOE 401</td>
<td>UNDERGRADUATE RESEARCH</td>
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<td><strong>One (1) Engineering Point</strong></td>
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<td>BIOE 380</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY</td>
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<td>BIOE 392 / GLHT 392</td>
<td>NEEDS FINDING AND DEVELOPMENT IN BIOENGINEERING</td>
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<td>BIOE 400</td>
<td>ENGINEERING UNDERGRADUATE RESEARCH 1,2,5</td>
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<td>BIOE 408</td>
<td>SYNTHETIC BIOLOGY</td>
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<td>BIOE 422</td>
<td>GENE THERAPY</td>
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<td><strong>Select 1 course from the following:</strong></td>
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<td>BIOE 524</td>
<td>EXTRACELLULAR MATRIX</td>
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<td>FUNDAMENTALS OF MEDICAL IMAGING II</td>
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<td>BIOE 492</td>
<td>SENSORY NEUROENGINEERING</td>
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<td>BIOE 523 / CHBE 523</td>
<td>BIOENGINEERING SYSTEMS AND CONTROL</td>
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<td>BIOE 543</td>
<td>DNA BIOTECHNOLOGY, BIOPHYSICS, AND MODELING</td>
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<td>BIOE 580 / CHBE 580</td>
<td>PROTEIN ENGINEERING</td>
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<td>BIOE 587</td>
<td>OPTICAL IMAGING AND NANOBIPHOTONICS</td>
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<td>BIOE 589</td>
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<td>BIOE 615</td>
<td>BIOENGINEERING AND CARDIAC SURGERY</td>
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<td>BIOE 620 / CHBE 620</td>
<td>TISSUE ENGINEERING</td>
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<td>MATRIX ANALYSIS FOR DATA SCIENCE 5</td>
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<td>CHBE 310</td>
<td>FUNDAMENTALS OF BIOMOLECULAR ENGINEERING</td>
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<td>NEURAL COMPUTATION</td>
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<td>ENGI 300</td>
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<td>ENGI 301</td>
<td>INTRODUCTION TO PRACTICAL ELECTRICAL ENGINEERING</td>
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<td>MECH 311 / CEVE 311</td>
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<td>BIOE 321</td>
<td>CELLULAR ENGINEERING</td>
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<td><strong>Three (3) Engineering Points</strong></td>
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<td>BIOE 360 / GLHT 360</td>
<td>APPROPRIATE DESIGN FOR GLOBAL HEALTH 3</td>
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<td>BIOE 421</td>
<td>MICROCONTROLLER APPLICATIONS</td>
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<td>BIOE 454 / MECH 454 / CEVE 454</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
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<td>BIOPHOTONICS INSTRUMENTATION AND APPLICATIONS</td>
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<td>BIOE 509</td>
<td>POINT-OF-CARE DIAGNOSTICS</td>
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<tr>
<td>ELEC 342</td>
<td>ANALOG ELECTRONIC CIRCUITS</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 422</td>
<td>VLSI SYSTEMS DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 435 / MECH 435</td>
<td>INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 355</td>
<td>DIGITAL DESIGN AND VISUALIZATION 4</td>
<td>3</td>
</tr>
<tr>
<td>MECH 371</td>
<td>FLUID MECHANICS I</td>
<td>3</td>
</tr>
<tr>
<td>MECH 400 / CEVE 400</td>
<td>ADVANCED MECHANICS OF MATERIALS</td>
<td>3</td>
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<tr>
<td>MECH 417 / CEVE 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
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<tr>
<td>MECH 420 / ELEC 436</td>
<td>FUNDAMENTALS OF CONTROL SYSTEMS</td>
<td>3</td>
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<tr>
<td>MECH 488</td>
<td>DESIGN OF MECHATRONIC SYSTEMS</td>
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<tr>
<td>MSNE 402</td>
<td>MECH PROPERTIES OF MATERIALS</td>
<td>3</td>
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<tr>
<td><strong>Four (4) Engineering Points</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECH 343</td>
<td>MODELING OF DYNAMIC SYSTEMS</td>
<td>4</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. BIOE 400: Students may earn 1 Engineering Point for every 3 credit hours completed. A maximum of 2 Engineering Points can be applied towards the 6 Engineering Points requirement by completing BIOE 400 courses.
Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Bioengineering (MBE) degree. For additional information, students should contact their undergraduate major advisor and the MBE program director.

**Additional Information**

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

**Doctor of Philosophy (PhD) Degree in the field of Bioengineering**

**Program Learning Outcomes for the MS and PhD Degrees in the field of Bioengineering**

Upon completing the MS and PhD degrees in the field of Bioengineering, students will be able to:

1. Acquire a graduate-level understanding of foundations in Bioengineering and apply this material across a variety of sub-disciplines.
2. Integrate knowledge from different sources to solve a defined Bioengineering problem.
3. Acquire deep knowledge in a sub-discipline in which they will pursue their thesis.
4. Demonstrate professional skills in both oral and written communication.

**Requirements for the MS and PhD Degrees in the field of Bioengineering**

**MS Degree Program**

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MS degree in the field of Bioengineering must complete:

---

**Policies for the BSBE Degree**

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the BSBE degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

**Opportunities for the BSBE Degree**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Fifth-Year Master's Degree Option for Rice Undergraduate Students**

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.
A minimum of 30 credit hours to satisfy degree requirements.
- A minimum of 18 credit hours from foundation, supporting, and advanced coursework. MS students must earn additional credit hours they need for graduation by registering for the research course BIOE 500 during the terms in which they are engaged in research.
- A minimum program GPA of 3.00.

In addition, students must:

- Show evidence on their undergraduate transcript of completion of a class in systems physiology, cell (or physical) biology, and statistics. (If courses were not taken for an undergraduate degree, they must be completed at the beginning of the MS degree program.)
- Fulfill a teaching requirement.
- Submit an original research thesis.
- Defend the thesis in a public oral examination.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours for the MS Degree in the field of Bioengineering</td>
<td>30</td>
</tr>
</tbody>
</table>

### Requirements for the PhD Degree in the field of Bioengineering

#### PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Bioengineering must complete:

- A minimum of 90 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours from foundation, supporting, and advanced coursework with high standing. In addition to foundation, PhD students must earn additional credit hours they need for graduation by registering for the PhD research course, BIOE 500, during the terms in which they are engaged in research.
- A minimum program GPA of 3.20.

In addition, students must:

- Show evidence on their undergraduate transcript of completion of a class in systems physiology, cell (or physical) biology, and statistics. (If courses were not taken for an undergraduate degree, they must be completed at the beginning of the PhD degree program.)
- Complete 9 credit hours of Bioengineering foundations coursework.
- Students are required to serve as a teaching assistant in up to three undergraduate or graduate courses.
- Submit a thesis proposal. PhD students must submit and successfully defend their thesis proposals by the end of their fourth semester in residence.
- Submit a thesis that provides evidence of their ability to carry out original research in a specialized area of bioengineering.
- Defend the thesis in a public oral examination.

Graduate students take required courses and electives in the following areas:

- Biomaterials
- Biomedical Imaging
- Instrumentation
- Mechanobiology and Biophysics
- Microfabrication
- Microfluidics and Design
- Optics and Diagnostics
- Quantitative, Computational and Theoretical Bioengineering
- Synthetic Biology and Genome Engineering
- Tissue Engineering

### Policies for the PhD Degree in the field of Bioengineering

#### Department of Bioengineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Bioengineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Bioengineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Bioengineering_Graduate_Handbook.pdf)

#### Admissions

The application deadline for PhD students for fall admission of the following year is December 20. Applicants should request transcripts at least two months in advance to give senders time to get the material to Rice University by the deadline. For international students, the TOEFL exam scores should be sent at least three months before this deadline. PhD students are not admitted in the spring semester. Application materials received after the deadline will not be considered. Once admitted, departmental policy requires full-time PhD students to be registered for at least 12 credit hours each semester.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Bioengineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

#### Additional Information

For additional information, please see the Bioengineering website: [https://bioengineering.rice.edu/](https://bioengineering.rice.edu/)
Opportunities for the PhD Degree in the field of Bioengineering

Additional Information
For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Bioengineering / Doctor of Medicine (MD) Degree with Baylor College of Medicine

Program Learning Outcomes for the PhD/MD Coordinated Degrees Program
Upon completing the PhD degree in the field of Bioengineering, students will be able to:

1. Acquire a graduate-level understanding of foundations in Bioengineering and apply this material across a variety of sub-disciplines.
2. Integrate knowledge from different sources to solve a defined Bioengineering problem.
3. Acquire deep knowledge in a sub-discipline in which they will pursue their thesis.
4. Demonstrate professional skills in both oral and written communication.

Requirements for the PhD/MD Coordinated Degrees Program
For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). This PhD/MD dual degree program is offered by the Rice University Bioengineering Department and Baylor College of Medicine. This coordinated degrees program prepares students for research careers in medicine. Students must initially be accepted into the program through the Baylor College of Medicine.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
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<td>Total Credit Hours Required for the PhD Degree in the field of Bioengineering at Rice University</td>
<td>90</td>
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Policies for the PhD/MD Coordinated Degrees Program
Additional Information
For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

Opportunities for the PhD/MD Coordinated Degrees Program

Additional Information
For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

Master of Bioengineering (MBE) Degree

Program Learning Outcomes for the MBE Degree

Program Learning Outcomes for the Applied Bioengineering Area of Specialization
Upon completing the MBE degree, students pursuing the Applied Bioengineering area of specialization requirements will be able to:

1. Apply and integrate advanced knowledge of Bioengineering topics in at least one of the following areas: Biomaterials, Tissue Engineering, Mechanobiology and Biophysics; Biomedical Imaging, Optics and Diagnostics; Microfabrication, Microfluidics and Design; Synthetic Biology and Genome Engineering; Quantitative, Computational and Theoretical Bioengineering.
2. Apply knowledge from engineering and other disciplines to identify, formulate, and solve novel and complex problems that require advanced knowledge in bioengineering.
3. Select and apply quantitative analytic techniques to analyze bioengineering data.

Additionally, upon completing the MBE degree, students pursuing the Applied Bioengineering area of specialization and the research option, will be able to:

1. Develop practical experience of designing and performing laboratory research, including the ability to summarize and assess research results in a written format, and present research results.

Program Learning Outcomes for the Global Medical Innovation Area of Specialization
Upon completing the MBE degree, students pursuing the Global Medical Innovation area of specialization requirements will be able to:

1. Apply knowledge of Bioengineering topics in at least one of the following areas: Biomaterials, Tissue Engineering, Mechanobiology and Biophysics; Biomedical Imaging, Optics and Diagnostics; Microfabrication, Microfluidics and Design; Synthetic Biology and Genome Engineering; Quantitative, Computational and Theoretical Bioengineering.
2. Develop effective medical products, from concept to commercialization, within a team environment.
3. Comprehend and navigate the global medical technology industry by leveraging an internship experience.

Requirements for the MBE Degree
The MBE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate
programs, please see All Graduate Students (p. 60). Students pursuing the MBE degree must complete:

- A minimum of 30-31 credit hours, depending on area of specialization, to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- The requirements for one area of specialization (see below for areas of specialization). The MBE degree program offers two areas of specialization:
  - **Applied Bioengineering** (class-only) or **Applied Bioengineering** (research option): designed as a flexible degree for students who will pursue careers in research, medicine, or related fields. This area of specialization of the MBE degree is designed for students to transition to medical school or a PhD program, or to advance their professional career in the biomedical industry or
  - **Global Medical Innovation**: designed specifically for students who will pursue a career in the global medical technology industry. This area of specialization of the MBE degree is designed to prepare engineers for careers in medical technology through education in innovation, emerging-market design projects and internships.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course (for the Applied Bioengineering area of specialization), or a minimum program GPA of 3.20 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course (for the Global Medical Innovation area of specialization).

Both areas of specialization have the same prerequisites, though applicants will be evaluated considering the different purposes of each. More information about each of these areas of specialization can be found below. Curriculum must be approved by the Graduate Academic Affairs Committee and the Bioengineering Department. This is done on a case-by-case basis.

The Master of Bioengineering (MBE) degree is a professional non-thesis master’s degree. Students who have a BS or BA degree in an engineering or science discipline may apply. Depending on their background, some students may need to take remedial engineering courses to earn the MBE degree. For more information, see the department website.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Rice University Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MBE Degree</td>
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</table>

**Degree Requirements**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td>BIOE 627</td>
<td>MEDICAL INNOVATION INDUSTRY SEMINAR</td>
<td>1.5</td>
</tr>
<tr>
<td>BIOE 628</td>
<td>MEDICAL TECHNOLOGY DESIGN SEMINAR</td>
<td>1.5</td>
</tr>
<tr>
<td>BIOE 633</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINES AND MBA'S IN HIGH-TECH STARTUPS</td>
<td>2</td>
</tr>
</tbody>
</table>

|                  | Area of Specialization                        |              |
|                  | Select 1 course from the following:          | 27-28        |
|                  | Applied Bioengineering (class-only or research option) |              |
|                  | Global Medical Innovation                     |              |

|                  | Total Credit Hours                           | 30-31        |

**Areas of Specialization**

**Area of Specialization: Applied Bioengineering (class-only)**

Students pursuing the Applied Bioengineering (class-only) area of specialization must complete:

- A minimum of 2 courses (3 credit hours) from the core requirements.
- A minimum of 9 courses (27 credit hours) taken at the 500-level or above from selected course offerings.
  - A minimum of 6 courses (18 credit hours) from approved departmental (BIOE) course offerings.
  - A minimum of 1 course (3 credit hours) as a quantitative elective course.
  - A minimum of 1 course (3 credit hours) as a professional development elective course.
  - A minimum of 1 course (3 credit hours) from approved departmental (BIOE) course offerings or another department.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elective Category: BIOE Departmental Electives</td>
<td>1,2</td>
</tr>
<tr>
<td></td>
<td>Select 6 courses from approved departmental (BIOE) course offerings at the 500-level or above</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Elective Category: Quantitative Requirement</td>
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</tbody>
</table>
### Elective Category: Professional Development
Select a minimum of 3 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 510</td>
<td>TECHNICAL AND MANAGERIAL COMMUNICATIONS</td>
<td></td>
</tr>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td></td>
</tr>
<tr>
<td>ENGI 529/CEVE 529</td>
<td>ETHICS AND ENGINEERING LEADERS</td>
<td></td>
</tr>
<tr>
<td>ENGI 542</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
<td></td>
</tr>
<tr>
<td>ENGI 555</td>
<td>ENGINEERING PERSUASION: HOW TO DRIVE DECISIONS AND CHANGE</td>
<td></td>
</tr>
<tr>
<td>ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ENGI 615</td>
<td>LEADERSHIP COACHING FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td></td>
</tr>
</tbody>
</table>

Elective Category: BIOE General Elective
Select 1 additional course from approved departmental (BIOE) course offerings (or another department) at the 500-level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3</td>
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</tbody>
</table>

**Total Credit Hours**: 27

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### Area of Specialization: Applied Bioengineering (research option)

Students pursuing the Applied Bioengineering (research option) area of specialization must complete:

- A minimum of 2 courses (9 credit hours) from the research requirement.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of a B- (2.67 grade points) in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>12</td>
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</tbody>
</table>

Elective Category: BIOE Departmental Electives
Select 4 courses from approved departmental (BIOE) course offerings at the 500-level or above

**Elective Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOE 539</td>
<td>APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Category: Quantitative Requirement

**Elective Category: Technical Writing**
Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 510</td>
<td>TECHNICAL AND MANAGERIAL COMMUNICATIONS</td>
<td></td>
</tr>
<tr>
<td>ENGI 542</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
<td></td>
</tr>
</tbody>
</table>

Elective Category: Ethics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td>1</td>
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</table>

**Research Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 507</td>
<td>GRADUATE RESEARCH COMPONENTS I</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 607</td>
<td>RESEARCH CONCENTRATION – COMPONENT II</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 28

---

### Footnotes and Additional Information

1. Students may include up to 6 credit hours of BIOE 506 (*Graduate Independent Research*) within these 18 credit hours. Students choosing to complete the Applied Bioengineering area of specialization with the research option will take up to 9 credit hours of BIOE 507 and BIOE 607, which are more structured MBE research courses. For students taking BIOE 507 or BIOE 607, BIOE 506 may also be taken for additional research experience, but it will not be counted toward the 30 credit hours required for the MBE degree.

2. For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 *Transfer - Foundations of Medical Science* and BIOE 696 *Transfer - Doctoring 1: History and Physical Exam.* BIOE 539 or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director’s approval.

---

### Area of Specialization: Global Medical Innovation

Students pursuing the Global Medical Innovation area of specialization must complete:

- A minimum of 6 courses (15 credit hours) from the core requirements.
- An internship or independent study (6 credit hours).
- A minimum of 3 courses (9 credit hours) taken at the 500-level or above from selected course offerings.
  - A minimum of 1 course (3 credit hours) as a quantitative elective course.
  - A minimum of 1 course (3 credit hours) as a professional development elective course.
  - A minimum of 1 course (3 credit hours) from approved departmental (BIOE) course offerings or another department.

---

### Research Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 507</td>
<td>GRADUATE RESEARCH COMPONENTS I</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 607</td>
<td>RESEARCH CONCENTRATION – COMPONENT II</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 28

---

### Footnotes and Additional Information

1. For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 *Transfer - Foundations of Medical Science* and BIOE 696 *Transfer - Doctoring 1: History and Physical Exam.*

2. BIOE 539 or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director’s approval.
• A minimum GPA of 3.20 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course.

<table>
<thead>
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<tr>
<td>BIOE 527</td>
<td>HEALTHCARE INNOVATION AND ENTREPRENEURSHIP</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 529</td>
<td>HEALTHCARE INNOVATION AND ENTREPRENEURSHIP LAB</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 528</td>
<td>MEDICAL ENGINEERING AND DESIGN LAB</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 530</td>
<td>MEDICAL ENGINEERING &amp; DESIGN LAB 2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Core Requirements**

Medical Technology Design

BIOE 527 HEALTHCARE INNOVATION AND ENTREPRENEURSHIP

Select 1 additional course from approved departmental (BIOE) course offerings (or another department) at the 500-level or above, with the advisor/MBE Program Director’s approval.

Medical Technology Implementation

BIOE 528 MEDICAL ENGINEERING AND DESIGN LAB

BIOE 530 MEDICAL ENGINEERING & DESIGN LAB 2

**Elective Requirements**

Select 1 from the following:

- BIOE 506 GRADUATE INDEPENDENT STUDY (2 semesters required)
- BIOE 600 GRADUATE BIOENGINEERING INDUSTRY INTERNSHIP

**Elective Category: Quantitative Requirement**

BIOE 539 APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY

**Elective Category: Professional Development**

Select a minimum of 3 credit hours from the following:

- ENGI 501 WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING
- ENGI 510 TECHNICAL AND MANAGERIAL COMMUNICATIONS
- ENGI 515 LEADING TEAMS AND INNOVATION
- ENGI 529 / CEVE 529 ETHICS AND ENGINEERING LEADERSHIP
- ENGI 542 PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS
- ENGI 610 / NSCI 610 MANAGEMENT FOR SCIENCE AND ENGINEERING
- ENGI 615 LEADERSHIP COACHING FOR ENGINEERS

Elective Category: BIOE General Elective

Select 1 additional course from approved departmental (BIOE) course offerings (or another department) at the 500-level or above

3 BIOE 539 or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director’s approval.

4 With advisor/MBE Program Director approval, students may complete a course offered by another department, outside of BIOE, but it must be relevant to the MBE degree.

### Policies for the MBE Degree

**Department of Bioengineering Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Bioengineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Bioengineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Bioengineering_Graduate_Handbook.pdf)

**Enrollment Status Requirements**

Students may enroll for the Applied Bioengineering area of specialization on a full-time or part-time basis. For the Global Medical Innovation area of specialization, students may only enroll on a full-time basis. University graduation requirements (including the minimum residency requirement for students in graduate degree programs) all still apply.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the MBE degree should be aware of the following departmental transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Bioengineering website: [https://bioengineering.rice.edu/](https://bioengineering.rice.edu/)

### Opportunities for the MBE Degree

**Fifth-Year Master's Degree Option for Rice Undergraduate Students**

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:
Upon completing the MBE degree, students pursuing the Global Medical Innovation area of specialization Program Learning Outcomes for the Global Medical Innovation area of specialization requirements will be able to:

1. Apply knowledge of Bioengineering topics in at least one of the following areas: Biomaterials, Tissue Engineering, Mechanobiology and Biophysics; Biomedical Imaging, Optics and Diagnostics; Microfabrication, Microfluidics and Design; Synthetic Biology and Genome Engineering; Quantitative, Computational and Theoretical Bioengineering.
2. Develop effective medical products, from concept to commercialization, within a team environment.
3. Comprehend and navigate the global medical technology industry by leveraging an internship experience.

Requirements for the MBE/MD Dual Degrees Program

The MBE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MBE degree must complete:

- A minimum of 30-31 credit hours, depending on area of specialization, to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- The requirements for one area of specialization (see below for areas of specialization). The MBE degree program offers two areas of specialization:
  - Applied Bioengineering (class-only) or Applied Bioengineering (research option): designed as a flexible degree for students who will pursue careers in research, medicine, or related fields. This area of specialization of the MBE degree is designed for students to transition to medical school or a PhD program, or to advance their professional career in the biomedical industry or Global Medical Innovation: designed specifically for students who will pursue a career in the global medical technology industry. This area of specialization of the MBE degree is designed to prepare engineers for careers in medical technology through education in innovation, emerging-market design projects and internships.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of a B- (2.67 grade points) in each course (for the Applied Bioengineering area of specialization), or a minimum program GPA of 3.20 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of a B- (2.67 grade points) in each course (for the Global Medical Innovation area of specialization).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Bioengineering (MBE) degree. For additional information, students should contact their undergraduate major advisor and the MBE program director.

Additional Information

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/
Both areas of specialization have the same prerequisites, though applicants will be evaluated considering the different purposes of each. More information about each of these areas of specialization can be found below. Curriculum must be approved by the Graduate Academic Affairs Committee and the Bioengineering Department. This is done on a case-by-case basis.

The Master of Bioengineering (MBE) degree is a professional non-thesis master's degree. Students who have a BS or BA degree in an engineering or science discipline may apply. Depending on their background, some students may need to take remedial engineering courses to earn the MBE degree. For more information, see the department website.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Affairs Committee and the Bioengineering Department. This is done on a case-by-case basis.

Students may include up to 6 credit hours of BIOE 506 Graduate Independent Research within these 18 credit hours. Students choosing to complete the Applied Bioengineering area of specialization with the research option will take up to 9 credit hours of BIOE 507 and BIOE 607, which are more structured MBE research courses. For students taking BIOE 507 or BIOE 607, BIOE 506 may also be taken for additional research experience, but it will not be counted toward the 30 credit hours required for the MBE degree.

For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 Transfer - Foundations of Medical Science and BIOE 696 Transfer - Doctoring 1: History and Physical Exam.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
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### Degree Requirements

#### Core Requirements

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<tr>
<td>BIOE 627</td>
<td>MEDICAL INNOVATION INDUSTRY SEMINAR</td>
<td>1.5</td>
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<tr>
<td>Select 1 course from the following:</td>
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<td>1.5</td>
</tr>
<tr>
<td>BIOE 628</td>
<td>MEDICAL TECHNOLOGY DESIGN SEMINAR</td>
<td>2</td>
</tr>
<tr>
<td>BIOE 633 / MGMT 633</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS</td>
<td></td>
</tr>
</tbody>
</table>

#### Area of Specialization

| Select 1 from the following Areas of Specialization (see below for Areas of Specialization): | 27-28 |
| Applied Bioengineering (class-only or research option) | |
| Global Medical Innovation | |

| Total Credit Hours | 30-31 |

### Areas of Specialization

#### Area of Specialization: Applied Bioengineering (class-only)

Students pursuing the Applied Bioengineering (class-only) area of specialization must complete:

- A minimum of 2 courses (3 credit hours) from the core requirements.
- A minimum of 9 courses (27 credit hours) taken at the 500-level or above from selected course offerings.
  - A minimum of 6 courses (18 credit hours) from approved departmental (BIOE) course offerings.
  - A minimum of 1 course (3 credit hours) as a quantitative elective course.
  - A minimum of 1 course (3 credit hours) as a professional development elective course.
  - A minimum of 1 course (3 credit hours) from approved departmental (BIOE) course offerings or another department.
  - A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of a B- (2.67 grade points) in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER'S STUDENTS IN ENGINEERING</td>
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</tr>
<tr>
<td>ENGI 510</td>
<td>TECHNICAL AND MANAGERIAL COMMUNICATIONS</td>
<td></td>
</tr>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td></td>
</tr>
<tr>
<td>ENGI 529 / CEVE 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td></td>
</tr>
<tr>
<td>ENGI 542</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
<td></td>
</tr>
<tr>
<td>ENGI 555</td>
<td>ENGINEERING PERSUASION: HOW TO DRIVE DECISIONS AND CHANGE</td>
<td></td>
</tr>
<tr>
<td>ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ENGI 615</td>
<td>LEADERSHIP COACHING FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
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</table>

#### Elective Category: BIOE General Elective

Select a minimum of 3 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGI 506</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 507</td>
<td>MEDICAL INNOVATION INDUSTRY SEMINAR</td>
<td>1.5</td>
</tr>
<tr>
<td>ENGI 628</td>
<td>MEDICAL TECHNOLOGY DESIGN SEMINAR</td>
<td>2</td>
</tr>
<tr>
<td>BIOE 633 / MGMT 633</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 additional course from approved departmental (BIOE) course offerings (or another department) at the 500-level or above

| Total Credit Hours | 27 |

### Footnotes and Additional Information

1. Students may include up to 6 credit hours of BIOE 506 (Graduate Independent Research) within these 18 credit hours. Students choosing to complete the Applied Bioengineering area of specialization with the research option will take up to 9 credit hours of BIOE 507 and BIOE 607, which are more structured MBE research courses. For students taking BIOE 507 or BIOE 607, BIOE 506 may also be taken for additional research experience, but it will not be counted toward the 30 credit hours required for the MBE degree.

2. For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 Transfer - Foundations of Medical Science and BIOE 696 Transfer - Doctoring 1: History and Physical Exam.
3 BIOE 539 or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director’s approval.

**Area of Specialization: Applied Bioengineering (research option)**

Students pursuing the Applied Bioengineering (research option) area of specialization must complete:

- A minimum of 2 courses (3 credit hours) from the core requirements.
- A minimum of 7 courses (19 credit hours) taken at the 500-level or above from selected course offerings.
  - A minimum of 4 courses (12 credit hours) from approved departmental (BIOE) course offerings.
  - A minimum of 1 course (3 credit hours) as a quantitative elective course.
  - A minimum of 1 course (3 credit hours) as a technical writing course.
  - A minimum of 1 course (1 credit hour) as an ethics course.
- A minimum of 2 courses (9 credit hours) from the research requirement.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 539</td>
<td>APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

| Elective Category: Technical Writing |
| Select 1 course from the following: |
| ENGI 501 | WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING |
| ENGI 510 | TECHNICAL AND MANAGERIAL COMMUNICATIONS |
| ENGI 542 | PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS |

| Elective Category: Ethics |
| UNIV 594 | RESPONSIBLE CONDUCT OF RESEARCH |

**Research Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>BIOE 507</td>
<td>GRADUATE RESEARCH COMPONENTS I</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 607</td>
<td>RESEARCH CONCENTRATION – COMPONENT II</td>
<td>6</td>
</tr>
</tbody>
</table>

| Total Credit Hours | 28 |

**Footnotes and Additional Information**

1 For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 Transfer - Foundations of Medical Science and BIOE 696 Transfer - Doctoring 1: History and Physical Exam.

2 BIOE 539 or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director’s approval.

**Area of Specialization: Global Medical Innovation**

Students pursuing the Global Medical Innovation area of specialization must complete:

- A minimum of 6 courses (15 credit hours) from the core requirements.
- An internship or independent study (6 credit hours).
- A minimum of 3 courses (9 credit hours) taken at the 500-level or above from selected course offerings.
  - A minimum of 1 course (3 credit hours) as a quantitative elective course.
  - A minimum of 1 course (3 credit hours) as a professional development elective course.
  - A minimum of 1 course (3 credit hours) from approved departmental (BIOE) course offerings or another department.
- A minimum GPA of 3.20 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIOE 506</td>
<td>GRADUATE INDEPENDENT STUDY (2 semesters required)</td>
<td>6</td>
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<tr>
<td>BIOE 600</td>
<td>GRADUATE BIOENGINEERING INDUSTRY INTERNSHIP</td>
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</table>

**Footnotes**

For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 Transfer - Foundations of Medical Science and BIOE 696 Transfer - Doctoring 1: History and Physical Exam.
Students pursuing the MBE degree should be aware of the following Departmental Transfer Credit Guidelines. It is important to consult with their academic advisor when considering transfer credit possibilities. Students are encouraged to meet with their academic advisor to discuss their specific needs and potential transfer options. For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from either in-state or international universities of similar standing as Rice may apply towards the degree. No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

With advisor/MBE Program Director approval, students may complete a course offered by another department, outside of BIOE, but it must be relevant to the MBE degree. Students may enroll for the Applied Bioengineering area of specialization on a full-time or part-time basis. For the Global Medical Innovation area, students will be able to fulfill MBE requirements: BIOE 695 Transfer - Foundations of Medical Science and BIOE 696 Transfer - Doctoring 1: History and Physical Exam. A minimum residency enrollment of one fall or spring semester of enrollment status requirements, regulations, and procedures for all graduate programs, please see the Bioengineering Handbook website: https://bioengineering.rice.edu/. Additional Information, please see the Bioengineering Handbook website: https://bioengineering.rice.edu/.

Opportunities for the MBE/MD Dual Degrees Program

1. Apply knowledge of Bioengineering topics in at least one of the following areas: Biomaterials, Tissue Engineering, Mechanobiology and Biophysics; Biomedical Imaging, Optics and Diagnostics; Microfabrication, Microfluidics and Design; Synthetic Biology and Genome Engineering; Quantitative, Computational and Theoretical Bioengineering.

2. Develop effective medical products, from concept to commercialization, within a team environment.

3. Comprehend and navigate the global medical technology industry by leveraging an internship experience.

Requirements for the MBE Degree

The MBE degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the MBE degree program and a major concentration in Applied Bioengineering must complete:

- A minimum of 30-31 credit hours, depending on major concentration, to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above).
- A minimum of 24 credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- The requirements for the major concentration in Bioengineering. When students are admitted into the MBE degree program, they must additionally identify and declare one of the two major concentrations, either in:
  - Applied Bioengineering (class-based or research-based) (p. 319): designed as a flexible degree for students who will pursue careers in research, medicine, or related fields, or
  - Global Medical Innovation (p. 318): designed specifically for students who will pursue a career in the global medical innovation industry.

Appendix A: Course Offerings

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
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<tr>
<td>NSCI 610</td>
<td>LEADERSHIP COACHING FOR ENGINEERS</td>
</tr>
<tr>
<td>ENGI 615</td>
<td>LEADERSHIP COACHING FOR ENGINEERS</td>
</tr>
<tr>
<td>BIOE 539</td>
<td>or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director's approval.</td>
</tr>
<tr>
<td>BIOE 695</td>
<td>Transfer - Foundations of Medical Science</td>
</tr>
<tr>
<td>BIOE 696</td>
<td>Transfer - Doctoring 1: History and Physical Exam</td>
</tr>
</tbody>
</table>

Total Credit Hours: 27

Footnotes and Additional Information

1. This will be considered on a case-by-case basis, and the student is responsible for obtaining and selecting an internship that best aligns with their career goals.

2. For students formally admitted into and specifically pursuing the MBE/MD dual degrees program, up to 2 courses (6 credit hours) from the McGovern Medical School at the UT Health Science Center can fulfill MBE requirements: BIOE 695 Transfer - Foundations of Medical Science and BIOE 696 Transfer - Doctoring 1: History and Physical Exam.

3. BIOE 539 or an alternative quantitative-based BIOE course, taken at the 500-level or above, with the advisor/MBE Program Director's approval.

4. With advisor/MBE Program Director approval, students may complete a course offered by another department, outside of BIOE, but it must be relevant to the MBE degree.

Policies for the MBE/MD Dual Degrees Program

Department of Bioengineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Bioengineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Bioengineering_Graduate_Handbook.pdf

Enrollment Status Requirements

Students may enroll for the Applied Bioengineering area of specialization on a full-time or part-time basis. For the Global Medical Innovation area of specialization, students may only enroll on a full-time basis. University graduation requirements (including the minimum residency requirement for students in graduate degree programs) all still apply.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MBE degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.
technology industry. As the medical technology industry becomes increasingly global with an emphasis in cost-effective health care solutions and clinical outcomes, Rice University seeks to prepare engineers for this new and changing environment. This area of specialization of the MBE degree is designed to prepare engineers for careers in medical technology through education in innovation, emerging-market design projects and internships. The Rice MBE area of specialization in Global Medical Innovation program specifically targets students who have an undergraduate degree in engineering (mechanical, electrical, chemical, or bioengineering/medical) or a related field, and who are interested in pursuing a career in the private, public, or non-profit sectors of medical technology.

- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 3.20 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course (for students pursuing the Global Medical Innovation major concentration).

Both areas of specialization have the same prerequisites, though applicants will be evaluated considering the different purposes of each. More information about each of these areas of specialization can be found below. Curriculum must be approved by the Graduate Academic Affairs Committee and the Bioengineering Department. This is done on a case-by-case basis.

The Master of Bioengineering (MBE) degree is a professional non-thesis master’s degree. Students who have a BS or BA degree in an engineering or science discipline may apply. Depending on their background, some students may need to fulfill prerequisites or take remedial engineering courses to earn the MBE degree. For more information, see the department website.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>BIOE 627</td>
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</tr>
<tr>
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<td>Select 1 course from the following:</td>
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</tr>
<tr>
<td>BIOE 628</td>
<td>MEDICAL TECHNOLOGY DESIGN SEMINAR</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Elective Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Elective Category: Professional Development</strong></td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following Major Concentrations (see below for Major Concentration requirements):</td>
<td>27-28</td>
<td></td>
</tr>
<tr>
<td>BIOE 633 / MGMT 633</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN HIGH-TECH STARTUPS</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Elective Category: Quantitative Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>BIOE 539</td>
<td>APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>Elective Category: BIOE General Elective</strong></td>
<td></td>
</tr>
<tr>
<td>Select 1 additional course from approved departmental (BIOE) course offerings (or another department) at the 500-level or above</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>27</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. This will be considered on a case-by-case, and the student is responsible for obtaining and selecting an internship that best aligns with their career goals.
Policies for the MBE Degree

Department of Bioengineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Bioengineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Bioengineering_Graduate_Handbook.pdf

Enrollment Status Requirements

Students may enroll for the Applied Bioengineering area of specialization on a full-time or part-time basis. For the Global Medical Innovation area of specialization, students may only enroll on a full-time basis. University graduation requirements (including the minimum residency requirement for students in graduate degree programs) all still apply.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MBE degree should be aware of the following departmental transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

Opportunities for the MBE Degree

Additional Information

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

Master of Bioengineering (MBE) Degree, and a Major Concentration in Applied Bioengineering

Program Learning Outcomes for the MBE Degree and a Major Concentration in Applied Bioengineering

Upon completing the MBE degree and a major concentration in Applied Bioengineering, students will be able to:

1. Apply and integrate advanced knowledge of Bioengineering topics in at least one of the following areas: Biomaterials, Tissue Engineering, Mechanobiology and Biophysics; Biomedical Imaging, Optics and Diagnostics; Microfabrication, Microfluidics and Design; Synthetic Biology and Genome Engineering; Quantitative, Computational and Theoretical Bioengineering.
2. Apply knowledge from engineering and other disciplines to identify, formulate, and solve novel and complex problems that require advanced knowledge in bioengineering.
3. Select and apply quantitative analytic techniques to analyze bioengineering data.

Additionally, upon completing the MBE degree and a major concentration in Applied Bioengineering and the research component, students will be able to:

1. Develop practical experience of designing and performing laboratory research, including the ability to summarize and assess research results in a written format, and present research results.

Requirements for the MBE Degree

The MBE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-non-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/).

Students pursuing the MBE degree program and a major concentration in Applied Bioengineering must complete:

• A minimum of 30-31 credit hours, depending on course selection, to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above).
• A minimum of 24 credit hours must be taken at Rice University.
• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
• The requirements for the major concentration in Bioengineering. When students are admitted into the MBE degree program, they must additionally identify and declare one of the two major concentrations, either in:
  • Applied Bioengineering (class-based or research-based) (p. 320): designed as a flexible degree for students who will pursue careers in research, medicine, or related fields, or
  • Global Medical Innovation (p. 317): designed specifically for students who will pursue a career in the global medical technology industry. As the medical technology industry becomes increasingly global with an emphasis in cost-effective health care solutions and clinical outcomes, Rice University seeks to prepare engineers for this new and changing environment. This area of specialization of the MBE degree is designed to prepare engineers for careers in medical technology through education in innovation, emerging-market design projects and internships. The Rice MBE area of specialization in Global Medical Innovation program specifically targets students who have an undergraduate degree in engineering (mechanical, electrical, chemical, or bioengineering/medical) or a related field, and who are interested in pursuing a career in the private, public, or non-profit sectors of medical technology.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of a B- (2.67 grade points) in each course (for students pursuing the Applied Bioengineering major concentration).

Both major concentrations have the same prerequisites, though applicants will be evaluated considering the different purposes of each. More information about each of these major concentrations can be found below. Curriculum must be approved by the Graduate Academic Affairs Committee and the Bioengineering Department. This is done on a case-by-case basis.

The Master of Bioengineering (MBE) degree is a professional non-thesis master’s degree. Students who have a BS or BA degree in an engineering or science discipline may apply. Depending on their background, some students may need to fulfill prerequisites or take remedial engineering courses to earn the MBE degree. For more information, see the department website.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MBE Degree and a Major Concentration in Applied Bioengineering</td>
<td>30-31</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>BIOE 627</td>
<td>MEDICAL INNOVATION INDUSTRY SEMINAR</td>
<td>1.5</td>
</tr>
<tr>
<td>Select 1 course from the following:</td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>BIOE 628</td>
<td>MEDICAL TECHNOLOGY DESIGN SEMINAR</td>
<td>2</td>
</tr>
<tr>
<td>BIOE 633 / MGMT 633</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN HIGH-TECH STARTUPS</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Major Concentration</strong></td>
<td>27-28</td>
</tr>
<tr>
<td>Select 1 from the following Major Concentrations (see below for Major Concentration requirements):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Bioengineering (Class-Based or Research-Based)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Medical Innovation</td>
<td></td>
<td>30-31</td>
</tr>
</tbody>
</table>

Elective Category: BIOE Departmental Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 6 courses from approved departmental (BIOE) course offerings at the 500-level or above</td>
<td>18</td>
</tr>
</tbody>
</table>

Elective Category: Professional Development

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select a minimum of 3 credit hours from the following:</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ENGI 510</td>
<td>TECHNICAL AND MANAGERIAL COMMUNICATIONS</td>
<td></td>
</tr>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td></td>
</tr>
<tr>
<td>ENGI 529 / CEVE 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td></td>
</tr>
<tr>
<td>ENGI 542</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
<td></td>
</tr>
<tr>
<td>ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ENGI 615</td>
<td>LEADERSHIP COACHING FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td></td>
</tr>
</tbody>
</table>

Elective Category: Quantitative Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 539</td>
<td>APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Category: BIOE General Elective

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 1 additional course from approved departmental (BIOE) course offerings (or another department) at the 500-level or above</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 27

Footnotes and Additional Information

1 Students may include up to 6 credit hours of BIOE 506 (Graduate Independent Research) within these 18 credit hours. Students choosing to complete the Applied Bioengineering major concentration Research-Based emphasis will take up to 9 credit hours of BIOE 507 and BIOE 607, which are more structured MBE research courses. For students taking BIOE 507 or BIOE 607, BIOE 506 may also be taken for additional research experience, but it will not be counted toward the 30 credit hours required for the MBE.

2 Students completing the Applied Bioengineering major concentration Research-Based emphasis will be required to take UNIV 594 and one of the technical writing courses (ENGI 501, ENGI 510, or ENGI 542).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Major Concentration in Applied Bioengineering: Research-Based</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Research Requirement</strong></td>
<td></td>
</tr>
<tr>
<td>BIOE 507</td>
<td>GRADUATE RESEARCH COMPONENTS I</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 607</td>
<td>RESEARCH CONCENTRATION – COMPONENT II</td>
<td>6</td>
</tr>
</tbody>
</table>

Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 5 courses from approved departmental (BIOE) course offerings at the 500-level or above</td>
<td>15</td>
</tr>
</tbody>
</table>

Elective Category: Ethics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td>1</td>
</tr>
</tbody>
</table>

Elective Category: Technical Writing
Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER'S STUDENTS IN ENGINEERING</td>
</tr>
<tr>
<td>ENGI 510</td>
<td>TECHNICAL AND MANAGERIAL COMMUNICATIONS</td>
</tr>
<tr>
<td>ENGI 542</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
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</tbody>
</table>

Total Credit Hours 28

Policies for the MBE Degree

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Additional Information

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

Opportunities for the MBE Degree

Additional Information

For additional information, please see the Bioengineering website: https://bioengineering.rice.edu/

BioSciences

Contact Information

BioSciences
https://biosciences.rice.edu/
W-100 George R. Brown Hall
713-348-4015

Edward P. Nikonowicz
Department Chair
edn@rice.edu

Mary Susan Cates
Assistant Department Chair
mscates@rice.edu

The BioSciences department unites faculty engaged in research and teaching in a wide range of disciplines within the life sciences, creating a vibrant and diverse community of scholars. The department offers a broad range of introductory and advanced courses that lead to undergraduate degrees (BA, BS) with a Major in Biosciences and a Major Concentration in Biochemistry, in Cell Biology and Genetics, in Ecology and Evolutionary Biology, or in Integrative Biology.

In addition, a Minor in Biochemistry and Cell Biology and a Minor in Ecology and Evolutionary Biology are offered. The BA degree offers a rigorous biological curriculum suitable for many career paths while allowing the flexibility for extended academic exploration in other areas. The BS degree offers greater depth in upper-level coursework. Most BioSciences students, regardless of major, participate in undergraduate research, availing themselves of the numerous research opportunities at Rice and in the Houston community.

All major degree paths will prepare students for graduate, medical, or other professional schools and a wide range of careers in the life sciences. In addition, qualified students may apply to the Biochemistry and Cell Biology BA-MS-PhD program track. Additional information on departmental programs, courses, and advising is available at the BioSciences website (http://biosciences.rice.edu/).

The BioSciences department also oversees academic programs that lead to undergraduate degrees in Environmental Science (BA, BS) and Neuroscience (BA), as well as a Minor in Neuroscience. At the graduate-level, the BioSciences department administers graduate programs in Biochemistry and Cell Biology (PhD, MS) and in Ecology and Evolutionary Biology (PhD, MS). In addition, some BioSciences faculty members participate in the Systems, Synthetic, and Physical Biology (SSPB) PhD program administered by the Institute of Biosciences and Bioengineering (https://ibb.rice.edu/). Graduate studies include a combination of advanced coursework and individual research with faculty mentors.

For additional information regarding BioSciences and its associated academic programs, please see the department’s website: https://biosciences.rice.edu/.

Bachelor’s Programs

- Bachelor of Arts (BA) Degree with a Major in Biosciences
  - and a Major Concentration in Biochemistry (p. 347)
  - and a Major Concentration in Cell Biology and Genetics (p. 350)
  - and a Major Concentration in Ecology and Evolutionary Biology (p. 353)
  - and a Major Concentration in Integrative Biology (p. 356)
- Bachelor of Science (BS) Degree with a Major in Biosciences
  - and a Major Concentration in Biochemistry (p. 359)
  - and a Major Concentration in Cell Biology and Genetics (p. 361)
• and a Major Concentration in Ecology and Evolutionary Biology (p. 364)
• and a Major Concentration in Integrative Biology (p. 367)

Minors
• Minor in Biochemistry and Cell Biology (p. 377)
• Minor in Ecology and Evolutionary Biology (p. 378)

Accelerated Program
• Bachelor of Arts (BA) Degree / Master of Science (MS) Degree / Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology (p. 345)

Master's Programs
• Master of Science (MS) Degree in the field of Biochemistry and Cell Biology (p. 373)
• Master of Science (MS) Degree in the field of Ecology and Evolutionary Biology (p. 375)

Doctoral Programs
• Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology (p. 370)
• Doctor of Philosophy (PhD) Degree in the field of Ecology and Evolutionary Biology (p. 372)

Chair
Edward P. Nikonowicz

Professors
Caroline Ajo-Franklin
Bonnie Bartel
Kathleen M. Beckingham
Matthew Bennett
Janet Braam
Daniel D. Carson
Michael C. Gustin
Oleg A. Igoshin
Caroline A. Masiello
Seiichi P.T. Matsuda
James A. McNew
Luay K. Nakhleh
Edward P. Nikonowicz
Jose Nelson Onuchic
George Phillips
Volker H.W. Rudolf
Yousif Shamoo
Evan Siemann
Jonathan J. Silberg
Michael Stern
Charles R. Stewart
Yizhi Jane Tao
Peter C. Wolynes

Assistant Professors
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Thomas E.X. Miller
Julia Saltz
Laura Segatori
Jeffrey J. Tabor
Daniel S. Wagner
Aryeh Warmflash

Associate Professors
Amy E. Dunham
Scott Egan
Natalia Kirienko
Michael H. Kohn

Professors Emeriti
George N. Bennett
Frank M. Fisher, Jr.
Raymond M. Glantz
Paul A. Harcombe
Jordan Konisky
Kathleen Shive Matthews
John Steven Olson
Graham A. Palmer
David Queller
Ronald L. Sass
Joan Strassman
Stephen Subtelny
Calvin H. Ward

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Beth Beason-Abmayr
David R. Caprette
Daniel J. Catanese
Jonathan Flynn
Scott Solomon

Lecturers
Mary Susan Cates
Elizabeth Eich
Cassidy Johnson
Nele Lefeldt
Kirstin Matthews
Joseph R. Novak
Alma M. Novotny
Dereth Phillips
Collin E. Thomas

Adjunct Faculty
Richard Behringer
Sarah Bondos
Nikki Delk
J. David Dickman
Cindy Farach-Carson
Haichun Gao
Jeffrey Glassberg
Richard H. Gomer
Nancy Greig
Daniel Harrington
Maria K. Hartley
Kendal Hirschi
Kresimir Josic
Olivier Lichtarge
Jianpeng Ma
Kevin R. MacKenzie
Pamela Constantinou Papadopoulos
Neal R. Pellis
Susan M. Rosenberg
Clarence F. Sams
Erica Ollmann Saphire
Kelly L. Weinersmith
Theodore G. Wensel
Zheng Zhou
Huda Zoghbi

EEB Faculty Fellow
Evan Fricke

Rice Academy Fellow
Durre Muhammad

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Biosciences (BIOS)

BIOS 100 - TRANSFER CREDIT – INTRODUCTORY BIOLOGY LABORATORY
Short Title: TRANSFER CREDIT: INTRO BIOL LAB
Department: Biosciences
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 1-2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For transfer of an introductory biology laboratory course in the BioSciences that is designated for biology majors and/or pre-health professionals and that has no current equivalent in the Rice curriculum. Any student may receive a maximum of one BIOC 100 course for a maximum of 2 credit hours. This credit counts toward the total credit hours required for graduation, but does not fulfill any major or minor requirements for Biosciences. Students must contact the BioSciences transfer credit advisor to determine if their course will transfer. Instructor Permission Required.

BIOS 110 - INTRODUCTION TO RESEARCH
Short Title: INTRODUCTION TO RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This 6-week course is for high school juniors and seniors to conduct scientific research in the laboratories of Rice faculty in Biosciences. Students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and receive 5 hours of Rice University course credit. Interested students must first complete the department application: https://biosciences.rice.edu/sites/g/files/bxs4001/files/inline-files/BIOS110Application.pdf. After department approval, students will be required to enroll as a visiting student; tuition and fees will apply. PLEASE NOTE: There is a risk of cancellation depending on Rice's Public Health Guidelines and the status of the pandemic as we get closer to the start of Summer Classes. This course will follow the current University’s Public Health Guidelines of wearing masks and practicing social distancing at all times while on campus. Instructor Permission Required. Repeatable for Credit.

BIOS 118 - FIRST-YEAR SEMINAR IN LOCAL BIOLOGY RESEARCH
(BIOCHEMISTRY, CELL BIOLOGY, AND GENETICS FOCUS)
Short Title: FIRST-YEAR SEMINAR (BCBG)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A 7-week seminar course to introduce first-year prospective biologists to the excitement of research at Rice and the Medical Center and to provide context with which to think about facts presented in biosciences textbooks. Small groups will meet weekly with a graduate student or postdoctoral researcher to explore a published research article by a local lab, gaining background information about the subject and exposure to the research techniques. In the final session, the group will tour the lab that produced the featured article. Additional tours and activities TBA. All first-year non-transfer students are eligible to enroll in BIOS 118 regardless of AP credit. This course meets in the second half of the semester and features research in biochemistry, cell biology, and genetics, and related fields.
BIOS 119 - FIRST-YEAR SEMINAR IN LOCAL BIOLOGY RESEARCH (ECOLOGY AND EVOLUTIONARY BIOLOGY FOCUS)
Short Title: FIRST-YEAR SEMINAR (EEB)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A 7-week seminar course to introduce first-year prospective biologists to the excitement of research at Rice and to provide context with which to think about facts presented in biosciences textbooks. Small groups will meet weekly with a graduate student or postdoctoral researcher to explore a published research article by a local lab, gaining background information about the subject and exposure to the research techniques. In the final session, the group will tour the lab that produced the featured article. Additional tours and activities TBA. All first-year, non-transfer students are eligible to enroll in BIOS 119 regardless of AP credit. This course meets in the first half of the semester and features research in Ecology and Evolutionary Biology.

BIOS 122 - BIOLOGY FOR VOTERS
Short Title: BIOLOGY FOR VOTERS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Students cannot enroll who have a major in Biochemistry and Cell Biology, Biological Sciences or Ecology & Evolutionary Biology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designer babies, climate change, the anti-vaccine movement, gender identity, evolution...exploring these and other socially relevant topics will provide a context for learning essential concepts in biology and ways to distinguish science truth from science fiction.
Course URL: www.ruf.rice.edu/~bioslabs/bioc122/ (http://www.ruf.rice.edu/~bioslabs/bioc122/)

BIOS 124 - INTRODUCTION TO ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: INTRO TO EEB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides a short introduction to the science of ecology and evolutionary biology. The topics covered include the mechanisms of evolution, the origin of species, the history of life on earth, biodiversity, animal behavior, population and community ecology, ecosystems, and conservation biology.

BIOS 128 - BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE
Short Title: BRAINSTEM
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: BrainSTEM is a service organization that teaches STEM subjects through the lens of neuroscience. We perform hands-on, small-group activities with ~45 students per week. This course will prepare you to communicate science in a both effective and entertaining manner, as well as build your skills in managing small groups. More information can be found at ‘www.brainstem.club.’ Graduate/Undergraduate Equivalency: BIOS 528. Mutually Exclusive: Cannot register for BIOS 128 if student has credit for BIOS 528. Repeatable for Credit.

BIOS 129 - BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE
Short Title: BRAINSTEM
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Course Level: Undergraduate Lower-Level
Description: BrainSTEM is a service organization that teaches STEM subjects through the lens of neuroscience. We perform hands-on, small-group activities with ~45 students per week. This course will prepare you to communicate science in a both effective and entertaining manner, as well as build your skills in managing small groups. More information can be found at ‘www.brainstem.club.’ Repeatable for Credit.

BIOS 201 - INTRODUCTORY BIOLOGY I
Short Title: INTRODUCTORY BIOLOGY I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The first in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines chemistry and energetics, cell physiology, cell biology, Mendelian genetics, molecular genetics, developmental biology, and plant physiology.
Hunters' will be the basis for half of the course material.

For their discovery, the classic text by Paul de Kruif entitled "Microbe review the infectious agents they described, as well as the methods used for their discovery. The classic text by Paul de Kruif entitled "Microbe Hunters" will be the basis for half of the course material.

BIOS 205 - MICROBE HUNTERS REVISITED

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: The second in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines the diversity of life, comparative animal physiology, evolution, ecology, and conservation. An emphasis is placed on evolution as a central framework necessary for a complete understanding of modern biology. Group discussions allow students to explore topics in more detail and discover how they are relevant to our everyday lives.

BIOS 204 - ENVIRONMENTAL SUSTAINABILITY: THE DESIGN & PRACTICE OF COMMUNITY AGRICULTURE

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: The second in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines the diversity of life, comparative animal physiology, evolution, ecology, and conservation. An emphasis is placed on evolution as a central framework necessary for a complete understanding of modern biology. Group discussions allow students to explore topics in more detail and discover how they are relevant to our everyday lives.

BIOS 204 - ENVIRONMENTAL SUSTAINABILITY: THE DESIGN & PRACTICE OF COMMUNITY AGRICULTURE

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: The second in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines the diversity of life, comparative animal physiology, evolution, ecology, and conservation. An emphasis is placed on evolution as a central framework necessary for a complete understanding of modern biology. Group discussions allow students to explore topics in more detail and discover how they are relevant to our everyday lives.

BIOS 205 - MICROBE HUNTERS REVISITED

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: The second in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines the diversity of life, comparative animal physiology, evolution, ecology, and conservation. An emphasis is placed on evolution as a central framework necessary for a complete understanding of modern biology. Group discussions allow students to explore topics in more detail and discover how they are relevant to our everyday lives.

BIOS 205 - MICROBE HUNTERS REVISITED

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: The second in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines the diversity of life, comparative animal physiology, evolution, ecology, and conservation. An emphasis is placed on evolution as a central framework necessary for a complete understanding of modern biology. Group discussions allow students to explore topics in more detail and discover how they are relevant to our everyday lives.

BIOS 211 - INTERMEDIATE EXPERIMENTAL BIOSCIENCES

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201 (may be taken concurrently) and BIOS 210
Description: This course is only for Rice students conducting research for the first time. The students will conduct scientific research in the laboratories of the Rice faculty in Biosciences. During the five-week course, students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and innovation. Instructor permission is required to register. Instructor Permission Required. Repeatable for Credit.

BIOS 212 - INTERMEDIATE EXPERIMENTAL BIOSCIENCES

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201 (may be taken concurrently) and BIOS 210
Description: This course is only for Rice students conducting research for the first time. The students will conduct scientific research in the laboratories of the Rice faculty in Biosciences. During the five-week course, students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and innovation. Instructor permission is required to register. Instructor Permission Required. Repeatable for Credit.

BIOS 210 - INTRODUCTION TO RESEARCH

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201 (may be taken concurrently) and BIOS 210
Description: This course is only for Rice students conducting research for the first time. The students will conduct scientific research in the laboratories of the Rice faculty in Biosciences. During the five-week course, students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and innovation. Instructor permission is required to register. Instructor Permission Required. Repeatable for Credit.

BIOS 212 - INTERMEDIATE EXPERIMENTAL BIOSCIENCES

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201 (may be taken concurrently) and BIOS 210
Description: This course is only for Rice students conducting research for the first time. The students will conduct scientific research in the laboratories of the Rice faculty in Biosciences. During the five-week course, students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and innovation. Instructor permission is required to register. Instructor Permission Required. Repeatable for Credit.

BIOS 210 - INTRODUCTION TO RESEARCH

Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201 (may be taken concurrently) and BIOS 210
Description: This course is only for Rice students conducting research for the first time. The students will conduct scientific research in the laboratories of the Rice faculty in Biosciences. During the five-week course, students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and innovation. Instructor permission is required to register. Instructor Permission Required. Repeatable for Credit.
BIOS 213 - INTRODUCTORY LAB IN ECOLOGY & EVOLUTION
Short Title: INTRO LAB ECOL & EVOL
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): EBIO 202 or BIOS 202 (may be taken concurrently)
Description: Experimental, laboratory, and field studies of natural history, ecology, evolution, and animal behavior. Class has required meetings outside of regular class time.

BIOS 215 - BIOS LAB TEACHING
Short Title: BIOS LAB TEACHING
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Undergraduate teaching in a biosciences laboratory. Participate in meetings and selected seminars; supervise students in one or more laboratory sections. Provide group and individual instruction to undergraduates during and outside of laboratory classes. Instructor Permission Required. Repeatable for Credit.

BIOS 216 - DISCUSSION SECTION TEACHING
Short Title: DISCUSSION SECTION TEACHING
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, undergraduates who have previously excelled in a BIOS course will develop teaching skills by leading discussion sections or serving as writing mentors under the guidance of the course instructor. Instructor Permission Required. Repeatable for Credit.

BIOS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BIOS 250 - INTERMEDIATE LABORATORY IN BIO SCIENCES
Short Title: INTERMEDIATE LAB IN BIO SCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In BIOS 250 students conduct investigative studies in the areas of biological science, neuroscience, natural history, ecology, evolution, and/or animal behavior. These studies may encompass original research, instructor-designed experiments, and/or online projects with curated data, depending on the availability of in-person laboratory and/or field experiences. This course is available to students who cannot reasonably be expected to complete BIOS 211, 212, or 213 and will substitute for that course requirement for any major concentration or minor in BioSciences, subject to approval by the instructors of the course to be replaced and the BioSciences Undergraduate Curriculum Committee. Instructor Permission Required.

BIOS 271 - ECOSYSTEM MANAGEMENT
Short Title: ECOSYSTEM MANAGEMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will focus on applied ecosystem topics including relations with state and federal agencies, filed studies, wetland delineations, permitting compliance, and environmental regulations. Graduate/Undergraduate Equivalency: BIOS 571.

BIOS 280 - SUSTAINABLE DEVELOPMENT AND REPORTING
Short Title: SUSTAINABLE DEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Sustainable development is an approach to development based on interacting social, economic, and environmental forces. It is intended as methodology for planning, and a guiding principle for Environmental Health and safety compliance (EHSS) and Corporate Sustainability (CSRs). Students will learn compliance guidelines, risk management, and assessment considerations. Graduate/Undergraduate Equivalency: BIOS 580. Mutually Exclusive: Cannot register for BIOS 280 if student has credit for BIOS 580.
BIOS 299 - EXPERIENTIAL EDUCATION IN BIOSCIENCES
Short Title: EXPERIENTIAL EDUC IN BIOS
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: This experiential education course credits a student's experience in an approved internship/practicum with the goal of further developing their professional skills. Hour and activity requirements are flexible to accommodate a variety of experiential activities in biology-related professional contexts. There are no prerequisites. To receive approval to enroll, students must arrange their own internship, apply to the course instructor (https://forms.gle/NGrumJZiYRRN5CL8), and produce an offer letter from their internship provider containing start and end dates and a description of their intended internship activities and expectations. Additional requirements are available on the course syllabus. Instructor Permission Required. Repeatable for Credit.

BIOS 300 - PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: PARADIGMS IN BIOCHM & CELL BIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This course examines paradigms in biochemistry and cell biology with a specific focus on the "central dogma" of molecular biology and is designed for BIOS majors and minors and recommended strongly for students with Advanced Placement in Biology who do not take BIOS 201 and for students wanting additional foundation before transitioning to other 300-level BIOS lecture courses. Using a "flipped" format, lectures are available online, and in-class activities address confusions/questions, examine both historic and contemporary research papers, explore cases and problems, and engage students in short writing assignments. Recommended Prerequisite(s): Recommended strongly for students with Advanced Placement in Biology and designed for prospective Biosciences majors. For students with AP credit for BIOS/BIOC 201, this course is strongly recommended as preparation for BIOS 341 (Cell Biology).

BIOS 301 - BIOCHEMISTRY I
Short Title: BIOCHEMISTRY I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and (BIOC 201 or BIOS 201)
Description: The second in an integrated sequence of three courses (BIOS 201, 301, 302). Structure and function of proteins, enzymes, and nucleic acids; enzyme kinetics; glycolysis, aerobic metabolism, and energy coupling. Recommended Prerequisite(s): CHEM 212

BIOS 302 - BIOCHEMISTRY II
Short Title: BIOCHEMISTRY II
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 301 or BIOS 301
Description: The final in an integrated sequence of three courses (BIOS 201, 301, 302). In depth study of carbohydrate, amino acid, and lipid metabolic pathways, hormone regulation of metabolic pathways, key cell signaling mechanisms, and the structural biology of DNA replication, transcription, and translation into proteins. Course also involves analysis of primary scientific literature. Recommended Prerequisite(s): CHEM 212 or CHEM 320

BIOS 310 - INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES
Short Title: IND RES FOR BIOS UNDERGRADS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 111 or BIOC 112 or FWIS 115 or NSCI 120 or BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212 or EBIO 306
Description: Independent research in Rice BioSciences faculty laboratories (sections 2 and above) or other Texas Medical Center laboratories (section 1). Students must have secured a research position prior to applying for BIOS 310. Students spend at least 42 hours in the laboratory for each semester hour of credit (>9h/week for 3 credits). A minimum of 3 credit hours is needed to count toward the BS in Biosciences or to replace one required 300+ level elective lab course for the BA in Biosciences (cannot replace concentration core labs). Requires a proposal abstract, weekly reports, and a research paper (fall/spring/summer) or a poster presentation (spring/summer for advanced students). Students wishing to perform their research in an off-campus lab must apply online (biosugresearch.rice.edu) at least 3 weeks prior to the start of classes and may not register for fewer than 3 credit hours. Students taking BIOS 310 in the full summer semester must be available to do full-time research for a minimum of 6 weeks or part-time equivalent which should equal to a total of 126 hours working in the lab. It is recommended that summer students spread their hours over 8-10 weeks. Recommended Prerequisite(s): Students are strongly advised to secure research advisors and register for the class well in advance of the start of classes. Repeatable for Credit. Instructor Permission Required.

Recommended Prerequisite(s): Students are strongly advised to secure research advisors and register for the class well in advance of the start of classes. Repeatable for Credit.

Course URL: www.biosugresearch.rice.edu/ (http://www.biosugresearch.rice.edu/)
### BIOS 311 - ADVANCED EXPERIMENTAL BIO SCIENCES
**Short Title:** ADV EXPERIMENTAL BIO SCIENCES  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212 and (BIOS 301 or BIOS 301 (may be taken concurrently))  
**Description:** This course will focus on improving students’ written and oral communication skills. Emphasis will be placed on communication of scientific topics for audiences ranging from experts to the general public through weekly assignments. Instructor Permission Required. Repeatable for Credit.

### BIOS 312 - ADVANCED COMMUNICATION IN THE BIOLOGICAL SCIENCES
**Short Title:** ADV COMMUNICATION IN BIOL SCI  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will focus on improving students’ written and oral communication skills. Emphasis will be placed on communication of scientific topics for audiences ranging from experts to the general public through weekly assignments. Instructor Permission Required. Repeatable for Credit.

### BIOS 313 - EXPERIMENTAL SYNTHETIC BIOLOGY
**Short Title:** EXPERIMENTAL SYNTHETIC BIOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOL 211 or BIOL 211 or BIOL 212 or BIOS 212  
**Description:** This course will focus on improving students’ written and oral communication skills. Emphasis will be placed on communication of scientific topics for audiences ranging from experts to the general public through weekly assignments. Instructor Permission Required. Repeatable for Credit.

### BIOS 314 - MICROBIOLOGY LABORATORY
**Short Title:** MICROBIOLOGY LABORATORY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOS 313 or BIOS 323 or BIOL 213 or BIOS 213  
**Description:** This course will focus on improving students’ written and oral communication skills. Emphasis will be placed on communication of scientific topics for audiences ranging from experts to the general public through weekly assignments. Instructor Permission Required. Repeatable for Credit.

### BIOS 315 - LAB MODULE IN BEHAVIOR
**Short Title:** LAB MODULE IN BEHAVIOR  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** EBIO 323 or BIOS 423 or EBIO 325 or BIOS 325  
**Description:** Field and lab experiments in ecology. Class has required meetings outside of regular class time.

### BIOS 316 - LAB MODULE IN ECOLOGY
**Short Title:** LAB MODULE IN ECOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** EBIO 323 or BIOS 423 or EBIO 325 or BIOS 325  
**Description:** Field and lab experiments in ecology. Class has required meetings outside of regular class time.

### BIOS 317 - LAB MODULE IN BEHAVIOR
**Short Title:** LAB MODULE IN BEHAVIOR  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 1  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** EBIO 323 or BIOS 423 or EBIO 325 or BIOS 325  
**Description:** Field and lab experiments in behavior. Learn to formulate and test hypotheses on bird behavior using mockingbirds, grackles, and herons nesting on campus. Class has required meetings outside of regular class time.

### BIOS 318 - MICROBIOLOGY LABORATORY
**Short Title:** MICROBIOLOGY LABORATORY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOS 313 or BIOS 323 or BIOL 213 or BIOS 213  
**Description:** This course will focus on improving students’ written and oral communication skills. Emphasis will be placed on communication of scientific topics for audiences ranging from experts to the general public through weekly assignments. Instructor Permission Required. Repeatable for Credit.

### BIOS 319 - TROPICAL FIELD BIOLOGY
**Short Title:** TROPICAL FIELD BIOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** EBIO 321 or BIOS 321 or BIOL 213 or BIOS 213  
**Description:** Examine first-hand the two most diverse ecosystems on earth - the coral reef and the tropical rainforest in this 2-week summer course in the Central American country of Belize. Topics will include the diversity of tropical organisms and habitats, the formation of coral reefs, rainforest ecology, historical biogeography, symbiosis, and conservation of tropical biodiversity. While a background in biology is desirable, individuals lacking this background but having a special interest in the tropics are encouraged to enroll. Includes a course fee that covers all transportation, accommodation, and meals. Distribution Credit for BIOS 319 no longer eligible beginning Fall 2019. Instructor Permission Required.
BIOS 320 - ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY
Short Title: BRAZILIAN WETLANDS LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course consists of a 2-week trip to Brazil to examine first-hand the ecology of the largest wetland ecosystem on earth - the Pantanal. Days will be spent in the field making observations and collecting data; lectures in the evenings will cover topics including freshwater ecology, seasonal flooding dynamics, community ecology of wetland species, symbiosis, geology, environmental management, ecotourism, and conservation biology. Includes a course fee that covers all transportation, accommodations, and meals. Distribution Credit for BIOS 320 no longer eligible beginning Fall 2019. Recommended Prerequisite(s): EBIOL 213 or BIOS 213

BIOS 321 - ANIMAL BEHAVIOR
Short Title: ANIMAL BEHAVIOR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202)
Description: Evolutionary theory is used to evaluate behavioral adaptations of organisms to their environment.

BIOS 322 - CONSERVATION BIOLOGY LAB
Short Title: CONSERVATION BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIOL 213 or BIOS 213
Description: This course will give students hands-on experiences in the practice of conservation biology through authentic projects related to prioritization and design of nature preserves, restoration of natural environments, and for monitoring threatened and endangered species in the Houston area. BIOS 423 may be taken concurrently with EBIOL 322. Graduate/Undergraduate Equivalency: BIOS 522. Mutually Exclusive: Cannot register for BIOS 322 if student has credit for BIOS 522.

BIOS 326 - INSECT BIOLOGY
Short Title: INSECT BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIOL 202 or BIOS 202
Description: This course addresses contemporary issues in ecology and evolution through the lens of insect diversity. Readings span a broad literature (popular to technical). Writing and oral reports develop proficiency in scientific communication.

BIOS 327 - BIOLOGICAL DIVERSITY
Short Title: BIOLOGICAL DIVERSITY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202) and (EBIO 213 or BIOS 213)
Description: This laboratory course focuses on the theory and practice of estimating biodiversity. Students work in groups to design, execute, and communicate the results of a systematic survey of particular taxonomic groups in the Big Thicket National Preserve in east Texas. Class has required meetings outside of regular class time.

BIOS 329 - ANIMAL DIVERSITY
Short Title: ANIMAL DIVERSITY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIOL 202 or BIOS 202 or BIOS 202 or BIOS 202
Description: The evolution and systematics of the animal kingdom with consideration of functional anatomy, comparative physiology, behavior, medical implications and resource management. Graduate/Undergraduate Equivalency: BIOS 529. Mutually Exclusive: Cannot register for BIOS 329 if student has credit for BIOS 529/EBIO 529.
BIOS 330 - INSECT BIOLOGY LAB
Short Title: INSECT BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202) and (EBIO 213 or BIOS 213) and (EBIO 326 or BIOS 326 (may be taken concurrently))
Description: Hands-on experiences with collection and curation of insects.

BIOS 332 - ECOLOGY
Short Title: ECOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202)
Description: Study of population dynamics, species interactions, plant and animal community organization, and ecosystem function. Graduate/Undergraduate Equivalency: BIOS 532. Mutually Exclusive: Cannot register for BIOS 332 if student has credit for BIOS 532.

BIOS 333 - BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT
Short Title: BIONNOVATION STUDIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212
Description: In this lab, students will explore the relationship between curiosity-driven science and the steps of biological ideation that lead to technology creation. While the course focuses centrally on a semester long lab project, there will be informal discussions of articles and books with technology translation experts, visiting biology entrepreneurs, and commercialization experts.

BIOS 334 - EVOLUTION
Short Title: EVOLUTION
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 202 or BIOS 202
Description: Principles of biological evolution. Topics include natural selection, adaptation, molecular evolution, formation of new species, the fossil record, biogeography, and principles of classification. Graduate/Undergraduate Equivalency: BIOS 534. Mutually Exclusive: Cannot register for BIOS 334 if student has credit for BIOS 534.

BIOS 336 - PLANT DIVERSITY
Short Title: PLANT DIVERSITY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 202 or BIOS 202
Description: The evolution, systematics, and ecology of plants, with emphasis on flowering plants and biodiversity.

BIOS 337 - FIELD BIRD BIOLOGY LAB
Short Title: FIELD BIRD BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 213 or BIOS 213
Description: This course centers on a series of five field trips to diverse habitats for observing birds both immigrants and residents. Each will be preceded by a lecture and students will do two projects. Class has required meetings outside of regular class time. Distribution Credit for BIOS 337 no longer eligible beginning Fall 2019.
BIOS 338 - ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
Short Title: BIO DATA ANALYSIS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIOL 213 or BIOS 213 or BIOL 211 or BIOS 211 or BIOL 212 or BIOS 212
Description: This course addresses how to analyze, visualize and draw conclusions from biological data. It introduces basic concepts in statistics interwoven with training in data analysis using the R computing environment. Students will learn to identify underlying data structures and wrangle data. Students will also learn to effectively convey results using statistical graphics. Topics include basic R programming, data exploration, statistical modeling, parameter estimation and interpretation, and model comparison. This class particularly focuses on biological data. Graduate/Undergraduate Equivalency: BIOS 538. Mutually Exclusive: Cannot register for BIOS 338 if student has credit for BIOS 538.

BIOS 339 - PLANT DIVERSITY LAB
Short Title: PLANT DIVERSITY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 201 or BIOC 201) and (BIOS 202 or EBIO 202)
Corequisite: BIOS 336
Description: This course will complement the BIOS 336 course by providing hands-on experience in the science of botany. Students will become familiar with the anatomy, physiology, evolution and biodiversity of plants through lab dissections, microscopy, and field observations.

BIOS 340 - INTEGRATIVE ANIMAL PHYSIOLOGY
Short Title: INTEGRATIVE ANIMAL PHYSIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 201 or BIOC 201) and (BIOS 202 or EBIO 202)
Description: This course takes a comparative approach to investigate animal physiology of vertebrates. Students learn how animals are adapted to their environments, including how they meet their energy needs, take up and transport oxygen, and maintain hydration and salt balance. Students read primary literature to explore survival in extreme environments. Mutually Exclusive: Cannot register for BIOS 340 if student has credit for BIOS 540, BIOC 335, BIOC 536. Graduate/Undergraduate Equivalency: BIOS 540.

BIOS 341 - CELL BIOLOGY
Short Title: CELL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: Molecular mechanisms of eukaryotic cell function. Structure, function, and biogenesis of all subcellular organelles. Cell-cell communication, cytoskeleton assembly and function, cell cycle control, and cell-cell adhesions. Emphasis will be on cytoplasmic events; molecular studies of transcription are taught in BIOS 302 and BIOS 344. RECOMMENDATION: BIOS 300 is recommended for students using advanced placement credit for BIOS 201 and students preferring additional foundational background prior to enrollment in BIOS 341.

BIOS 344 - MOLECULAR BIOLOGY AND GENETICS
Short Title: MOLECULAR BIOLOGY & GENETICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mendelian genetics, population genetics, mapping, gene expression and regulation, genetic engineering, DNA replication and recombination, human genetics, genetic disease and gene therapy. Recommended Prerequisite(s): BIOS 201 or BIOS 201

BIOS 350 - ADVANCED LABORATORY IN BIO SCIENCES
Short Title: ADVANCED LAB IN BIO SCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1-2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In BIOS 350 students conduct investigative studies in the areas of biological science, neuroscience, natural history, ecology, evolution, and/or animal behavior. These studies may encompass original research, instructor-designed experiments, and/or online projects with curated data, depending on the availability of in-person laboratory and/or field experiences. BIOS 350 further advances basic laboratory and/or field experiences, record keeping abilities, and technical communication skills that were introduced and/or reinforced in the intermediate lab course. This course is available to students who cannot reasonably be expected to complete an advanced lab requirement for any major concentration in Biosciences and will substitute for that course requirement, subject to approval by the instructors of the course to be replaced and the BioSciences Undergraduate Curriculum Committee. Registration for this course will be by “instructor permission only.” This course will be either a half or full semester course, credit hours: 1-2. Instructor Permission Required.
BIOS 352 - PHYSICAL CHEMISTRY FOR THE BIOSCIENCES  
Short Title: PHYS CHEM FOR BIOSCIENCES  
Department: Biosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (PHYS 126 or PHYS 102 or PHYS 112 or PHYS 142) and (BIOC 301 or BIOS 301)  
Description: Study of selected aspects of physical chemistry as it relates to the biosciences. Includes thermodynamics, reaction rate theory, quantum mechanics, and atomic and molecular structure.  

BIOS 369 - CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE  
Short Title: MONSTER  
Department: Biosciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Across variations of life, we draw boundaries between normal, not normal, and monstrous. From the Biosciences to the Creative Arts, our conceptions of the “monstrous” illuminate our identity, perceptions, and fears. Discussion-based class accessible to people of all backgrounds and interests.  

BIOS 371 - SEMINAR IN CONTEMPORARY BIOLOGICAL AND BIOMEDICAL RESEARCH  
Short Title: BIOMEDICAL RESEARCH SEMINAR  
Department: Biosciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): BIOC 341 or BIOS 341 (may be taken concurrently) or BIOC 301 or BIOS 301 (may be taken concurrently)  
Description: This course will offer students a close-up look at an area of contemporary biological and biomedical research in a small-group seminar setting. Each seminar will focus on a different area of research through reading and discussion of recent research articles in that focus area. The faculty discussion leader for each seminar will be drawn from Baylor College of Medicine, UT Health Science Center, MD Anderson Cancer Center, Rice and others. Prereqs may be taken concurrently. Please consult the course website for a complete listing of seminars offered each semester. Please refer to the following link for additional information: http://www.bioc.rice.edu/bioc371. Instructor Permission Required. Recommended Prerequisite(s): Students should check the courses website for additional prerequisites, notes from the instructor, and other information specific to each section. Repeatable for Credit.  

BIOS 372 - IMMUNOLOGY  
Short Title: IMMUNOLOGY  
Department: Biosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202)  
Description: Cellular and molecular basis of innate and adaptive immune function in mammals. Graduate/Undergraduate Equivalency: BIOS 572. Recommended Prerequisite(s): (BIOC 301 or BIOS 301) and (BIOS 341 or BIOS 341). Mutually Exclusive: Cannot register for BIOS 372 if student has credit for BIOS 372/BIOC 573.  

BIOS 373 - CORAL REEF ECOSYSTEMS  
Short Title: CORAL REEF ECOSYSTEMS  
Department: Biosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): EBIO 202 or BIOS 202  
Description: This three credit lecture course introduces students to a complex, dynamic and sensitive ecosystem: coral reefs. We will explore the biotic and abiotic components of coral reefs; how reef organisms interact with each other and the environment, and the factors that contribute to reef construction and decline over time and space. Graduate/Undergraduate Equivalency: BIOS 573.  

BIOS 385 - FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE  
Short Title: FUNDAMENTALS OF NEUROSCIENCE  
Department: Biosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): BIOS 201 or BIOS 201  
Description: Cellular, molecular, and integrative mechanisms of neural function, including membrane and axon physiology, synaptic transmission and plasticity, sensory transduction and processing. Graduate/Undergraduate Equivalency: BIOS 585.
BIOS 390 - TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: TRAN CREDIT BIOCHEM&CELL BIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For transfer of courses which have no current equivalent in the Rice curriculum, but which can be counted as 300-level lecture courses in biochemistry, cell biology, and genetics. Repeatable for Credit.

BIOS 391 - TRANSFER CREDIT IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: TRAN CREDIT ECOL&EVOLUTION
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For transfer of courses which have no current equivalent in the Rice curriculum, but which can be counted as a 300-level lecture course in ecology and evolutionary biology. Repeatable for Credit.

BIOS 393 - LABORATORY TRANSFER CREDIT IN BIOSCIENCES
Short Title: LAB TRANSFER CREDIT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For transfer of an advanced laboratory course in the biosciences that has no current equivalent in the Rice Biosciences curriculum. Any student may receive a maximum of one credit of BIOS 393.

BIOS 401 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Biosciences Honors Research Program offers our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Biosciences or an approved off-campus site. Students registering for BIOS 401 are expected to take BIOS 402 the following semester. Typical expectations include an average of approximately 15 hours of research per week and will also include written and oral presentations intended to develop important science communication skills such as a proposal, and progress reports, and culminate in a final product such as a final paper, poster, oral presentation, and/or thesis. Department Permission Required. Repeatable for Credit.

BIOS 402 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 401 or BIOS 401
Corequisite: BIOS 412
Description: The Biosciences Honors Research Program offers our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Biosciences or an approved off-campus site. Students registering for BIOS 401 are expected to take BIOS 402 the following semester. Typical expectations include an average of approximately 15 hours of research per week and will also include written and oral presentations intended to develop important science communication skills such as a proposal, and progress reports, and culminate in a final product such as a final paper, poster, oral presentation, and/or thesis. Repeatable for Credit.

BIOS 405 - PHYSICAL BIOLOGY
Short Title: PHYSICAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 352 or BIOS 352) and MATH 211
Description: This course provides a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Graduate/Undergraduate Equivalency: BIOS 505.

BIOS 410 - STEM CELL BIOLOGY
Short Title: STEM CELL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 412
Description: This course will introduce students to modern topics in stem cell biology, teach students to critically evaluate primary literature, and teach students to synthesize research ideas into review articles and grant proposals. This is a literature and discussion-based course and will require reading 2-3 articles from the primary literature per week. Graduate/Undergraduate Equivalency: BIOS 510.
BIOS 412 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 401 or BIOS 401) and (BIOS 311 or BIOC 311 or BIOS 385) and (STAT 305 or STAT 310 or ECON 307 or STAT 312) and (CAAM 210 or BIOS 212 or BIOC 212)
Corequisite(s): BIOS 402
Description: This companion seminar requires attendance at course meetings and a formal scientific presentation of research performed while enrolled in the Biosciences Honors Research Program. Repeatable for Credit.

BIOS 415 - EXPERIMENTAL PHYSIOLOGY
Short Title: EXPERIMENTAL PHYSIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 311 or BIOC 311 or BIOS 385) and (BIOS 211 or BIOS 211 or BIOL 212) and (EBIO 202 or BIOS 202) and (STAT 305 or STAT 310 or ECON 307 or STAT 312) and (CAAM 210 or BIOS 212 or BIOC 212)
Description: Laboratory studies in membrane, nerve, and muscle physiology, with emphasis on experimental design, data analysis, and data interpretation. BIOS/NEUR 385 may be taken concurrently with BIOS 415.
Course URL: www.ruf.rice.edu/~bioslabs/bios415 (http://www.ruf.rice.edu/~bioslabs/bios415/)

BIOS 417 - EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE
Short Title: ADV EXPERIMENTAL NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 212 or BIOC 212) and CAAM 210 and (STAT 305 or STAT 310 or ECON 307 or STAT 312) and (BIOS 385 or BIOC 385 or NEUR 385)
Description: Students will explore the molecular properties of neurons and related cells using standard techniques in the field. Experiments will include manipulating exocytosis, examining protein expression levels in different brain regions of mice, and culturing primary neurons. Lessons will also include a brief lecture/discussion on fundamental principles within cellular and molecular neuroscience.

BIOS 420 - MOLECULAR BASIS OF DISEASES
Short Title: MOLECULAR BASIS OF DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 301 or BIOC 301) and (BIOS 302 or BIOC 302)
Description: The course intends to provide in-depth knowledge of the molecular basis of human diseases. We will discuss: 1) Different types of genetic variations that may lead to human diseases; 2) The various approaches to investigate the molecular basis of human diseases; 3) The molecular and cellular consequences of disease-associated genetic variations; 4) The physiological and environmental causes of genetic variations; 5) The molecular basis for disease diagnosis and treatments. We will mainly focus on molecular mechanisms of inherent genetic diseases, neurodegenerative diseases, cancer and environmentally induced diseases. This will be a combined lecture/discussion course.

BIOS 423 - CONSERVATION BIOLOGY
Short Title: CONSERVATION BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 211 or BIOC 211 or BIOS 201) and (EBIO 202 or BIOS 202) and (EBIO 325 or BIOS 332)
Description: This course is designed to give students a broad overview of conservation biology. Lecture and discussions will focus on conservation issues such as biodiversity, extinction, management, sustained yield, invasive species and preserve design. Counts as a capstone course for the major concentration in Ecology and Evolutionary Biology. Graduate/Undergraduate Equivalency: BIOS 523.

BIOS 424 - MICROBIOLOGY AND BIOTECHNOLOGY
Short Title: MICROBIOLOGY & BIOTECHNOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 201 or BIOC 201
Description: Structure and functions of microorganisms with emphasis on their environmental, industrial and medical importance. Graduate/Undergraduate Equivalency: BIOS 524. Recommended Prerequisite(s): BIOS 301 or BIOC 301 Mutually Exclusive: Cannot register for BIOS 424 if student has credit for BIOS 524.
BIOS 425 - PLANT MOLECULAR GENETICS AND DEVELOPMENT
Short Title: PLANT MOLECULAR GENETICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341
Description: Novel aspects of plant biology and development with emphasis on molecular and genetic mechanisms. Plant responses to the environment and the use of bioengineering and other means to develop new plant products will also be covered. Graduate/Undergraduate Equivalency: BIOS 525. Mutually Exclusive: Cannot register for BIOS 425 if student has credit for BIOS 525.

BIOS 431 - BIOLOGY OF INFECTIOUS DISEASES
Short Title: BIOLOGY OF INFECTIOUS DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (EBIO 213 or BIOS 213) and (EBIO 325 or BIOS 332)
Description: This course gives a broad overview of the biology of infectious diseases using examples from humans, plants, and animals. Topics include diversity of diseases, mechanisms of disease transmission, epidemiology, population regulation, evolution of virulence, disease dynamics in natural communities and disease invasion and conservation biology. Counts as a capstone course for the major concentration in Ecology and Evolutionary Biology.

BIOS 432 - RESEARCH SEMINAR IN TRANSLATIONAL NEUROSCIENCE
Short Title: MEDICAL NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 385 or BIOC 385 or NEUR 380) and (BIOS 201 or BIOC 201) and (BIOS 212 or BIOC 212) and (MATH 102 or MATH 106) and (STAT 305 or STAT 312 or STAT 310)
Description: Students will work with Dr. Flynn and Dr. Krishnan (a clinician at BCM) to study the literature on neuropathologies. Students will learn how neuroscience research is applied in the medical field for the first third of the class. The remainder of the time will be spent creating a literature review on a brain related pathologies of their choice, with the goal of publication. Instructor Permission Required.

BIOS 442 - MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE
Short Title: BEHAVIORAL NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PSYC 380 or NEUR 380 or BIOC 380 or NEUR 385) and (PSYC 203 or BIOS 321 or EBIO 321) and (STAT 305 or STAT 310 or ECON 307 or STAT 312)
Description: This will be a combined lecture/discussion course on historical and current methods in behavioral neuroscience using primary literature. Topics will include the molecular basis of memory, genetic impacts on cognition, and possible epigenetic influences on behavior. Special emphasis will be placed on discussing different model organism and their benefits/drawbacks in neuroscience research.

BIOS 443 - DEVELOPMENTAL NEOBIOLOGY
Short Title: NEURODEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 341 or BIOC 341 or BIOS 301 or BIOC 301 or BIOS 344 or BIOC 344
Description: An advanced undergraduate and graduate level course, dedicated to analysis and evaluation of scientific inquiry into animal development and neurodevelopment. Textbook based lectures and discussions based on primary scientific literature are used to exemplify and evaluate concepts and methodology. Writing assignments, quizzes, midterm and final exam will be used to evaluate performance. Graduate/Undergraduate Equivalency: BIOS 543.

BIOS 447 - EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
Short Title: BIOLOGY AND MEDICINE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341 or BIOS 344 or BIOC 344
Description: Current biological methods offer the potential to transform health care. We will examine the biology and methodology of emergent health care technologies such as stem cell therapy and personal genome sequencing to understand their potential to impact human health. Graduate/Undergraduate Equivalency: BIOS 547.
**BIOS 449 - ADVANCED CELL AND MOLECULAR NEUROSCIENCE**

*Short Title:* ADV CELL AND MOLECULAR NEURO  
*Department:* Biosciences  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* (BIOC 385 or BIOS 385 or NEUR 385) and (BIOS 201 or BIOC 201) and (BIOC 211 or BIOC 212 or BIOS 212 or BIOC 212) and (MATH 102 or MATH 106) and (STAT 305 or STAT 310 or ECON 307 or STAT 312)  
*Description:* This course will be an overview of advanced principles and techniques in cell and molecular neuroscience; subjects will include biophysics, cellular signaling, and the molecular mechanics of neuronal plasticity. The class will primarily be lecture driven. However, there will be seminar component – students will review primary scientific literature, discuss it in small groups, and present their findings. Graduate/Undergraduate Equivalency: BIOS 549. Recommended Prerequisite(s): PSYC 380 or BIOC 380 or NEUR 380 Mutually Exclusive: Cannot register for BIOS 449 if student has credit for BIOS 459.

**BIOS 450 - VIRUSES AND INFECTIOUS DISEASES**

*Short Title:* VIRUSES & INFECTIOUS DISEASES  
*Department:* Biosciences  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341  
*Description:* Animal viruses, especially those relevant to human health, will be discussed. Topics primarily focus on virus structure and the molecular biology of the virus life cycle. Practical issues such as the history of viral diseases, clinical manifestations, laboratory diagnosis, management and prevention will also be discussed. Graduate/Undergraduate Equivalency: BIOS 550.

**BIOS 460 - CANCER BIOLOGY**

*Short Title:* CANCER BIOLOGY  
*Department:* Biosciences  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* (BIOC 301 or BIOS 301) and (BIOS 341 or BIOC 341)  
*Description:* Provides an integrated lecture series summarizing current knowledge in cancer biology and integrating current literature with basic concepts. Topics include: statistics of incidence/survival, types of cancer, pathology, the process of carcinogenesis and sources of carcinogens, genetic and epigenetic mechanisms and consequences, cancer progression, metastasis and current treatment options. Students will learn to use online databases to develop independent strategies for analyzing datasets. There will be several writing assignments and in class oral presentations of research articles. Graduate/Undergraduate Equivalency: BIOS 560. Mutually Exclusive: Cannot register for BIOS 460 if student has credit for BIOS 560.

**BIOS 470 - COMPUTATION WITH BIOLOGICAL DATA**

*Short Title:* COMPUTATION WITH BIOLOGICAL DATA  
*Department:* Biosciences  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* (BIOS 301 or BIOC 301 or BIOC 341 or BIOS 341 or BIOS 344 or BIOC 344) and (MATH 102 or MATH 106)  
*Description:* This course will teach programming and analysis techniques essential for modern research in the biological sciences. Students will learn the basics of programming in the MATLAB or Python scripting languages and applications to analyzing biological data. There will be a particular focus on quantitative image and sequence analysis. Graduate/Undergraduate Equivalency: BIOS 570. Mutually Exclusive: Cannot register for BIOS 470 if student has credit for BIOS 570.

**BIOS 477 - SPECIAL TOPICS**

*Short Title:* SPECIAL TOPICS  
*Department:* Biosciences  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar, Internship/Practicum, Lecture/Laboratory, Laboratory, Lecture  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**BIOS 481 - MOLECULAR BIOPHYSICS I**

*Short Title:* MOLECULAR BIOPHYSICS I  
*Department:* Biosciences  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Prerequisite(s):* BIOS 301 or BIOC 301 or BIOC 352 or BIOS 352  
*Description:* Focus on principles of common biophysical methods used for study of conformations and dynamics of biological macromolecules and assemblies. Topics cover spectroscopic methods (absorption, fluorescence, circular dichroism, epr, NMR), transport processes, sedimentation, calorimetry, mass spectrometry, crystallography, cryoelectron microscopy, atomic force microscopy, ligand-protein interactions, protein folding, single molecule detection, computer simulations, functional genomics and laboratory evolution. Biological examples will be used to demonstrate merits and complementarity in each of the biophysical methods. Graduate/Undergraduate Equivalency: BIOS 551.
BIOS 482 - STRUCTURAL BIOLOGY
Short Title: STRUCTURAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 301 or BIOS 301) and (PHYS 101 or PHYS 125) and (PHYS 102 or PHYS 126)
Description: Structural biology plays an important role in defining atomic structures of biomolecules and understanding relationships between structure, dynamics and function in living systems. This course will give an introduction to techniques of determining biomolecular structures, X-ray crystallography, NMR, and cryoelectron microscopy and discuss striking examples of the power of structural biology. Graduate/Undergraduate Equivalency: BIOS 552.

BIOS 495 - SEMINAR: TOPICS IN ENVIRONMENTAL SCIENCE
Short Title: TOPICS: ENVIRONMENTAL SCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Graduate level students.
Course Level: Graduate
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an integration of interdisciplinary topics that span environmental sciences. Topics will vary depending upon the interests and needs of both students and faculty. Only Seniors may register for this course without instructor permission.

BIOS 505 - PHYSICAL BIOLOGY
Short Title: PHYSICAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic introduction to a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Cross-list: BIOE 502, SSPB 501. Graduate/Undergraduate Equivalency: BIOS 405.

BIOS 510 - STEM CELL BIOLOGY
Short Title: STEM CELL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to modern topics in stem cell biology, teach students to critically evaluate primary literature, and teach students to synthesize research ideas into review articles and grant proposals. This is a literature and discussion-based course and will require reading 2-3 articles from the primary literature per week. Graduate/Undergraduate Equivalency: BIOS 410.

BIOS 520 - MOLECULAR BASIS OF DISEASES
Short Title: MOLECULAR BASIS OF DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course intends to provide in-depth knowledge of the molecular basis of human diseases. We will discuss: 1) Different types of genetic variations that may lead to human diseases; 2) The various approaches to investigate the molecular basis of human diseases; 3) The molecular and cellular consequences of disease-associated genetic variations; 4) The physiological and environmental causes of genetic variations; 5) The molecular basis for disease diagnosis and treatments. We will mainly focus on molecular mechanisms of inherent genetic diseases, neurodegenerative diseases, cancer and environmentally induced diseases. This will be a combined lecture/discussion course. The class materials are mainly based on preliminary literatures and case studies. Students are expected to actively participate in discussion in class and to give presentations and lectures based on research paper. Graduate/Undergraduate Equivalency: BIOS 420.

BIOS 521 - STUDENT SEMINAR IN EEB
Short Title: STUDENT SEMINAR IN EEB
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Student-led presentations of work in progress, research ideas, and topics of research interest. Designed to enhance oral presentation skills and facilitate discussion of research ideas. Open to upper-level undergraduates and graduate students. Repeatable for Credit.

BIOS 522 - CONSERVATION BIOLOGY LAB
Short Title: CONSERVATION BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will give students hands-on experiences in the practice of conservation biology through authentic projects related to prioritization and design of nature preserves, restoration of natural environments, and for monitoring threatened and endangered species in the Houston area. Graduate/Undergraduate Equivalency: BIOS 322. Mutually Exclusive: Cannot register for BIOS 522 if student has credit for BIOS 322.
**BIOS 523 - CONSERVATION BIOLOGY**  
**Short Title:** CONSERVATION BIOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course is designed to give students a broad overview of conservation biology. Lecture and discussions will focus on conservation issues such as biodiversity, extinction, management, sustained yield, invasive species and preserve design. Graduate/Undergraduate Equivalency: BIOS 423. Mutually Exclusive: Cannot register for BIOS 523 if student has credit for BIOS 323.

**BIOS 524 - MICROBIOLOGY AND BIOTECHNOLOGY**  
**Short Title:** MICROBIOLOGY & BIOTECHNOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Structure and functions of microorganisms with emphasis on their environmental, industrial and medical importance. Graduate/Undergraduate Equivalency: BIOS 424. Mutually Exclusive: Cannot register for BIOS 524 if student has credit for BIOS 424.

**BIOS 525 - PLANT MOLECULAR GENETICS AND DEVELOPMENT**  
**Short Title:** PLANT MOLECULAR GENETICS  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Novel aspects of plant biology and development with emphasis on molecular and genetic mechanisms. Plant responses to the environment and the use of bioengineering and other means to develop new plant products will also be covered. Graduate/Undergraduate Equivalency: BIOS 425. Mutually Exclusive: Cannot register for BIOS 525 if student has credit for BIOS 425.

**BIOS 528 - BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE**  
**Short Title:** BRAINSTEM  
**Department:** Biosciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** BrainSTEM is a service organization that teaches STEM subjects through the lens of neuroscience. We perform hands-on, small-group activities with ~45 students per week. This course will prepare you to communicate science in a both effective and entertaining manner, as well as build your skills in managing small groups. More information can be found at ‘www.brainstem.club.’ Graduate/Undergraduate Equivalency: BIOS 128. Mutually Exclusive: Cannot register for BIOS 528 if student has credit for BIOS 128. Repeatable for Credit.

**BIOS 529 - ANIMAL DIVERSITY**  
**Short Title:** ANIMAL DIVERSITY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The evolution and systematics of the animal kingdom with consideration of functional anatomy, comparative physiology, behavior, medical implications and resource management. Graduate/Undergraduate Equivalency: BIOS 329. Mutually Exclusive: Cannot register for BIOS 529 if student has credit for BIOL 329/BIOS 329.

**BIOS 530 - LAB MODULE IN NMR SPECTROSCOPY AND MOLECULAR MODELING**  
**Short Title:** LAB MOD NMR SPECTROSCOPY&MOLEC  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The students will learn to set up, acquire, and process one-dimensional and basic two-dimensional NMR experiments. Spectral interpretation (3D molecular modeling of proteins and nucleic acids) for nucleic acids and proteins using homonuclear and heteronuclear data. Enrollment limited to 12, with priority to graduate students. Offered first half of the semester. BIOS 482/552 may be taken concurrently with BIOS 530.

**BIOS 532 - ECOLOGY**  
**Short Title:** ECOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Study of population dynamics, species interactions, plant and animal community organization, and ecosystem function. Graduate/Undergraduate Equivalency: BIOS 332. Mutually Exclusive: Cannot register for BIOS 532 if student has credit for BIOS 332.

**BIOS 534 - EVOLUTION**  
**Short Title:** EVOLUTION  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Principles of biological evolution. Topics include natural selection, adaptation, molecular evolution, formation of new species, the fossil record, biogeography, and principles of classification. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOS 334. Mutually Exclusive: Cannot register for BIOS 534 if student has credit for BIOS 334.
BIOS 535 - PRACTICAL X-RAY CRYSTALLOGRAPHY
Short Title: PRACT X-RAY CRYSTALLOGRAPHY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOC 552 or BIOS 552 (may be taken concurrently) or BIOC 482 or BIOS 482 (may be taken concurrently)
Description: This is an introduction to macromolecular crystallography with emphasis on crystallization methods, data acquisition, processing and molecular model-building. Approaches to solving structures will be discussed, as well as refinement of molecular models. Offered second half of the semester. Prerequisites are concurrent and may be taken the same semester.

BIOS 537 - ADVANCED STRUCTURAL BIOLOGY SEMINAR
Short Title: ADV STRUCTURAL BIOLOGY SEMINAR
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: One hour seminar course in theoretical and practical aspects of crystallography, primarily as it applies to macromolecular crystallography. Presentations will be given by instructors and students on advanced topics based on published works or original research. Repeatable for Credit.

BIOS 538 - ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
Short Title: BIO DATA ANALYSIS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses how to analyze, visualize and draw conclusions from biological data. It introduces basic concepts in statistics interwoven with training in data analysis using the R computing environment. Students will learn to identify underlying data structures and wrangle data. Students will also learn to effectively convey results using statistical graphics. Topics include basic R programming, data exploration, statistical modeling, parameter estimation and interpretation, and model comparison. This class particularly focuses on biological data. Graduate/Undergraduate Equivalency: BIOS 338. Mutually Exclusive: Cannot register for BIOS 538 if student has credit for BIOS 338.

BIOS 540 - INTEGRATIVE ANIMAL PHYSIOLOGY
Short Title: INTEGRATIVE ANIMAL PHYSIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course takes a comparative approach to investigate animal physiology of vertebrates. Students learn how animals are adapted to their environments, including how they meet their energy needs, take up and transport oxygen, and maintain hydration and salt balance. Students read primary literature to explore survival in extreme environments. Mutually Exclusive: Cannot register for BIOS 540 if student has credit for BIOS 340, BIOS 335, BIOS 536. Graduate/Undergraduate Equivalency: BIOS 340.

BIOS 541 - RESEARCH SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of individual research or current topics in particular areas. Intended for students conducting research projects with the instructor as advisor. Repeatable for Credit.

BIOS 542 - RESEARCH SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of individual research or current topics in particular areas. Intended for students conducting research projects with the instructor as advisor. Repeatable for Credit.

BIOS 543 - DEVELOPMENTAL NEUROBIOLOGY
Short Title: NEURODEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced undergraduate and graduate level course, dedicated to analysis and evaluation of scientific inquiry into animal development. Textbook based lectures and discussions based on primary scientific literature are used to exemplify and evaluate concepts and methodology. Writing assignments, quizzes, midterm and final exam will be used to evaluate performance. Graduate/Undergraduate Equivalency: BIOS 443.
BIOS 547 - EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
Short Title: BIOLOGY AND MEDICINE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Current biological methods offer the potential to transform health care. We will examine the biology and methodology of emergent health care technologies such as stem cell therapy and personal genome sequencing to understand their potential to impact human health. Graduate/Undergraduate Equivalency: BIOS 447. Recommended Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341 or BIOS 344 or BIOC 344

BIOS 549 - ADVANCED CELL AND MOLECULAR NEUROSCIENCE
Short Title: ADV CELL AND MOLECULAR NEURO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be an overview of advanced principles and techniques in cell and molecular neuroscience; subjects will include bioelectricity, cellular signaling, and the molecular mechanics of neuronal plasticity. The class will primarily be lecture driven. However, there will be seminar component – students will review primary scientific literature, discuss it in small groups, and present their findings. Graduate/Undergraduate Equivalency: BIOS 449. Mutually Exclusive: Cannot register for BIOS 549 if student has credit for BIOS 449.

BIOS 550 - VIRUSES AND INFECTIOUS DISEASES
Short Title: VIRUSES & INFECTIOUS DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Animal viruses, especially those relevant to human health, will be discussed. Topics primarily focus on virus structure and the molecular biology of the virus life cycle. Practical issues such as the history of viral diseases, clinical manifestations, laboratory diagnosis, management and prevention will also be discussed. Graduate/Undergraduate Equivalency: BIOS 450.

BIOS 551 - MOLECULAR BIOPHYSICS
Short Title: MOLECULAR BIOPHYSICS I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focus on principles of common biophysical methods used for study of conformations and dynamics of biological macromolecules and assemblies. Topics cover spectroscopic methods (absorption, fluorescence, circular dichroism, epr, NMR), transport processes, sedimentation, calorimetry, mass spectrometry, crystallography, cryoelectron microscopy, atomic force microscopy, ligand-protein interactions, protein folding, single molecule detection, computer simulations, functional genomics and laboratory evolution. Biological examples will be used to demonstrate merits and complementarity in each of the biophysical methods. Graduate/Undergraduate Equivalency: BIOS 481.

BIOS 552 - STRUCTURAL BIOLOGY
Short Title: STRUCTURAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structural biology plays an important role in defining atomic structures of biomolecules and understanding relationships between structure, dynamics and function in living systems. This course will give an introduction to techniques of determining biomolecular structures, X-ray crystallography, NMR, and cryoelectron microscopy and discuss striking examples of the power of structural biology. Graduate/Undergraduate Equivalency: BIOS 482. Recommended Prerequisite(s): BIOC 301 or BIOS 301

BIOS 559 - SUSTAINABILITY IMPACT ASSESSMENTS
Short Title: SUSTAINABILITY IMPACTS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an exciting review of the methodologies involved in conducting Environmental Impact Assessments according to epistemologies from Sustainable Development. EIAs have to be conducted, before permitting is secured, for large projects and programs; such as power plants, highways, pipelines, dams, mines, airports, incinerators and landfills. Most environmental consultancies and government environmental offices will routinely engage experts who are familiar with a comprehensive assessment of local ecosystems around a project or program.
Course URL: profms.rice.edu (http://profms.rice.edu)
BIOS 560 - CANCER BIOLOGY
Short Title: CANCER BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides an integrated lecture series summarizing current knowledge in cancer biology and integrating current literature with basic concepts. Topics include: statistics of incidence/survival, types of cancer, pathology, the process of carcinogenesis and sources of carcinogens, genetic and epigenetic mechanisms and consequences, cancer progression, metastasis and current treatment options. Students will learn to use online databases to develop independent strategies for analyzing datasets. There will be several writing assignments and in class oral presentations of research articles. This course requires instructor permission to enroll. Please fill out the special registration form from https://registrar.rice.edu/student/special_registration. All requests will be reviewed and you will be notified of an enrollment decision. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOS 460. Mutually Exclusive: Cannot register for BIOS 560 if student has credit for BIOS 460.

BIOS 561 - TOPICS IN EVOLUTION (FALL)
Short Title: TOPICS IN EVOLUTION (FALL)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in evolution. Repeatable for Credit.

BIOS 562 - TOPICS IN EVOLUTION (SPRING)
Short Title: TOPICS IN EVOLUTION (SPRING)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in evolution. Repeatable for Credit.

BIOS 563 - TOPICS IN ECOLOGY (FALL)
Short Title: TOPICS IN ECOLOGY (FALL)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in ecology. Repeatable for Credit.

BIOS 568 - TOPICS IN ECOLOGY (SPRING)
Short Title: TOPICS IN ECOLOGY (SPRING)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in ecology. Repeatable for Credit.

BIOS 569 - CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: CORE COURSE IN ECOLOGY & EVOL
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of topics in ecology and evolution taught by all EEB faculty.

BIOS 570 - COMPUTATION WITH BIOLOGICAL DATA
Short Title: COMPUTATION WITH BIOL DATA
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will teach programming and analysis techniques essential for modern research in the biological sciences. Students will learn the basics of programming in the MATLAB or Python scripting languages and applications to analyzing biological data. There will be a particular focus on quantitative image and sequence analysis. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOS 470. Mutually Exclusive: Cannot register for BIOS 570 if student has credit for BIOS 470.

BIOS 571 - ECOSYSTEM MANAGEMENT
Short Title: ECOSYSTEM MANAGEMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on applied ecosystem topics including relations with state and federal agencies, field studies, wetland delineations, permitting compliance, and environmental regulations. Graduate/Undergraduate Equivalency: BIOS 271.
BIOS 572 - IMMUNOLOGY
Short Title: IMMUNOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cellular and molecular basis of innate and adaptive immune function in mammals. Graduate students will be required to do all the usual assignments associated with the undergraduate section of the course but in addition will write a substantial paper on some aspects of the field that is relevant to their planned careers in biomedical research/biotechnology. Graduate/Undergraduate Equivalency: BIOS 372.

BIOS 573 - CORAL REEF ECOSYSTEMS
Short Title: CORAL REEF ECOSYSTEMS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This three credit lecture course introduces students to a complex, dynamic and sensitive ecosystem: coral reefs. We will explore the biotic and abiotic components of coral reefs; how reef organisms interact with each other and the environment, and the factors that contribute to reef construction and decline over time and space. Graduate/Undergraduate Equivalency: BIOS 373.

BIOS 575 - INTRODUCTION TO RESEARCH
Short Title: INTRODUCTION TO RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction of first-year graduate students to the research programs and laboratories of individual faculty members. Open only to BCB graduate students.

BIOS 580 - SUSTAINABLE DEVELOPMENT AND REPORTING
Short Title: SUSTAINABLE DEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sustainable development is an approach to development based on interacting social, economic, and environmental forces. It is intended as methodology for planning, and a guiding principle for Environmental Health and safety compliance (EHSs) and Corporate Sustainability (CSRs). Students will learn compliance guidelines, risk management, and assessment considerations. Graduate/Undergraduate Equivalency: BIOS 280. Mutually Exclusive: Cannot register for BIOS 580 if student has credit for BIOS 280.

BIOS 581 - GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: GRAD SEM BIOCHEM & CELL BIOL
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A discussion of selected research topics. Required of all Biochemistry and Cell Biology graduate students. Open only to BCB graduate students. Repeatable for Credit.

BIOS 582 - GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: GRAD SEM BIOCHEM & CELL BIOL
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A discussion of selected research topics. Required of all Biochemistry and Cell Biology graduate students. Open only to BCB graduate students. Repeatable for Credit.

BIOS 583 - MOLECULAR INTERACTIONS
Short Title: MOLECULAR INTERACTIONS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: First of two integrated classes taken by first-year graduate students in BCB (to be followed by BIOC 588, Cellular Interactions). Covers advanced topics in biochemistry, ranging from protein and nucleic acid synthesis, folding, function, and engineering to allostery, dynamics, and degradation with an emphasis on fundamental principles, research methodologies, problem solving, and critical analysis of primary literature. Enrollment limited to BCB graduate students.

BIOS 584 - GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: GRAD SEM IN ECOL & EVOL BIOL
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Faculty and student presentations on current research. Required of all Ecology & Evolutionary Biology graduate students. Repeatable for Credit.
BIOS 585 - FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE  
**Short Title:** FUNDAMENTALS OF NEUROSCIENCE  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Cellular, molecular, and integrative mechanisms of neural function, including membrane and axon physiology, synaptic transmission and plasticity, sensory transduction and processing. Graduate/Undergraduate Equivalency: BIOS 385.

BIOS 586 - GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY  
**Short Title:** GRAD SEM: ECOL & EVOL BIOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Continuation of BIOS 584 in spring semester. Repeatable for Credit.

BIOS 587 - RESEARCH DESIGN, PROPOSAL WRITING, AND PROFESSIONAL DEVELOPMENT  
**Short Title:** PROPOSAL WRITING  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Preparation for professional scientific communication with an emphasis on writing research proposals, describing work in progress, and presenting data in context of research goals.

BIOS 588 - CELLULAR INTERACTIONS  
**Short Title:** CELLULAR INTERACTIONS  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Second of two integrated classes taken by first-year graduate students in BCB (following BIOS 583, Molecular Interactions). Covers advanced topics in genetics, cell biology, and developmental biology, focusing on cellular, tissue, and organismal structure and function with an emphasis on fundamental principles, research methodologies, and critical analysis of primary literature.

BIOS 589 - EEB OUTREACH DEVELOPMENT  
**Short Title:** EEB OUTREACH DEVELOPMENT  
**Department:** Biosciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course is for Rice students interested in developing life science outreach initiatives that target underserved K-12 students in the Houston area. Goals of the course include developing hands-on teaching modules related to Texas science education standards and expanding graduate student teaching experiences beyond the University setting.

BIOS 590 - SPECIAL TOPICS IN BIOCHEMISTRY AND CELL BIOLOGY  
**Short Title:** SPEC TOPCS BIOC & CELL BIO  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Development of specific topic areas at the graduate level. Instructor Permission Required.

BIOS 591 - GRADUATE TEACHING IN ECOLOGY AND EVOLUTIONARY BIOLOGY  
**Short Title:** GRADUATE TEACHING IN EEB  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Supervised instruction in teaching ecology and evolutionary biology. Repeatable for Credit. Repeatable for Credit.

BIOS 592 - TOPICS IN QUANTITATIVE BIOLOGY AND BIOMEDICAL INFORMATICS (KECK SEMINAR)  
**Short Title:** TOPICS QUANT BIO & BIOMED INFO  
**Department:** Biosciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A discussion of selected research topics in quantitative biology and biomedical informatics. Repeatable for Credit.

BIOS 593 - CURRENT TOPICS IN PLANT BIOLOGY  
**Short Title:** TOPICS IN PLANT BIOLOGY  
**Department:** Biosciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Discussion of selected research topics in current plant biology literature. Repeatable for Credit.
BIOS 599 - GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: GRADUATE TEACHING IN BIOCHEM
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised instruction in teaching biochemistry and cell biology. Repeatable for Credit.

BIOS 611 - RESEARCH SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of individual research or current topics in particular areas. Intended for students conducting research projects in the lab of the instructor. Repeatable for Credit.

BIOS 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BIOS 701 - GRADUATE LAB RESEARCH I
Short Title: GRADUATE LAB RESEARCH I
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 2-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research in Biochemistry and Cell Biology. Designed for short term laboratory projects for first year graduate students. Repeatable for Credit.

BIOS 702 - GRADUATE LAB RESEARCH II
Short Title: GRADUATE LAB RESEARCH II
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 2-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research in Biochemistry and Cell Biology. Designed for short term laboratory projects for first year graduate students. Repeatable for Credit.

BIOS 800 - BIOCHEMISTRY & CELL BIOLOGY GRADUATE RESEARCH
Short Title: BCB GRADUATE RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Biochemistry & Cell Biology graduate research. Repeatable for Credit.

BIOS 801 - ECOLOGY & EVOLUTIONARY BIOLOGY GRADUATE RESEARCH
Short Title: EEB GRADUATE RESEARCH
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Ecology & Evolutionary Biology graduate research. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for Biosciences: BIOS

Department Description and Code
- BioSciences: BIOS

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS

Undergraduate Major Descriptions and Codes
- Major in Biosciences (for both the BA and BS degrees): BISC
- Major Concentration in Biochemistry (for both the BA and BS degrees): BIBC
- Major Concentration in Cell Biology and Genetics (for both the BA and BS degrees): BICB
- Major Concentration in Ecology and Evolutionary Biology (for both the BA and BS degrees): BIEE
- Major Concentration in Integrative Biology (for both the BA and BS degrees): BIIB

Undergraduate Minor Descriptions and Codes
- Minor in Biochemistry and Cell Biology: BCBM
- Minor in Ecology and Evolutionary Biology: EEBM
Graduate Degree Descriptions and Codes

- Master of Science degree: MS
- Doctor of Philosophy degree: PhD

Graduate Degree Program Descriptions and Codes

- Degree Program in Biochemistry and Cell Biology: BIOC
- Degree Program in Ecology and Evolutionary Biology: EBI

CIP Code and Description

1. BIOC Major/Program: CIP Code/Title: 26.0202 - Biochemistry
2. BISC Major/Program: CIP Code/Title: 26.0101 - Biology/Biological Sciences, General
3. EBI Major/Program: CIP Code/Title: 26.1310 - Ecology and Evolutionary Biology
4. BIBC Major Concentration: CIP Code/Title: 26.0202 - Biochemistry
5. BICB Major Concentration: CIP Code/Title: 26.0406 - Cell/Cellular and Molecular Biology
6. BIEE Major Concentration: CIP Code/Title: 26.1310 - Ecology and Evolutionary Biology
7. BIBI Major Concentration: CIP Code/Title: 26.0101 - Biology/Biological Sciences, General
8. BCBM Minor: CIP Code/Title: 26.0202 - Biochemistry
9. EEBM Minor: CIP Code/Title: 26.1310 - Ecology and Evolutionary Biology

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree / Master of Science (MS) Degree / Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology

Program Learning Outcomes for the BA/MS/PhD Accelerated Degree Program in the field of Biochemistry and Cell Biology

Upon completing the Bachelor's degree requirements for this program, students majoring in Biosciences will be able to:

1. Demonstrate a comprehensive knowledge of biology with particular emphasis on biochemistry, genetics, and cell biology.
2. Demonstrate the ability to apply the modern scientific method, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data using common statistical methods and software programs.
3. Demonstrate effective oral and written communication skills, including an ability to communicate effectively and work with diverse groups, and the ability to interpret and communicate the results of original research.
4. Locate primary scientific literature and demonstrate the ability to use critical thinking and problem-solving skills to evaluate published and proposed research in the biological sciences and to apply these skills.
5. Demonstrate understanding of the practice and culture of science, scientific ethics, and the relationship between science and society.
6. Develop quantitative reasoning via the construction of models and/or the analysis of data.

Students completing the MS degree requirements will be able to:

1. Develop a knowledge of past and current research accomplishments and techniques in biochemistry and cell biology.
2. Demonstrate problem solving and critical thinking skills.
3. Demonstrate the effective written, oral, and visual communication skills required to articulate scientific findings and significance via a thesis describing independent research, publishable research, and seminars.

Students completing the PhD degree requirements will be able to:

1. Develop a comprehensive knowledge of current and past research accomplishments and techniques in biochemistry and cell biology.
2. Demonstrate independent problem solving and critical thinking skills.
3. Demonstrate the effective written, oral, and visual communication skills required to articulate scientific findings and significance via a thesis describing independent research, publications, and seminars.

Requirements for the BA/MS/PhD Accelerated Degree Program in the field of Biochemistry and Cell Biology

BA in Biosciences Requirements

All of the requirements for a BA Degree with a Major in Biosciences

- and a Major Concentration in Biochemistry (p. 348),
- and a Major Concentration in Cell Biology and Genetics (p. 350),
- and a Major Concentration in Integrative Biology (p. 356)

are required for the BA/MS/PhD accelerated program.

MS in Biochemistry and Cell Biology Requirements

The BA/MS/PhD Committee will advise students pursuing the BA/MS completion and will approve their formal course program during their final two years in the BA/MS program. Students who wish to pursue the BA/MS program must select the MS thesis advisor by the end of their second year, when they declare their major, to provide the opportunity to begin a project that will form the basis of the MS thesis.

Course requirements for the MS degree include:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 581</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (fall semester)</td>
<td>2</td>
</tr>
<tr>
<td>BIOS 582</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (spring semester)</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 583</td>
<td>MOLECULAR INTERACTIONS</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 587</td>
<td>RESEARCH DESIGN, PROPOSAL WRITING, AND PROFESSIONAL DEVELOPMENT</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 800</td>
<td>BIOCHEMISTRY &amp; CELL BIOLOGY GRADUATE RESEARCH</td>
<td>1-15</td>
</tr>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td>1</td>
</tr>
</tbody>
</table>

Elective Requirements
Select at least 6 credit hours from departmental (BIOS) course offerings at the 500-level (or select other coursework at the 500-level with departmental approval)

Additional Coursework as Approved by Department

<table>
<thead>
<tr>
<th>Total Credit Hours</th>
<th>Minimum of 40</th>
</tr>
</thead>
</table>

Footnotes and Additional Information

1. Students who matriculated prior to academic year 2020-2021 may complete the BA degree a Major in Biosciences choosing one of the three major concentrations listed above (a Major Concentration in Biochemistry, or a Major Concentration in Cell Biology and Genetics, or a Major Concentration in Integrative Biology), or they may meet the requirements by completing the BA degree with a major in Biochemistry and Cell Biology (offered prior to academic year 2020-2021).

2. Safety training in Environmental Health and Safety is required before entry into the laboratory, and training in responsible conduct of research (UNIV 594) is taken during the freshmen or sophomore year. The courses listed must be completed or evidence provided of successful completion of courses that covered the same material with a B- grade average (GPA ≥ 2.67). Students in the BA-MS track are required to register for and participate in BIOS 581 or BIOS 582 both semesters during their junior and senior years and to present their research at least once. Students generally enroll in at least 9 credit hours of BIOS 800 during the summer between the sophomore and junior year, BIOS 587 and up to 6 credit hours of BIOS 800 during the summer between the junior and senior years. Students take BIOS 583 and BIOS 588 in their senior year. Registration for at least 9 credit hours of BIOS 800 is required during the summer following the senior year for MS thesis defense. Undergraduates who are on financial aid must register for at least 12 credit hours that will be applied to the undergraduate transcript each semester to maintain full-time status.

Students will be responsible for the content of these courses in their MS defense (which also serves as the Admission to PhD Candidacy examination).

Progress reviews with the MS thesis committee occur at the end of the junior year and the early spring of the senior year. Students who wish to continue to the PhD after the MS should include a section on their proposed PhD research project in the senior year progress review, indicating their future goals and aims. This future work section should also be included in the MS thesis and may be part of the discussion with the thesis committee following the defense. The MS thesis will be submitted and public oral defense will occur in the summer following graduation at the end of the senior year with completion of the BA requirements. MS candidates continuing to the PhD must maintain a GPA ≥ 3.00, complete a thesis, and make a public oral defense that includes a private examination by their MS thesis committee. Students who complete the MS requirements with a GPA ≥ 2.67 but less than 3.00 must defend their thesis to complete the MS degree, but will not be admitted to the PhD program.

PhD in Biochemistry and Cell Biology Requirements

The following are required for admission to the PhD portion of the BA/MS/PhD accelerated program: Successful completion of the MS thesis and oral defense, which will serve as the admission to candidacy examination for all PhD candidates in this program; an overall GPA ≥ 3.00 for the BA-MS degree courses. Students who are in good academic standing in the BA/MS portion and have passed their MS final oral examination may begin their doctoral studies the summer following graduation with the approval of their PhD mentor and the Department Chair.

Course requirements for the completion of the PhD studies within the accelerated BA/MS/PhD program include all of the required courses taken during the MS studies and the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 581</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (required in all fall semesters of residency)</td>
<td>Minimum of 2 credit hours</td>
</tr>
<tr>
<td>BIOS 582</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (required in all spring semesters of residency)</td>
<td>Minimum of 2 credit hours</td>
</tr>
<tr>
<td>BIOS 599</td>
<td>GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td>Minimum of 2 credit hours</td>
</tr>
<tr>
<td>BIOS 800</td>
<td>BIOCHEMISTRY &amp; CELL BIOLOGY GRADUATE RESEARCH (minimum of 45 credit hours taken over 2 academic years and 1 summer)</td>
<td>Variable credit hours</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

* A minimum of 60 credit hours beyond the MS is required for the PhD. BIOS 611 Research Seminar and other 500-level courses as approved by the research advisor can be counted toward the 60 hours total.

1. PhD students are required to enroll in BIOS 581 (fall semester) or BIOS 582 (spring semester) during all semesters of residency. A minimum of 4 credit hours of BIOS 581 and BIOS 582 combined are required.

2. BIOS 599 provides PhD students with teaching experience by serving as discussion leaders and graders in two undergraduate courses, and additional teaching experiences are available on an optional basis. Students will take BIOS 599 following the master’s defense, with the precise time determined with input from the graduate advising committee.

3. BA/MS/PhD students are required to enroll in 15 credit hours each semester after they have defended the master’s degree, including summer semesters, to reflect their full-time status. After enrolling in any other required courses, students should enroll in the number of hours of BIOS 800 such that their total credit hours equal 15.

Evaluation of Progress in the PhD Phase of the BA/MS/PhD Program

The Graduate Advisory Committee evaluates each student’s record and recommends any further coursework based on the requirements and on the interests of the student. Thesis advisors may require additional courses. At the end of each semester, the department chair, in consultation with the faculty, reviews student performance in the formal coursework. Students must maintain at least a B grade average (GPA ≥ 3.00), perform satisfactorily in their research efforts, and demonstrate outstanding motivation and potential for research.

Evaluation during the PhD phase of the program includes:
• The MS thesis and its oral defense constitute the admission to candidacy examination
• Ongoing review of research progress by the thesis advisor; satisfactory research progress will be indicated by a grade of “S” in BIOS 800 each semester
• A yearly research progress assessment by the student’s Research Progress Review Committee
• Presentation of research progress at least once a year in seminar format (BIOS 581 or BIOS 582) starting in the first year of PhD study and continuing until submission of the doctoral thesis
• Defense of the PhD thesis research and text in a final public seminar presentation and oral examination attended by the student’s Thesis Committee

Policies for the BA/MS/PhD Accelerated Degree Program in the field of Biochemistry and Cell Biology

Biochemistry and Cell Biology Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Biochemistry and Cell Biology publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2020_21/Biochemistry_Cell_Biology_Graduate_Handbook.pdf

Admission

Qualified Rice University undergraduates can apply to enroll in the Biochemistry and Cell Biology BA/MS/PhD accelerated program in the spring of their sophomore year. Students who are strong candidates for this program typically join a Rice research lab to start research on a project with one of the Biochemistry and Cell Biology Graduate Program research faculty as advisor prior to applying. Upon acceptance, depending on course load, financial aid status, and other variables, program participants may then start taking required graduate course requirements at the same time as their upper-level undergraduate degree course requirements. Students pursuing this program should be aware that there could be financial aid implications, should the conversion of undergraduate coursework to that of graduate level reduce their earned undergraduate credit for any semester below that of full-time undergraduate status (12 hours). Advisors for the program can assist in this determination.

Laboratory research performed in undergraduate and graduate research courses is presented as the MS thesis in the summer following graduation and provides the basis for the PhD thesis work. As a result, the graduate careers of these students will be accelerated by an anticipated 1-2 years, and such students may be able to obtain their PhD degree approximately 3 years after obtaining their BA/MS degrees. If circumstances require, students may stop at the BA or MS level if they meet all the requirements for the respective degrees.

Criteria for selection include academic performance (GPA ≥ 3.50), motivation, previous research experience, and personal qualities. Enrollment is limited, and the Biochemistry and Cell Biology BA/MS/PhD Committee will select applicants for admission.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the BA/MS/PhD accelerated degree program in the field of Biochemistry and Cell Biology should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the BioSciences website: https://biosciences.rice.edu/.

Opportunities for the BA/MS/PhD Accelerated Degree Program in the field of Biochemistry and Cell Biology

Information about Student Resources, Attendance at Scientific Conferences, Internships, Graduate Student Awards, the Graduate Student Association, etc. can be found in the Biochemistry and Cell Biology Graduate Program Handbook: https://gradhandbooks.rice.edu/2020_21/Biochemistry_Cell_Biology_Graduate_Handbook.pdf

Additional Information

For additional information, please see BioSciences website: https://biosciences.rice.edu/.

Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Program Learning Outcomes for the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Upon completing the BA degree with a major in Biosciences and a major concentration in Biochemistry, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of biochemistry.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.
Requirements for the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Biosciences and a major concentration in Biochemistry must complete:

- A minimum of 62 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 22 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Biochemistry. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  - Biochemistry (p. 348), or
  - Cell Biology and Genetics (p. 350), or
  - Ecology and Evolutionary Biology (p. 353), or
  - Integrative Biology (p. 356).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BA degree emphasizes broad foundational knowledge of biology with in depth exposure to the subfield of biochemistry. Biosciences majors are strongly encouraged to pursue their research interests through independent research experiences. The BA degree program offers greater flexibility than the BS due to fewer required independent research courses as detailed below.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Biochemistry</td>
<td>Minimum of 62</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry</td>
<td>120</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| Core Requirements
| Non-Biology Courses
| CHEM 121 | GENERAL CHEMISTRY I ¹ | 3            |
| or CHEM 111 | AP/OTH CREDIT IN GENERAL CHEMISTRY I | 3 |
| CHEM 123 | GENERAL CHEMISTRY LABORATORY I ¹ | 1            |
| or CHEM 113 | AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I | 1 |
| MATH 101 | SINGLE VARIABLE CALCULUS I | 3            |
| or MATH 105 | AP/OTH CREDIT IN CALCULUS I | 3 |
| MATH 102 | SINGLE VARIABLE CALCULUS II | 3            |
| or MATH 106 | AP/OTH CREDIT IN CALCULUS II | 3 |
| PHYS 125 | GENERAL PHYSICS (WITH LAB) ² | 4            |
| or STAT 315 | INTRODUCTION TO STATISTICS FOR BIOSCIENCES ³ | 4 |
| or STAT 315 | PROBABILITY AND STATISTICS FOR DATA SCIENCE ⁴ | 4 |
| BIOS 201 | INTRODUCTORY BIOLOGY I | 3            |
| BIOS 202 | INTRODUCTORY BIOLOGY II | 3            |
| Elective Lecture Course
| Select 1 elective course from lecture courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above ⁴ | 3 |

Core Lecture Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 352</td>
<td>PHYSICAL CHEMISTRY FOR THE BIOSCIENCES</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Lecture Courses in Biochemistry

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 464</td>
<td>EXTRACELLULAR MATRIX</td>
<td>6</td>
</tr>
<tr>
<td>BIO 300</td>
<td>PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 334</td>
<td>EVOLUTION</td>
<td>3</td>
</tr>
<tr>
<td>BIO 340</td>
<td>INTEGRATIVE ANIMAL PHYSIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 341</td>
<td>CELL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 344</td>
<td>MOLECULAR BIOLOGY AND GENETICS</td>
<td>3</td>
</tr>
<tr>
<td>BIO 368</td>
<td>CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>BIO 372</td>
<td>IMMUNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>BIO 390</td>
<td>TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 405</td>
<td>PHYSICAL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 410</td>
<td>STEM CELL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 420</td>
<td>MOLECULAR BASIS OF DISEASES</td>
<td>3</td>
</tr>
<tr>
<td>BIO 424</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIO 425</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
<td>3</td>
</tr>
</tbody>
</table>
BIOS 447 EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
BIOS 449 ADVANCED CELL AND MOLECULAR NEUROSCIENCE
BIOS 450 VIRUSES AND INFECTIOUS DISEASES
BIOS 460 CANCER BIOLOGY
BIOS 470 COMPUTATION WITH BIOLOGICAL DATA
BIOS 481 MOLECULAR BIOPHYSICS I
BIOS 482 STRUCTURAL BIOLOGY

Core Laboratory Courses
BIOS 211 INTERMEDIATE EXPERIMENTAL BIOSCIENCES 2
BIOS 311 ADVANCED EXPERIMENTAL BIOSCIENCES 2

Elective Laboratory Courses
Select 2 courses from the following: 2-4
- BIO 342 LABORATORY IN TISSUE CULTURE
- BIOS 310 INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES 7
- BIOS 313 EXPERIMENTAL SYNTHETIC BIOLOGY
- BIOS 318 MICROBIOLOGY LABORATORY
- BIOS 333 BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT
- BIOS 393 LABORATORY TRANSFER CREDIT IN BIOSCIENCES
- BIOS 415 EXPERIMENTAL PHYSIOLOGY

Capstone Requirement 8
Select 1 course from the following: 3
- BIOS 405 PHYSICAL BIOLOGY
- BIOS 420 MOLECULAR BASIS OF DISEASES
- BIOS 424 MICROBIOLOGY AND BIOTECHNOLOGY
- BIOS 425 PLANT MOLECULAR GENETICS AND DEVELOPMENT
- BIOS 447 EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
- BIOS 449 ADVANCED CELL AND MOLECULAR NEUROSCIENCE
- BIOS 450 VIRUSES AND INFECTIOUS DISEASES
- BIOS 460 CANCER BIOLOGY
- BIOS 470 COMPUTATION WITH BIOLOGICAL DATA
- BIOS 481 MOLECULAR BIOPHYSICS I
- BIOS 482 STRUCTURAL BIOLOGY

Total Credit Hours Required for the Major in Biosciences and Major Concentration in Biochemistry Minimum of 62
Additional Credit Hours to Complete Degree Requirements 27
University Graduation Requirements (p. 29) 31
Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 CHEM 151 may be substituted for CHEM 121 or CHEM 111;
CHEM 153 may be substituted for CHEM 123 or CHEM 113.

2 PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125.

3 STAT 280 may be substituted for STAT 305.

4 Students must select 1 elective course (3 credit hours) from courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above, designated as a lecture course. Courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering include the following subject codes: ASTR, BIOE, BIOS, CAAM, CEVE, CHBE, CHEM, COMP, DSCI, EEPS, ELEG, ENGI, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYS, RCEL, and STAT.

5 CHEM 152 may be substituted for CHEM 122 or CHEM 112;
CHEM 154 may be substituted for CHEM 124 or CHEM 114.

6 PHYS 102 and PHYS 104 or PHYS 112 may be substituted for PHYS 126.

7 BIOS 310 must be taken for at least 3 credit hours to fulfill an Elective Laboratory Requirement. BIOS 310 can only fulfill Elective Laboratory Requirements once for the BA.

8 The Capstone Requirement is in addition to the other lecture course requirements. The same course may not be used to satisfy more than one requirement for this major and/or major concentration.

Policies for the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Advising
Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of BioSciences can be found at the department website by clicking on the tab for Undergraduate Program: https://biosciences.rice.edu/.

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry may not additionally pursue the BS Degree with a Major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
• Students pursuing the major in Biosciences and a major concentration in Biochemistry may not additionally declare the minor in Biochemistry and Cell Biology.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Opportunities for the BA Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors
Instructions on applying for the Distinction in Research and Creative Work award from the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Program, at: https://biosciences.rice.edu/.

Research in the BioSciences
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

Program Learning Outcomes for the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

Upon completing the BA degree with a major in Biosciences and a major concentration in Cell Biology and Genetics, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of cell biology and genetics.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

Requirements for the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Biosciences and a major concentration in Cell Biology and Genetics must complete:

• A minimum of 60 credit hours to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 24 credit hours taken at the 300-level or above.
• Core courses common to all major concentrations.
• The requirements for the major concentration in Cell Biology and Genetics. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  • Biochemistry (p. 348), or
  • Cell Biology and Genetics (p. 350), or
  • Ecology and Evolutionary Biology (p. 353), or
  • Integrative Biology (p. 356).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BA degree emphasizes broad foundational knowledge of biology with in depth exposure to the subfield of cell biology and genetics. Biosciences majors are strongly encouraged to pursue their research interests through independent research experiences. The BA degree
The program offers greater flexibility than the BS due to fewer required independent research courses as detailed below.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Cell Biology and Genetics</td>
<td>Minimum of 60</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics</td>
<td>120</td>
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</table>

### Degree Requirements

#### Core Requirements

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Non-Biology Courses</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I (^1)</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I (^1)</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
<td></td>
</tr>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td></td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
<td></td>
</tr>
<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB) (^2)</td>
<td>4</td>
</tr>
<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES (^3)</td>
<td>4</td>
</tr>
<tr>
<td>or STAT 315/DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Core Lecture Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 202</td>
<td>INTRODUCTORY BIOLOGY II</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Elective Lecture Course

Select 1 elective course from lecture courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above \(^7\)

#### Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 344</td>
<td>MOLECULAR BIOLOGY AND GENETICS</td>
<td>3</td>
</tr>
</tbody>
</table>

### Elective Lecture Courses in Cell Biology and Genetics

Select 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 464</td>
<td>EXTRACELLULAR MATRIX</td>
<td></td>
</tr>
<tr>
<td>BIOS 300</td>
<td>PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
<td></td>
</tr>
<tr>
<td>BIOS 340</td>
<td>INTEGRATIVE ANIMAL PHYSIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 352</td>
<td>PHYSICAL CHEMISTRY FOR THE BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 368</td>
<td>CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 372</td>
<td>IMMUNOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 390</td>
<td>TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 405</td>
<td>PHYSICAL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 410</td>
<td>STEM CELL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 420</td>
<td>MOLECULAR BASIS OF DISEASES</td>
<td></td>
</tr>
<tr>
<td>BIOS 424</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 425</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
<td></td>
</tr>
<tr>
<td>BIOS 442</td>
<td>MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 443</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 447</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
<td></td>
</tr>
<tr>
<td>BIOS 449</td>
<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 450</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
<td></td>
</tr>
<tr>
<td>BIOS 460</td>
<td>CANCER BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 470</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
<td></td>
</tr>
<tr>
<td>NEUR 380 / PSYC 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
<td></td>
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</table>

#### Core Laboratory Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 211</td>
<td>INTERMEDIATE EXPERIMENTAL BIOSCIENCES</td>
<td>2</td>
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#### Elective Laboratory Courses

Select 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 342</td>
<td>LABORATORY IN TISSUE CULTURE</td>
<td></td>
</tr>
<tr>
<td>BIOS 310</td>
<td>INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES (^6)</td>
<td></td>
</tr>
<tr>
<td>BIOS 311</td>
<td>ADVANCED EXPERIMENTAL BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 313</td>
<td>EXPERIMENTAL SYNTHETIC BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 318</td>
<td>MICROBIOLOGY LABORATORY</td>
<td></td>
</tr>
<tr>
<td>BIOS 333</td>
<td>BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT</td>
<td></td>
</tr>
</tbody>
</table>

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\(^1\) CHEM 121 or CHEM 122 may be taken in place of each other.

\(^2\) PHYS 125 is included in Core Requirements.

\(^3\) STAT 305 or STAT 315 must be completed.

\(^4\) PHYS 125 is included in Core Requirements.

\(^5\) CHEM 122 or CHEM 124 may be taken in place of each other.

\(^6\) BIOS 310 may be taken in place of each other.

\(^7\) BIOS 211 may be taken in place of each other.
BIOS 393  LABORATORY TRANSFER CREDIT IN BIO SCIENCES
BIOS 415  EXPERIMENTAL PHYSIOLOGY
BIOS 417  EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE

Capstone Requirement 7
Select 1 course from the following:
- BIOS 410  STEM CELL BIOLOGY
- BIOS 420  MOLECULAR BASIS OF DISEASES
- BIOS 424  MICROBIOLOGY AND BIOTECHNOLOGY
- BIOS 425  PLANT MOLECULAR GENETICS AND DEVELOPMENT
- BIOS 442  MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE
- BIOS 443  DEVELOPMENTAL NEUROBIOLOGY
- BIOS 447  EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
- BIOS 449  ADVANCED CELL AND MOLECULAR NEUROSCIENCE
- BIOS 450  VIRUSES AND INFECTIOUS DISEASES
- BIOS 460  CANCER BIOLOGY
- BIOS 470  COMPUTATION WITH BIOLOGICAL DATA

Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Cell Biology and Genetics 3
Minimum of 60
Additional Credit Hours to Complete Degree Requirements 4 29
University Graduation Requirements (p. 29) 3 31
Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.
1 CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113.
2 PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125.
3 STAT 280 may be substituted for STAT 305.
4 Students must select 1 elective course (3 credit hours) from courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above, designated as a lecture course. Courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering include the following subject codes: ASTR, BIOE, BIOS, CAAM, CEVE, CHBE, CHEM, COMP, DSCI, EEPS, ELEC, ENGL, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYS, RCEL, and STAT.
5 CHEM 152 may be substituted for CHEM 122 or CHEM 112; CHEM 154 may be substituted for CHEM 124 or CHEM 114.
6 BIOS 310 must be taken for at least 3 credit hours to fulfill an Elective Laboratory Requirement. BIOS 310 can only fulfill Elective Laboratory Requirements once for the BA.

7 The Capstone Requirement is in addition to the other lecture course requirements. The same course may not be used to satisfy more than one requirement for this major and/or major concentration.

Policies for the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

Advising
Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of BioSciences can be found at the department website by clicking on the tab for Undergraduate Program: https://biosciences.rice.edu/.

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics may not additionally pursue the BS Degree with a Major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Cell Biology and Genetics may not additionally declare the minor in Biochemistry and Cell Biology.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/
Opportunities for the BA Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors
Instructions on applying for the Distinction in Research and Creative Work award from the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Program, at: https://biosciences.rice.edu/.

Research in the BioSciences
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology

Program Learning Outcomes for the BA Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology
Upon completing the BA degree with a major in Biosciences and a major concentration in Ecology and Evolutionary Biology, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of ecology and evolutionary biology.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

Requirements for the BA Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Biosciences and a major concentration in Ecology and Evolutionary Biology must complete:

- A minimum of 60 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 31 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Ecology and Evolutionary Biology. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  - Biochemistry (p. 348), or
  - Cell Biology and Genetics (p. 350), or
  - Ecology and Evolutionary Biology (p. 353), or
  - Integrative Biology (p. 356).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BA degree emphasizes broad foundational knowledge of biology with in-depth exposure to the subfield of ecology and evolutionary biology. Biosciences majors are strongly encouraged to pursue their research interests through independent research experiences. The BA degree program offers greater flexibility than the BS due to fewer required independent research courses as detailed below.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology</td>
<td>Minimum of 60</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology</td>
<td>120</td>
</tr>
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</table>

Degree Requirements

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
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</tbody>
</table>
Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I ¹</td>
<td>1</td>
</tr>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB) ²</td>
<td>4</td>
</tr>
<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES ³</td>
<td>4</td>
</tr>
</tbody>
</table>

**Core Lecture Courses**

- BIOS 201 INTRODUCTORY BIOLOGY I ³ 3
- BIOS 202 INTRODUCTORY BIOLOGY II ³ 3

**Elective Lecture Course**

Select 1 elective course from lecture courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above ⁴

**Major Concentration in Ecology and Evolutionary Biology**

**Core Requirements**

- Lecture Courses
  - BIOS 312 ADVANCED COMMUNICATION IN THE BIOLOGICAL SCIENCES ² 2
  - BIOS 332 ECOLOGY ³ 3
- BIOS 334 EVOLUTION ³ 3
- BIOS 338 ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA ³ 3

**Elective Lecture Courses in Ecology and Evolutionary Biology**

Select 3 courses from the following: ⁹

- BIOS 321 ANIMAL BEHAVIOR
- BIOS 326 INSECT BIOLOGY
- BIOS 329 ANIMAL DIVERSITY
- BIOS 336 PLANT DIVERSITY
- BIOS 373 CORAL REEF ECOSYSTEMS
- BIOS 391 TRANSFER CREDIT IN ECOLOGY AND EVOLUTIONARY BIOLOGY
- BIOS 423 CONSERVATION BIOLOGY
- BIOS 431 BIOLOGY OF INFECTIOUS DISEASES

**Elective Lecture Courses in Biochemistry and Cell Biology**

Select 2 courses from the following (or select 2 additional courses (6 credit hours) from the Elective Lecture Courses in Ecology and Evolutionary Biology, see course list above): ⁶

- BIOE 464 EXTRACELLULAR MATRIX
- BIOS 300 PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY
- BIOS 301 BIOCHEMISTRY I
- BIOS 302 BIOCHEMISTRY II
- BIOS 340 INTEGRATIVE ANIMAL PHYSIOLOGY
- BIOS 341 CELL BIOLOGY
- BIOS 344 MOLECULAR BIOLOGY AND GENETICS

**Elective Laboratory Course**

BIOS 213 INTRODUCTORY LAB IN ECOLOGY & EVOLUTION ² 2

**Elective Laboratory Courses in Ecology and Evolutionary Biology**

Select 2 courses from the following: ² ⁴

- BIOS 310 INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES ⁵
- BIOS 316 LAB MODULE IN ECOLOGY
- BIOS 317 LAB MODULE IN BEHAVIOR
- BIOS 319 TROPICAL FIELD BIOLOGY
- BIOS 320 ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY
- BIOS 322 CONSERVATION BIOLOGY LAB
- BIOS 327 BIOLOGICAL DIVERSITY
- BIOS 330 INSECT BIOLOGY LAB
- BIOS 337 FIELD BIRD BIOLOGY LAB
- BIOS 339 PLANT DIVERSITY LAB
- BIOS 393 LABORATORY TRANSFER CREDIT IN BIOSCIENCES

**Elective Laboratory Course in Biochemistry and Cell Biology**

Select 1 course from the following: ¹ ²

- BIOS 211 INTERMEDIATE EXPERIMENTAL BIOSCIENCES
The Capstone Requirement is in addition to the other lecture course requirements. The same course may not be used to satisfy more than one requirement for this major and/or major concentration.

Policies for the BA Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology

Advising

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Program Restrictions and Exclusions

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- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Ecology and Evolutionary Biology may not additionally declare the minor in Ecology and Evolutionary Biology.

Transfer Credit

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Opportunities for the BA Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology

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Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

Program Learning Outcomes for the BA Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

Upon completing the BA degree with a major in Biosciences and a major concentration in Integrative Biology, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of at least two of the following: biochemistry, cell biology and genetics, ecology and evolutionary biology.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

Requirements for the BA Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BA degree with a major in Biosciences and a major concentration in Integrative Biology must complete:

- A minimum of 61 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 23 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Integrative Biology. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  - Biochemistry (p. 348), or
  - Cell Biology and Genetics (p. 350), or
  - Ecology and Evolutionary Biology (p. 353), or
  - Integrative Biology (p. 356).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BA degree emphasizes broad foundational knowledge of biology with in depth exposure to the subfield of integrative biology. Biosciences majors are strongly encouraged to pursue their research interests through independent research experiences. The BA degree program offers greater flexibility than the BS due to fewer required independent research courses as detailed below.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<td>Total Credit Hours Required for the BA Degree with a Major in Biosciences and a Major Concentration in Integrative Biology</td>
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Degree Requirements

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<td>or MATH 105</td>
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<td>STAT 305</td>
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<td>or STAT 315 / DSCI 301</td>
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<td>Core Lecture Courses</td>
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<td>INTRODUCTORY BIOLOGY I</td>
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<td></td>
<td>Elective Lecture Course</td>
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Major Concentration in Integrative Biology

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<td>CHEM 124</td>
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<td>CHEM 211</td>
<td>ORGANIC CHEMISTRY I</td>
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<tr>
<td>&amp; CHEM 213</td>
<td>ORGANIC CHEMISTRY DISCUSSION</td>
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</table>
### BIOS 301 BIOCHEMISTRY I 3
### BIOS 332 ECOLOGY 3
### BIOS 334 EVOLUTION 3
### BIOS 341 CELL BIOLOGY 3

**Elective Lecture Course in Ecology and Evolutionary Biology**
Select 1 course from the following: 3
- BIOS 321 ANIMAL BEHAVIOR
- BIOS 326 INSECT BIOLOGY
- BIOS 329 ANIMAL DIVERSITY
- BIOS 336 PLANT DIVERSITY
- BIOS 338 ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
- BIOS 373 CORAL REEF ECOSYSTEMS
- BIOS 423 CONSERVATION BIOLOGY
- BIOS 431 BIOLOGY OF INFECTIOUS DISEASES

### BIOS 321 ANIMAL BEHAVIOR
### BIOS 326 INSECT BIOLOGY
### BIOS 329 ANIMAL DIVERSITY
### BIOS 336 PLANT DIVERSITY
### BIOS 338 ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
### BIOS 373 CORAL REEF ECOSYSTEMS
### BIOS 423 CONSERVATION BIOLOGY
### BIOS 431 BIOLOGY OF INFECTIOUS DISEASES

**Elective Lecture Course in Biochemistry and Cell Biology**
Select 1 course from the following: 3
- BIOE 302 SYSTEMS PHYSIOLOGY
- BIOE 464 EXTRACELLULAR MATRIX
- BIOS 300 PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY
- BIOS 302 BIOCHEMISTRY II
- BIOS 340 INTEGRATIVE ANIMAL PHYSIOLOGY
- BIOS 344 MOLECULAR BIOLOGY AND GENETICS
- BIOS 352 PHYSICAL CHEMISTRY FOR THE BIOSCIENCES
- BIOS 368 CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE
- BIOS 372 IMMUNOLOGY
- BIOS 385 FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE
- BIOS 390 TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY
- BIOS 405 PHYSICAL BIOLOGY
- BIOS 410 STEM CELL BIOLOGY
- BIOS 420 MOLECULAR BASIS OF DISEASES
- BIOS 424 MICROBIOLOGY AND BIOTECHNOLOGY
- BIOS 425 PLANT MOLECULAR GENETICS AND DEVELOPMENT
- BIOS 442 MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE
- BIOS 443 DEVELOPMENTAL NEUROBIOLOGY
- BIOS 447 EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
- BIOS 449 ADVANCED CELL AND MOLECULAR NEUROSCIENCE
- BIOS 450 VIRUSES AND INFECTIOUS DISEASES
- BIOS 460 CANCER BIOLOGY
- BIOS 470 COMPUTATION WITH BIOLOGICAL DATA
- BIOS 481 MOLECULAR BIOPHYSICS I
- BIOS 482 STRUCTURAL BIOLOGY

### NEUR 380 / PSYC 380 FUNDAMENTAL NEUROSCIENCE SYSTEMS

**Core Laboratory Courses**
- BIOS 211 INTERMEDIATE EXPERIMENTAL BIOSCIENCES 2
- BIOS 213 INTRODUCTORY LAB IN ECOLOGY & EVOLUTION 2

**Elective Laboratory Courses**
Select 2 courses from the following: 2-5
- BIOS 310 INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES 6
- BIOS 311 ADVANCED EXPERIMENTAL BIOSCIENCES
- BIOS 313 EXPERIMENTAL SYNTHETIC BIOLOGY
- BIOS 316 LAB MODULE IN ECOLOGY
- BIOS 317 LAB MODULE IN BEHAVIOR
- BIOS 318 MICROBIOLOGY LABORATORY
- BIOS 319 TROPICAL FIELD BIOLOGY
- BIOS 320 ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY
- BIOS 322 CONSERVATION BIOLOGY LAB
- BIOS 327 BIOLOGICAL DIVERSITY
- BIOS 330 INSECT BIOLOGY LAB
- BIOS 333 BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT
- BIOS 337 FIELD BIRD BIOLOGY LAB
- BIOS 339 PLANT DIVERSITY LAB
- BIOS 393 LABORATORY TRANSFER CREDIT IN BIOSCIENCES
- BIOS 415 EXPERIMENTAL PHYSIOLOGY
- BIOS 417 EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE

**Capstone Requirement**
Select 1 course from the following: 3
- BIOS 410 STEM CELL BIOLOGY
- BIOS 420 MOLECULAR BASIS OF DISEASES
- BIOS 423 CONSERVATION BIOLOGY
- BIOS 424 MICROBIOLOGY AND BIOTECHNOLOGY
- BIOS 425 PLANT MOLECULAR GENETICS AND DEVELOPMENT
- BIOS 431 BIOLOGY OF INFECTIOUS DISEASES
- BIOS 442 MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE
- BIOS 443 DEVELOPMENTAL NEUROBIOLOGY
- BIOS 447 EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
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- BIOS 450 VIRUSES AND INFECTIOUS DISEASES
- BIOS 460 CANCER BIOLOGY
- BIOS 470 COMPUTATION WITH BIOLOGICAL DATA
- BIOS 481 MOLECULAR BIOPHYSICS I
- BIOS 482 STRUCTURAL BIOLOGY
Total Credit Hours Required for the Major in Biosciences and Major Concentration in Integrative Biology: Minimum of 61

Total Credit Hours: 120

Additional Credit Hours to Complete Degree Requirements: * 28

University Graduation Requirements (p. 29): * 31

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Biosciences and a Major Concentration in Integrative Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Biosciences and a Major Concentration in Integrative Biology may not additionally pursue the BS Degree with a Major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Integrative Biology may not additionally declare the minor in Biochemistry and Cell Biology.
- Students pursuing the major in Biosciences and a major concentration in Integrative Biology may not additionally declare the minor in Ecology and Evolutionary Biology.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Opportunities for the BA Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors

Instructions on applying for the Distinction in Research and Creative Work award from the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Program, at: https://biosciences.rice.edu/.

Research in the BioSciences

Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information

For additional information, please see the BioSciences website: https://biosciences.rice.edu/
Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Program Learning Outcomes for the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Upon completing the BS degree with a major in Biosciences and a major concentration in Biochemistry, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of biochemistry.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science through original research, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

Requirements for the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Biosciences and a major concentration in Biochemistry must complete:

- A minimum of 70 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Biochemistry. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  - Biochemistry (p. 359), or
  - Cell Biology and Genetics (p. 361), or
  - Ecology and Evolutionary Biology (p. 364), or
  - Integrative Biology (p. 367).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BS degree emphasizes broad foundational knowledge of biology with in-depth exposure to the subfield of biochemistry that includes independent research.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's

Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

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<td>Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Biochemistry</td>
<td>Minimum of 70</td>
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<td>Total Credit Hours Required for the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry</td>
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Degree Requirements

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<td>Core Requirements</td>
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<td>Non-Biology Courses</td>
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<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
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<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
<td>4</td>
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<td>or STAT 315 or DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
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<td>Core Lecture Courses</td>
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<td>Select 1 elective course from lecture courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above</td>
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Major Concentration in Biochemistry

Core Requirements

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<td>BIOS 352</td>
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BIOE 464  EXTRACELLULAR MATRIX
BIOS 300  PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY
BIOS 334  EVOLUTION
BIOS 340  INTEGRATIVE ANIMAL PHYSIOLOGY
BIOS 341  CELL BIOLOGY
BIOS 344  MOLECULAR BIOLOGY AND GENETICS
BIOS 368  CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE
BIOS 372  IMMUNOLOGY
BIOS 385  FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE
BIOS 390  TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY
BIOS 405  PHYSICAL BIOLOGY
BIOS 410  STEM CELL BIOLOGY
BIOS 420  MOLECULAR BASIS OF DISEASES
BIOS 424  MICROBIOLOGY AND BIOTECHNOLOGY
BIOS 425  PLANT MOLECULAR GENETICS AND DEVELOPMENT
BIOS 447  EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
BIOS 449  ADVANCED CELL AND MOLECULAR NEUROSCIENCE
BIOS 450  VIRUSES AND INFECTIOUS DISEASES
BIOS 460  CANCER BIOLOGY
BIOS 470  COMPUTATION WITH BIOLOGICAL DATA
BIOS 481  MOLECULAR BIOPHYSICS I
BIOS 482  STRUCTURAL BIOLOGY

Core Laboratory Courses
BIOS 211  INTERMEDIATE EXPERIMENTAL BIOSCIENCES 2
BIOS 311  ADVANCED EXPERIMENTAL BIOSCIENCES 2

Elective Laboratory Course
Select 1 course from the following: 1-2
BIOE 342  LABORATORY IN TISSUE CULTURE
BIOS 313  EXPERIMENTAL SYNTHETIC BIOLOGY
BIOS 318  MICROBIOLOGY LABORATORY
BIOS 333  BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT
BIOS 393  LABORATORY TRANSFER CREDIT IN BIOSCIENCES
BIOS 415  EXPERIMENTAL PHYSIOLOGY

Independent Research
Select 1 from the following: 9-10
BIOS 310  INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES 7
BIOS 401  UNDERGRADUATE HONORS RESEARCH
& BIOS 402  UNDERGRADUATE HONORS RESEARCH

Capstone Requirement 8
Select 1 course from the following: 3

BIOS 405  PHYSICAL BIOLOGY
BIOS 420  MOLECULAR BASIS OF DISEASES
BIOS 424  MICROBIOLOGY AND BIOTECHNOLOGY
BIOS 425  PLANT MOLECULAR GENETICS AND DEVELOPMENT
BIOS 447  EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
BIOS 449  ADVANCED CELL AND MOLECULAR NEUROSCIENCE
BIOS 450  VIRUSES AND INFECTIOUS DISEASES
BIOS 460  CANCER BIOLOGY
BIOS 470  COMPUTATION WITH BIOLOGICAL DATA
BIOS 481  MOLECULAR BIOPHYSICS I
BIOS 482  STRUCTURAL BIOLOGY

Total Credit Hours Required for the Major in Biosciences and Major Concentration in Biochemistry
Minimum of 70
Additional Credit Hours to Complete Degree Requirements 2 19
University Graduation Requirements (p. 29) 3 31
Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.
1 CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113.
2 PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125.
3 STAT 280 may be substituted for STAT 305.
4 Students must select 1 elective course (3 credit hours) from courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above, designated as a lecture course. Courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering include the following subject codes: ASTR, BIOE, BIOS, CAAM, CEVE, CHBE, CHEM, COMP, DSCI, EEPS, ELEC, ENGI, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYH, RCEL, and STAT.
5 CHEM 152 may be substituted for CHEM 122 or CHEM 112; CHEM 154 may be substituted for CHEM 124 or CHEM 114.
6 PHYS 102 and PHYS 104 or PHYS 112 may be substituted for PHYS 126.
7 BIOS 310 must be taken for at least 3 credit hours per semester for a minimum of 3 semesters in order to fulfill the Independent Research.
8 The Capstone Requirement is in addition to the other lecture course requirements. The same course may not be used to satisfy more than one requirement for this major and/or major concentration.
Policies for the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Advising
Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of BioSciences can be found at the department website by clicking on the tab for Undergraduate Program: https://biosciences.rice.edu/.

Program Restrictions and Exclusions
Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry may not additionally pursue the BA Degree with a Major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Biochemistry may not additionally declare the minor in Biochemistry and Cell Biology.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Opportunities for the BS Degree with a Major in Biosciences and a Major Concentration in Biochemistry

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors
Instructions on applying for the Distinction in Research and Creative Work award from the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Program, at: https://biosciences.rice.edu/.

Research in the BioSciences
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

Program Learning Outcomes for the BS Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics
Upon completing the BS degree with a major in Biosciences and a major concentration in Cell Biology and Genetics, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of cell biology and genetics.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science through original research, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

Requirements for the BS Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Biosciences and a major concentration in Cell Biology and Genetics must complete:

- A minimum of 68 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 32 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
• The requirements for the major concentration in Cell Biology and Genetics. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  • Biochemistry (p. 359), or
  • Cell Biology and Genetics (p. 361), or
  • Ecology and Evolutionary Biology (p. 364), or
  • Integrative Biology (p. 367).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BS degree emphasizes broad foundational knowledge of biology with in-depth exposure to the subfield of cell biology and genetics that includes independent research.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions include independent research.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions include independent research.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 344</td>
<td>MOLECULAR BIOLOGY AND GENETICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 courses from the following:

- BIO 464 EXTRACELLULAR MATRIX
- BIOS 300 PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY
- BIOS 302 BIOCHEMISTRY II
- BIOS 334 EVOLUTION
- BIOS 340 INTEGRATIVE ANIMAL PHYSIOLOGY
- BIOS 352 PHYSICAL CHEMISTRY FOR THE BIOSCIENCES
- BIOS 368 CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE
- BIOS 372 IMMUNOLOGY
- BIOS 385 FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE
- BIOS 390 TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY
- BIOS 405 PHYSICAL BIOLOGY
- BIOS 410 STEM CELL BIOLOGY
- BIOS 420 MOLECULAR BASIS OF DISEASES
- BIOS 424 MICROBIOLOGY AND BIOTECHNOLOGY
- BIOS 425 PLANT MOLECULAR GENETICS AND DEVELOPMENT
- BIOS 431 BIOLOGY OF INFECTIOUS DISEASES
- BIOS 442 MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE
- BIOS 443 DEVELOPMENTAL NEUROBIOLOGY
- BIOS 447 EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
- BIOS 449 ADVANCED CELL AND MOLECULAR NEUROSCIENCE
- BIOS 450 VIRUSES AND INFECTIOUS DISEASES
- BIOS 460 CANCER BIOLOGY
- BIOS 470 COMPUTATION WITH BIOLOGICAL DATA
- NEUR 380 / PSYC 380 FUNDAMENTAL NEUROSCIENCE SYSTEMS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
</tr>
<tr>
<td>BIOS 202</td>
<td>INTRODUCTORY BIOLOGY II</td>
</tr>
</tbody>
</table>

Elective Lecture Course

- Select 1 elective course from lecture courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above
Core Laboratory Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 211</td>
<td>INTERMEDIATE EXPERIMENTAL BIOSCIENCES</td>
<td>2</td>
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</table>

Elective Laboratory Courses

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOE 342</td>
<td>LABORATORY IN TISSUE CULTURE</td>
<td>2</td>
</tr>
<tr>
<td>BIOS 311</td>
<td>ADVANCED EXPERIMENTAL BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 313</td>
<td>EXPERIMENTAL SYNTHETIC BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 318</td>
<td>MICROBIOLOGY LABORATORY</td>
<td></td>
</tr>
<tr>
<td>BIOS 333</td>
<td>BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>BIOS 393</td>
<td>LABORATORY TRANSFER CREDIT IN BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 415</td>
<td>EXPERIMENTAL PHYSIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 417</td>
<td>EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE</td>
<td></td>
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</table>

Independent Research

Select 1 from the following: 9-10

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 310</td>
<td>INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES</td>
<td>6</td>
</tr>
<tr>
<td>BIOS 401</td>
<td>UNDERGRADUATE HONORS RESEARCH AND UNDERGRADUATE HONORS RESEARCH</td>
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</table>

Capstone Requirement

Select 1 course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOS 410</td>
<td>STEM CELL BIOLOGY</td>
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</tr>
<tr>
<td>BIOS 420</td>
<td>MOLECULAR BASIS OF DISEASES</td>
<td></td>
</tr>
<tr>
<td>BIOS 424</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 425</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>BIOS 442</td>
<td>MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 443</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 447</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
<td></td>
</tr>
<tr>
<td>BIOS 449</td>
<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 450</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
<td></td>
</tr>
<tr>
<td>BIOS 460</td>
<td>CANCER BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 470</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the Major in Biosciences and Major Concentration in Cell Biology and Genetics 68

Additional Credit Hours to Complete Degree Requirements 21

University Graduation Requirements (p. 29) 31

Total Credit Hours 120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113.
2. PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125.
3. STAT 280 may be substituted for STAT 305.
4. Students must select 1 elective course (3 credit hours) from courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above, designated as a lecture course. Courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering include the following subject codes: ASTR, BIOE, BIOS, CAAM, CEVE, CHBE, CHEM, COMP, DSCI, EEPS, ELEC, ENGI, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYS, RCEL, and STAT.
5. CHEM 152 may be substituted for CHEM 122 or CHEM 112; CHEM 154 may be substituted for CHEM 124 or CHEM 114.
6. BIOS 310 must be taken for at least 3 credit hours per semester for a minimum of 3 semesters in order to fulfill the Independent Research.
7. The Capstone Requirement is in addition to the other lecture course requirements. The same course may not be used to satisfy more than one requirement for this major and/or major concentration.

Policies for the BS Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics

Advising

Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of BioSciences can be found at the department website by clicking on the tab for Undergraduate Program: https://biosciences.rice.edu/.

Program Restrictions and Exclusions

Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics may not additionally pursue the BA Degree with a Major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Cell Biology and Genetics may not additionally declare the minor in Biochemistry and Cell Biology.
**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the BioSciences website: https://biosciences.rice.edu/

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**Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology**

**Program Learning Outcomes for the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology**

Upon completing the BS degree with a major in Biosciences and a major concentration in Ecology and Evolutionary Biology, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of ecology and evolutionary biology.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science through original research, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

**Requirements for the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology**

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Biosciences and a major concentration in Ecology and Evolutionary Biology must complete:

- A minimum of 69 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 39 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Biochemistry. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  - Biochemistry (p. 359), or
  - Cell Biology and Genetics (p. 361), or
  - Ecology and Evolutionary Biology (p. 364), or
  - Integrative Biology (p. 367).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).
The BS degree emphasizes broad foundational knowledge of biology with in-depth exposure to the subfield of ecology and evolutionary biology that includes independent research.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology</td>
<td>120</td>
</tr>
</tbody>
</table>

### Degree Requirements

#### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
<td></td>
</tr>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
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<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
<td>4</td>
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<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
<td>4</td>
</tr>
<tr>
<td>or STAT 315 / DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
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</tbody>
</table>

### Elective Lecture Courses in Ecology and Evolutionary Biology

Select 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
</tr>
<tr>
<td>BIOS 326</td>
<td>INSECT BIOLOGY</td>
</tr>
<tr>
<td>BIOS 329</td>
<td>ANIMAL DIVERSITY</td>
</tr>
<tr>
<td>BIOS 336</td>
<td>PLANT DIVERSITY</td>
</tr>
<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
</tr>
<tr>
<td>BIOS 391</td>
<td>TRANSFER CREDIT IN ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
</tr>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
</tr>
<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
</tr>
</tbody>
</table>

### Elective Lecture Courses in Biochemistry and Cell Biology

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 464</td>
<td>EXTRACELLULAR MATRIX</td>
</tr>
<tr>
<td>BIOS 300</td>
<td>PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY</td>
</tr>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
</tr>
<tr>
<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
</tr>
<tr>
<td>BIOS 340</td>
<td>INTEGRATIVE ANIMAL PHYSIOLOGY</td>
</tr>
<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
</tr>
<tr>
<td>BIOS 344</td>
<td>MOLECULAR BIOLOGY AND GENETICS</td>
</tr>
<tr>
<td>BIOS 352</td>
<td>PHYSICAL CHEMISTRY FOR THE BIOSCIENCES</td>
</tr>
<tr>
<td>BIOS 368</td>
<td>CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE</td>
</tr>
<tr>
<td>BIOS 372</td>
<td>IMMUNOLOGY</td>
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<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
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<tr>
<td>BIOS 390</td>
<td>TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY</td>
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<tr>
<td>BIOS 410</td>
<td>STEM CELL BIOLOGY</td>
</tr>
<tr>
<td>BIOS 424</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
</tr>
<tr>
<td>BIOS 425</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
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<tr>
<td>BIOS 442</td>
<td>MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE</td>
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<tr>
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<td>DEVELOPMENTAL NEUROBIOLOGY</td>
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<td>BIOS 447</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
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<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
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<tr>
<td>BIOS 450</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
</tr>
<tr>
<td>BIOS 460</td>
<td>CANCER BIOLOGY</td>
</tr>
<tr>
<td>BIOS 470</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
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<tr>
<td>BIOS 481</td>
<td>MOLECULAR BIOPHYSICS I</td>
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<td>BIOS 482</td>
<td>STRUCTURAL BIOLOGY</td>
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<tr>
<td>NEUR 380 / PSYC 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
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</table>

### Major Concentration in Ecology and Evolutionary Biology

#### Core Laboratory Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BIOS 338</td>
<td>ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA</td>
</tr>
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</table>
**Elective Laboratory Course in Ecology and Evolutionary Biology**

Select 1 course from the following: 1-3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 316</td>
<td>LAB MODULE IN ECOLOGY</td>
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<tr>
<td>BIOS 317</td>
<td>LAB MODULE IN BEHAVIOR</td>
</tr>
<tr>
<td>BIOS 319</td>
<td>TROPICAL FIELD BIOLOGY</td>
</tr>
<tr>
<td>BIOS 320</td>
<td>ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY</td>
</tr>
<tr>
<td>BIOS 322</td>
<td>CONSERVATION BIOLOGY LAB</td>
</tr>
<tr>
<td>BIOS 327</td>
<td>BIOLOGICAL DIVERSITY</td>
</tr>
<tr>
<td>BIOS 330</td>
<td>INSECT BIOLOGY LAB</td>
</tr>
<tr>
<td>BIOS 337</td>
<td>FIELD BIRD BIOLOGY LAB</td>
</tr>
<tr>
<td>BIOS 339</td>
<td>PLANT DIVERSITY LAB</td>
</tr>
<tr>
<td>BIOS 393</td>
<td>LABORATORY TRANSFER CREDIT IN BIOSCIENCES</td>
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**Elective Laboratory Course in Biochemistry and Cell Biology**

Select 1 course from the following: 1-2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOS 211</td>
<td>INTERMEDIATE EXPERIMENTAL BIOSCIENCES</td>
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</table>

1 additional course (1-2 credit hours) from the Elective Laboratory Courses in Ecology and Evolutionary Biology (see course list above)

**Independent Research**

Select 1 from the following: 9-10

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 310</td>
<td>INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES</td>
</tr>
<tr>
<td>BIOS 401</td>
<td>UNDERGRADUATE HONORS RESEARCH &amp; UNDERGRADUATE HONORS RESEARCH</td>
</tr>
<tr>
<td>BIOS 402</td>
<td>UNDERGRADUATE HONORS RESEARCH</td>
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</table>

**Capstone Requirement**

Select 1 course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
</tr>
<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
</tr>
</tbody>
</table>

**Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology**

Minimum of 69

**Additional Credit Hours to Complete Degree Requirements**

* 20

**University Graduation Requirements (p. 29)**

31

**Total Credit Hours**

120

---

**Footnotes and Additional Information**

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113.
2. PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125.
3. STAT 280 may be substituted for STAT 305.
4. Students must select 1 elective course (3 credit hours) from courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above, designated as a lecture course. Courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering include the following subject codes: ASTR, BIOE, BIOS, CAAM, CEVE, CHBE, CHEM, COMP, DSCI, EEPS, ELEC, ENGI, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYS, RCEL, and STAT.
5. BIOS 310 must be taken for at least 3 credit hours per semester for a minimum of 3 semesters in order to fulfill the Independent Research.
6. The Capstone Requirement is in addition to the other lecture course requirements. The same course may not be used to satisfy more than one requirement for this major and/or major concentration.

---

**Policies for the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology**

**Advising**

Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of BioSciences can be found at the department website by clicking on the tab for Undergraduate Program: [https://biosciences.rice.edu](https://biosciences.rice.edu/).

**Program Restrictions and Exclusions**

Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology may not additionally pursue the BA Degree with a Major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Ecology and Evolutionary Biology may not additionally declare the minor in Ecology and Evolutionary Biology.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Opportunities for the BS Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors
Instructions on applying for the Distinction in Research and Creative Work award from the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Program, at: https://biosciences.rice.edu/.

Research in the BioSciences
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

Program Learning Outcomes for the BS Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

Upon completing the BS degree with a major in Biosciences and a major concentration in Integrative Biology, students will be able to:

1. Demonstrate a broad knowledge of core concepts in biology.
2. Demonstrate an advanced understanding of at least two of the following: biochemistry, cell biology and genetics, ecology and evolutionary biology.
3. Demonstrate the ability to access scientific literature in the biological sciences and to use critical thinking skills to evaluate primary and secondary sources of biological research.
4. Demonstrate the ability to apply the process of science through original research, including designing experiments and/or building mathematical models, and collecting, analyzing, and interpreting data.
5. Demonstrate effective oral, written, and visual communication skills, including communicating science to diverse audiences.

Requirements for the BS Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Biosciences and a major concentration in Integrative Biology must complete:

- A minimum of 69 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 31 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Biochemistry. When students declare the major (p. 17) in Biosciences, students must additionally identify and declare one of the four major concentrations, either in:
  - Biochemistry (p. 359), or
  - Cell Biology and Genetics (p. 361), or
  - Ecology and Evolutionary Biology (p. 364), or
  - Integrative Biology (p. 367).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BS degree emphasizes broad foundational knowledge of biology with in-depth exposure to two or more of the subfields of biochemistry, cell biology and genetics, or ecology and evolutionary biology.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY</td>
<td></td>
</tr>
<tr>
<td>CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the Major in Biosciences and a Major Concentration in Integrative Biology: 120

Total Credit Hours Required for the BS Degree with a Major in Biosciences and a Major Concentration in Integrative Biology: 120

Degree Requirements

Core Requirements

<table>
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<tr>
<th>Code</th>
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<tr>
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<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
<td>1</td>
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<td>CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB</td>
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Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

**Core Lecture Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 202</td>
<td>INTRODUCTORY BIOLOGY II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Lecture Course**  
Select 1 elective course from lecture courses offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering at the 200-level or above  

**Core Laboratory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 211</td>
<td>INTERMEDIATE EXPERIMENTAL BIOSCIENCES</td>
<td>2</td>
</tr>
<tr>
<td>BIOS 213</td>
<td>INTRODUCTORY LAB IN ECOLOGY &amp; EVOLUTION</td>
<td>2</td>
</tr>
</tbody>
</table>

**Elective Laboratory Course**  
Select 1 course from the following:

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<thead>
<tr>
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<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 311</td>
<td>ADVANCED EXPERIMENTAL BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 313</td>
<td>EXPERIMENTAL SYNTHETIC BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 316</td>
<td>LAB MODULE IN ECOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 317</td>
<td>LAB MODULE IN BEHAVIOR</td>
<td></td>
</tr>
<tr>
<td>BIOS 318</td>
<td>MICROBIOLOGY LABORATORY</td>
<td></td>
</tr>
<tr>
<td>BIOS 319</td>
<td>TROPICAL FIELD BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 320</td>
<td>ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY</td>
<td></td>
</tr>
<tr>
<td>BIOS 322</td>
<td>CONSERVATION BIOLOGY LAB</td>
<td></td>
</tr>
<tr>
<td>BIOS 327</td>
<td>BIOLOGICAL DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>BIOS 330</td>
<td>INSECT BIOLOGY LAB</td>
<td></td>
</tr>
<tr>
<td>BIOS 333</td>
<td>BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>BIOS 337</td>
<td>FIELD BIRD BIOLOGY LAB</td>
<td></td>
</tr>
<tr>
<td>BIOS 339</td>
<td>PLANT DIVERSITY LAB</td>
<td></td>
</tr>
<tr>
<td>BIOS 393</td>
<td>LABORATORY TRANSFER CREDIT IN BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 415</td>
<td>EXPERIMENTAL PHYSIOLOGY</td>
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</tr>
</tbody>
</table>

**Code**

**Title**

**Credit Hours**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 372</td>
<td>IMMUNOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 390</td>
<td>TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 405</td>
<td>PHYSICAL BIOLOGY</td>
<td></td>
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<tr>
<td>BIOS 410</td>
<td>STEM CELL BIOLOGY</td>
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<tr>
<td>BIOS 420</td>
<td>MOLECULAR BASIS OF DISEASES</td>
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<tr>
<td>BIOS 424</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 425</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>BIOS 442</td>
<td>MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 443</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
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</tr>
<tr>
<td>BIOS 447</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
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<tr>
<td>BIOS 449</td>
<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
<td></td>
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<tr>
<td>BIOS 450</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
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<tr>
<td>BIOS 460</td>
<td>CANCER BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 470</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
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<tr>
<td>BIOS 481</td>
<td>MOLECULAR BIOPHYSICS I</td>
<td></td>
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<td>BIOS 482</td>
<td>STRUCTURAL BIOLOGY</td>
<td></td>
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<tr>
<td>NEUR 380 / PSYC 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
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</table>

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<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
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<tr>
<td>BIOS 332</td>
<td>ECOLOGY</td>
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<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
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</tr>
<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Lecture Course in Ecology and Evolutionary Biology**  
Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
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</tr>
<tr>
<td>BIOS 326</td>
<td>INSECT BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 329</td>
<td>ANIMAL DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>BIOS 336</td>
<td>PLANT DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>BIOS 338</td>
<td>ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA</td>
<td></td>
</tr>
<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
<td></td>
</tr>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
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</tr>
</tbody>
</table>

**Elective Lecture Course in Biochemistry and Cell Biology**  
Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 302</td>
<td>SYSTEMS PHYSIOLOGY</td>
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</tr>
<tr>
<td>BIOE 464</td>
<td>EXTRACELLULAR MATRIX</td>
<td></td>
</tr>
<tr>
<td>BIOS 300</td>
<td>PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>BIOS 340</td>
<td>INTEGRATIVE ANIMAL PHYSIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 344</td>
<td>MOLECULAR BIOLOGY AND GENETICS</td>
<td></td>
</tr>
<tr>
<td>BIOS 352</td>
<td>PHYSICAL CHEMISTRY FOR THE BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 368</td>
<td>CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE</td>
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</tr>
</tbody>
</table>

**Major Concentration in Integrative Biology**

**Core Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MATH 101</td>
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<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td></td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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</tr>
<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
<td>4</td>
</tr>
<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
<td>4</td>
</tr>
<tr>
<td>or STAT 315 / DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td></td>
</tr>
</tbody>
</table>

**Non-Biology Courses**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 124</td>
<td>GENERAL CHEMISTRY LABORATORY II</td>
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</tr>
<tr>
<td>CHEM 211</td>
<td>ORGANIC CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>ORGANIC CHEMISTRY DISCUSSION</td>
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</tr>
</tbody>
</table>

**Lecture Courses**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
<td>3</td>
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<tr>
<td>BIOS 332</td>
<td>ECOLOGY</td>
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<td>EVOLUTION</td>
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<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
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Select 1 course from the following:

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</tr>
<tr>
<td>BIOS 330</td>
<td>INSECT BIOLOGY LAB</td>
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<tr>
<td>BIOS 333</td>
<td>BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT</td>
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<td>BIOS 339</td>
<td>PLANT DIVERSITY LAB</td>
<td></td>
</tr>
<tr>
<td>BIOS 393</td>
<td>LABORATORY TRANSFER CREDIT IN BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>BIOS 415</td>
<td>EXPERIMENTAL PHYSIOLOGY</td>
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2021-2022 General Announcements PDF Generated 09/22/21
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Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Integrative Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Biosciences and a Major Concentration in Integrative Biology may not additionally pursue the BA Degree with a major in Biosciences.
- Students pursuing the major in Biosciences may pursue only one major concentration within the major.
- Students pursuing the major in Biosciences and a major concentration in Integrative Biology may not additionally declare the minor in Biochemistry and Cell Biology.
- Students pursuing the major in Biosciences and a major concentration in Integrative Biology may not additionally declare the minor in Ecology and Evolutionary Biology.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Biosciences should be aware of the following departmental transfer credit guidelines:
• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Opportunities for the BS Degree with a Major in Biosciences and a Major Concentration in Integrative Biology

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors
Instructions on applying for the Distinction in Research and Creative Work award from the Department of BioSciences can be found at the department website, by clicking on the link for Undergraduate Program, at: https://biosciences.rice.edu/.

Research in the BioSciences
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology

Program Learning Outcomes for the PhD Degree in the field of Biochemistry and Cell Biology
Upon completing the PhD degree in the field of Biochemistry and Cell Biology, students will be able to:

1. Develop a comprehensive knowledge of current and past research accomplishments and techniques in biochemistry and cell biology.
2. Demonstrate independent problem solving and critical thinking skills.
3. Demonstrate effective written, oral, and visual communication skills required to articulate scientific findings and significance via publications, seminars, and a thesis describing independent research.

Requirements for the PhD Degree in the field of Biochemistry and Cell Biology
For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD Degree in the field of Biochemistry and Cell Biology must complete the requirements as listed below.

Course Requirements
Most of the formal course studies will be completed in the first year of residence to allow the students to commence thesis research at the end of their second semester at Rice. During the first year, the BCB Graduate Advisory Committee will advise all graduate students. This committee will determine the formal course program to be taken during the first year in residence. Students are required to have training in biochemistry and cell biology; training in genetics and physical chemistry or biophysics is also beneficial. Students lacking formal training in biochemistry or cell biology are required to take the equivalent background courses during their first year.

The following Rice courses must be taken if students lack these prerequisites in their final undergraduate transcript:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

Summary
Total Credit Hours Required for the PhD Degree in the field of Biochemistry and Cell Biology
90

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 575</td>
<td>INTRODUCTION TO RESEARCH</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 581</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (required in all fall semesters of residency)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 582</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (required in all spring semesters of residency)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 583</td>
<td>MOLECULAR INTERACTIONS ¹</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 587</td>
<td>RESEARCH DESIGN, PROPOSAL WRITING, AND PROFESSIONAL DEVELOPMENT ¹</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 588</td>
<td>CELLULAR INTERACTIONS ¹</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 599</td>
<td>GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY (first semester, second year) ²</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 599</td>
<td>GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY (second semester, second year) ²</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 701</td>
<td>GRADUATE LAB RESEARCH I</td>
<td>2-4</td>
</tr>
<tr>
<td>BIOS 702</td>
<td>GRADUATE LAB RESEARCH II</td>
<td>2-4</td>
</tr>
</tbody>
</table>
Evaluation of Progress in Graduate Study
The BCB Graduate Advising Committee evaluates each student’s undergraduate record and recommends coursework based on the requirements. Thesis advisors may require additional courses.

At the end of each semester of the first year, the department chair, in consultation with the faculty, reviews student performance in the formal coursework. Students must maintain at least a B average (GPA ≥ 3.00), perform satisfactorily in BIOS 701/BIOS 702, and demonstrate outstanding motivation and potential for research. Thesis lab assignments are made based on student and faculty preferences following research rotations.

Evaluation after the first year includes:

- Ongoing review of research progress by the thesis advisor; satisfactory research progress will be indicated by a grade of “S” in BIOS 800 each semester.
- A yearly research progress assessment by the student’s Research Progress Review Committee.
- Presentation of research progress at least once a year in seminar format (BIOS 581/BIOS 582) starting in the fourth semester and continuing until submission of the thesis.
- Completion of a written and oral admission to candidacy examination before the start of the fifth semester.
- Defense of the PhD thesis research and text in a final public seminar presentation and oral examination attended by the student’s Thesis Committee.

Policies for the PhD Degree in the field of Biochemistry and Cell Biology
Biochemistry and Cell Biology Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Biochemistry and Cell Biology publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Biochemistry_Cell_Biology_Graduate_Handbook.pdf

Admission
Applicants for graduate study in the Biochemistry and Cell Biology Program must have:

- BA or BS degree in biochemistry, biology, chemistry, chemical engineering, physics, or some equivalent
- High levels of intellectual strength and motivation, as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations

Although the department offers an MS degree in Biochemistry and Cell Biology, the department admits students who intend to pursue the PhD program. For general university requirements, see Graduate Degrees (p. 57).

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Biochemistry and Cell Biology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/
Opportunities for the PhD Degree in the field of Biochemistry and Cell Biology

All full-time Biochemistry and Cell Biology graduate students receive funding and full tuition waivers as specified in their offer letters. Information about Student Resources, Attendance at Scientific Conferences, Internships, Graduate Students Awards, the Graduate Student Association, etc. can be found in the Biochemistry and Cell Biology Graduate Program Handbook online at the department website: 

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Ecology and Evolutionary Biology

Program Learning Outcomes for the PhD Degree in the field of Ecology and Evolutionary Biology

Upon completing the PhD degree in the field of Ecology and Evolutionary Biology, students will be able to:

1. Demonstrate an ability to understand and critically evaluate concepts, research accomplishments, and techniques in ecology and evolutionary biology.
2. Demonstrate independent problem solving and critical thinking skills by identifying novel research questions in ecology and evolutionary biology and synthesizing critical paths towards answering them.
3. Demonstrate technical proficiency in a range of ecology and evolutionary biology research methods.
4. Demonstrate the effective written communication skills required for scientific publications, grant proposal submissions, and a thesis describing independent research.
5. Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.

Requirements for the PhD Degree in the field of Ecology and Evolutionary Biology

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD Degree in the field of Ecology and Evolutionary Biology must complete the requirements as listed below.

Course Requirements

Most of the formal course studies will be completed in the first year of residence to allow the students to begin thesis research at the end of their second semester at Rice. Entering students will meet with their faculty advisor to form a course of study of the first year. Students should have completed coursework in ecology, evolution (or equivalent), mathematics (including calculus), and statistics prior to admission. Deficiencies in these subject areas should be made up during the first year of residence; some may be waived at the discretion of the EEB Graduate Advising Committee and the EEB Graduate Program Director.

The following Rice courses must be taken if students lack coursework in ecology or evolution in their final undergraduate transcript:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 332</td>
<td>ECOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
<td>3</td>
</tr>
</tbody>
</table>

Summary

Total Credit Hours Required for the PhD Degree in the field of Ecology and Evolutionary Biology

90

Degree Requirements

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 569</td>
<td>CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY (course repeatable for credit)</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 584</td>
<td>GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY (required in all years of residency, fall semester)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 586</td>
<td>GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY (required in all years of residency, spring semester)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 591</td>
<td>GRADUATE TEACHING IN ECOLOGY AND EVOLUTIONARY BIOLOGY (two semesters)</td>
<td>3 credit hours per semester</td>
</tr>
<tr>
<td>BIOS 801</td>
<td>ECOLOGY &amp; EVOLUTIONARY BIOLOGY GRADUATE RESEARCH</td>
<td>1-15</td>
</tr>
</tbody>
</table>

Select 2 courses from the following (2 semesters of any combination of BIOS “Topics” courses): 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 561</td>
<td>TOPICS IN EVOLUTION (FALL)</td>
</tr>
<tr>
<td>BIOS 562</td>
<td>TOPICS IN EVOLUTION (SPRING)</td>
</tr>
<tr>
<td>BIOS 563</td>
<td>TOPICS IN ECOLOGY (FALL)</td>
</tr>
<tr>
<td>BIOS 568</td>
<td>TOPICS IN ECOLOGY (SPRING)</td>
</tr>
</tbody>
</table>

Thesis Requirement

Completion and public defense of a thesis embodying the results of an original investigation

Additional Coursework as Approved by Department

Total Credit Hours

Minimum of 90

Footnotes and Additional Information

1. Students must complete 2 semesters of BIOS 591 during their first 4 semesters to gain teaching experience; additional teaching experiences are available on an optional basis.
2. BIOS 801 Ecology & Evolutionary Biology Graduate Research credit hours vary depending on the number of other courses the student is taking in a given semester.
university requirements, see

intend to pursue the PhD admitted to the graduate program. For general

offers MS degrees, only on rare occasions are students who do not

who have majored in areas other than biology. Although the program

These requirements do not preclude admission of qualified applicants

the PhD degree in Ecology and Evolutionary Biology requires:

• Passing the qualifying examination given by the thesis committee. (The committee will be composed of at least three members. Two, including the committee chair, must be members of the student’s department faculty; in doctoral thesis committees one member must have their primary appointment in another department within the university.)

• Completing an original investigation and a doctoral thesis with at least three chapters with the potential to produce publications in reputable, peer-reviewed scientific journals.

• Presenting a departmental seminar on the research.

• Publicly defending the doctoral thesis.

PhD Degree Program
In addition to the general university requirements and those listed above, the PhD degree in Ecology and Evolutionary Biology requires:

• Presents a public seminar on their research at the annual EEB Graduate Student Symposium

• Prepares a written report on their progress

First-year students must also participate in a meeting with the EEB Graduate Advising Committee.

Opportunities for the PhD Degree in the field of Ecology and Evolutionary Biology
All full-time Ecology and Evolutionary Biology graduate students receive funding and full tuition waivers as specified in their offer letters. Information about Student Resources, Attendance at Scientific Conferences, Internships, Graduate Students Awards, the Graduate Student Association, etc. can be found in the Ecology and Evolutionary Biology Graduate Program handbook online at the department website: http://gradhandbooks.rice.edu/2018_19/ Ecology_Evolutionary_Biology_Graduate_Handbook.pdf

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Master of Science (MS) Degree in the field of Biochemistry and Cell Biology
Program Learning Outcomes for the MS Degree in the field of Biochemistry and Cell Biology
Upon completing the MS degree in the field of Biochemistry and Cell Biology, students will be able to:

1. Develop a knowledge of past and current research accomplishments and techniques in biochemistry and cell biology.

2. Demonstrate problem solving and critical thinking skills.

3. Demonstrate effective written, oral, and visual communication skills required to articulate scientific findings and significance via publications, seminars, and a thesis describing independent research.

Requirements for the MS Degree in the field of Biochemistry and Cell Biology
Course Requirements
The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Most of the formal course studies will be completed in the first year of residence to allow the
students to commence thesis research at the end of their second semester at Rice. During the first year, the BCB Graduate Advisory Committee will advise all graduate students. This committee will determine the formal course program to be taken during the first year in residence. Students are required to have training in biochemistry and cell biology; training in genetics and physical chemistry or biophysics is also beneficial. Students lacking formal training in biochemistry or cell biology are required to take the equivalent background courses during their first year.

The following Rice courses must be taken if students lack these prerequisites in their final undergraduate transcript:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MS Degree in the field of Biochemistry and Cell Biology</td>
<td>30</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 575</td>
<td>INTRODUCTION TO RESEARCH</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 581</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (required in all semesters of residency, fall semester)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 582</td>
<td>GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY (required in all semesters of residency, spring semester)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 583</td>
<td>MOLECULAR INTERACTIONS</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 587</td>
<td>RESEARCH DESIGN, PROPOSAL WRITING, AND PROFESSIONAL DEVELOPMENT</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 588</td>
<td>CELLULAR INTERACTIONS</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 599</td>
<td>GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY (first semester, second year)</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 599</td>
<td>GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY (second semester, second year)</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 701</td>
<td>GRADUATE LAB RESEARCH I</td>
<td>2-4</td>
</tr>
<tr>
<td>BIOS 702</td>
<td>GRADUATE LAB RESEARCH II</td>
<td>2-4</td>
</tr>
<tr>
<td>BIOS 800</td>
<td>BIOCHEMISTRY &amp; CELL BIOLOGY GRADUATE RESEARCH</td>
<td>1-15</td>
</tr>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td>1</td>
</tr>
</tbody>
</table>

Elective Requirements

Select at least 6 credit hours from the set of 500-level advanced BIOS electives listed below (or select other coursework at the 500-level with departmental approval):

| BIOS 505 | PHYSICAL BIOLOGY                           |
| BIOS 510 | STEM CELL BIOLOGY                          |
| BIOS 520 | MOLECULAR BASIS OF DISEASES                |
| BIOS 524 | MICROBIOLOGY AND BIOTECHNOLOGY             |
| BIOS 525 | PLANT MOLECULAR GENETICS AND DEVELOPMENT    |
| BIOS 530 | LAB MODULE IN NMR SPECTROSCOPY AND MOLECULAR MODELING |
| BIOS 535 | PRACTICAL X-RAY CRYSTALLOGRAPHY             |
| BIOS 538 | ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA |
| BIOS 543 | DEVELOPMENTAL NEUROBIOLOGY                 |
| BIOS 547 | EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE |
| BIOS 550 | VIRUSES AND INFECTIOUS DISEASE              |
| BIOS 551 | MOLECULAR BIOPHYSICS                        |
| BIOS 552 | STRUCTURAL BIOLOGY                          |
| BIOS 560 | CANCER BIOLOGY                              |
| BIOS 570 | COMPUTATION WITH BIOLOGICAL DATA            |

Thesis Requirement

Completion and public defense of a thesis

Additional Coursework as Approved by Department

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Minimum of</th>
<th>30</th>
</tr>
</thead>
</table>

Footnotes and Additional Information

1. Students generally complete BIOS 583, BIOS 587, and BIOS 588 in their first year and will be responsible for the content of these courses in their master’s thesis defense.

2. Students gain teaching experience by serving as discussion leaders and graders in two undergraduate courses during their second year (BIOS 599); additional teaching experiences are available on an individual basis.

3. Students are required to enroll in at least 9 hours of BIOS 800 during all semesters of residency after the first 2 semesters.

Evaluation of Progress in Graduate Study

The BCB Graduate Advising Committee evaluates each student’s undergraduate record and recommends coursework based on the requirements. Thesis advisors may require additional courses.

At the end of each semester, the department chair, in consultation with the faculty, reviews student performance in the formal coursework. MS candidates must maintain a GPA ≥ 2.67, complete a thesis, and successfully complete a public oral defense of their research work to their Thesis Committee and other interested parties.

Evaluation after the first year includes:

- The research progress review examination held during the MS student’s second year replaces the admission to candidacy examination; no other preliminary examination is required before the final oral defense of the master’s thesis; satisfactory research progress will be indicated by a grade of "S" in BIOS 800 each semester.
- Presentation of research progress at least once a year in seminar format (BIOS 581/BIOS 582) starting in the fourth semester and continuing until submission of the thesis.
- Defense of the MS thesis research and text in a final public seminar presentation and oral examination attended by the student’s Thesis Committee.
Policies for the MS Degree in the field of Biochemistry and Cell Biology

Biochemistry and Cell Biology Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Biochemistry and Cell Biology publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Biochemistry_Cell_Biology_Graduate_Handbook.pdf

Admission

Applicants for graduate study in the Biochemistry and Cell Biology Program must have:

- BA or BS degree in biochemistry, biology, chemistry, chemical engineering, physics, or some equivalent
- High levels of intellectual strength and motivation, as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations

Although the department offers an MS degree in biochemistry and cell biology, the department admits students who intend to pursue the PhD program. For general university requirements, see Graduate Degrees (p. 57).

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Biochemistry and Cell Biology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Opportunities for the MS Degree in the field of Biochemistry and Cell Biology

All full-time Biochemistry and Cell Biology graduate students receive funding and full tuition waivers as specified in their offer letters. Information about Student Resources, Attendance at Scientific Conferences, Internships, Graduate Students Awards, the Graduate Student Association, etc. can be found in the Biochemistry and Cell Biology Graduate Program Handbook online at the department website: http://gradhandbooks.rice.edu/2018_19/Biochemistry_Cell_Biology_Graduate_Handbook.pdf

Additional Information

For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Master of Science (MS) Degree in the field of Ecology and Evolutionary Biology

Program Learning Outcomes for the MS Degree in the field of Ecology and Evolutionary Biology

Upon completing the MS degree in the field of Ecology and Evolutionary Biology, students will be able to:

1. Demonstrate an ability to understand and critically evaluate concepts, research accomplishments, and techniques in ecology and evolutionary biology.
2. Demonstrate independent problem solving and critical thinking skills by identifying novel research questions in ecology and evolutionary biology and synthesizing critical paths towards answering them.
3. Demonstrate technical proficiency in a range of ecology and evolutionary biology research methods.
4. Demonstrate the effective written communication skills required for scientific publications, grant proposal submissions, and a thesis describing independent research.
5. Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.

Requirements for the MS Degree in the field of Ecology and Evolutionary Biology

Course Requirements

The MS degree is a thesis master's degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Most of the formal course studies will be completed in the first year of residence to allow the students to begin thesis research at the end of their second semester at Rice. Entering students will meet with their faculty advisor to form a course of study of the first year. Students should have completed coursework in ecology, evolution (or equivalent), mathematics (including calculus), and statistics prior to admission. Deficiencies in these subject areas should be made up during the first year of residence; some may be waived at the discretion of the EEB Graduate Advising Committee and the EEB Graduate Program Director.

The following Rice courses must be taken if students lack coursework in ecology or evolution in their final undergraduate transcript:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 332</td>
<td>ECOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
<td>3</td>
</tr>
</tbody>
</table>

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
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<td>Credit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hours</td>
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</table>

Total Credit Hours Required for the MS Degree in the field of Ecology and Evolutionary Biology 30
Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 569</td>
<td>CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 584</td>
<td>GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY (required in all years of residency, fall semester)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 586</td>
<td>GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY (required in all years of residency, spring semester)</td>
<td>1 credit hour per year</td>
</tr>
<tr>
<td>BIOS 591</td>
<td>GRADUATE TEACHING IN ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
<td>3 credit hours per semester</td>
</tr>
<tr>
<td>BIOS 801</td>
<td>ECOLOGY &amp; EVOLUTIONARY BIOLOGY GRADUATE RESEARCH</td>
<td>1-15</td>
</tr>
</tbody>
</table>

Select a minimum of 2 courses from the following (2 semesters of any combination of BIOS "Topics" courses): 2

- BIOS 561 TOPICS IN EVOLUTION (FALL)
- BIOS 562 TOPICS IN EVOLUTION (SPRING)
- BIOS 563 TOPICS IN ECOLOGY (FALL)
- BIOS 568 TOPICS IN ECOLOGY (SPRING)

Thesis Requirement

Completion and public defense of a thesis embodying the results of an original investigation

Additional Coursework as Approved by Department

Total Credit Hours

Minimum of 30

Footnotes and Additional Information

1 Students must complete 2 semesters of BIOS 591 during their first 4 semesters to gain teaching experience; additional teaching experiences are available on an optional basis.

2 A minimum of 10 credit hours of BIOS 801 Ecology & Evolutionary Biology Graduate Research is required for a master’s degree. BIOS 801 credit hours vary per student, depending on the number of other courses the student is taking in a given semester.

3 At least 2 topics courses must be completed before candidacy. Students are strongly encouraged to take at least 1 topics course per semester during all years of residency.

Evaluation of Progress in Graduate Study

Students must maintain a minimum grade average of B (3.00 grade points) in courses taken in the department and satisfactory grades in courses taken outside the department. Students must demonstrate satisfactory progress in their degree program in annual reviews by the EEB faculty. The review process requires that each student:

- Presents a public seminar on their research at the annual EEB Graduate Student Symposium
- Prepares a written report on their progress

First-year students must also participate in a meeting with the EEB Graduate Advising Committee.

MS Degree Program

In addition to the general university requirements and those listed above, the MS degree in Ecology and Evolutionary Biology requires:

- Convening a master’s thesis committee. A thesis committee is composed of at least three members. Two, including the committee chair, must be members of the student’s department faculty.
- Completing an original investigation and a master’s thesis.
- Presenting a departmental seminar on the research.
- Publicly defending the master’s thesis.

Policies for the MS Degree in the field of Ecology and Evolutionary Biology

Ecology and Evolutionary Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Ecology and Evolutionary Biology publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Ecology_Evolutionary_Biology_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Ecology_Evolutionary_Biology_Graduate_Handbook.pdf)

Admission

Applicants for graduate study in the Ecology and Evolutionary Biology Program must have:

- BA or BS degree or equivalent that provides a strong background in biology
- Strong ability and motivation, as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations
- Scores from the GRE biology subject exam are optional but can be helpful, particularly for students with nontraditional backgrounds in biology

These requirements do not preclude admission of qualified applicants who have majored in areas other than biology. Although the program offers MS degrees, only on rare occasions are students who do not intend to pursue the PhD admitted to the graduate program. For general university requirements, see Graduate Degrees (p. 57).

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Ecology and Evolutionary Biology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the BioSciences website: [https://biosciences.rice.edu/](https://biosciences.rice.edu/)
Opportunities for the MS Degree in the field of Ecology and Evolutionary Biology

All full-time Ecology and Evolutionary Biology graduate students receive funding and full tuition waivers as specified in their offer letters. Information about Student Resources, Attendance at Scientific Conferences, Internships, Graduate Students Awards, the Graduate Student Association, etc. can be found in the Ecology and Evolutionary Biology Graduate Program handbook here: http://gradhandbooks.rice.edu/2018_19/Ecology_Evolutionary_Biology_Graduate_Handbook.pdf

Additional Information

For additional information, please see the BioSciences website: https://biosciences.rice.edu/

Minor in Biochemistry and Cell Biology

Program Learning Outcomes for the Minor in Biochemistry and Cell Biology

Upon completing the minor in Biochemistry and Cell Biology, students will be able to:

1. Demonstrate knowledge of biology with particular emphasis on biochemistry and cell biology.
2. Demonstrate effective oral and written communication skills, including the ability to interpret and communicate the results of biological research.
3. Demonstrate the critical thinking and analysis skills necessary to evaluate published and proposed research in the biological sciences.

Requirements for the Minor in Biochemistry and Cell Biology

Students pursuing the minor in Biochemistry and Cell Biology must complete:

- A minimum of 18 courses (minimum of 44 credit hours) to satisfy minor requirements.

The minor in Biochemistry and Cell Biology is intended for those with an interest in the life sciences but who may be majoring in other areas. This minor incorporates many of the life science core courses required for the health professions.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Biochemistry and Cell Biology</td>
<td>Minimum of 44</td>
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Minor Requirements

<table>
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<tr>
<td></td>
<td>Core Requirements 1</td>
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<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
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<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
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<td>PHYS 126</td>
<td>GENERAL PHYSICS II (WITH LAB)</td>
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<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
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<tr>
<td>or CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
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<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
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<td>or CHEM 113</td>
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<td>CHEM 122</td>
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<td>or CHEM 112</td>
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<td>or CHEM 114</td>
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<td>CHEM 211</td>
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<td>&amp; CHEM 213</td>
<td>and ORGANIC CHEMISTRY DISCUSSION</td>
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<td>CHEM 212</td>
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<tr>
<td>&amp; CHEM 214</td>
<td>and ORGANIC CHEM DISCUSSION II</td>
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<td>CHEM 215</td>
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<td>or CHEM 365</td>
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<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
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<tr>
<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
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<tr>
<td>BIOS 341</td>
<td>CELL BIOLOGY</td>
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<td>BIOS 211</td>
<td>INTERMEDIATE EXPERIMENTAL BIOSCIENCES</td>
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<td>Lecture Course Requirement</td>
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<td>Select 1 course from the following (or select 1 lecture course from BIOS course offerings at the 300-level or above) 2</td>
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<td>BIOS 300</td>
<td>PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY</td>
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<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
<td></td>
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<td>BIOS 334</td>
<td>EVOLUTION</td>
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<tr>
<td>BIOS 340</td>
<td>INTEGRATIVE ANIMAL PHYSIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 344</td>
<td>MOLECULAR BIOLOGY AND GENETICS</td>
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<tr>
<td>BIOS 352</td>
<td>PHYSICAL CHEMISTRY FOR THE BIOSCIENCES</td>
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<tr>
<td>BIOS 368</td>
<td>CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE</td>
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<tr>
<td>BIOS 372</td>
<td>IMMUNOLOGY</td>
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</tr>
<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td></td>
</tr>
</tbody>
</table>
may not additionally declare the minor in Biochemistry and Cell Biology.
• Students pursuing BA Degree or the BS Degree with a major in Biosciences and a major concentration in Integrative Biology may not additionally declare the minor in Ecology and Evolutionary Biology.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the minor in Biochemistry and Cell Biology should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/.

Opportunities for the Minor in Biochemistry and Cell Biology

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Research in the BioSciences
Research is highly encouraged for all biosciences majors, and there are many opportunities for independent research at Rice. Information about research for credit and research internships specific to the Department of BioSciences can be found at the department website, by clicking on the link for Research, at: https://biosciences.rice.edu/.

Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/.

Minor in Ecology and Evolutionary Biology

Program Learning Outcomes for the Minor in Ecology and Evolutionary Biology
Upon completing the minor in Ecology and Evolutionary Biology, students will be able to:

1. Demonstrate knowledge of biology with particular emphasis on ecology and evolutionary biology.

Footnotes and Additional Information
1 Permissible Substitutions: MATH 105 or MATH 111 and MATH 112 may be substituted for MATH 101; MATH 106 may be substituted for MATH 102; CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113; CHEM 152 may be substituted for CHEM 122 or CHEM 112, and CHEM 154 may be substituted for CHEM 124 or CHEM 114; CHEM 320 may be substituted for CHEM 212; PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125; PHYS 102 and PHYS 104 or PHYS 112 may be substituted for PHYS 126.

2 Lecture courses are noted in Rice's Course Catalog with a course type of "lecture". These courses do not include courses listed with a course type of "lecture/laboratory".

Policies for the Minor in Biochemistry and Cell Biology

Advising
Rice University policies are governed primarily by the General Announcements; students are encouraged to look there first for academic policies. Advising information specific to the Department of BioSciences can be found at the department website by clicking on the tab for Undergraduate Program: https://biosciences.rice.edu/.

Program Restrictions and Exclusions
Students pursuing the minor in Biochemistry and Cell Biology should be aware of the following program restrictions:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

• Students pursuing the BA Degree or the BS Degree with a major in Biosciences and a major concentration in Biochemistry may not additionally declare the minor in Biochemistry and Cell Biology.

• Students pursuing BA Degree or the BS Degree with a major in Biosciences and a major concentration in Cell Biology and Genetics
2. Demonstrate effective oral and written communication skills, including the ability to interpret and communicate the results of biological research.

3. Demonstrate the critical thinking and analysis skills necessary to evaluate published and proposed research in the biological sciences.

Requirements for the Minor in Ecology and Evolutionary Biology

Students pursuing the minor in Ecology and Evolutionary Biology must complete:

- A minimum of 7 courses (20 credit hours) to satisfy minor requirements.
- A minimum of 4 courses (12 credit hours) taken at the 300-level or above.

The minor in Ecology and Evolutionary Biology is intended for the numerous Rice students with an avid interest in ecology and evolutionary biology but whose major interests are in other departments.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tr>
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<td>Total Credit Hours Required for the Minor in Ecology</td>
<td>20</td>
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<td>and Evolutionary Biology</td>
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Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 202</td>
<td>INTRODUCTORY BIOLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 213</td>
<td>INTRODUCTORY LAB IN ECOLOGY &amp; EVOLUTION</td>
<td>2</td>
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<tr>
<td></td>
<td>Elective Requirements</td>
<td></td>
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<tr>
<td></td>
<td>Select 4 courses from the following:</td>
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<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
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<tr>
<td>BIOS 326</td>
<td>INSECT BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 329</td>
<td>ANIMAL DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>BIOS 332</td>
<td>ECOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
<td></td>
</tr>
<tr>
<td>BIOS 336</td>
<td>PLANT DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>BIOS 340</td>
<td>INTEGRATIVE ANIMAL PHYSIOLOGY</td>
<td></td>
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<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
<td></td>
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<tr>
<td>BIOS 391</td>
<td>TRANSFER CREDIT IN ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
<td></td>
</tr>
</tbody>
</table>

Policies for the Minor in Ecology and Evolutionary Biology

Advising

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Program Restrictions and Exclusions

Students pursuing the minor in Ecology and Evolutionary Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.
- Students pursuing BA Degree or the BS Degree with a major in Biosciences and a major concentration in Ecology and Evolutionary Biology may not additionally declare the minor in Ecology and Evolutionary Biology.
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Transfer Credit

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Departmental Transfer Credit Guidelines

Students pursuing the minor in Ecology and Evolutionary Biology should be aware of the following departmental transfer credit guidelines:

- Request for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

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Opportunities for the Minor in Ecology and Evolutionary Biology

Academic Honors

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Additional Information
For additional information, please see the BioSciences website: https://biosciences.rice.edu/.

Bioscience and Health Policy
Contact Information
Bioscience and Health Policy
https://profms.rice.edu/
203 Keck Hall
713-348-3188

Edward P. Nikonowicz
Faculty Director
edn@rice.edu

Dagmar Beck
PSM Program Director
dkbeck@rice.edu

The professional master’s degree in Bioscience and Health Policy creates broad options for science students interested in working in biomedical research, health care professions, health care management, for the government, or in governmental relations positions at non-profit organizations, in industry, and in academic institutions. This interdisciplinary program equips students with advanced bioscience skills; teaches quantitative skills and data analysis; provides students with communication skills enabling them to understand and formulate public policy recommendations; and trains students how to integrate science knowledge into developing informed policies and practices.

The Bioscience and Health Policy program gives students an advanced background in bioscience complemented by courses in business, economics, humanities, and policy studies to foster their understanding of the role of science in policy making and the role of public policy in science. The coursework provides research and study skills enabling development of specific policy recommendations. Students will also receive the tool-set necessary to become knowledgeable in the formulation and execution of public policy. Direct access to the Baker Institute will allow students to work closely with policy scholars as well as meet with many of the leaders in science and technology policy.

The MS in Bioscience and Health Policy (MSBHP) degree is part of the professional science master’s (PSM) program at Rice housed in the Wiess School of Natural Sciences. These master’s degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communication skills. They instill a level of scholastic proficiency that exceeds that of the bachelor’s level, and create the cross-functional aptitudes needed in modern industry and government.

Students receiving the MSBHP degree will be able to enter into governmental positions; work in non-governmental agencies, insurance, medical and pharmaceutical companies; serve as governmental relations officers for companies or universities with a vested science interest; or enter into post-graduate training in health care professions or biosciences.

A coordinated MBA/MSBHP degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Bioscience and Health Policy does not currently offer an academic program at the undergraduate level.

Master’s Program
- Master of Science in Bioscience and Health Policy (MSBHP) Degree (p. 381)

Coordinated Program
- Master of Science in Bioscience and Health Policy (MSBHP) Degree / Master of Business Administration (MBA) Degree (p. 383)

Director
Edward P. Nikonowicz

Advising Committee
Janet Braam
Mary Susan Cates
Kathleen Shive Matthews
Kirstin R. W. Matthews
Daniel S. Wagner

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: Courses from various subjects may apply towards this program

Department Description and Code
- Biosciences: BIOS

Graduate Degree Descriptions and Codes
- Master of Science in Bioscience and Health Policy degree: MSBHP

Graduate Degree Program Description and Code
- Degree Program in Bioscience and Health Policy: BSHP

CIP Code and Description
- BSHP Major/Program: CIP Code/Title: 30.0601 - Systems Science and Theory
Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Science in Bioscience and Health Policy (MSBHP) Degree

Program Learning Outcomes for the MSBHP Degree

Upon completing the MSBHP degree, students will be able to:

1. Become knowledgeable in current advanced bioscience and health policy topics affecting society.
2. Integrate science knowledge into policies and practices.
3. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.

Requirements for the MSBHP Degree

The MSBHP degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MSBHP degree must complete:

- A minimum of 14 courses (minimum of 39-40 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 382) tab.
- A 3-6 month internship. Instead of a thesis, at the conclusion of their internship, students must present their internship project in both a written report and an oral presentation. The internship may be required to work effectively across science, business, and government.

Note: Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

Total Credit Hours Required for the MSBHP Degree 39-40

Degree Requirements

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<thead>
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<td>BIOS 520</td>
<td>MOLECULAR BASIS OF DISEASES</td>
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<td>BIOS 523</td>
<td>CONSERVATION BIOLOGY</td>
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<td>BIOS 524</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
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<td>BIOS 525</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
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<td>BIOS 534</td>
<td>EVOLUTION</td>
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<td>BIOS 543</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
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<td>BIOS 547</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
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<td>BIOS 549</td>
<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
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<tr>
<td>BIOS 550</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
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<tr>
<td>BIOS 560</td>
<td>CANCER BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 570</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 572</td>
<td>IMMUNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 585</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td>3</td>
</tr>
</tbody>
</table>

Core Science Courses

Select 4 courses (12 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 520</td>
<td>MOLECULAR BASIS OF DISEASE</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 523</td>
<td>CONSERVATION BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 524</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 525</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
<td>3</td>
</tr>
</tbody>
</table>

Cohort Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER’S SEMINAR (2 semesters required, 1st semester)</td>
<td>1</td>
</tr>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER’S SEMINAR (2 semesters required, 2nd semester)</td>
<td>1</td>
</tr>
<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
<td>3</td>
</tr>
<tr>
<td>NSCI 512</td>
<td>PROFESSIONAL MASTER’S PROJECT</td>
<td>1</td>
</tr>
<tr>
<td>NSCI 610 / ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
<td>3</td>
</tr>
</tbody>
</table>

Analytical Competency Requirement

A. Statistics or Data Analytics - Select 1 course (3-4 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 552 / SSPB 502</td>
<td>INTRO COMPUTATIONAL SYSTEMS BIOLOGY, MODELING &amp; DESIGN PRINCIPLES OF BIOCHEM NETWORKS</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 538</td>
<td>ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA</td>
<td>3</td>
</tr>
<tr>
<td>DSCI 535 / COMP 549</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 586</td>
<td>DATA SCIENCE METHODS AND DATA MANAGEMENT</td>
<td>3</td>
</tr>
<tr>
<td>STAT 553</td>
<td>BIOSTATISTICS</td>
<td>3</td>
</tr>
<tr>
<td>STAT 605</td>
<td>R FOR DATA SCIENCE</td>
<td>3</td>
</tr>
</tbody>
</table>
### Elective Requirements

Select a minimum of 2 courses (minimum of 6 credit hours) from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
</tr>
<tr>
<td>ENGI 529 / CEVE 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
</tr>
<tr>
<td>ENGI 614</td>
<td>LEARNING HOW TO INNOVATE?</td>
</tr>
<tr>
<td>ENGI 615</td>
<td>LEADERSHIP COACHING FOR ENGINEERS</td>
</tr>
<tr>
<td>HEAL 507</td>
<td>EPIDEMIOLOGY</td>
</tr>
<tr>
<td>HEAL 560</td>
<td>PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION</td>
</tr>
<tr>
<td>MGMT 623</td>
<td>EARLY DEVELOPMENT AND ENTREPRENEURSHIP IN A BIOTECH/ MEDTECH STARTUP</td>
</tr>
<tr>
<td>MGMT 633 / BIOE 633</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS</td>
</tr>
<tr>
<td>MGMT 712</td>
<td>PROCESS MANAGEMENT AND QUALITY IMPROVEMENT</td>
</tr>
<tr>
<td>MGMT 721</td>
<td>BUSINESS LAW</td>
</tr>
<tr>
<td>MGMT 744</td>
<td>SERVICES OPERATIONS</td>
</tr>
<tr>
<td>MGMT 778</td>
<td>CUSTOMER EXPERIENCE MANAGEMENT</td>
</tr>
<tr>
<td>MGMT 793</td>
<td>CREATING THE DATA DRIVEN BUSINESS</td>
</tr>
<tr>
<td>MGMT 799</td>
<td>HEALTHCARE INNOVATION AND ENTREPRENEURSHIP</td>
</tr>
<tr>
<td>NSCI 515</td>
<td>FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. Note: Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student’s background or interest, course substitutions for any required or elective course may be approved by the program’s academic advisor. Students should consult with their academic advisors before enrolling. For example, students can choose up to two electives from the UT Graduate School of Biomedical Science (GS), Informatics (HI), and/or Health Science Center (PH). See department for more details.

2. PH 3910 is a course offered at the UTHealth School of Public Health and available to Rice students as part of an existing inter-institutional agreement between our two institutions. Once received as approved transfer credit, PH 3910 is eligible to be approved to meet the 3 credit hour requirement for Group B, Finance and Economics. Students are not permitted to take this inter-institutional course in their last semester at Rice.

3. Practical experience is offered via a three to six month immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form for the cohort course Professional Master’s Project (NSCI 512). Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer.

### Policies for the MSBHP Degree

#### Professional Science Master’s Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Professional Science Master’s Program publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf)

#### Admission

Admission to graduate study in Bioscience and Health Policy is open to qualified students holding a bachelor’s degree in biology or a related field. Preparation in biology, chemistry, calculus and statistics is preferred. Scores from the general Graduate Record Examination (GRE) are required. Department faculty evaluate the previous academic record and credentials of each applicant individually and make admission decisions.

The Bioscience and Health Policy Professional Master’s Program has distinct focus areas for students with primary interests in policy careers, biomedical and health care related positions, or additional post-graduate training or education after degree conferral.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the MSBHP degree should be aware of the following program-specific transfer credit guidelines:
• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Bioscience and Health Policy website: https://profms.rice.edu/bioscience-health-policy/overview/

Opportunities for the MSBHP Degree
Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science may have the option to pursue the Master of Science in Bioscience and Health Policy (MSBHP) degree. For additional information, students should contact their undergraduate major advisor, the faculty MSBHP program director, and the Professional Science Master’s (PSM) program director.

Additional Information
For additional information, please see the Bioscience and Health Policy website: https://profms.rice.edu/bioscience-health-policy/overview/

Master of Science in Bioscience and Health Policy (MSBHP) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MSBHP Degree
Upon completing the MSBHP degree, students will be able to:

1. Become knowledgeable in current advanced bioscience and health policy topics affecting society.
2. Integrate science knowledge into policies and practices.
3. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MSBHP/MBA Coordinated Degrees Program
Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master’s (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSSpS)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) program, students must complete:

• A minimum of 75 credit hours in approved coursework, including:
  • A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master’s (PSM) degree requirements
  • A minimum of 30 credit hours in the corresponding science discipline
  • All PSM degree-specific requirements
  • A three to six month internship
  • A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
• A minimum of 45 credit hours of business coursework
• All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Wiess School of Natural Sciences PSM program director and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master’s (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Total Credit Hours Required for the Coordinated Master of Science Degree</th>
<th>Minimum of 30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

### Coordinated MSBHP Degree Requirements

Students in the coordinated MBA/MSBHP degrees program must complete the Core Requirements and Three to Six Month Internship of the MSBHP degree program (p. 381) and Coordinated MSBHP Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSBHP Core Requirements</td>
<td>33-34</td>
</tr>
<tr>
<td></td>
<td>MSBHP Three to Six Month Internship</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MSBHP Elective Requirements</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>39-40</td>
</tr>
</tbody>
</table>

### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
</tbody>
</table>

### Coordinated MBA Elective Requirements

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>45</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1 To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Policies for the MSBHP/MBA Coordinated Degrees Program

#### Additional Information

For additional information on these two degrees:

1. Please see the Bioscience and Health Policy website: [https://profms.rice.edu/](https://profms.rice.edu/)
2. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

### Opportunities for the MSBHP/MBA Coordinated Degrees Program

#### Additional Information

For additional information on these two degrees:

1. Please see the Bioscience and Health Policy website: [https://profms.rice.edu/](https://profms.rice.edu/)
2. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

### Business

#### Contact Information

Business
[https://business.rice.edu/](https://business.rice.edu/)
McNair Hall
713-348-4622

Peter Rodriguez
Dean
peter.l.rodriguez@rice.edu
pursue rigorous and interdisciplinary study in the field of innovation and entrepreneurship, enabling students to understand the theory and frameworks behind different disciplinary aspects of entrepreneurship and how to apply these theories to develop and scale innovative solutions to societal problems. The minor is administered by the Liu Idea Lab for Innovation and Entrepreneurship (Lilie).

Master of Accounting (MAcc) Degree

The Master of Accounting degree is designed to enable students with a top-tier non-accounting undergraduate education to complete the educational requirements for becoming a certified public accountant. Program requirements and additional information regarding the Master of Accounting program may be found here (p. 108).

Master of Business Administration (MBA) Early Admit

The Jones Graduate School of Business offers a deferred enrollment, called the Rice MBA Early Admit program, intended for future leaders in business, government, and non-profit endeavors who are currently undergraduates. This program allows students to apply to the Rice Business Full-Time MBA during their final year of college and reserve their spot two to five years after graduation. Eligible students must be employed during the interim years to hold onto their space. Students are encouraged to explore all sorts of career options - from traditional companies to start-ups - to help develop their professional and leadership skills during the required pre-MBA work.

Master of Business Administration (MBA) Degree Programs

The MBA degree can be obtained via the Full-Time MBA program, the MBA for Executives program, the MBA for Professionals program, or the MBA@Rice hybrid online program. The Executive and Professional MBA programs and MBA@Rice are designed for executives and working professionals who do not wish to interrupt their careers while pursuing the MBA degree. The MBA for Professionals program has three formats: an evening format, an alternating weekend format, and an extended evening format.

A coordinated MBA/master of engineering program is offered by the Jones Graduate School of Business and the George R. Brown School of Engineering, in many of the departments of engineering. This program prepares students to become managers in organizations requiring specialized technical knowledge and general management skills. Students must apply separately and be accepted by both the business school and by the appropriate engineering department.

A coordinated MBA/master of science program is offered by the Jones Graduate School of Business and the Weiss School of Natural Sciences Professional Science Master's (PSM) Program. This program prepares students to become managers in organizations requiring specialized technical knowledge and general management skills. Students must apply separately and be accepted by both the business school and by the appropriate PSM program.

An MBA/MD dual degree program is offered by the Jones Graduate School of Business and Baylor College of Medicine. This program prepares students to become both physicians and managers in institutions involved in the delivery of high-quality health care, as well as biotechnology-focused industries, health insurance/managed health care firms, and pharmaceutical and medical supply and equipment companies.

Doctor of Philosophy (PhD) Degree in the field of Business

The Jesse H. Jones Graduate School of Business was established in 1974 through a gift from Houston Endowment, Inc. The Jones Graduate School of Business offers a major in business (BUSM), a minor in business (BUSI) and a minor in Entrepreneurship (ENTR) for undergraduate students, a master's degree in business administration (MBA) program for graduate students seeking to further their professional careers in business, a one-year master of accounting (MAcc) program, and a PhD program in business for graduate students seeking academic careers at research universities.

The Jones Graduate School of Business is accredited by the Association to Advance Collegiate Schools of Business (AACSB) to offer degrees in the fields of business.

Undergraduate Major in Business

The business major provides a robust foundation in the academic areas of business, including accounting, finance, marketing, organizational behavior, strategy and communications. To declare a major in business, students must also declare a major concentration in finance or management, which requires additional advanced courses. Both major concentrations provide the knowledge, research and analytical skills to solve a broad array of today's business problems.

Undergraduate Minor in Business

The business minor consists of six integrated courses designed to provide a strong foundation in the essential disciplines of business and to develop students' critical thinking and communication skills. All courses in the minor are taught by JGSB faculty.

Undergraduate Minor in Entrepreneurship

The entrepreneurship minor, a joint offering with the George R. Brown School of Engineering, provides Rice students with a pathway to pursue rigorous and interdisciplinary study in the field of innovation.
The Jones Graduate School of Business PhD program is designed for candidates with outstanding intellectual abilities and a strong commitment to research. The goal of the PhD program is to train students for academic careers focused on cutting-edge, rigorous research and teaching in a business school environment. Applicants to the PhD program must hold a four-year bachelor’s degree from an accredited institution. A master’s degree and work experience are not required for PhD admission. (Advanced degrees (e.g. master’s degrees) and prior work experience are taken into account in admission decisions, but evidence of strong intellectual ability is of utmost importance). Faculty research interests and PhD major concentrations for graduate students include Accounting, Finance, Marketing, and Strategic Management. Although the Jones Graduate School of Business does not normally admit students to study for an MA, graduate students in the PhD program may earn the MA as they work towards the PhD.

**Bachelor’s Program**
- Bachelor of Arts (BA) Degree with a Major in Business
  - and a Major Concentration in Finance (p. 458)
  - and a Major Concentration in Management (p. 460)

**Minors**
- Minor in Business (p. 553)
- Minor in Entrepreneurship (p. 994)

**Master’s Programs**
- Master of Arts (MA) Degree in the field of Business*
- Master of Accounting (M Acc) Degree (p. 113)
- Master of Business Administration (MBA) Degree, (p. 486) Executive Program
- Master of Business Administration (MBA) Degree, (p. 536) Online Program (MBA@Rice)
- Master of Business Administration (MBA) Degree, (p. 545) Professional Program (Evening, Evening Extended)
- Master of Business Administration (MBA) Degree, (p. 549) Professional Program (Weekend)
- Master of Business Administration (MBA) Degree, (p. 490) Full-Time Program
  - and a Major Concentration in Accounting (p. 495)
  - and a Major Concentration in Energy (p. 500)
  - and a Major Concentration in Entrepreneurship (p. 505)
  - and a Major Concentration in Finance (p. 509)
  - and a Major Concentration in Health Care (p. 514)
  - and a Major Concentration in Marketing (p. 518)
  - and a Major Concentration in Operations Management (p. 523)
  - and a Major Concentration in Real Estate (p. 527)
  - and a Major Concentration in Strategic Management (p. 532)

**Doctoral Program**
- Doctor of Philosophy (PhD) Degree in the field of Business
  - and a Major Concentration in Accounting (p. 462)
  - and a Major Concentration in Finance (p. 464)
  - and a Major Concentration in Marketing (p. 465)
  - and a Major Concentration in Strategic Management (p. 467)

**Coordinated Programs**

**With the George R. Brown School of Engineering**
- Master of Business Administration (MBA) Degree
  - and the Master of Chemical Engineering (MChE) Degree (p. 469)
  - and the Master of Computational and Applied Mathematics (MCAA M) Degree (p. 471)
  - and the Master of Computer Science (MCS) Degree (p. 473)
  - and the Master of Industrial Engineering (MIE) Degree (p. 474)
  - and the Master of Materials Science and Nanoengineering (MMSNE) Degree (p. 476)
  - and the Master of Mechanical Engineering (MME) Degree (p. 477)
  - and the Master of Statistics (MStat) Degree (p. 485)

**With the Wiess School of Natural Sciences**
- Master of Business Administration (MBA) Degree
  - and the Master of Science in Bioscience and Health Policy (MSBHP) Degree (p. 479)
  - and the Master of Science in Environmental Analysis (MSEA) Degree (p. 480)
  - and the Master of Science in Space Studies (MSSpS) Degree (p. 482)
  - and the Master of Science in Subsurface Geoscience (MSSG) Degree (p. 483)

**Dual Degree Program**

**With the Baylor College of Medicine**
- Master of Business Administration (MBA) Degree and the Doctor of Medicine (MD) Degree (p. 469)
  * Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

**Dean**
Peter Rodriguez

**Deputy Dean**
Jeff Fleming

**Sr. Associate Dean of Degree Programs**
Barbara Bennett Ostdiek

**Sr. Associate Dean of Diversity, Equity, and Inclusion**
Constance Elise Porter

**Sr. Associate Dean of Executive Education**
D. Brent Smith

**Associate Dean of Degree Programs**
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Associate Dean for Innovation Initiatives
Michael Koenig

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Yael Hochberg
Ajay Kalra
Haiyang Li
Vikas Mittal
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K. Ramesh
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Laszio Tihonyi
James P. Weston
Duane Windsor
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Yan Anthea Zhang
Jing Zhou

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Karthish Balakrishnan
Sharad Borle
Alan David Crane
Kevin Crotty
Jefferson Duarte
Prashant Kale
Balaji Koka
Brian R. Rountree
Douglas A. Schuler
D. Brent Smith
Yuhang Xing
Anastasiya Zavyalova

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Hailey Ballew
Jaeyeon Chung
Petri Ferreira
Arun Gopalakrishnan
Stefan Huber
Stephanie Johnson
Ali Kohbod
Minjae Kim
Marlon Moojiman
Patricia Naranjo

Professors Emeriti
Richard R. Batsell
Bala G. Dharan
Jennifer M. George
William H. Glick
Robert E. Hoskisson
Wagner Kamakura
George Kanatas
H. Albert Napier
Ronald N. Taylor
Wilfred Uecker
Robert A. Westbrook

Assistant Clinical Professors
Jonathan Miles
Natalia Piqueira
Constance Elise Porter

Professors in the Practice
Linda Capuano
Jack M. Gill
Vincent Kaminski
Benjamin Lansford
David VanHorn
Dick Viebig

Senior Lecturers
Jill Foote
Elizabeth O’Sullivan

Lecturers
Lee Ann Butler
Al Danto
Kelly Drakey
Janet Moore
Hesam Panahi
Jeffrey Russell
Ginger Vaughn
Ian Wedgwood

Joint Appointments
Michelle “Mikki” R. Hebl
Frederick L. Oswald

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
BUSINESS DESIGN THINKING
BUSI 220 - LILIE DESIGN THINKING
Short Title: LILIE DESIGN THINKING
Department: Business
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Design thinking is a problem-solving process that can be used to reduce risk when launching a new idea and increase your chances of developing an innovative solution that people want. At the center of the design thinking approach is building empathy with the people for which you are creating products, services, and processes. From that deep empathy, insights will emerge, with which we will apply an iterative prototyping and experimentation method to learn quickly and apply resources efficiently.

BUSINESS MODELING FOR ENTREPRENEURS
BUSI 221 - NEW ENTERPRISES
Short Title: NEW ENTERPRISES
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will learn and experience a process for innovation-based venture development. During the semester, students will form teams and create a plan for a new venture. Cross-list: ENGI 221. Mutually Exclusive: Cannot register for BUSI 221 if student has credit for BUSI 462.

BUSINESS MODELING FOR ENTREPRENEURS
BUSI 223 - BUSINESS MODELING FOR ENTREPRENEURS
Short Title: MODELING FOR ENTREPRENEURS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course teaches how to translate a startup business plan into a bottoms up quantitative model of the business and its underlying assumptions. Students will learn how to build a model of cash flows for a startup, how to use that model to track performance and identify errors in the underlying assumptions and adjust, and how to update the model based on realized performance.

BUSINESS DESIGN THINKING
BUSI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Business
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BUSINESS OF HEALTHCARE
BUSI 271 - BUSINESS OF HEALTHCARE
Short Title: BUSINESS OF HEALTHCARE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will serve as an introduction to the U.S. healthcare system from a business perspective. We will describe the providers and the financial system that comprise healthcare, and the challenges healthcare faces. We will explore opportunities to increase quality while decreasing costs and the effects of the COVID-19 pandemic on an already strained system.
BUSI 291 - FUNDAMENTALS OF SALES
Short Title: FUNDAMENTALS OF SALES
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduces students to the knowledge, skills, and behaviors required for success in the field of sales. Topics include planning effective sales meetings and sales presentations, client decision-making styles, and approaches to influencing client behavior. Students will demonstrate mastery of these topics through role-playing and class/instructor feedback.

BUSI 296 - BUSINESS COMMUNICATION
Short Title: BUSINESS COMMUNICATION
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides an introduction to business, focusing on the strategy and practice of effective communications in business situations. The course includes individual communication skills assessment and development as well as team-based oral and written communication instruction.
Course URL: www.business.rice.edu/business_minor.aspx

BUSI 305 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers the preparation, analysis, and use of corporate financial statements; asset and liability valuation and income determination; receivables, inventories, present values, tangible and intangible fixed assets, bonds, leases, shareholder equity, intercorporate investments, consolidations, and cash flow accounting. Space is limited.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)

BUSI 310 - LEADING PEOPLE IN ORGANIZATIONS
Short Title: LEADING IN ORGANIZATIONS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduces the psychological and sociological processes underlying human behavior in organizational settings (e.g., companies, schools, sports clubs). Topics include motivation, decision making, principles of fairness and justice, cross-cultural differences, working in teams, and tactics of influence.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)

BUSI 343 - FINANCIAL MANAGEMENT
Short Title: FINANCIAL MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 280 or SOSC 302 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or PSYC 339) and (ECON 100 or ECON 200) and BUSI 305
Description: Develops the core concepts of corporate financial management and introduces a set of analytical tools to evaluate financial decisions. Employs concepts of time value of money, risk and return, and market efficiency are to examine how capital market investors value risky assets. Develops a framework for evaluating corporate investment and financing decisions. Mutually Exclusive: Cannot register for BUSI 343 if student has credit for ECON 343.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)

BUSI 361 - COMMUNICATIONS FOR ENTREPRENEURS
Short Title: ENTREPRENEURIAL COMMUNICATION
Department: Business
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course introduces key concepts, tools, and practices of communication in the context of start ups, small businesses, and other entrepreneurial ventures. Emphasis is on practicing skills valuable throughout the life cycle of a new venture. Students will learn skills for communicating and working with their team, investors, and mentors.
BUSI 374 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307
Description: An introduction to the design and integration of successful operations procedures both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products, customers, and information. Covering measurable techniques to deal with bottlenecks, inventory, queues, quality management, and some strategic issues in operations.
Recommended Prerequisite(s): BUSI 305 and (ECON 100 or ECON 200)

BUSI 380 - MARKETING
Short Title: MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 280 or SOSC 302 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or PSYC 395 or POLI 395 or MATH 101) and (ECON 100 or ECON 200)
Description: Introduces the role of marketing in organizations and the principal marketing decisions facing management. Topics include marketing planning and strategy; segmentation and targeting; understanding customer buying behavior; behavioral economics; development and management of products and services; branding; channels of distribution; sales; digital marketing, advertising and promotional methods; pricing strategy; and the development of integrated marketing strategies.

BUSI 395 - DATA ANALYTICS
Short Title: DATA ANALYTICS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 101
Description: An introduction to the statistics and mathematics required for the applications of data science to business environments. The course covers both descriptive and predictive analytics. Starting with the building blocks of probability, random variables and sampling distributions moving to hypothesis testing and regression analysis and culminating with more advanced topics such as multiple regression, model selection and time series analysis emphasizing their use in addressing concrete business problems. Mutually Exclusive: Cannot register for BUSI 395 if student has credit for DSCI 301/ECON 307/STAT 310/STAT 315.

BUSI 401 - FINANCIAL STATEMENT ANALYSIS
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (BUSI 343 or ECON 343) and BUSI 305
Description: Financial statements are a key source of information about the economic activities of a firm. This course builds on the core financial accounting course by incorporating more complex financial statement items and how they should be interpreted, along with illustrating tools to evaluate performance using financial statement items. Key aspects of the course include understanding how to use information from financial statements to evaluate corporate performance, risk, earnings management, and valuation. The course focuses on determining the quality of financial reporting, the implications for performance measurement and forecasting, along with utilizing this information in conjunction with systematic ratio analysis to examine questions concerning valuation. The course is primarily case based involving the evaluation of actual financial statements and real world investment decisions. Includes a Communications lab. Mutually Exclusive: Cannot register for BUSI 401 if student has credit for MGMP 601/MGMP 602/MGMT 601.
BUSI 405 - ISSUES IN FINANCIAL REPORTING I
Short Title: ISSUES IN FINANCIAL REPORTING I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 305
Description: Building on subject matter introduced in BUSI 305, this course provides students with a deeper knowledge of generally accepted accounting principles and procedures so that they properly account for and present information in financial statements prepared for external users. The student will acquire an understanding of the accounting issues relating to complex revenue recognition issues, inventory costing, long-lived tangible and intangible assets, and discontinued operations. The student should be able to evaluate alternative accounting methods and choose the methods which will best convey the financial information related to the above areas. The student should be able to demonstrate an understanding of the transaction analysis, recording, classification, summarization, and reporting procedures in the accounting cycle, and an understanding of the information contained in the financial statements. Finally, students should be able to demonstrate written communication skills required of accountants. BUSI 305 Financial Accounting is a prerequisite for this course.

BUSI 420 - LEADERSHIP AND TEAMS
Short Title: LEADERSHIP AND TEAMS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 310
Description: Leadership is essential for organizational effectiveness, and in the modern workplace, work is primarily completed by teams. Thus, it is essential that students learn how to effectively lead and work within teams. This course will teach students leadership attributes, behaviors, relationships between leaders and team members, and leading effective teams through team composition, development, and management of team processes. A variety of teaching techniques including lectures, case analysis, and experiential exercises will be used to help students to understand and internalize scientifically-proven knowledge. Includes a Communications lab.

BUSI 421 - POWER, INFLUENCE AND ORGANIZATIONAL CHANGE
Short Title: POWER, INFLUENCE & ORG CHANGE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 310
Description: A manager's primary purpose is to use power to influence subordinates and create an effective organization. This course will teach students how to build power, how to influence people, and the proper use of power and influence to initiate and manage organizational change. The course will introduce a framework for power, influence, and organizational changes and teach students how to enhance their personal competencies in the context of navigating these organizational dynamics. A variety of teaching techniques including lectures, case analysis, video, and experiential exercises will be used to help students to understand and internalize scientifically-proven knowledge.

BUSI 422 - NEGOTIATIONS AND DECISION MAKING
Short Title: NEGOTIATIONS & DECISION MAKING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 310
Description: Successful managers and professionals possess effective negotiation and decision-making skills. This course teaches students how to formulate effective negotiation strategies, how to resolve conflict by engaging in negotiation, how to identify commonly seen biases and errors in negotiation and decision-making, how to deal with uncertainty in negotiation and decision-making, and how to overcome potential biases and errors in negotiation, judgment and decision making. A variety of teaching techniques including lectures, case analysis, and experiential exercises will be used to help students to understand and internalize scientifically-proven knowledge.
BUSI 430 - MANAGEMENT ACCOUNTING
Short Title: MANAGEMENT ACCOUNTING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (ECON 100 or ECON 200) and BUSI 305
Description: This course emphasizes the use of accounting information internally for business management as opposed to the external reporting emphasis of financial accounting. Specifically, the course covers the design of decision support systems to aid planning and control in different types of organizations. It integrates accounting with ideas from data analysis, microeconomics, and operations management. Among the topics covered are the use of cost information for short- and long-term decision making, cost-volume-profit analysis, budgetary control, cost allocation, capital budgeting, and responsibility accounting.

BUSI 431 - ADVANCED STRATEGIC MANAGEMENT
Short Title: ADVANCED STRATEGIC MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and BUSI 310 and (BUSI 343 or ECON 343) and BUSI 380 and BUSI 390
Description: This course builds upon, and extends, the foundational strategy concepts covered in the core Strategic Management course. We shall examine how companies can achieve a competitive advantage through innovation, geographic or product market expansion, as well as expansion into new businesses through diversification or vertical integration. Since companies pursue these opportunities not only through organic means, but also increasingly through mergers or acquisitions, the course will also examine the benefits and challenges associated with these alternate modes and how to manage them effectively. The course will conclude by studying the process by which companies develop their strategy as well the actions they need to take in order to execute that strategy so as to achieve the desired results. Includes a Communications lab.

BUSI 432 - BUSINESS AND SOCIETY
Short Title: BUSINESS AND SOCIETY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 390
Description: External stakeholders, ethical concerns, and sustainability issues increasingly pressure executives to address the social and environmental impact of their companies’ operations. As a result, an organization’s success does not only depend on its strategic repertoire within a given market, but also on its non-market strategies. By proactively engaging with non-governmental organizations (NGOs), the media, governments, and other external stakeholders, firms can shape their non-market environment to simultaneously achieve a competitive advantage as well as to enhance their positive social impact. The goal of this course is to provide you with analytical tools that help managers assess a firm’s broader environment and make decisions that are beneficial for the firm and for society at large.

BUSI 433 - TECHNOLOGY AND INNOVATION STRATEGY
Short Title: TECH & INNOVATION STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 390
Description: Innovation is a critical aspect of firm’s strategy to achieve competitive advantage and enhanced performance. However, the management of innovation is inherently difficult and risky in technology industries where customer demand and preferences change quickly and technological changes are highly unpredictable. This course focuses on the management of innovation and growth from the perspective of both large companies and small. We shall examine issues such as: what different types of innovation can firms pursue and what types of innovation are a more durable source of advantage; what are the obstacles to innovation in firms, and how can they build an organizational level innovation capability; how can firms deal with market and technological uncertainty through open innovation; how does disruptive innovation happen and how can it be managed; and how to formulate successful strategies in platform businesses dominated by network effects.
BUSI 440 - AUDITING
Short Title: AUDITING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 305
Description: The principles and procedures used by public accountants and internal auditors in examining financial statements and supporting data to verify the accuracy and fairness of the information presented. Specific topics covered include: financial statement, regulatory and contract compliance, internal and operational audits, professional standards and ethical conduct; statistical and judgmental sampling; the audit-impact of information technology; audit risk and internal control structure evaluation; application of procedures in transaction cycles; audit reporting; the importance of professional skepticism; role of the PCAOB in setting and enforcing auditing standards for U.S. publicly traded companies, as well as the issue of mandatory audit firm rotation; role of the International Auditing and Assurance Standards Board in setting International Standards of Auditing.

BUSI 447 - ADVANCED CORPORATE FINANCE
Short Title: ADVANCED CORPORATE FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In-depth analysis of corporate financial decision making including project selection and financing. Emphasizes project valuation methodologies and the connection between valuation and financial policy. Provides a theoretical framework for decision making and addresses practical applications. Integrates quantitative modelling and includes a Communications lab. Recommended Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (BUSI 343 or ECON 343)

BUSI 448 - INVESTMENTS
Short Title: INVESTMENTS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (BUSI 343 or ECON 343)
Description: Overview of financial asset classes and instruments, including equity, fixed income, and derivative securities. Develops a theoretical and practical understanding of modern portfolio theory, with an emphasis on measuring and managing investment risk and return. Introduces advanced asset pricing models and their role in understanding risk and return.

BUSI 450 - DERIVATIVES
Short Title: DERIVATIVES
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (BUSI 343 or ECON 343)
Description: In-depth analysis of derivative securities, including forward, futures, option, and swap contracts. Develops theoretical understanding of no-arbitrage pricing principles underlying derivative valuation as well as derivatives’ role in hedging and risk management. Explores practical modeling techniques for derivative valuation.

BUSI 461 - FINANCING THE STARTUP VENTURE
Short Title: FINANCING THE STARTUP VENTURE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The goal of this course is to provide students with an overview of financing options for startups. The course covers crowdfunding, angel investors, accelerators, and the venture capital industry; the organization and operation of venture capital funds; investment methodology; monitoring and portfolio liquidation.

BUSI 463 - ENTREPRENEURIAL STRATEGY
Short Title: ENTREPRENEURIAL STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The first half of this course provides an integrated strategy framework for entrepreneurs. The course is structured to provide a deep understanding of the core strategic challenges facing start-up innovators, and a synthetic framework for choosing and implementing entrepreneurial strategy in dynamic environments, as well as a general understanding of the financing options for early stage startups, including angel investment, accelerators, crowdfunding and the venture capital industry. The course identifies the types of choices that entrepreneurs must make to take advantage of a novel opportunity and the logic of particular strategic commitments and positions that allow entrepreneurs to establish competitive advantage. The second half of the course explores common dilemmas faced by founders surrounding team selection, contracting, equity compensation and incentives, communication in teams, and strategies for approaching each of these dilemmas. The course combines interactive lectures, speakers and case analyses. The cases and assignments offer an opportunity to integrate and apply the principles taught in the course in a practical way, and draws from a diverse range of industries and settings.
BUSI 464 - SOCIAL ENTREPRENEURSHIP
Short Title: SOCIAL ENTREPRENEURSHIP
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary concepts, debates, and contexts necessary for analyzing and engaging in the sphere of social entrepreneurship. The course has four distinct parts: social context; organizational forms and collaborations; private sector roles; and measurement and impacts. Various aspects of social entrepreneurship, such as base of the pyramid/microenterprises, private-public partnerships, private-governmental partnerships, voluntary social codes, corporate social responsibility, and ethical consumerism will be covered. From this foundation, students will undertake a social entrepreneurship project about a contemporary social problem in Houston: food insecurity and food deserts. Cross-list: GLHT 464, SOSC 464.

BUSI 465 - STUDENT VENTURE FUND: EVALUATING STARTUP INVESTMENT OPPORTUNITIES
Short Title: STUDENT VENTURE FUND
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 461
Description: Students will identify, screen, and evaluate start-ups for investment by the Rice venture capital fund. Through this highly experiential course, students will learn tools for rigorously evaluating startup ventures for investment, valuing early stage companies, and structuring investments. Students will present their investment recommendations to an advisory committee. Graduate/Undergraduate Equivalency: MGMT 740. Mutually Exclusive: Cannot register for BUSI 465 if student has credit for MGMT 740.

BUSI 469 - LILIE NEW VENTURE CHALLENGE
Short Title: LILIE NEW VENTURE CHALLENGE
Department: Business
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this capstone project-based experiential learning course, students work on their own startup ideas in teams using the frameworks taught in the E&I framework courses (financing and strategy for startups, new enterprises, business modeling for entrepreneurs, human and social context in entrepreneurship). To apply for this course visit http://hpanahi.web.rice.edu/nvc/ Instructor Permission Required.

BUSI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BUSI 480 - MARKETING STRATEGY
Short Title: MARKETING STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 380
Description: This course relates marketing activities to some of the key strategic business decisions: choosing customers, defining and creating value, delivering and appropriating value, and sustaining value against competitors and over time. To do so, the course builds on concepts and topics from the marketing core course (e.g., segmentation, targeting, and positioning, brand management, product life cycle management, pricing, and channel design) and cast them in a broader strategic business context. We use these marketing concepts in an integrated fashion, as the firm's main tools to design profitable long term interactions with its customers and competitors.

BUSI 491 - ACCOUNTING THEORY
Short Title: ACCOUNTING THEORY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 405
Description: The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the "political" intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. The prerequisite for undergraduates is BUSI 405, but the course will also be open also to a small number of other students who have taken just BUSI 305. MBA students: Prerequisite is MGMT 601. PhD students: no prerequisites. All students must obtain the prior permission of the instructor. Course may not be taken pass/fail and may not be audited. Enrollment will be limited. Mutually Exclusive: Cannot register for BUSI 491 if student has credit for MACC 591/MGMT 591.
BUSI 499 - UNDERGRADUATE BUSINESS INDEPENDENT STUDY
Short Title: UG BUSINESS INDEPENDENT STUDY
Department: Business
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

BUSI 500 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Business
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 501 - DOCTORAL MARKETING RESEARCH SEMINAR
Short Title: DOCTORAL MARK. RES. SEMINAR
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 503 - SEMINAR IN JUDGEMENT AND DECISION MAKING
Short Title: SEM IN JDGMT & DECISION MAKING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 504 - GAME THEORY
Short Title: GAME THEORY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Game theory is a discipline that provides a mathematical methodology for modeling and analyzing interactive decisions among multiple agents. Game theory has a wide range of applications in economics, political science, but most importantly (in my opinion) business. The approach of this course will be somewhere between that of a typical economics class (i.e. very mathematical) and that of a typical business seminar (applied and paper based.) Definitions will be stated formally, and arguments will be developed rigorously. At the same time, much of the course will be devoted to using game theory to understand applications in economics and business. Taking these applications as a starting point, we will develop an understanding of what constitutes a good mathematical model for addressing a business question. Repeatable for Credit.

BUSI 505 - SEMINAR IN CONSUMER BEHAVIOR
Short Title: SEMINAR IN CONSUMER BEHAVIOR
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 506 - ADVANCED TOPICS IN MARKETING RESEARCH
Short Title: ADVANCED TOPICS IN MARKT. RES.
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this seminar is to examine recent work in, or relevant to, consumer research. We will select a set of topics to be considered over the semester, often triggered by a new article of particular interest or student interests. For each topic considered, a few articles will be chosen, and we will read and discuss those. Our goals will be to gain exposure to the latest ideas in consumer research and to develop research ideas. In particular, each week we should generate in class the design/idea for at least one new study in the focal topic area. Repeatable for Credit.
BUSI 507 - BAYESIAN APPLICATIONS IN MARKETING LITERATURE
Short Title: BAYESIAN APPS IN MARKETING LIT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course aims to develop an understanding of Bayesian empirical applications in the Marketing literature. The course starts with a brief theoretical foundation to Bayesian inference and subsequently focuses on empirical applications in the Marketing literature. The aim of this course is not to equip students with the methodological tools of Bayesian inference. It is assumed that students are familiar with these methodologies. Academic papers from the Marketing literature are assigned to the class and discussed in class. Repeatable for Credit.

BUSI 510 - ANALYTICAL MODELS IN MARKETING
Short Title: ANALYTICAL MODELS IN MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 511 - SELECTED TOPICS IN MARKETING
Short Title: SELECT TOPICS IN MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 515 - MICRO FOUNDATIONS OF ORGANIZATION AND MANAGEMENT
Short Title: MICRO FOUNDATIONS - ORG & MGMT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 521 - FINANCIAL ECONOMICS I
Short Title: FINANCIAL ECONOMICS I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502
Description: Introduction to asset pricing and portfolio choice theory. Covers mathematical analysis of single-period and dynamic models, including pricing by arbitrage, mean-variance analysis, factor models, dynamic optimization, recursive utility, and an introduction to continuous-time finance. Cross-list: ECON 505.

BUSI 522 - CORPORATE FINANCE
Short Title: CORPORATE FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will prepare students for a career as a scholar in finance. To do so, we will read and discuss key scholarly papers in the field. Our focus will be on classic and recent research papers in the field of corporate finance. The course is structured to introduce students to selected areas of research and research methods, rather than to be encyclopedic in its coverage. Repeatable for Credit.

BUSI 523 - EMPIRICAL METHODS IN FINANCE
Short Title: EMPIRICAL METHODS IN FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is intended to get students up to speed with a toolbox and working facility of methods commonly used in empirical finance research. For each method, we will follow a three-step learning process. We first cover the econometrics from a mathematical (but light and intuitive) approach. Then we will observe researchers using the method in the wild. Then you will use it yourself through exercises and problem sets. Repeatable for Credit.
BUSI 524 - FINANCE: SPECIAL TOPICS I  
**Short Title:** FINANCE: SPECIAL TOPICS I  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course provides a brief review of the literature on derivative pricing and the term structure of interest rates. If we have time we may also read some papers on the financial crisis. The objective is to prepare students to critically think about the current research in each of these areas and, at the same time, give some basic knowledge about each of these research areas. The course is intended for Ph.D. students.  
This course is very quantitative and requires basic familiarity with asset pricing theory (BUSI 521). Even though, the course is very quantitative, emphasis is given to intuition instead to mathematical rigor. Repeatable for Credit.

BUSI 525 - FINANCE: SPECIAL TOPICS II  
**Short Title:** FINANCE: SPECIAL TOPICS II  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Repeatable for Credit.

BUSI 526 - FINANCE: SPECIAL TOPICS III  
**Short Title:** FINANCE: SPECIAL TOPICS III  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course examines the empirical asset pricing side of financial economics. The course will focus on the development of stylized facts and tools for the investigation of data and on the underlying theoretical asset pricing frameworks. We will also read recent research papers in empirical asset pricing and generate ideas for future research.

BUSI 527 - FINANCE: SPECIAL TOPICS IV  
**Short Title:** FINANCE: SPECIAL TOPICS IV  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  

BUSI 528 - EMPIRICAL METHODS IN ACCOUNTING  
**Short Title:** EMPIRICAL METHODS IN ACCOUNTING  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course offers a thorough and broad-ranging introduction to accounting theory and research. It covers origins and evolution of key relevant accounting institutions, thought, paradigms and methods. Repeatable for Credit.

BUSI 531 - EMPIRICAL METHODS IN ACCOUNTING  
**Short Title:** EMPIRICAL METHODS IN ACCOUNTING  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Repeatable for Credit.

BUSI 532 - ANALYTICAL RESEARCH IN ACCOUNTING  
**Short Title:** ANALYTICAL RESEARCH IN ACCOUNTING  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Repeatable for Credit.

BUSI 533 - CONTEMPORARY ACCOUNTING: RESEARCH TOPICS  
**Short Title:** CONTEMPORARY ACCOUNTING: RESEARCH TOPICS  
**Department:** Business  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** In this PhD seminar, students will relate and reconcile key theoretical and analytical insights that have emerged in the accounting literature with the vast empirical/experimental research. Specifically, we will pick selected topics of mainstream interest in accounting, review key analytical insights in each topic and relate/reconcile these insights with empirical findings. Where possible, we will attempt to generate testable empirical predictions as well as identify opportunities for analytical research. Topics include agency theory, performance evaluation and incentives, corporate governance, disclosure theory, aspects of auditing, cost measurement and product/capacity planning.
BUSI 540 - STRATEGY I
Short Title: STRATEGY I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a Ph.D. level seminar focused on seminal theory and recent theoretical approaches in the strategic management literature. The literature in strategic management attempts to explain the differences in the performance and survival of firms by analyzing the effects of a variety of factors at multiple levels, including countries, industries, organizational networks, firms, teams, and individuals. The intent of this seminar is to provide a foundation for conducting and publishing original research in strategic management. The seminar will cover several topics in the field along with relevant theoretical perspectives developed in economics, finance, organization theory, psychology, and sociology. Over the course of the semester, you will: • Read a large amount of articles published in the leading journals of the field; • Evaluate different theoretical perspectives; • Constructively critique empirical research; • Formulate novel research ideas that advance the field of strategic management; • Professionally present research ideas and respond to comments; and • Develop ideas into a research paper that provides the foundations for a future theoretical paper or empirical study. Repeatable for Credit.

BUSI 541 - STRATEGY II
Short Title: STRATEGY II
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Strategic management research attempts to explain the differences in firm behaviors and outcomes by analyzing the effects of a variety of factors at multiple levels, including countries, industries, firms, teams, and individuals. This seminar is the second part of the strategic management seminar series (The first part is Business 540: Strategic Management Theory). While Business 540 focuses on seminal theory and recent theoretical approaches in the strategic management literature, this seminar focuses on phenomena and research topics in strategy research. It provides an overview of classic and current research topics including innovation and technology strategy, strategic alliances and networks, international strategy, product diversification, corporate governance, executive leadership, strategic decision processes, change and adaptation. Specific topics and phenomena will be examined from both theoretical and empirical perspectives. From the theoretical perspective, we will discuss how the various theories discussed in Business 540 are used to explain these phenomena. From the empirical perspective, we will discuss various research designs and methods used to in research on these topics. Overall, the intent of this seminar is to provide students a foundation for conducting and publishing original research in strategic management. Repeatable for Credit.

BUSI 542 - ORGANIZATIONAL CHANGE
Short Title: ORGANIZATIONAL CHANGE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 543 - EXECUTIVE LEADERSHIP AND CORPORATE GOVERNANCE
Short Title: EXEC LEADERSHIP & CORP GOV
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 544 - CONTEMPORARY MANAGEMENT THOUGHT
Short Title: CONTEMPORARY MGMT THOUGHT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 545 - STRATEGY RESEARCH IN CORPORATE DEVELOPMENT
Short Title: STRATEGY RESEARCH IN CORP DEV.
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 546 - EMERGING MARKET STRATEGY
Short Title: EMERGING MARKET STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
BUSI 547 - SEMINAR ON INNOVATION AND ENTREPRENEURSHIP
Short Title: INNOVATION & ENTREPRENEURSHIP
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this Ph.D. seminar is to provide basic foundations and knowledge of current research in innovation and entrepreneurship. We will cover seminar articles as well as the cutting edge foci in the field. Over the course of this seminar, each student should evaluate and critically review the assigned readings, develop a mental model of the literature on innovation and entrepreneurship, and develop new ideas and approaches that advance some portion of the theory/research.

BUSI 548 - CORPORATE STRATEGY
Short Title: CORPORATE STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 549 - STRATEGY PRO-SEMINAR
Short Title: STRATEGY PRO-SEMINAR
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will expose you to the research areas of the entire strategy and organizational behavior faculty at the Jones School and possible invited guests. Repeatable for Credit.

BUSI 550 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 551 - STRATEGY RESEARCH IN CORPORATE DEVELOPMENT: STRATEGIC ALLIANCES AND ACQUISITIONS
Short Title: STRATEGY RESEARCH IN CORP DEV
Department: Business
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 552 - DESIGN OF BUSINESS RESEARCH
Short Title: DESIGN OF BUSINESS RESEARCH
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides doctoral students with introduction to the design of social research, with particular emphasis on research in the domain of business.

BUSI 553 - NETWORK THEORY AND APPLICATIONS
Short Title: NETWORK THEORY
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores network theory and its applications to organizational phenomena. By examining the structure of relations among actors, network approaches seek to explain variations in beliefs, behaviors, and outcomes. Each session progresses from classic studies to more recent applications and refinements of theory and methods.

BUSI 577 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Business
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BUSI 711 - FOUNDATIONS OF MARKETING
Short Title: FOUNDATIONS OF MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
Course Level: Graduate
Description: Introduction to the key concepts underlying the function of marketing and its interaction with other functions in a business enterprise. Explores marketing's role in defining, creating, and communicating value to customers.
BUSI 712 - DATA-DRIVEN MARKETING
Short Title: DATA-DRIVEN MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
Course Level: Graduate
Description: This applied course focuses on using customer data to optimize marketing decisions. Topics include targeting of customers for marketing campaigns, quantifying customer value, text mining of customer reviews, and online experiments to optimize promotions.

BUSI 721 - FOUNDATIONS OF FINANCE
Short Title: FOUNDATIONS OF FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
Course Level: Graduate
Description: Introduction to the theory and practice of corporate finance and the analytical tools necessary to answer the most important questions related to firms' financing and investment decisions, focusing the following building blocks: Valuation, Investment Decisions, Risk and Return, Financing Decisions, Derivative Securities.

BUSI 722 - DATA-DRIVEN FINANCE
Short Title: DATA-DRIVEN FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
Course Level: Graduate
Description: This applied course focuses on analytical finance to support business decision-making. This includes applying machine learning and other data analytic tools to improve investment, financing, and risk management decisions.

BUSI 731 - FOUNDATIONS OF OPERATIONS MANAGEMENT
Short Title: FOUNDATIONS OF OPERATIONS MGMT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
Course Level: Graduate
Description: Introduction to the design and integration of successful operations tactics both within the organization and across supply chains. The course focuses on understanding, managing and improving processes and flows of products, customers and information and touches on bottlenecks, inventory, quality management, queues, and strategic issues in operations.

BUSI 732 - DATA-DRIVEN OPERATIONS
Short Title: DATA-DRIVEN OPERATIONS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
Course Level: Graduate
Description: This applied course focuses on the data transformation of operations management. It addresses the impact of modern data analysis on process optimization, production, inventory and supply chain issues. Introducing and using advanced statistics, optimization and machine learning techniques.

BUSI 800 - PHD RESEARCH
Short Title: PHD RESEARCH
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 801 - PHD RESEARCH II
Short Title: PHD RESEARCH II
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Management (MGMT)

MGMT 500 - APPLIED BUSINESS EXPERIENCE
Short Title: APPLIED BUSINESS EXPERIENCE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Full-time MBA students will participate in enriching and meaningful work experiences (including traditional summer internships) as a critical complement to what is offered in the classroom and in other applied learning experiences, such as the Global Field Experience. Work experiences allow students to refine their fluency, capabilities, and confidence in a business setting, while taking what they learn in the classroom into a professional setting.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 501</td>
<td>FINANCIAL ACCOUNTING</td>
<td>FINANCIAL ACCOUNTING</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment limited to students in the MBA or OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>Introduction to the preparation, analysis, and use of corporate financial reports. Covers the basic techniques of financial reporting and analysis from the perspective of managers as well as external users of information such as investors. Required for MBA.</td>
</tr>
<tr>
<td>MGMT 502</td>
<td>MANAGERIAL ACCOUNTING</td>
<td>MANAGERIAL ACCOUNTING</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>1.5</td>
<td>Enrollment limited to students in the MBA or OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>Introduction to the use of financial and cost information by managers in budgeting, resource allocation, pricing, quality control, and other contexts to help managers set goals and monitor and evaluate performance.</td>
</tr>
<tr>
<td>MGMT 503</td>
<td>MANAGEMENT CONTROL</td>
<td>MANAGEMENT CONTROL</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>1.5</td>
<td>Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>This course builds on earlier courses on cost management and corporate strategy and focuses on the management control systems that can be used for the effective implementation of strategy. Included topics are the balanced scorecard, stretch budgets, performance evaluation and incentives, organizational and operational controls, and the development of metrics to motivate and evaluate performance.</td>
</tr>
<tr>
<td>MGMT 510</td>
<td>ORGANIZATIONAL BEHAVIOR</td>
<td>ORGANIZATIONAL BEHAVIOR</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>1.5</td>
<td>Enrollment limited to students in the MBA or OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>Study of the many factors, which influence how individuals, groups, and teams behave and function in complex organizations and how they can be effectively managed. Required for MBA.</td>
</tr>
<tr>
<td>MGMT 511</td>
<td>LEADERSHIP</td>
<td>LEADERSHIP</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>1.5</td>
<td>Enrollment limited to students in the OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>This course aims to develop a more thorough understanding of leadership and the leadership process. Through this exploration, it is hoped that students will come to understand themselves better within the leadership context (i.e., as a follower, as a self-leader, and as a leader of others).</td>
</tr>
<tr>
<td>MGMT 512</td>
<td>LEADING CHANGE</td>
<td>LEADING CHANGE</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>0.75</td>
<td>Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>Emphasizes understanding of what constitutes effective organizational designs; considers both the macro designing of change initiatives and the micro execution of those initiatives.</td>
</tr>
<tr>
<td>MGMT 513</td>
<td>NEGOTIATIONS ILE</td>
<td>NEGOTIATIONS ILE</td>
<td>Management</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Intensive Learning Experience</td>
<td>1.5</td>
<td>Enrollment limited to students in the OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>Course provides opportunities for students to experience different phases of two-part, multi-party, and team negotiations. Its interactive format facilitates development of analytical and behavioral skills for effective negotiation. Topics include diagnosing conflict, decision making, adversarial vs. cooperative strategies, ethical and cultural factors, and third-party intervention.</td>
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<tr>
<td>MGMT 514</td>
<td>ORGANIZATIONAL CHANGE ILE</td>
<td>ORGANIZATIONAL CHANGE ILE</td>
<td>Management</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Intensive Learning Experience</td>
<td>1.5</td>
<td>Enrollment limited to students in the OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.</td>
<td>Graduate</td>
<td>The primary goal of this course is to help you become effective leaders of organizational change. Students will learn, discuss and put into action an important framework for managing organizational change. Participation in this course will: 1) Provide you with an effective framework for managing organizational change. 2) Improve your competencies as both a leader and participant in change.</td>
</tr>
</tbody>
</table>
MGMT 531 - THE NEW ENTERPRISE
Short Title: THE NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Evaluating opportunities for a new innovation-based enterprise; conceptualizing and developing a venture plan through an iterative process; articulating venture assumptions. Intended for students who want to start their own venture, join an early-stage venture, be entrepreneurial within an existing organization, or want to understand entrepreneurs and how to think entrepreneurially.

MGMT 540 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 541 - ECONOMIC ENVIRONMENT OF BUSINESS
Short Title: ECONOMIC ENVIRONMENT OF BUSI
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: MBA OMBAP MBA WMBA XMBAP Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 543 - FINANCE
Short Title: FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the theory and practice of corporate finance, with emphasis on topics such as valuation, capital budgeting, risk and return, and capital structure. Required for MBA.

MGMT 560 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the necessary ethical and legal basis of managerial decision making and the positive social and environmental contributions of the business firm.
MGMT 561 - BUSINESS-GOVERNMENT RELATIONS
Short Title: BUSINESS-GOVERNMENT RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of how public policy influences the private competitive environment of the firm. Examines the major political institutions and actors—Congress, the President, interest groups, the media, and administrative agencies—that shape U.S. public policy. Students analyze business political strategies and formulate several of their own.

MGMT 562 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the ethical and legal bases of managerial decision making and the social dimension of the business firm.

MGMT 570 - COMPETITIVE AND INDUSTRY ANALYSIS
Short Title: COMPETITIVE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Systematic examination of models and techniques used to analyze a competitive situation within an industry from a strategic perspective. Examines the roles of key players in competitive situations and the fundamentals of analytical and fact-oriented strategic reasoning. Examples of applied competitive and industry analysis are emphasized. Required for MBA.

MGMT 571 - STRATEGY FORMULATION AND IMPLEMENTATION
Short Title: STRATEGY FORMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on formulating and implementing effective organizational strategy, including competitive positioning, core competencies and competitive advantage, cooperative arrangements, and tools for implementation.

MGMT 574 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products customers and information. Touching upon bottlenecks, inventory, quality management, and strategic issues in operations.

MGMT 580 - MARKETING
Short Title: MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the key concepts underlying the function of marketing and its interaction with other functions in a business enterprise. Explores marketing's role in defining, creating, and communicating value to customers. Primarily case-based with capstone simulation exercise, providing a foundation for advanced course work in marketing. Required for MBA.

MGMT 591 - ACCOUNTING THEORY
Short Title: ACCOUNTING THEORY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 601
Description: The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the "political" intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. The prerequisite for undergraduates is BUSI 405, but the course will also be open also to a small number of other students who have taken just BUSI 305. MBA students: Prerequisite is MGMT 601. PhD students: no prerequisites. All students must obtain the prior permission of the instructor. Course may not be taken pass/fail and may not be audited. Enrollment will be limited. Mutually Exclusive: Cannot register for MGMT 591 if student has credit for BUSI 491/MACC 591.
MGMT 592 - STRATEGIC BUSINESS COMMUNICATIONS
Short Title: STRATEGIC BUSINESS COMMUNICATIONS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the strategy and practice of business communications. Includes frequent oral presentations (both individual and team) and feedback.

MGMT 593 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the O MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis.

MGMT 594 - STRATEGIC BUSINESS COMMUNICATION I
Short Title: STRATEGIC BUSINESS COMMUNICATION I
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the strategy and practice of business communications. Includes frequent oral presentations (both individual and team) and feedback.

MGMT 595 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis.

MGMT 596 - STRATEGIC BUSINESS COMMUNICATION II
Short Title: STRATEGIC BUSINESS COMMUNICATION II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Continued instruction in the core strategic business communication skills that were introduced during Strategic Business Communication I. In addition to a mandatory writing workshop, students will have the opportunity to select other communication topics, based on individual needs and interest.

MGMT 597 - DATA ANALYSIS II
Short Title: DATA ANALYSIS II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or X MBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis. Required for MBA.

MGMT 598 - CAPSTONE CONSULTING PROJECT
Short Title: CAPSTONE CONSULTING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the O MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course gives students the opportunity to apply the multi-functional (strategy, finance, marketing, organizational behavior, etc.) knowledge that they have gained in the program and their own professional experience to solve a complex, real-world managerial problem.
MGMT 599 - ACTION LEARNING PROJECT
Short Title: ACTION LEARNING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The Action Learning Project (ALP) is a team-based, student consulting program where students will work with corporate and non-profit organizations across a variety of industries to tackle a robust real-world problem for them. Projects may include some combination of strategy, marketing, finance, operations & supply chain management, HR/talent management, etc. The teams will work with their company and ALP faculty to perform research and assessments to develop their detailed recommendations and present them to senior leadership.

MGMT 600 - INTERNATIONAL ENERGY SIMULATION
Short Title: INTL ENERGY SIMULATION
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The Jones Graduate School of Business International Energy Simulation is designed to create a real world environment in which multiple actors align and compete to achieve their distinct objectives. We will use a fictitious country that has a wide range of challenges and possible opportunities. You will be assigned to one of about 15 teams including government, energy companies, media, villagers, public policy institutions and others. Critical success factors include strategic thinking, the ability to build alliances, and a deep understanding of the perspectives of multiple stakeholders. Expect the unexpected.

MGMT 601 - FINANCIAL STATEMENT ANALYSIS
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Study of how investors, financial analysts, creditors, and managers use financial statement information in evaluating firm performance and in valuing firms. Emphasizes industry and firm-level analysis of accounting information using financial accounting concepts and finance theory. Mutually Exclusive: Cannot register for MGMT 601 if student has credit for BUSI 401.

MGMT 603 - INCOME TAXATION AND BUSINESS DECISIONS
Short Title: INCOME TAX & BUS. DECISIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Course covers 1) the types of taxes and the history of the U.S. income tax; 2) tax policy in light of worldwide business taxation; 3) measurement of business income and deductions; 4) tax reporting and 5) the choice of entity among U.S. forms of business organization.

MGMT 604 - MINDFULNESS AND PERFORMANCE IN THE WORKPLACE
Short Title: MINDFULNESS & PERF AT WORK
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Throughout contemporary society and corporate America, we frequently hear people touting the value of "mindfulness." What exactly is this concept – and how can it foster high performance in the workplace and improve the quality of workers’ lives? This course addresses these questions through cases and experiential-learning activities.

MGMT 605 - BUSINESS TAXATION II
Short Title: BUSINESS TAXATION II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Price Prerequisite(s): MGMT 603 (may be taken concurrently)
Description: Fundamentals of income tax planning; taxation of property dispositions/mergers and acquisitions; individual tax planning and taxation of investment activity; international business tax considerations/U.S. foreign tax credit concept. MGMT 603 may be taken concurrently.
MGMT 606 - GLOBAL CORPORATE REPORTING: CULTURES AND POLITICS
Short Title: GLOBAL CORPORATE REPORTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The object of this course is to understand how the political lobbying of standard setters, together with countries’ different business, accounting and regulatory cultures, have shaped the globalization of corporate reporting. It will help students become informed financial analysts and financial executives in the integrated global corporate reporting world.

MGMT 607 - COMPETITIVE STRATEGIES AND EMERGING MARKETS
Short Title: COMP STRATEGY & EMERGING MKTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): (MGMT 570 or MGMP 570 or MGMW 570 or EMBA 991) and (MGMT 571 or MGMP 571 or MGMW 571 or EMBA 993 (may be taken concurrently))
Description: Emerging markets in recent times have become important players in the global economy. Competitive dynamics in these markets affects almost every manager, even those who have no direct interest in these markets. We will examine how emerging markets differ from developed economies and what such differences mean for businesses. EMBA 993 may be taken concurrently with MGMT 607.

MGMT 608 - DISRUPTION IN COMMERCIAL REAL ESTATE
Short Title: DISRUPTION IN COMMERCIAL RE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: With a seismic shift in commercial real estate due to technology-driven changes to distribution networks and the digitization of the economy, developers face challenging and evolving opportunities. How do you adapt and thrive when customer desires change at lightning speed and everyone competes against Amazon? Through simulations and a real-time case study, students learn to capture the rewards of customer-centric design using psychographics and quantitative methodologies.

MGMT 609 - MANAGING ENERGY TRANSITIONS
Short Title: MANAGING ENERGY TRANSITIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: “Managing in a Carbon-Constrained World” focuses on the business challenges and opportunities presented by the fast-changing dynamics of climate change and renewable/alternative sources of energy - at the international, federal, and state levels. Consideration will be given to successes and failures of “first movers.” We will consider how to reconcile conflicts between the goal of a lower carbon future and the priorities of energy security and restoring a strong, sustainable, economy. The course will close with corporate responses to the challenge. The course is intended to benefit students who intend to pursue careers as leaders in industry, finance, government, diplomacy, international agencies, non-government organizations (NGO’s), media, or in academia. The course will challenge you to understand diverse points of view. A background in economics, finance, management, engineering, or public policy will provide a strong foundation, but other disciplines may also apply.

MGMT 610 - FUNDAMENTALS OF THE ENERGY INDUSTRY
Short Title: FUNDAMENTALS OF THE ENERGY IND
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course is based on the principle that one cannot understand commodity markets without a good grasp of the technology and physical infrastructure behind production, transportation, and distribution of energy commodities and linkages between different segments of the energy complex. The review of the industry infrastructure will be followed by discussion of the institutional framework of the energy markets in the US and other developed economies, including discussion of the different types of participating business entities, types of transactions and regulatory infrastructure. The course will be divided into three groups of lectures, covering the natural gas industry, power and coal business and oil / refined products markets, with an additional shorter lecture on regulatory issues.
MGMT 611 - GEOPOLITICS OF ENERGY
Short Title: GEOPOLITICS OF ENERGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course explores the human and social dynamics critical to the evolving world of technology innovation and entrepreneurship. Topics include: social systems; entrepreneurial mindset; the future of work and organizations; understanding new fields and data; the changing relationship between humans and technology; and questions in privacy, security, and regulation.

MGMT 614 - STRATEGIC SOCIAL NETWORKS
Short Title: STRATEGIC SOCIAL NETWORKS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students learn how, why, and when social networks can lead to successful career advancement, innovation, and investment opportunities, using data-analytics, exercises, and real-world cases.

MGMT 612 - COMPETITION, CARBON AND ELECTRICITY POLICY
Short Title: COMP, CARBON & ELECT POLICY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: MGMT 612 covers the changes that have occurred over the last twenty years in the electric power industry and the challenges and profit potential of efforts to reduce the industry's emissions of carbon dioxide. The course will use original source materials to explore the impacts of policy choices on companies and consumers. We will cover economics, finance, engineering, and public policy, and a background in those disciplines will prove useful. Repeatable for Credit.

MGMT 616 - ENERGY MARKET ORGANIZATION
Short Title: ENERGY MARKET ORGANIZATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students learn how, why, and when social networks can lead to successful career advancement, innovation, and investment opportunities, using data-analytics, exercises, and real-world cases.

MGMT 615 - BARGAINING
Short Title: BARGAINING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will help you become a better negotiator by better understanding the values, motivations, and psychological biases that drive people's behaviors in negotiations. To achieve this goal, we will discuss theory and research on bargaining, and we will play strategic games that illustrate important concepts of negotiation situations.

MGMT 613 - SYSTEMS THINKING IN INNOVATION AND ENTREPRENEURSHIP
Short Title: SYSTEMS THINKING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course explores the human and social dynamics critical to the evolving world of technology innovation and entrepreneurship. Topics include: social systems; entrepreneurial mindset; the future of work and organizations; understanding new fields and data; the changing relationship between humans and technology; and questions in privacy, security, and regulation.
MGMT 618 - BESTSELLERS: THE SCIENCE AND WISDOM
Short Title: BESTSELLERS: SCIENCE & WISDOM
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: There have been a lot of business books written over the years, making it difficult to navigate which ones contain wisdom grounded in sound science, and which ones make questionable claims and shaky promises. In this seminar, we'll examine some bestselling books to help make us better people, leaders, and consumers of business advice.

MGMT 620 - THE ENTREPRENEURIAL TOOLKIT
Short Title: THE ENTREPRENEURIAL TOOLKIT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

MGMT 621 - THE NEW ENTERPRISE
Short Title: THE NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Evaluating opportunities for a new innovation-based enterprise; conceptualizing and developing a venture plan through an iterative process; articulating venture assumptions; testing venture assumptions through experimentation. Intended for students who want to start their own venture, join an early-stage venture, be entrepreneurial within an existing organization, or want to understand entrepreneurs and how to think entrepreneurially.

MGMT 622 - FOUNDATIONS OF SUPPLY CHAIN MANAGEMENT
Short Title: FOUNDATIONS OF SUPPLY CHAIN
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course explores strategic operations and supply chain management. It provides content and pragmatic executive perspectives on overall operations/supply chain strategies as well as delve into four major capabilities (supply & demand management, sourcing & procurement, manufacturing/service delivery, and performance improvement/quality). The concepts are applicable to manufacturing and service industries; and, they are applicable to large corporations and small businesses. Course activities provide the opportunity to build content knowledge, apply their expertise to operations and supply chain management situations, and explore cutting-edge topics in operations and supply chain management. They will benefit students who may be relatively new to operations and supply chain management, as well as students who may bring real-world experience. The course environment will be collegial, collaborative, and highly interactive with a mixture of team-based and individual activities. Class sessions include multiple activities and student preparation will be critical to maximize the value of the class to themselves, as well as their classmates. Repeatable for Credit.

MGMT 623 - EARLY DEVELOPMENT AND ENTREPRENEURSHIP IN A BIOTECH/MEDTECH STARTUP
Short Title: ENTREPRENEURSHIP IN BIOTECH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Provides an insider’s perspective on workings and challenges of early to mid-stage biotech (pharmaceutical) and medtech (medical device) startups. Live case studies highlight issues unique to this space including pre-clinical & clinical development, licensing & business development, the FDA, and intellectual property and patent strategies. Intended for students considering a career in an entrepreneurial life sciences company. Previous or contemporaneous coursework in entrepreneurship or healthcare is preferred.
MGMT 624 - REAL ESTATE
Short Title: REAL ESTATE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course emphasizes the components and processes of real estate industry including identification and analysis of investment and development opportunities from an entrepreneurial standpoint. It utilizes Harvard Cases and requires a major field project. Guest lectures will constitute a portion of most sessions.

MGMT 625 - DESIGN THINKING
Short Title: DESIGN THINKING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Design Thinking is a problem-solving process that can be used to reduce risk when launching a new idea and increase your chances of developing an innovative solution that people want. Through our human-centered approach we will gain new insights into high-potential problem spaces and use an iterative experimentation process to ensure efficient resource utilization.

MGMT 626 - VENTURE CAPITAL
Short Title: VENTURE CAPITAL
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Overview of the venture capital industry; the organization and operation of venture capital funds; investment methodology; monitoring and portfolio liquidation; leveraged investing; and specialized investments.

MGMT 627 - ENTERPRISE ACQUISITION
Short Title: ENTERPRISE ACQUISITION
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The needs approach to buying and selling businesses; enterprise valuation; deal and contract structuring; mergers and acquisitions; leveraged buyouts; consolidating fragmented industries.

MGMT 628 - INTRODUCTION TO USER EXPERIENCE
Short Title: INTRO TO USER EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This project-based course introduces the user experience concepts needed to lead UX projects including key UX concepts, the UX lifecycle, user research, and design. Course will include seminal readings about UX, business case studies, and project-based course work.

MGMT 629 - BUSINESS PLAN DEVELOPMENT
Short Title: BUSINESS PLAN DEVELOPMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is based on reading, analyzing and discussing business plans of actual companies in motion. Class participation is important for this course. Reading the material, discussing the business plans, and interacting with company management will also make the course more enjoyable and meaningful. During the course, we will have entrepreneurs and founders as guest lecturers. SalvageSale, BizSupplies and SimDesk are examples of business plans we will discuss.

MGMT 630 - FINANCIAL MARKETS AND INSTRUMENTS
Short Title: FINANCIAL MARKETS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): (MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843) and MGMT 648 (may be taken concurrently)
Description: The content of this course is a microeconomic focus on the functioning and structure of financial markets and financial institutions. By the end of the course students will be able to describe how information asymmetry problems affect financial transactions and market outcomes, analyze different financial market structures, and understand how no-arbitrage concepts apply to valuation tasks. We will study how firms raise external capital to fund investment in real assets and how markets and financial intermediaries assist in this. We will learn many of the details that are assumed away in other core courses, and this class will help you see how corporate finance and investments fit together as a cohesive whole.
MGMT 631 - HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS  
**Short Title:** HEALTH INSURANCE IN THE U.S.  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadrimester level students.  
**Course Level:** Graduate  
**Description:** The basics that all executives, especially those working in the health care industry, need to know about health insurance programs, public and private markets, pricing, risk management and how insurance companies think about their business. After covering the basics, the course examines the rapid shifts occurring as a result of the Affordable Care Act and other environmental and legislative changes.

MGMT 632 - CONSUMER FINANCE  
**Short Title:** CONSUMER FINANCE  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadrimester level students.  
**Course Level:** Graduate  
**Description:** Introduction to household financial decision making and consumer financial products. We will use rational and behavioral models to understand how financial products serve consumers' needs with respect to managing risk, borrowing, investing, and moving funds. We will discuss how technology, data, and regulation are affecting the consumer finance sector.

MGMT 633 - ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS  
**Short Title:** LIFE SCIENCE ENTREPRENEURSHIP  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment is limited to Graduate or Graduate Quadrimester level students.  
**Course Level:** Graduate  
**Description:** This pragmatic course combines core lectures on entrepreneurship with special guest presentations by notable life science entrepreneurs. It explores the roles that physicians, scientists, engineers, and MBA's play in biotech, medical device, and healthcare companies, as well as major trends in Angel and Venture Capital Financings of Startups. Lectures on entrepreneurial team building, leadership and career planning are included. Cross-list: BIOE 633.

MGMT 634 - USING FINANCIAL STATEMENTS TO EVALUATE FIRM PERFORMANCE  
**Short Title:** USING FINANCIAL STATEMENTS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the O MBA program. Enrollment is limited to Graduate or Graduate Quadrimester level students.  
**Course Level:** Graduate  
**Description:** This course is designed to develop basic skills in financial statement analysis with special emphasis on understanding, organizing and summarizing financial data for decision making purposes related to valuation. The course focuses on financial and accounting analysis which consists of documenting and understanding a firm's profitability relative to past performance and comparable firms. Ratio analysis, accounting quality, and earnings management are the focal points of this portion of the course.

MGMT 635 - ACCOUNTING-BASED VALUATION  
**Short Title:** ACCOUNTING-BASED VALUATION  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the O MBA program. Enrollment is limited to Graduate or Graduate Quadrimester level students.  
**Course Level:** Graduate  
**Prerequisite(s):** MGMT 634 (may be taken concurrently)  
**Description:** This course covers two major topics: 1) forecasting financial statements based on a complete historical analysis of the firm; 2) deriving firm value under a variety of approaches including discounted cash flows (DCF) and residual operating income valuation (ROPI).

MGMT 636 - MARKETING FOR SMALL BUSINESS  
**Short Title:** MARKETING FOR SMALL BUSINESS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadrimester level students.  
**Course Level:** Graduate  
**Description:** This course is designed to help students develop and manage a creative and economical marketing strategy for a small business. We will use real world examples to learn how to effectively market through the use of web sites, search engine optimization (SEO), social media, online and local advertising. Students will experience a balance of theory and practical learning to apply these tools in harmony which will intensify awareness and profitability. Repeatable for Credit.
MGMT 637 - DILEMMAS IN FOUNDING NEW VENTURES
Short Title: DILEMMAS IN FOUNDING VENTURES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Frameworks for making informed decisions about human capital when founding a new venture, including co-founders, early hires, advisors, board members, and investors.

MGMT 638 - QUANTITATIVE INVESTMENT STRATEGIES
Short Title: QUANTITATIVE INVESTMENT STRAT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 782 (may be taken concurrently)
Description: This course introduces students to common strategies and techniques employed by quantitative money managers, focusing especially on equity management. The central questions are whether managers can generate alpha by selecting stocks based on quantitative characteristics and how to manage risks of portfolios created in that way. The prerequisite may be taken concurrently.

MGMT 639 - MARKETING OF PROFESSIONAL SERVICES IN THE GLOBAL ECONOMY
Short Title: MKTING OF PROF SERVICES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or X MBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This fast-paced, highly interactive and energetic course will explore the fundamental concepts, strategies and best practices of marketing professional services in today's global economy—and how this marketing differs from marketing tangible goods and non-professional services. Students will learn the importance of branding, public relations, crisis communications and Web 2.0 to promoting professional services today, and how to successfully integrate those vehicles with traditional marketing strategies. Repeatable for Credit.

MGMT 640 - INTRODUCTION TO PRIVATE BUSINESS VALUATION
Short Title: PRIVATE BUSINESS VALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an opportunity to learn the framework for determining the market value of privately-owned business enterprises. The methods presented in this course are used by accredited business appraisers, investment bankers, and other valuation practitioners, often involved in the valuation of privately-owned businesses.

MGMT 641 - ENTREPRENEURIAL STRATEGY
Short Title: ENTREPRENEURIAL STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an integrated strategy framework for entrepreneurs. The course is structured to provide a deep understanding of the core strategic challenges facing start-up innovators, and a synthetic framework for choosing and implementing entrepreneurial strategy in dynamic environments, as well as a general understanding of the financing options for early stage startups, including angel investment, accelerators, crowdfunding and the venture capital industry. A central theme of the course is that, to achieve competitive advantage, technology entrepreneurs must balance the process of experimentation and learning inherent to entrepreneurship with the selection and implementation of a strategy that establishes competitive advantage. The course identifies the types of choices that entrepreneurs must make to take advantage of a novel opportunity and the logic of particular strategic commitments and positions that allow entrepreneurs to establish competitive advantage. The course includes an in-depth overview of the organization, operation and economics of different funding sources; venture capital and angel investment term sheets and deal structures; startup investment methodology –deal sourcing, monitoring and liquidation; the role of VCs as key advisors and board members; and current issues in early stage financing as a result of a changing global and economic environment. The course combines interactive lectures, speakers and case analyses. The cases and assignments offer an opportunity to integrate and apply the principles taught in the course in a practical way, and draws from a diverse range of industries and settings.
MGMT 642 - FUTURES AND OPTIONS I
Short Title: FUTURES AND OPTIONS I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs:
EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: An introduction to forward, futures, option, and swap contracts, including the basic valuation principles, the use of these contracts for hedging financial risk, and an analysis of option-like investment decisions. Recommended for finance students.

MGMT 643 - EQUITY PRACTICUM I - WRIGHT FUND
Short Title: EQUITY PRACTICUM I WRIGHT FUND
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment limited to students in the following programs:
EMBA MBA PMBA WMBAB XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Prerequisite(s): (MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843) and (MGMT 648 (may be taken concurrently) or MGMT 848 (may be taken concurrently))
Description: The first course in the two semester sequence where students gain hands on exposure to many aspects of investment management by managing the M.A. Wright Fund, a ‘live’ stock portfolio of endowed assets. The first semester’s work is predominately focused on individual stock analysis including qualitative, financial, and quantitative analysis and valuation. Admission is by application and interview only. Students must continue to MGMT 644. Instructor Permission Required.

MGMT 644 - EQUITY PRACTICUM II - WRIGHT FUND
Short Title: EQUITY PRACTICUM II WRIGHT FUND
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment limited to students in the following programs:
EMBA MBA PMBA WMBAB XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Prerequisite(s): MGMT 643 and MGMT 645 (may be taken concurrently)
Description: The second course in the two semester sequence where students gain hands on exposure to many aspects of investment management by managing the M.A. Wright Fund, a ‘live’ stock portfolio of endowed assets. The second semester’s work is predominately focused on quantitative and qualitative sector analysis and portfolio risk and return analysis and management. Admission is for students continuing from MGMT 643 only, who have been accepted by application and interview only. Instructor Permission Required.

MGMT 645 - PORTFOLIO MANAGEMENT
Short Title: PORTFOLIO MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs:
EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: Review of classic investment theory, with emphasis on measuring and managing investment risk and return. Includes the development of modern portfolio theory and asset pricing models, an introduction to option and futures contracts, market efficiency, and stock valuation. Recommended for most finance students.

MGMT 646 - CORPORATE INVESTMENT POLICY
Short Title: CORPORATE INVESTMENT POLICY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5

Restrictions: Enrollment limited to students in the following programs:
EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: This course examines the investment decisions faced by corporate financial managers. We begin by developing a general framework for corporate valuation, and then we use this framework to review and expand on the capital budgeting issues developed in the core finance course. For example, we review the foundations of option valuation, and then apply these tools to value real options. We also cover new material on estimating the cost of capital and the effects of leverage. In this course, you will learn the state of the art in the analysis of corporate investment decisions. The course format is a mixture of theory, empirical evidence, and practical application. The theory provides the framework for our analysis. The empirical evidence provides a core of stylized facts to support our theoretical intuition. And, the practical applications put to use the theoretical foundations and empirical evidence in real world decision making.

MGMT 647 - CORPORATE FINANCIAL POLICY
Short Title: CORPORATE FINANCIAL POLICY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5

Restrictions: Enrollment limited to students in the following programs:
EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: Examination of corporate investment and financing, with emphasis on valuation methods and how financial policy impacts corporate value. Includes the implications of agency costs, asymmetric information and signaling, taxes, mergers and acquisitions, corporate restructuring, real and embedded options, and financial risk management. Recommended for finance students.
MGMT 648 - APPLIED FINANCE
Short Title: APPLIED FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843
Description: Study of the theory and practice of the fundamental principles in finance, emphasizing hands-on experience with a wide range of corporate finance and investment applications. The course provides extensive opportunity to implement finance theory at a practical level and to develop advanced analytical spreadsheet expertise, including financial statement forecasting, regression analysis, Monte Carlo simulation, and portfolio optimization.

MGMT 649 - DATA MINING FOR BUSINESS ANALYTICS
Short Title: DATA MINING FOR BUS ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 595 or MGMP 595 or MGMW 595
Description: This course covers fundamental principles behind data mining applications, introduce popular data mining algorithms and techniques, examine how data mining technology can be used in decision making, work on real-world data "hands-on" with open-source software, explore Deep Learning and their impact. Repeatable for Credit.

MGMT 650 - FUTURES AND OPTIONS II
Short Title: FUTURES AND OPTIONS II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 642 (may be taken concurrently) and (MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843)
Description: In-depth analysis of the theory and practice of derivative securities. Develops a general set of valuation, hedging, and risk management techniques which are then applied to the equity, interest rate, currency, and commodity markets. Prerequisite MGMT 642 may be taken concurrently.

MGMT 651 - FIXED INCOME MANAGEMENT
Short Title: FIXED INCOME MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of fixed income securities and markets in the U.S. and abroad, with an emphasis on the term structure of interest rates and the pricing of fixed income securities, derivatives, and portfolios. Include Treasury, Corporate Debt, and Mortgage-Backed Securities.

MGMT 652 - MERGERS AND ACQUISITIONS
Short Title: MERGERS & ACQUISITIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course examines the merger and acquisition process from the perspectives of buyers and sellers. Attention is paid to the internal (make) versus external (buy) growth opportunities and their value consequences. The course also analyzes the M&A transaction process through the study of cases. An additional focus will be in the interaction of strategic planning, value planning, financial strategies, and investment decisions.

MGMT 653 - BLOCKCHAIN: DIGITAL ASSETS AND THE INTERNET OF VALUE
Short Title: BLOCKCHAIN: INTERNET OF VALUE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Understand the design principles of the blockchain economy and its implementation challenges. Analyze the potential application of this "protocol of truth," beyond currency: to develop decentralized networks, to optimize logistics and trade; to record value and identity (smart contracts, birth certificates, insurance claims, art, land titles and even votes).
MGMT 654 - REAL ESTATE CAPITAL MARKETS: PUBLIC & PRIVATE
Short Title: RE CAP MARKETS: PUBLIC & PRIV
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course has two primary objectives: First, to provide an overview of topics related to real estate capital markets. Specifically, this course will focus on how to raise capital for various uses. This course will devote time to understanding the working of the Capital Markets. Second, to prepare students interested in Real Estate to learn concepts related to accessing capital from various sources. Finally, you will learn from various guest speakers who are highly recognized in the industry, what their experience has taught them and how to use it to make a team presentation “pitch” for capital.

MGMT 655 - THE MONEY REVOLUTION: DIGITAL DISRUPTION IN FINANCE
Short Title: THE MONEY REVOLUTION
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: We consider the financial services industry in an era of rapid disruption. We analyze how firms like Square, PayPal, Stripe, Lending Club, OnDeck or Robinhood are disrupting the value chain in financial services. We seek to understand what drives the development of disruptive platforms and why incumbents are missing out on these opportunities. We consider funding sources; competition from Asian fintech dragons as they redefine financial services through e-commerce and social payments; and the democratizing of access. Finally, we consider the next wave of technologies poised to accelerate the disruption including blockchain, cryptocurrencies, and robotics. After completing this course, you will understand how financial technology disruptors are capturing revenue pools of incumbent firms in payments, consumer and small business lending, wealth management, and advisory services.

MGMT 656 - ENERGY DERIVATIVES
Short Title: ENERGY DERIVATIVES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This class covers analytical techniques related to pricing financial derivatives used extensively in the energy industry, including European, American, Asian, binary and spread options on forwards. In addition, the class will cover applications of financial derivatives in market and credit risk management in the energy industry.

MGMT 657 - INTERNATIONAL FINANCE
Short Title: INTERNATIONAL FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Exploration of special problems encountered by financial officers in international arenas. Includes the economics of the foreign exchange market, exchange rate risk management, international portfolio management, capital budgeting for international projects, and international financing strategies.

MGMT 658 - APPLIED RISK MANAGEMENT
Short Title: APPLIED RISK MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 642 (may be taken concurrently)
Description: This course focuses on applied risk management projects. The hands-on experience allows in-depth analysis and understanding of practical risk management issues and exposure to different risk management tools including Value at Risk. The course is a combination of lectures and application of skills.

MGMT 659 - REAL ESTATE FINANCE: ASSET VALUATION
Short Title: REAL ESTATE FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course has two primary objectives: 1) provide an overview of the fundamental frameworks commonly used in the Real Estate industry and 2) provide a detailed understanding of the discounted cash flow (DCF) model, the primary quantitative financial decision tool used in the real estate industry. Students learn how to build robust DCF models incorporating important features and conventions for application to real estate assets.
MGMT 660 - REAL ESTATE CONTRACT NEGOTIATIONS FOR BUSINESS PROFESSIONALS
Short Title: REAL ESTATE CONTRACT NEG
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Legal risk pervades business dealings. This course explores legal risk by educating the student on legal theories, then how to identify, quantify, reduce and accept legal risk, in the context of real estate transactions. Effective interaction with legal counsel will be emphasized. Repeatable for Credit.

MGMT 661 - INTERNATIONAL BUSINESS LAW
Short Title: INTERNATIONAL BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Exploration of U.S. and foreign law relating to the law-business interface of transnational commercial ventures, including structuring operations and investments, addressing import-export problems and regulations, shipping issues, regular and internet-based financial transactions, and intellectual property. Emphasis is given to real cases demonstrating practical and cost-effective resolutions for international disputes.

MGMT 662 - INTERNATIONAL CORPORATE GOVERNANCE
Short Title: INT'L CORPORATE GOVERNANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an overview of successful strategies managers use to navigate their companies in the international environment governed by different laws and norms. By discussing detailed case studies of companies, students will learn about the ways global markets, local governments, and interorganizational networks shape the actions of multinational firms.

MGMT 663 - MANAGING STAKEHOLDER RISK
Short Title: MANAGING STAKEHOLDER RISK
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on protecting and creating firm value by engaging external stakeholders (e.g., communities, NGOs, politicians) in challenging socio-political environments. Students learn how to: exercise due diligence to manage socio-political risk; engage stakeholders to earn a social license to operate; and integrate stakeholder-based initiatives into financial and operational management.

MGMT 664 - OPERATIONS LEADERSHIP LAB
Short Title: OPERATIONS LEADERSHIP LAB
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 670
Description: This course is designed to give students a close up and personal view of two private Houston companies whose owners have led successful change efforts in the operations of their businesses. Repeatable for Credit.

MGMT 665 - REAL ESTATE DEVELOPMENT: FEASIBILITY
Short Title: RE DEVELOPMENT: FEASIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course describes the feasibility analysis of real estate developments. Topics covered are market studies, financial feasibility, design issues and site selection for the primary real estate property types.

MGMT 666 - INTERNATIONAL TRADE AND BUSINESS STRATEGY
Short Title: INT'L TRADE & BUSINESS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An overview of the economic and political environment of international trade, foreign investment, and competitiveness, focusing on institutions that affect international commerce.
MGMT 669 - REAL ESTATE MARKET ANALYSIS
Short Title: REAL ESTATE MARKET ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces students to the methods used in analyzing commercial real estate markets, considering the perspective of decision-makers who are considering potential development, investment, or financing decisions. Required reading combined with lectures and guest speakers within the industry will enhance the student understanding of when and why market conditions are suitable for investment capital. Analytic data provided by real time research organizations as well as "boots on the ground" field work will be critical in understanding the current states of the market for each different asset type (Retail, Office, Industrial, Hospitality and Residential).

MGMT 670 - OPERATIONS STRATEGY
Short Title: OPERATIONS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examines the key components that build an effective operations strategy for driving a 21st century company's competitive business strategy. Covers a range of industries and uses current events and cases to highlight the underlying theories and practices. Also looks at cutting-edge topics in operations and supply chain management.

MGMT 671 - CORPORATE CRISIS MANAGEMENT AND COMMUNICATION
Short Title: CORP CRISIS MGMT&COMMUNICATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Current methods of crisis management utilizing recent real-world cases. Research strategies and analyze each situation's processes and results. Class will enhance strategic thinking, determine pros and cons of courses of action, and provide an understanding of the decision making process. Class is interactive with individual and small group participation.

MGMT 673 - COST ANALYSIS IN HEALTHCARE
Short Title: COST ANALYSIS IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 502 or MGMP 502 or MGMW 502 or MGMT 802
Description: As healthcare costs continue to rise at an alarming rate in U.S. over the past decade (about 20% of GDP by some accounts), issues relating cost measurement and management in the delivery of healthcare have also taken center stage. Experts in business and management have argued that extant cost systems do a poor job of measuring how much it costs to treat patients. Absent accurate measurement of these costs, many decisions could go wrong. Cost management and efficiency initiatives would be misguided, and medical reimbursements would lack proper cost bases. These concerns have triggered advances in cost measurement and management techniques that are useful not just in the healthcare setting, but also in other service organizations. The purpose of this elective is to help students develop a critical understanding of the nature of costs in healthcare delivery, their measurement in a variety of decision contexts, and how they can be managed and improved. Students will be exposed to tools such as the break-even analysis, role of cost allocations, activity-based costing, time-driven activity based costing, and cost control.

MGMT 674 - REAL ESTATE FINANCE: SECURITIES
Short Title: REAL ESTATE FINANCE: SECURITIES
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

MGMT 675 - CORPORATE REAL ESTATE
Short Title: CORPORATE REAL ESTATE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 502 or MGMP 502 or MGMW 502 or MGMT 802
Description: Repeatable for Credit.
MGMT 676 - SOCIAL ENTERPRISE
Short Title: SOCIAL ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: What might constitute social responsibility in a market setting? If social responsibility connotes a connection between a person and a social problem say between you and a poor person in Bangladesh or Houston how might it be exercised in a market transaction of buying or selling? Is there a role of private enterprise or of private consumption for alleviating some of the social problems (e.g., health, education, pollution, poverty, etc.) that we observe and experience in communities across the world? Social Enterprise explores these and related questions in the context of business.

MGMT 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate, Graduate Quadmester or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MGMT 678 - BUSINESS OF HEALTHCARE
Short Title: BUSINESS OF HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Sequence of offerings that provides an introduction to the business of health care in the U.S. Topics include health care systems, health service organizations, and issues relating to the aging problem and the technology explosion in health care. Required elective for MD/MBA's dual degree students. Repeatable for Credit.

MGMT 679 - MACHINE LEARNING FOR BUSINESS - I
Short Title: MACHINE LEARNING FOR BUS. - I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces students to machine learning techniques used in business applications to draw managerial insights from data. The methods that will be covered include naïve Bayes classifier, classification and regression trees, feed forward neural networks, and visualization methods. Students will learn to apply these methods in a wide range of settings such as marketing, finance, healthcare and other business areas, and will gain hands-on experience through assignments and a group project.

MGMT 680 - CUSTOMER LIFETIME VALUE
Short Title: CUSTOMER LIFETIME VALUE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Customer Lifetime Value (CLV) is a metric of burgeoning interest for firms, venture capitalists, financial analysts, and marketers. In this course, students learn how to build powerful and predictive data-driven CLV models. Topics covered include valuing firm equity using customer data, using RFM segmentation for direct marketing, customer acquisition and retention, and measuring the impact of a loyalty program.

MGMT 681 - MANAGING CUSTOMER PERCEPTIONS
Short Title: MANAGING CUSTOMER PERCEPTIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is designed to offer you an overview of the major principles of persuasion. The emphasis will be on developing a marketing communications approach that will fit into a firms' marketing program. The course will cover how to set effective communication objectives, decide what to communicate and how to develop a message execution approach.
MGMT 682 - PRICING STRATEGIES
Short Title: PRICING STRATEGIES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of the paradigm that success of a product lies not only in its acceptance by the end consumer but also in how it is priced and how it reaches the intended consumer, with emphasis on understanding and analyzing the issues, problems, and opportunities characteristic of the channel relationship and of the various faces of pricing. Repeatable for Credit.

MGMT 683 - INTRODUCTION TO BRAND STRATEGY
Short Title: INTRODUCTION TO BRAND STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to Brand Strategy is designed to introduce students to core branding concepts through case analysis (done out of class) and branding exercises completed in class within brand teams including: brand audit, brand positioning, brand platform. Brand strategy elements to be introduced include: choice between branded house vs house of brands; sponsored and endorsed brands; brand architecture and brand portfolio; brand equity. Mutually Exclusive: Cannot register for MGMT 683 if student has credit for MGMT 684.

MGMT 684 - BRAND STRATEGY
Short Title: BRAND STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Brand Strategy course is designed to build on your first-year MBA marketing course and will explore the elements of brand strategy to build capabilities on brand management and how brands drive business strategy and long-term value: what it is, what it is not, how to manage, execute, measure and value. Mutually Exclusive: Cannot register for MGMT 684 if student has credit for MGMT 683.

MGMT 685 - GO-TO-MARKET STRATEGY
Short Title: GO-TO-MARKET STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An effective “Go-to-Market” strategy is a critical component of commercial success and building customer preference. This course is designed to build capability in the design and management of route-to-market channels. Students will gain understanding of the importance of customer-focused channel design, how to build channel power (and use it responsibly), and create a performance-driven channel culture.

MGMT 686 - INTRODUCTION TO MARKETING RESEARCH
Short Title: INTRO TO MARKETING RESEARCH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students will learn the most common methods managers use to gain insight about customers and markets as well as the objectives/advantages/disadvantages associated with different research designs such as qualitative methods, surveys and experiments. Students will not learn specific analytic methods but rather how to design studies to yield valid results.

MGMT 687 - APPLIED MARKETING STRATEGY
Short Title: APPLIED MARKETING STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course lays out a framework for marketing strategy and guides students through each step in the development process. While business challenges are inevitable, developing and following a well-structured marketing strategy, as laid out in this course, will help avoid many of the pitfalls that can lead businesses into trouble. Case studies, together with examples from the professor’s lengthy business career, will be used to illustrate the principles and identify pathways out of trouble should it occur. Repeatable for Credit.
MGMT 688 - BUYER BEHAVIOR
Short Title: BUYER BEHAVIOR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Drawing on established theoretical frameworks of cognitive and social psychology, this course examines three aspects of consumer behavior: (1) individual, social and cultural influences on consumers, (2) psychological mechanisms of pre- and post-consumption processes such as decision-making and attitude formation and change, and (3) methodological issues in consumer analysis. Implications for strategy as well as marketing program design, measurement and execution are discussed. These topics will be studied through discussion of academic articles, cases and projects.

MGMT 689 - DECISION MODELS
Short Title: DECISION MODELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Successful management requires the ability to recognize a decision situation, understand its essential features, and make a choice. However, many of these situations - particularly those involving uncertainty and/or complex interactions - may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. This course introduces spreadsheet modeling, simulation, decision analysis and optimization to represent and analyze such complex problems. The skills learned in this course are applicable in almost all aspects of business and should be helpful in future courses. The course is divided into two parts. In the first part, we discuss the use of decision trees for structuring decision problems under uncertainty. In the second part of the course, we discuss Monte Carlo simulation, a technique for simulating complex, uncertain systems. Throughout the course, we will use Microsoft Excel as a modeling environment, using add-in programs as necessary. Familiarity with Excel is an important prerequisite for this course. Repeatable for Credit.

MGMT 690 - HEALTHCARE STRATEGY
Short Title: HEALTHCARE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Healthcare sector, which includes areas such as health care delivery, payment, pharmaceuticals, medical equipment, etc., is an important part of any economy and society in all countries of the world including the US. This sector presents an exciting platform for upcoming business leaders in pursuit of a promising and transformational professional career. This elective course offer students interested in this sector the opportunity to study and review core strategy concepts, analytical techniques, and frameworks relevant to developing, evaluating, and implementing value-creating strategies for organizations operating in various sectors of the healthcare space. Instructor Permission Required.

MGMT 691 - BREAKTHROUGH NEGOTIATIONS IN A HEALTH CARE CONTEXT
Short Title: BREAKTHROUGH NEGOTIATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is tailored for an audience interested in healthcare. We will talk about how the characteristics of the healthcare industry impinge on negotiations, and the exercises and simulations conducted are based in a healthcare context. Repeatable for Credit.
MGMT 692 - CUSTOMER RELATIONSHIP MANAGEMENT
Short Title: CUSTOMER RELATIONSHIP MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Increasingly, firms want to enhance profitability by using strategies and tactics that fall under the broad domain of customer relationship management (CRM). In this course, students take a marketer’s perspective when assessing the strategic and operational impacts of CRM in a variety of industry/customer settings. Because CRM requires crossfunctional coordination, successful implementation often expands the role and impact of the marketing organization within the firm. Thus, students also will learn how customercentricity, as an organizational mindset, changes expectations chief marketing officers, as well as other senior marketing managers, as they attempt engage others in CRM strategy development and execution. Three perspectives serve as a foundation for learning about CRM in this course: (1) CRM as a strategy that prioritizes the allocation of organizational resources toward serving customers profitably (2) CRM as a organizational capability to gather and use customer intelligence to create value for both customers and the firm and (3) CRM as a technology-enabled process that supports customer-centric goals and tactics. Thus, students will gain an appreciation for the critical roles that information management and technology play in supporting CRM strategies but content of the course will focus on strategic and operational issues related to CRM success. Repeatable for Credit.

MGMT 693 - NEW PRODUCTS
Short Title: NEW PRODUCTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Exploration of the critical role of new products within the corporation and in small businesses, focusing on consumer products. Discusses the critical steps in new product development from idea generation to business analysis and cross-functional team management to product launch into the marketplace. Students will work in groups to develop their own new products and to prepare the key elements of a new product introduction. Repeatable for Credit.

MGMT 694 - INTERPERSONAL COMMUNICATION IN HEALTHCARE
Short Title: INTERPERSL COMM IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: How to listen well, converse productively, use body language, and communicate across different cultures – all these fundamentals are covered and customized to healthcare settings. The course integrates lecture, discussion, and in-class exercises every week, providing many opportunities to apply lessons and practice skills. Students often break into small teams to simulate typical healthcare interactions and receive feedback on what they are doing well and what can be improved. Repeatable for Credit.

MGMT 695 - VALUE-BASED HEALTHCARE
Short Title: VALUE-BASED HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Value-Based Care is a framework for restructuring health care systems around the globe with the overarching goal of value for patients—not access, cost containment, convenience, or customer service. This class will serve as an introduction to value-based care and as an integration of several concepts from finance, accounting, strategy and general management applied into health care.

MGMT 697 - STRATEGIES FOR PROBLEM SOLVING
Short Title: STRATEGIES FOR PROBLEM SOLVING
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is focused on identifying and developing logical tools for gaining precise insights into what are otherwise complex and seemingly intractable real life situations. The format is one of in-class group case solutions from the perspective of business consultants, followed by class discussion of the specific tools that works for broad classes of alike problems.
MGMT 698 - APPLIED BUSINESS PROCESS OPTIMIZATION
Short Title: BUSINESS PROCESS OPTIMIZATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An analytic introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on quantitatively understanding, managing and improving processes and flows of products, customers, and information and using measurable techniques to address bottlenecks, manage inventory, improve quality, and other strategic issues in operations.

MGMT 699 - CAPITAL INVESTMENT IN HEALTHCARE
Short Title: CAPITAL INVESTMT IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course focuses on investment in the healthcare industry when the economic underpinnings have been challenged and are in transition. Students will gain an overview of the U.S. healthcare industry and the legislative and policy revisions impacting the economy of healthcare and will learn frameworks for evaluation capital investment decisions amid changes in policy and payment models.

MGMT 700 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Management
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 0.75-3
Restrictions: Enrollment limited to students in the following programs: MBA OMB MBA PMBA WMB MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Independent study or directed reading on an approved project under faculty supervision. Contact MBA program office for application information. No more than 3 credit hours of independent study will count towards graduation unless approved by the Jones School Academic Standard Committee. Department Permission Required. Repeatable for Credit.

MGMT 701 - MARKETING EXPERIMENTATION
Short Title: MARKETING EXPERIMENTATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will focus on gathering interpretable and actionable information from your customers via experiments and surveys. The first part of the course will focus on measurements: what you want versus what you can get. Then we will run actual surveys or online experiments and present the outcomes.

MGMT 702 - RICE BUSINESS INTERNATIONAL STUDY
Short Title: RICE BUSINESS INTNL STUDY
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMB MBA PMBA WMB MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Rice Business offers opportunities for students to attend international seminars hosted by other business schools around the world. These seminars, typically lasting one to three weeks, bring together MBA students from top programs around the world to focus on contemporary local and global business issues. Department Permission Required. Repeatable for Credit.

MGMT 703 - FIELD STUDY IN AMERICAN BUSINESS I
Short Title: FIELD STUDY - AMERICAN BUS I
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a summer internship with a firm in the United States. The readings are meant to complement much of your course work in the first year of the MBA program. A final paper is due at end of summer to summarize experience. Instructor Permission Required.
MGMT 704 - FIELD STUDY IN AMERICAN BUSINESS II
Short Title: FIELD STUDY - AMERICAN BUS II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a fall internship with a firm in the United States. The readings are meant to complement much of your course work in the second year of the MBA program. Report due at end of term summarizing work experience.

MGMT 705 - FIELD STUDY IN AMERICAN BUSINESS III
Short Title: FIELD STUDY - AMERICAN BUS III
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a spring internship with a firm in the United States. The readings are meant to complement much of your course work in the second year of the MBA program. Department Permission Required.

MGMT 706 - ANALYTICS IN HEALTHCARE
Short Title: ANALYTICS IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: This course introduces a data-driven culture in healthcare operations and patient care. Lectures cover fundamentals of data management, analytics maturity models, and using data to enhance collaboration and research. Invited speakers cover applications of machine learning and AI for healthcare automation. Overall goal is delivering value-based healthcare with enhanced safety.

MGMT 707 - ADVANCED MARKETING RESEARCH
Short Title: ADVANCED MARKETING RESEARCH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Students focus on conjoint analysis, a state-of-the-art method for discovering consumer preferences. This framework enables a quantitative approach to new product design that encompasses analysis of market share, segmentation, targeting, and positioning. In this project-based course, student teams design a set of new product concepts using conjoint analysis, analyze related survey data, and present a data-driven strategic marketing plan for their chosen concept.

MGMT 708 - PRICING STRATEGIES: OIL & GAS INDUSTRY
Short Title: PRICING STRATEGIES-OIL&GAS IND
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: In rapidly changing business environments, with global competition and maturing markets, demonstrating in-market growth and competitive advantage is extremely important. This class explores how companies utilize existing information and custom data to create frameworks that facilitate strategic growth-oriented decisions. The class also focuses on new trends in digital transformation within O&G markets with Pricing and Sales effectiveness as the focus. Class sessions will emphasize experimental learning and will include a combination of case studies, real-time business examples and hands-on fieldwork where applicable.

MGMT 709 - MARKETING IN THE ENERGY INDUSTRY
Short Title: MARKETING IN THE ENERGY IND.
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMB A or X MBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Repeatable for Credit.
MGMT 710 - LEADERSHIP ILE
Short Title: LEADERSHIP ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students engage in an intensive learning experience to grow their leadership skills. Each student serves as the interim CEO of a manufacturing company, leading the management team responsible for strategy, marketing, financing, operations, research, and development. Students analyze financial, consumer, and operations data and develop tools to make predictions in an uncertain and changing marketplace. Keeping the company profitable - or even out of bankruptcy - is itself a challenge. In addition, the team faces difficult situations throughout the simulation that test skills learned in the core organizational behavior course and other core courses.

MGMT 711 - NEGOTIATIONS ILE
Short Title: NEGOTIATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course provides opportunities for students to experience different phases of two-party, multi-party, and team negotiations. Its interactive format facilitates development of analytical and behavioral skills for effective negotiation. Topics include diagnosing conflict, decision making, adversarial vs. cooperative strategies, ethical and cultural factors, and third-party intervention.

MGMT 712 - PROCESS MANAGEMENT AND QUALITY IMPROVEMENT
Short Title: PROCESS MGMT & QUALITY IMPROV
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides students with tools, techniques, and frameworks for recognizing and analyzing operating performance opportunities along with a process-centric lens with respect to commercial competitiveness. The course provides a team project opportunity to identify business performance issues and take action by diagnosing and addressing relevant process components.

MGMT 713 - STRATEGIC ISSUES FOR GLOBAL BUSINESS
Short Title: STRAT ISSUES FOR GLOBAL BUS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will help students apply the key strategic management frameworks and concepts into the innovation management context in technology industries and help them understand that innovation is an essential and integral part of strategic management. Within this strategic perspective, this course draws upon strategic management, organization theory, product innovation, and technology management for analytical tools to address important challenges faced by managers in technology-based firms. Repeatable for Credit.
MGMT 717 - PROJECT MANAGEMENT
Short Title: PROJECT MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on the fundamentals of project management. Students will have the opportunity in this course to apply many of the subjects discussed in the MBA program in practical ways through case studies and consulting with company project managers.

MGMT 718 - MARKETING BASED PROJECT ANALYSIS
Short Title: MARKETING BASED PROJ ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an overview of the role of market research in real estate development. Students will learn the steps used to conduct a market study, the role of economic data in evaluating a market, the use of comparable properties in preparing financial projections for a real estate project and the importance of public/private financing options in making a project feasible. This course would be useful to students interested in pursuing a career in real estate development. Students interested in real estate investments may also benefit from this course. While the principals learned in the course are applicable to all real estate development, the examples used in the course will focus on hotel development. Repeatable for Credit.

MGMT 719 - SUPPLY CHAIN MANAGEMENT
Short Title: SUPPLY CHAIN MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Developing strategies to optimize the integrated planning and execution of processes that facilitate the flow of materials, information and financial capital. Topics explored include Materials Demand Planning, Procurement Systems, Inventory Management, Strategic Sourcing, Supplier Relationship Management, Logistics and Asset Management.

MGMT 720 - STRATEGY AND MANAGING INTERNATIONAL STRATEGIC ALLIANCES
Short Title: STR & MNG INTL STRAT ALLIANCES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course seeks to provide students with the skills, knowledge, and sensitivity required to structure and manage strategic alliances/joint ventures within a global environment. This course will discuss the following topics: motivations for joining strategic alliances/joint ventures, partner selection, structuring strategic alliances/joint ventures to meet firms' strategic objectives, control and management of alliances/joint ventures, evaluation of performance of alliances/joint ventures, and exiting alliances/joint ventures. Case studies will also be used to develop students' capacity to identify issues, to reason carefully through various options and improve students' ability to manage the organizational process by which alliances/joint ventures get formed and executed. We will also read and discuss recent articles from the business press and academic journals.

MGMT 721 - BUSINESS LAW
Short Title: BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the broad subject of law as it relates to business and is designed to help the student develop "legal astuteness." That is, the ability to communicate effectively with counsel and to work together with counsel to solve complex problems and/or to protect and leverage the firm's resources. It is designed to be a guide to understanding how the law impacts daily management decisions and business strategies, to spotting legal issues before they become legal problems, and to using laws and legal tools to marshal resources and manage risk.

MGMT 722 - SUPPLY CHAIN MANAGEMENT: MAINTAINING AND OPTIMIZING VALUE
Short Title: SUPPLY CHAIN: OPTIMIZING VALUE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Executing sourcing strategies for materials or services that sustain value, drives performance, encourages innovation and ethical behaviors. Topics explored include Operations to Commercial Translation, Contract Negotiation, Contracting, Performance Management, Risk Assessment, Risk Mitigation, Supplier Relationships, Stakeholder Engagement and Communication.
MGMT 723 - PROFESSIONAL SERVICE FIRMS
Short Title: PROFESSIONAL SERVICE FIRMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Professional service firms – consulting, money management, private equity, venture capital, advertising, medical service, and law firms – are confronted with significant challenges as they experience increased competition from boutique firms as well as global and international competitors. Clients are more demanding, and there are significant, strategic and organizational challenges which require different approaches from traditional approaches. One observer noted that this competition has moved from gentlemanly competition to a “blood sport”. Interestingly, the service sector in the US furnishes 68 percent of the GDP and this is growing in emerging economies; for example, the service sector in India contributed 56 percent to the GDP during 2008-09. Additionally, many of these firms’ leaders are overwhelmed by the expectation of a dual role where they are not only managers but also high profile producers. As such, it is important for a course to examine the strategy and leadership challenges these firms face and likewise to expose students to the challenges they will face as professionals in one of these organizations, and ultimately as leaders in such professional service firms. The course will also include visits from managers associated with professional service firms. Repeatable for Credit.

MGMT 725 - INTELLECTUAL PROPERTY STRATEGY FOR ENTREPRENEURS: LEGAL AND STRATEGIC ASPECTS
Short Title: IP FOR ENTREPRENEURS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides a practical, business-oriented overview of three important strategic considerations for a new enterprise: (1) identifying and monetizing the business’s potential intellectual property; (2) identifying and addressing other people’s IP-ownership claims, including data-privacy considerations; and (3) long-term planning for a liquidity event.

MGMT 724 - SOCIAL ENTREPRENEURSHIP – PRACTICAL BUSINESS PLANNING
Short Title: SOCIAL ENTREPRENEURSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This practical course will study social entrepreneurship and its ability to create social change by applying business principles and earned income strategies. Light on Powerpoint slides and theory, and heavy on real-world leadership and discussions, students will consider social enterprise solutions to real social needs, and write a business plan utilizing knowledge gained throughout their MBA program.

MGMT 726 - FIXED INCOME PRACTICUM I - RICE FI FUND
Short Title: FIXED INCOME PRACTICUM I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Prerequisite(s): MGMT 648 (may be taken concurrently) and MGMT 645 (may be taken concurrently)
Corequisite: MGMT 651
Description: The first course in the two semester sequence where students gain hands-on experience in managing fixed income portfolios. Students manage both the Rice Fi Fund, a $2.5 million Rice University endowment bond portfolio, and a simulated long-term portfolio. Students use Finance Center resources to conduct in-depth quantitative and qualitative analysis of sectors and individual securities across different fixed income asset classes, develop portfolio strategies, and manage risk and return. This applied course builds on foundations provided in MGMT 651, a co-requisite. Admission is by application only. Instructor Permission Required. Repeatable for Credit.
MGMT 727 - FIXED INCOME PRACTICUM II - RICE FI FUND
Short Title: FIXED INCOME - PRACTICUM II
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 648 and MGMT 726 and MGMT 645 (may be taken concurrently)
Description: The second course in the two semester sequence where students gain hands-on experience in managing fixed income portfolios. Students manage both the Rice Fi Fund, a $2.5 million Rice University endowment bond portfolio, and a simulated long-term portfolio. Students use Finance Center resources to conduct in-depth quantitative and qualitative analysis of sectors and individual securities across different fixed income asset classes, develop portfolio strategies, and manage risk and return. Admission is only for students continuing from MGMT 726, who have been accepted by application only. Instructor Permission Required.

MGMT 728 - REAL ESTATE DEVELOPMENT
Short Title: REAL ESTATE DEVELOPMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Real Estate Development course follows the development process from an entrepreneurial and “deal making” point-of-view. Course topics include market analysis, site selection, project budgeting/financial analysis, land acquisition, marketing and leasing, joint ventures, financing, design and construction management, and dispositions.

MGMT 729 - CURRENT ISSUES IN TECHNOLOGY MANAGEMENT
Short Title: CURRENT ISSUES IN TECH MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Companies that successfully select, adopt, and exploit technology gain a competitive advantage. Business leaders, executives, strategists, innovators and line managers each play a key role. Their decisions and actions determine a business's ability to leverage technology successfully. In the classroom, our focus will be on current technology related issues faced by businesses, including security, privacy and emerging technologies such as AI and IoT. We will examine these topics through recent research and use case studies to develop strategies students can use in their environment. The course is focused on managing business impact, business risk, and externalities related to technology. It is not industry specific and no prior technical knowledge is required.

MGMT 730 - LEGAL ASPECTS OF ENTREPRENEURSHIP
Short Title: LEGAL ASPECTS OF ENT.
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on the legal dimensions of entrepreneurship and is designed to help students develop the managerial capability to work effectively with legal counsel to solve complex problems and to protect and leverage firm resources. Like information technology, the legal dimensions of business should not be treated as an after-thought or add-on to the business strategy development process. Corporate leaders with an understanding of American law have a unique capacity to protect and enhance shareholder wealth. Conversely, managers who lack the ability to integrate law into the development of strategy can place the firm at a competitive disadvantage and imperil its economic viability. The overarching purpose of Legal Aspects of Entrepreneurship is to prepare students to meet the legal and regulatory challenges and opportunities they can expect to encounter as entrepreneurs, venture capitalists, and managers of private and public businesses. The course provides a conceptual framework for understanding both the societal context within which businesses are organized and operate, as well as the various legal tools available to managers engaged in evaluating and pursuing opportunities. Legal Aspects of Entrepreneurship will offer strategies and tactics for working with counsel to use the law as a positive force to increase realizable value while managing the attendant risks and keeping the legal costs under control. The objective is not to teach business students how to think like lawyers, but rather to teach students how to become more legally astute so they can handle with confidence the legal aspects of entrepreneurship and management. This includes developing legal literacy and learning what to look for when selecting an attorney and knowing when to call one. Repeatable for Credit.

MGMT 731 - REPUTATION MANAGEMENT
Short Title: REPUTATION MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Companies with strong reputations gain competitive advantage. However, reputation is not a tangible attribute of a firm, but rather an intangible asset held in the minds of the firm's constituents. The goal of this course is to provide students with analytical tools to assess how an organization can build, damage, and repair its reputation.
TECH PRODUCT MANAGEMENT

Short Title: TECH PRODUCT MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: This is a project based course where students choose a product and practice managing it. Students will learn how to set a vision, empathize with the user, prioritize, create product management artifacts and best practices when working within agile frameworks. This course is intended for students who want to understand the role of a product manager at a technology company, manage their own product offering as an entrepreneur, or learn how to apply agile product management techniques to their own careers.

STRATEGIES FOR GROWTH

Short Title: STRATEGIES FOR GROWTH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Prerequisite(s): (MGMW 570 or MGMP 570 or MGMT 570 or EMBA 991) and (MGMW 571 or MGMP 571 or MGMT 571 or EMBA 993)

Description: This course focuses on examining various strategies that companies can adopt to achieve sustainable and profitable growth. The course will use a variety of real-life cases of companies and supplement them with relevant readings, lectures, or other exercises, as necessary.

TECHNOLOGY ENTREPRENEURSHIP

Short Title: TECHNOLOGY ENTREPRENEURSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: The goal of this course is to provide the student with exposure to early stage technology entrepreneurship. Evaluation of opportunities, business model, capitalization, and early operations are covered. The focus is on the parts of entrepreneurship that are unique to dealing with the commercialization of research discoveries. A significant amount of time will be spent on university to business transitions and in thinking about how to take research discoveries and create a business. Repeatable for Credit.

MARKETING LAB

Short Title: MARKETING LAB
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Prerequisite(s): MGMT 580 or MGMP 580 or MGMTW 580 or MGMT 880
Description: This course affords students the opportunity to apply their academic marketing knowledge to a real-world project, in a consultative role with a firm that serves as the client/project sponsor. Clients represent a variety of industries and challenge their student-managed teams to address a focused and strategically important marketing-related problem. In addition to core marketing, students must have taken at least one marketing elective. Instructor Permission Required.

LEADERSHIP IN A WORLD ON FIRE

Short Title: LEADERSHIP IN A WORLD ON FIRE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: The course examines strategic and moral perspectives on grand challenges and social-environmental problems facing businesses. Examples of such issues include: pandemic, accelerating climate change, corporate social responsibility (CSR) and citizenship, bottom of the pyramid, inequality, and demands for justice. Through active discussion, the course focuses on implications of grand challenges for business leadership.

INVESTOR RELATIONS

Short Title: INVESTOR RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: Students learn theory and practice of investor relations, with emphasis on the role of investor relations/financial communications. Subjects covered include: history of the stock market, formation of the SEC, evolution of SEC regulations, dynamics of the equity markets, flow of investor information, planning and implementing an investor relations program, fitting investor relations into a corporation's communications program. Students will be mentored by local investor relations practitioners who will serve as real world guides for course assignments. Students will learn specifics about filing with the SEC, the creation of annual reports, road shows, stockholder meetings, preparing financials, and more. Investor relations managers, analysts, and CEOs will serve as guest lecturers to talk about their challenges in today's workplace.
MGMT 738 - CUSTOMER FOCUS IN HEALTH CARE AND SERVICE INDUSTRIES: A STRATEGIC APPROACH
Short Title: CUSTOMER FOCUS IN HEALTH CARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMP 626

MGMT 739 - CAPITAL FORMATION IN ENERGY AND INFRASTRUCTURE
Short Title: CAPITAL FORMATION IN ENERGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: A capstone course for second year MBAs. Students form a private startup exploration and production company that grows to become a mid-cap ($10 billion) and then suffers a severe contraction. Students learn the various forms of capital available depending on the size of the company and state of the capital and commodity markets.

MGMT 740 - STUDENT VENTURE FUND: EVALUATING STARTUP INVESTMENT OPPORTUNITIES
Short Title: STUDENT VENTURE FUND
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMP 626
Description: Students will identify, screen, and evaluate start-ups for investment by the Rice venture capital fund. Through this highly experiential course, students will learn tools for rigorously evaluating startup ventures for investment, valuing early stage companies, and structuring investments. Students will present their investment recommendations to an advisory committee. Graduate/Undergraduate Equivalency: BUSI 465. Mutually Exclusive: Cannot register for MGMT 740 if student has credit for BUSI 465.

MGMT 741 - MANAGING GROWTH
Short Title: MANAGING GROWTH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Companies are either thought of as small start-ups or large, mature businesses. The small start-up is considered to be the domain of the entrepreneur, where by force of personality, spark of creativity, or bold opportunism, a business is formed ex nihilo. On the other extreme, the large business is considered to be the domain of the manager, where by force of scale and scope, imposition of process, and careful analysis, an empire is sustained and expanded. In summary, the focus of the course will be how to create wealth by buying a small business, putting systems and processes in place to create a foundation for future growth, driving growth both internally and externally, and, finally, selling the business.

Students will learn to apply those skills to small businesses with growth potential.

MGMT 742 - INTERNATIONAL PRIVATE EQUITY REAL ESTATE
Short Title: INTL PRIVATE EQTY REAL ESTATE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course covers general concepts in international RE investments, market selection, private equity funding structures, along with the perspectives of LPs and GPs/Managers. An analysis of risks and rewards associated with developments vs acquisitions, management/operations and exit in less developed markets, with a focus on the institutional asset class.

MGMT 743 - MANAGING INNOVATION IN ENERGY TECHNOLOGIES
Short Title: INNOVATION IN ENERGY TECH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Innovation is critical to the survival of the energy industry, both for traditional carbon-based energy and for renewable and “green" energy. Management of innovation requires a special set of skills beyond those of typical management. We will discuss the issues faced by energy managers in addressing innovation, and look at cases where these issues played a central role.
MGMT 744 - SERVICES OPERATIONS
Short Title: SERVICES OPERATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

Description: This course provides students with a theoretical and practical understanding of current operational challenges faced by service organizations. It explores both quantitative and qualitative tools and methods for the effective planning, design, marketing, management, and improvement of service operations.

MGMT 745 - INTERNATIONAL ENERGY DEVELOPMENT
Short Title: INTL ENERGY DEVELOPMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

Description: This course examines how energy companies construct portfolios of international assets. The first half of the course focuses on the life cycle of international energy projects, from the point at which a company decides it wishes to acquire an international project to the point at which the company divests that interest. These initial classes will discuss the business development processes companies employ to identify, analyze and acquire overseas assets; the typical commercial structures and contracts used to acquire rights and obligations in different types of energy projects; how companies build and manage relationships with host governments, including cultural difference, negotiation and corruption; issues related to joint ventures and joint operations with other companies; threats to international project cash flow such as renegotiation, expropriation and force majeure; and how companies structure exits and divestments from international energy projects. The course concludes with students being divided into teams or “companies” and then engaging in a dynamic bid round and petroleum exploration exercise, whereby students compete with one another to acquire acreage and then create (or destroy) net present value.

MGMT 746 - REAL PROPERTY
Short Title: REAL PROPERTY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

Description: Survey course providing a short but intensive overview of real estate and the real estate industry.

MGMT 747 - REGULATORY ENVIRONMENT OF BUSINESS
Short Title: REG ENVIRONMENT OF BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

Description: This course examines the broad subject of government regulation of business and financial markets and is designed to help the student develop what the authors of the text term “legal astuteness.” That is, the ability to exercise informed judgment based on context-specific knowledge of the law and the regulatory environment. To achieve this, we will apply the methodology of neoclassical economic analysis to understand the role and function of government and governmental decision-making; explore the intersection between economics and the law; and learn to spot legal issues before they become grounds for termination, lawsuits, or criminal indictments. Emphasis is placed on high impact regulatory programs, such as antitrust, security regulation, civil rights, and environmental laws. Repeatable for Credit.

MGMT 748 - PROCESS IMPROVEMENT TOOLKIT
Short Title: PROCESS IMPROVEMENT TOOLKIT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

Description: Process performance improvement requires a fundamental set of analytical and statistical tools. This course provides students with the knowledge of key process improvement tools, how they are planned, applied and how to interpret their output. The course includes practical application of the tools through hands-on exercises.

MGMT 749 - PROCESS IMPROVEMENT CAPSTONE
Short Title: PROCESS IMPROVEMENT CAPSTONE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

Prerequisite(s): MGMT 748 (may be taken concurrently)

Description: This course provides students with a detailed Lean Six Sigma roadmap and critical-thinking skills for leading a process improvement project from codifying the business problem, understanding baseline state, identifying root causes to performance shortfalls, developing and implementing the solution, and sustaining improved performance.
MGMT 750 - STRATEGIC CONSIDERATIONS IN HEALTH INFORMATICS
Short Title: HEALTH INFORMATICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 751 - ECONOMICS OF HEALTH CARE SECTORS
Short Title: ECON OF HEALTH CARE SECTORS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 752 - SUPPLY CHAIN MANAGEMENT LAB
Short Title: SUPPLY CHAIN MANAGEMENT LAB
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This operations lab provides students with an opportunity to build their operations and supply chain management skills and experiences by either (1) applying their coursework to a hands-on, real-world project with a company, or (2) performing an in-depth research project on a cutting-edge topic in operations and supply chain management. Students in this course can work with any industry and may involve the full spectrum of operations and supply chain topics. This is a project-centric course with a customized schedule to the specific project. Instructor Permission Required.

MGMT 753 - OPERATIONS LAB: HEALTH CARE
Short Title: OPERATIONS LAB: HEALTH CARE
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 712
Description: This course provides the needed skills, along with the experience of leading and facilitating change in a live, healthcare environment with actual processes, staff and business value on the line. Students are paired, given a real business problem in a major Houston healthcare system and guided to deliver the solution, implementation plan and control plan. Instructor Permission Required.

MGMT 754 - REAL ESTATE: ULI LAB
Short Title: REAL ESTATE: ULI LAB
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

MGMT 756 - CORPORATE REAL ESTATE POST PANDEMIC
Short Title: CORP REAL ESTATE POST PANDEMIC
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: In this short course, students explore the current pandemic and prior crises to understand the impacts on personal, organizational and market resiliency particularly as it relates to office work and, therefore, strategic corporate real estate management. In an applied setting, students gain key insights to prepare for the future of work and the workplace as business leaders.

MGMT 757 - REAL ESTATE LAB: DEVELOP, DESIGN AND CONSTRUCTION
Short Title: RE LAB: DEVELOP DESIGN CONSTR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Prerequisite(s): MGMT 659 (may be taken concurrently) or MGMT 667 (may be taken concurrently) or MGMT 669 (may be taken concurrently)
Description: Cross-list: ARCH 691. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
MGMT 758 - ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ISSUES IN STRATEGY
Short Title: ESG ISSUES IN STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Organization's success does not only depend on its strategic repertoire within a given market, but also on how well it incorporates environmental, social, and governance (ESG) factors in its strategy. By engaging with peer organizations, non-governmental agencies, the media, and other external stakeholders, firms can proactively identify and address ESG issues. Consideration of ESG factors in strategy can help simultaneously achieve a long-term competitive advantage as well as enhance a firm's social and environmental impact. The goal of this course is to provide you with analytical tools that help managers assess a firm's broader environment and make decisions that are beneficial for the firm and for society at large.

MGMT 759 - DIGITAL TRANSFORMATION
Short Title: DIGITAL TRANSFORMATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Using real cases across industries and visits of industry experts, Digital Transformation is designed to equip students to confidently conceive, lead and execute digital innovation and transformation initiatives and develop new business models for existing and insurgent organizations.

MGMT 760 - E-LAB: VENTURE CAPITAL
Short Title: E-LAB: VENTURE CAPITAL
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 531 and MGMT 627 (may be taken concurrently)
Description: Students learn by working with early stage investors including angel and venture capital organizations. Students learn through hands on support and are expected to be at the sponsoring organizations office 8 - 10 hours per week and attend investor pitches. The Venture Capital E-Lab is not a standard class and requires meeting off campus. It is also not affiliated in anyway with the Venture Capital class. Instructor Permission Required. Repeatable for Credit.

MGMT 761 - E-LAB: ENTERPRISE ACQUISITION
Short Title: E-LAB: ENTERPRISE ACQUISITION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 627 (may be taken concurrently)
Description: Students follow the processes learned in MGMT 627 to acquire an existing business or start a search fund. Students develop selection criteria, network to connect with sellers, conduct preliminary due diligence, perform a business valuation, develop potential deal structures and have the opportunity to move forward on any potential opportunities on their own after graduation. Students attend a check-in class every other week to present updates and receive feedback from faculty, students and alumni mentors. Instructor Permission Required. Repeatable for Credit.

MGMT 762 - E-LAB: NEW ENTERPRISE
Short Title: E-LAB: NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 621 or MGMT 927
Description: Students working on their own startup have the opportunity to apply the processes learned in the New Enterprise course to their startup. Students attend a check-in class every other week to present updates and receive feedback from faculty, students and alumni mentors. Department Permission Required. Repeatable for Credit.

MGMT 763 - ENTREPRENEURSHIP LAB
Short Title: ENTREPRENEURSHIP LAB
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 531 and MGMT 627
Description: Two tracks are available in the Entrepreneurship Lab: New Enterprise and Enterprise Acquisition. In the New Enterprise track, students apply the processes and lessons from the New Enterprise course to further evaluate and continue working on a startup idea. In the Enterprise Acquisition track students develop their own acquisition plan and can start the process to acquire a company, support an active student or alumni searcher, or start their own Search Fund. In both tracks, students are assigned a coach and attend check-in meetings to present updates and receive feedback from faculty, mentors and other students in the course. Department Permission Required.
MGMT 764 - E-LAB: DEAL EVALUATION  
Short Title: E-LAB: DEAL EVALUATION  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hours: 1.5-3  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Students work with nascent medical device startups created out of the Healthcare Innovation and Entrepreneurship course. Students work 10 hours per week on various aspects of a business plan and preparation for business plan competitions.

MGMT 767 - QUANTITATIVE FINANCE LAB  
Short Title: QUANTITATIVE FINANCE LAB  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Prerequisite(s): MGMT 638 and MGMT 648  
Description: This course is a sequel to MGMT 638, Quantitative Investment Strategies. Students will work in groups to design, implement, and evaluate data-driven investment strategies. Groups will have freedom to select the signals they wish to consider for forming portfolios. Attention will be given to optimally combining multiple strategies, using market signals to rotate between strategies, and controlling portfolio turnover. Performance metrics will include alphas, Sharpe ratios, information ratios, skewness, kurtosis, and attribution analysis. Repeatable for Credit.

MGMT 768 - THE NEW FOOD ECONOMY  
Short Title: THE NEW FOOD ECONOMY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This is a survey course of contemporary topics in the new food economy. We pay particular attention to social justice issues surrounding the production, distribution, marketing and sales, and consumption of food. A sample of covered topics may include: access to capital for non-traditional agriculture, organic & GMO, new technologies and production and distribution, food waste, food insecurity, food marketing, food assistance policies, and other public policies.

MGMT 770 - CONSULTATIVE SELLING  
Short Title: CONSULTATIVE SELLING  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: This course introduces students to the communication skills and behaviors required for success in the field of consultative selling, including effective questioning, active listening, assessing client communication style, and delivering persuasive presentations.
MGMT 771 - DIGITAL MARKETING
Short Title: DIGITAL MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course provides an introduction to digital marketing and examines ways it should be implemented. In addition to learning fundamental constructs and principles, students will focus on tools and skills needed for setting goals, implementing campaigns, and measuring success. Guest speakers and in-class exercises are used to provide insights and relevancy to this swiftly expanding area of marketing.

MGMT 774 - LEADERSHIP AND TEAM COACHING
Short Title: LEADERSHIP AND TEAM COACHING
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The best leaders understand the importance of developing the next generation - ensuring they have prepared successors and effective teams. This course will examine models and frameworks for coaching and development and is intended for those interested in practicing coaching as a manager or peer. Department Permission Required. Repeatable for Credit.

MGMT 775 - SUPPLY CHAIN ILE
Short Title: SUPPLY CHAIN ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Supply Chain for most companies is a very vital ingredient in their success, maybe even survival. Whether you are a company such as Apple, where your core competency is the design/styling of products, or your company designs, manufactures and distributes all of your products, the supply chain's has to perform at a high level. In the face of increasing customer expectations and global competitions, companies have to become more efficient in controlling the flow of materials throughout the supply chain. This ILE is designed to provide an introduction to the major components important in the Supply Chain. Topics discussed will include: Strategies for the Supply Chain, Procurement & Global Financial Decisions Processes such as Sales and Operations Planning (S&OP), Negotiation, Supplier Selection Systems for Manufacturing Planning & Control, & MRP/ERP Management of Suppliers using Performance Assessments, Developing Capabilities Decisions affecting Inventory, and Logistics. Jobs in the Supply Chain Corporate Social Responsibility in the Supply Chain The course will be a combination of lectures and some thought-provoking activities and discussions of current events from the Supply Chain affecting companies will be part of the class, and participants are encouraged to bring in relevant examples from their previous work experience to share. Repeatable for Credit.

MGMT 776 - INTRODUCTION TO REAL ESTATE INDUSTRY
Short Title: INTRO TO REAL ESTATE INDUSTRY
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An introductory survey course intended to provide a foundational understanding of the real estate industry. This course aims to be useful to students interested in pursuing a career in the real estate industry who have no or limited experience in real estate. This course is open to MBA students in each program. Outside graduate students can enroll with instructor permission provided space is available. Repeatable for Credit.

MGMT 777 - INVESTMENT BANKING AND MARKETS ILE
Short Title: INVESTMENT BANKING & MARKETS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.
MGMT 778 - CUSTOMER EXPERIENCE MANAGEMENT
Short Title: CUSTOMER EXPERIENCE MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the key issues in managing customer experience in customer-focused service organizations. Its learning objectives are to understand the customer decision journey framework, diagnose and solve problems with journey mapping, design a transformative customer experience, measure experience, and manage unforeseen mishaps and setbacks.

MGMT 779 - BUSINESS AND URBAN ANALYTICS
Short Title: BUSINESS & URBAN ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This project based class offers the unique opportunity for students from distinct fields of business and engineering to solve a real world data driven problem in a collaborative way. The data and the problem statement will come from the Rice University’s Administrative Center for Sustainability and Energy Management (ACSEM) at the start of the semester. Instructor Permission Required. Cross-list: ENGI 779.

MGMT 780 - WHEN YOUR BUSINESS IS SUED
Short Title: WHEN YOUR BUSINESS IS SUED
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an understanding of a lawsuit from the viewpoint of business leadership. Lectures cover causes of action, procedure, evidence, case evaluation and resolution. Practical exercises provide insight into the importance of discovery and depositions. Classic business litigation cases will be presented. The course ends with a mini-trial based on class materials.

MGMT 781 - TEAMS AND TEAMWORK
Short Title: TEAMS AND TEAMWORK
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 510 or MGMP 510 or MGMW 510 or EMBA 992
Description: In the modern workplace, work is primarily completed as a part of a team. Thus, it is essential that managers learn how to effectively lead and work within teams. This course will teach students the psychology of teams and effective practices for managing teams in the workplace.

MGMT 782 - TECH TOOLS FOR BUSINESS
Short Title: TECH TOOLS FOR BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 595 or MGMP 595 or MGMW 595 or MGMT 895
Description: Introduces tools for business data analysis beyond Excel, including python and SQL. Teaches how to query SQL databases using SQL clients, Excel, and python. Teaches how to filter, reshape, summarize, and visualize data in python. Provides an introduction to machine learning methods for forecasting, including data transformations and ways to avoid overfitting. Teaches how to implement the methods in python.

MGMT 783 - SQL FOR MANAGERS
Short Title: SQL FOR MANAGERS
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course teaches students relational database fundamentals and SQL programming skills in the context of complex business problems and the communication with users and technical resources. Topics covered include relational database architecture, database fit and design, requirements gathering, formatting deliverables, and simple query skills. Upon completion, participants will understand SQL functions, join techniques, database schemas, and will be able to write useful SQL statements.
MGMT 784 - POWER AND INFLUENCE IN ORGANIZATIONS
Short Title: POWER & INFLUENCE IN ORGS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 510 or MGMP 510 or MGMW 510 or EMBA 992
Description: A manager's primary purpose is to use power to influence subordinates and create an effective organization. This course will teach students how to build power, how to influence people, and the proper use of power in the modern organization through lecture, discussion, and experiential activities.

MGMT 785 - CORPORATE REAL ESTATE STRATEGY
Short Title: CORPORATE REAL ESTATE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on corporate real estate as a critical component of achieving any organization's strategic objectives. Corporate real estate is foundational to culture, organizational transformation, and, done right, drives integrated business value. This course provides a framework for understanding decision making in corporate real estate using practical applications, case studies, and interaction with industry leaders.

MGMT 786 - GLOBAL BUSINESS OFFSITE
Short Title: GLOBAL BUSINESS OFFSITE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0.75-1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course, led by Rice Business faculty, takes place in an international business setting and consists of a combination of lectures by local university faculty and business leaders and site visits to companies in the region. Students have the opportunity to meet with corporate executives, investors, and scholars to discuss opportunities and challenges of doing business in the country. The objectives of the course are to further an appreciation of the opportunities and obstacles of doing business in different parts of the world, increase sensitivity to cross-cultural issues, and broaden perspectives on issues dealing with global business. Department Permission Required. Repeatable for Credit.

MGMT 787 - FINANCIAL CRISES
Short Title: FINANCIAL CRISES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 840 or ((MGMT 540 or MGMP 540 or MGMW 540) and (MGMT 541 or MGMP 541 or MGMW 541))
Description: This course examines financial crises both domestic and global through time. The focus is on financial market structures, economic incentives and policies leading up, during, and after different crises. Case studies, lectures, academic articles and documentaries may be used.

MGMT 788 - CORPORATE RIVALRY
Short Title: CORPORATE RIVALRY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MGMT 540 or MGMP 540 or MGMW 540 or MGMT 840
Description: This course is about learning to think like a game theorist and developing a systematic way to evaluate strategic problems. Emphasis is on real-world applications and in-class business exercises.

MGMT 789 - GLOBAL FIELD EXPERIENCE
Short Title: GLOBAL FIELD EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This unique experiential learning opportunity requires students to apply what was learned in the first year of the program through consulting projects on the ground in a designated country. The course fosters a global mindset and further develops the ability to tackle business challenges in dynamic, divers and complex environments. Department Permission Required.
MGMT 791 - ORGANIZATIONAL CHANGE INTENSIVE
Short Title: ORG CHANGE INTENSIVE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An intensive one day course on leading change. This class builds on the core MGMT 512 (Leading Change) class and is taught primarily using a team-based simulation. You will learn a very versatile process model of change and how to apply it to a variety of organizational-level changes.

MGMT 792 - PRINCIPLES OF SURVEY DESIGN
Short Title: PRINCIPLES OF SURVEY DESIGN
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will teach students principles of survey design to prepare them to conduct surveys during and after business school. The course will cover articulating clear research objectives, defining the appropriate audiences to survey, determining the best methodology, and writing an actionable survey.

MGMT 793 - CREATING THE DATA DRIVEN BUSINESS
Short Title: CREATING DATA DRIVEN BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an understanding of how to build and lead a data driven business. Lectures cover fundamentals of data management, analytics maturity models, the role of “Big Data,” application of artificial intelligence, machine learning, and cognitive computing technologies for predictive and adaptive analytics, and creating value-based business analytics strategies.

MGMT 794 - PROFESSIONAL SEMINAR
Short Title: PROFESSIONAL SEMINAR
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMB A program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course explores current business challenges through engagement with business leaders. Guest instructors lead students through challenges in their functional areas and through state-of-the-art applications of emerging technologies. Students engage with executives, rising middle managers, and subject matter experts. Repeatable for Credit.

MGMT 795 - DEAN'S LEADERSHIP SEMINAR
Short Title: DEAN'S LEADERSHIP SEMINAR
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines leadership challenges as they apply to contemporary issues in business and organizational change through engagement with C-suite executives, entrepreneurs and other leaders of complex organizations.

MGMT 797 - EDGE INTERSESSION ABROAD - SOUTH AMERICA
Short Title: JONES EDGE - SOUTH AMERICA
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 798 - PSYCHOLOGICAL FOUNDATIONS OF PROFESSIONAL LIVES
Short Title: PSYCH FOUNDATIONS OF PROF LIFE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course draws from psychology and management research, exploring complexity of professional lives and identity dynamics, underlying career decisions, compromises, and regrets. Through exercises, cases, and discussions, students develop an understanding of the type of professional path they want and why, and how to get it and overcome setbacks and successes.

MGMT 799 - HEALTHCARE INNOVATION AND ENTREPRENEURSHIP
Short Title: HEALTHCARE INNOV & ENTREP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is designed for healthcare entrepreneurs who want to build innovative medical technologies. Students work in interdisciplinary teams comprised of engineering, business, and medical students. Key concepts include: how to validate and scope clinical needs, ideate solutions, draft a business model, and determine regulatory and reimbursement strategies. Instructor Permission Required.
Creating value-based business analytics strategies.

Application of artificial intelligence, machine learning, and cognitive data management, analytics maturity models, the role of "Big Data," and lead a data driven business. Lectures cover fundamentals of

Description:

Course Level: Graduate

Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.

Credit Hours: 1.5-3

MGMT 804 - CREATING THE DATA DRIVEN BUSINESS

Short Title: CREATING DATA DRIVEN BUSINESS

Department: Management

Grade Mode: Standard Letter

Course Type: Independent Study

Credit Hours: 1.5

Restrictions: Enrollment limited to students in the OMB program. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: This course provides an understanding of how to build and lead a data driven business. Lectures cover fundamentals of data management, analytics maturity models, the role of "Big Data," application of artificial intelligence, machine learning, and cognitive computing technologies for predictive and adaptive analytics, and creating value-based business analytics strategies.

MGMT 806 - EXECUTIVE 2ND YEAR CAPSTONE

Short Title: EXEC 2ND YEAR CAPSTONE

Department: Management

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 3

Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: The second-year capstone is an applied management course in the program's core curriculum, where student teams learn how to work through an end-to-end strategic assessment and planning effort on a current real-life strategic challenge faced by a Houston-based, socially-oriented community organization. It provides students the opportunity to apply their multi-functional (strategy, finance, marketing, organizational behavior, etc.) knowledge from the program and their own professional experience, as well as provides background on management of non-profit organizations. Repeatable for Credit.

MGMT 813 - LEADING FOR CREATIVITY AND INNOVATION

Short Title: LEADING FOR CREATIVITY & INNOV

Department: Management

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 1.5

Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: Study of the nature of creativity, creative thinking skills and ways to encourage, promote, and effectively manage creativity and innovation in complex organizations.

MGMT 817 - DECISION STRATEGIES

Short Title: DECISION STRATEGIES

Department: Management

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 1.5

Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate

Description: Making good decisions is core to success in business and in life. Decision analysis is the discipline that helps people choose wisely under conditions of uncertainty and often competing objectives. In this course students learn the decision analysis process and tools to make great decisions.
MGMT 821 - DIVERSITY EQUITY AND INCLUSION IN BUSINESS  
**Short Title:** BUSINESS DIVERSITY & INCLUSION 
**Department:** Management 
**Grade Mode:** Standard Letter 
**Course Type:** Seminar 
**Credit Hours:** 1.5 
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students. 
**Course Level:** Graduate 
**Description:** Students consider optimal ways to plan for, encourage, and manage diversity in organizations. We explore the data and analyze the business case for diversity and evaluate strategies to recruit and retain diverse talent. This active-learning course relies on the latest empirical research and provides practical skills for managing tomorrow’s workforce.

MGMT 830 - STRATEGIC IT  
**Short Title:** STRATEGIC IT 
**Department:** Management 
**Grade Mode:** Standard Letter 
**Course Type:** Lecture 
**Credit Hours:** 2 
**Restrictions:** Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students. 
**Course Level:** Graduate 
**Description:** Today, businesses spend several trillion dollars annually on information technology (IT). To gain the greatest benefit from this investment, managers need to understand the interaction of this technology with ways of working. Our focus will be on cases in which business leaders have tried to use IT to enhance organizational development and support competitive strategy. From our analysis of their experiences, we will develop some management guidelines for businesses seeking to exploit IT.

MGMT 833 - STRATEGY IN TECHNOLOGY ECOSYSTEMS  
**Short Title:** STRATEGY IN TECH ECOSYSTEMS 
**Department:** Management 
**Grade Mode:** Standard Letter 
**Course Type:** Lecture 
**Credit Hours:** 1.5 
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students. 
**Course Level:** Graduate 
**Description:** The course deal with strategic management topics of interest to ventures that operate in technological ecosystems. Topics covered include platforms, network effects, coping with disruptive innovation, and how technology can create new markets and revolutionize existing ones.

MGMT 840 - ECONOMICS FOR BUSINESS  
**Short Title:** ECONOMICS FOR BUSINESS 
**Department:** Management 
**Grade Mode:** Standard Letter 
**Course Type:** Lecture 
**Credit Hours:** 3 
**Restrictions:** Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students. 
**Course Level:** Graduate 
**Description:** Topics covered include platforms, network effects, coping with disruptive innovation, and how technology can create new markets and revolutionize existing ones.
MGMT 865 - GLOBALIZATION OF BUSINESS
Short Title: GLOBALIZATION OF BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the increasing importance of trade and foreign direct investment and the global political-economy to U.S. business. We first study the historical roots of globalization and move forward to consider the impact on business of the global trade rules promulgated by the World Trade Organization. We also consider U.S. policies towards trade and foreign direct investment.

MGMT 874 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products, customers, and information. Touching upon bottlenecks, inventory, quality management, and strategic issues in operations.

MGMT 880 - STRATEGIC MARKETING
Short Title: STRATEGIC MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the key concepts and perspectives underlying the function of marketing in a business enterprise. Emphasis is placed on strategic marketing issues and the formulation of marketing strategies. Includes value proposition; customer & market analysis; segmentation & targeting; product strategy; branding; pricing strategy; marketing channels; marketing communication and selling. Lectures and extensive analysis of marketing management case studies.

MGMT 881 - CONSULTATIVE SELLING
Short Title: CONSULTATIVE SELLING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces students to the knowledge, skills, and behaviors required for success in the field of consultative selling. Topics include effective questioning, active listening, client learning style and personality assessment, principles of influence, effective sales call planning and execution, and delivering persuasive presentations.

MGMT 885 - MARKETING CHANNELS
Short Title: MARKETING CHANNELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 886 - DECISION MODELS
Short Title: DECISION MODELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Successful management requires the ability to recognize a decision situation, understand its essential features, and make a choice. However, many of these situations - particularly those involving uncertainty and/or complex interactions - may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. This course introduces spreadsheet modeling, simulation, decision analysis and optimization to represent and analyze such complex problems. The skills learned in this course are applicable in almost all aspects of business and should be helpful in future courses. The course is divided into two parts. In the first part, we discuss the use of decision trees for structuring decision problems under uncertainty. In the second part of the course, we discuss Monte Carlo simulation, a technique for simulating complex, uncertain systems. Throughout the course, we will use Microsoft Excel as a modeling environment, using add-in programs as necessary. Familiarity with Excel is an important prerequisite for this course.

MGMT 885 - BUSINESS ANALYTICS
Short Title: BUSINESS ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data, and the explosion of the amount of data available, has resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: Sampling, Descriptive Statistics, Probability Distributions, and Regression Analysis. Students are strongly encouraged to bring data from work; projects from previous years have returned significant monetary value to students’ current employers and examples of these projects will be provided in class. Repeatable for Credit.
MGMT 899 - APPLIED DATA SCIENCE: AN INQUIRY BASED LEARNING APPROACH
Short Title: APPLIED DATA SCIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is open to MBA students who can bring data for use in the course – especially data from real or developing businesses. One can anticipate applying several of the following: 1) Sampling; 2) 1-Way, 2-Way, 3-Way Anova; 3) Simple and Multiple Regression; 4) Factor Analysis; 5) The General Linear model; 6) Binary and multinomial Logit; and 7) Cluster Analysis. Instructor Permission Required.

MGMT 901 - FINANCIAL STATEMENT ANALYSIS
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Examines the role of financial statements in the evaluation of a firm’s financial condition and the prediction of its future prospects. Covers the strategic, financial, and accounting analysis of a firm’s profitability and riskiness by means of financial statement data, and introduces the fundamentals of financial statement forecasting and building pro-forma financial statements.

MGMT 903 - TAXES AND MULTINATIONAL BUSINESS STRATEGY
Short Title: TAXES/MULTINATIONAL BUS STRAT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Repeatable for Credit.

MGMT 904 - MANAGEMENT CONTROL SYSTEMS
Short Title: MANAGEMENT CONTROL SYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: This course covers how strategic planning and control systems can give managers the timely quantitative and qualitative information they need to “drive into the future” with confidence and success. Firms use performance measurement and control systems to promote effective and efficient utilization of organizational resources, and to ensure success of their business strategies. Are products and services being offered in the least costly manner? Is quality being maintained? Are businesses processes running efficiently? Are systems supporting dynamic decision making to keep in step with changing business and market conditions, and with advances in product and process technologies? Is innovation being fostered in a way consistent the overall business strategy. Through a series of case and discussions, we will examine the properties of performance measurement and control systems that address these issues.

MGMT 906 - VALUATION APPLICATIONS IN ACCOUNTING
Short Title: VALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
MGMT 910 - THE WASHINGTON CAMPUS: STRATEGICALLY MANAGING PUBLIC AFFAIRS AND PUBLIC POLICY
Short Title: WASHINGTON CAMPUS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The Washington Campus’ intensive and experiential residency courses are a unique personal and professional development experience. Participants interact directly with policy makers, influencers, and top executives in both the private and public sectors. Course objectives focus on how public affairs and public policy must be strategically, effectively, and ethically managed in order to create profitable and sustainable ‘win-win’ solutions for business, government, and society. Department Permission Required.
MGMT 911 - THE WASHINGTON CAMPUS: STRATEGICALLY MANAGING HEALTH CARE POLICY
Short Title: WASHINGTON CAMPUS - HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Public affairs and public policy profoundly shape the entire health care sector. Executives, entrepreneurs, and health care professionals must understand how the public policy process works and how to more effectively navigate this evolving landscape. This course enables participants to interact directly with health care policy makers and influencers, regulators, and other experts. Participants gain a richer understanding of how to more strategically plan and successfully operate in such a complex and dynamic health care policy environment.

MGMT 919 - CORPORATE GOVERNANCE
Short Title: CORPORATE GOVERNANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Repeatable for Credit.

MGMT 922 - GLOBAL SUPPLY CHAIN MANAGEMENT
Short Title: GLOBAL SUPPLY CHAIN MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Repeatable for Credit.

MGMT 926 - VENTURE CAPITAL
Short Title: VENTURE CAPITAL
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The course is an overview of the venture capital industry; the formation, organization and operation of a venture capital fund; monitoring the portfolio companies and mentoring their management teams; valuation methodology and term sheets; legal issues; problems that a VC faces; exiting a portfolio company; failure and how to deal with it. The class has guest speakers from the industry and utilizes several relevant cases to give students situational experience. The entire course is based on real-world situations.

MGMT 927 - THE NEW ENTERPRISE
Short Title: THE NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: After mastering MGMT 954 terms and frameworks, gain a deeper understanding of issues and tactics for complex reorganizations, international insolvencies, energy bankruptcies, long/short investing in distressed debt, and hedging and alpha investing with credit default swaps. Discover long-term macroeconomic themes impacting corporate restructuring. Author case study in teams of 2-3.

MGMT 952 - Mergers and Acquisitions
Short Title: Mergers and Acquisitions
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Critical study of the motivation, valuation, and integration of merging established businesses. While focusing on the application of M&A to further corporate strategy, the course also investigates the role of private equity, hostile transactions and asset restructurings in the M&A process.

MGMT 954 - Corporate Financial Restructuring
Short Title: Corporate Financial Restructuring
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: From Enron to Lyondell to American Airlines, discover how to create value through corporate restructuring. Learn why companies fail, distressed M&A bidding strategies, insolvency versus illiquidity, diamond-in-the-rough versus fool’s gold, fraudulent transfer risks, distressed valuation, credit default swaps, and much more.

MGMT 955 - Advanced Financial Restructuring
Short Title: Advanced Financial Restructuring
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA W MBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Prerequisite(s): MGMT 954 (may be taken concurrently)
Description: Evaluating new opportunities and developing a business concept; de-risking a new venture, attracting stakeholders, the legal forms of business, financing options, deal structure, lean startup versus traditional business planning and exit strategy options.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Restrictions:
Credit Hours:
Course Type:
Department:
Short Title:

MGMT 962 - APPLIED CONTRACT LAW
Short Title: APPLIED CONTRACT LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: How to manage risk in light of applicable standards.

How unfair competition. The course is designed to help executives understand the key strategic management frameworks and concepts to address important challenges they face in innovation management: how to manage market uncertainty, technological uncertainty and competitive volatility? What are the enemies of innovation in both new ventures and successful established firms? How to build strategic alliances for technology/product innovation? And how to manage innovation in the global market?

MGMT 961 - BUSINESS LAW
Short Title: BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: An overview of the legal system and survey of legal standards applicable to companies, including laws impacting corporate formation and governance, contracts, tort liability, employment law and unfair competition. The course is designed to help executives understand how to manage risk in light of applicable standards.

MGMT 960 - STRATEGIC INNOVATION MANAGEMENT
Short Title: STRATEGIC INNOVATION MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: Innovation is critical for firms to achieve better performance and sustainable competitive advantage. However, the management of innovation is inherently difficult and risky because customer demand and preferences change quickly and technological changes are highly unpredictable and thus most new products and technologies are not a commercial success. This course is designed to help executives apply the key strategic management frameworks and concepts to address important challenges they face in innovation management: how to manage market uncertainty, technological uncertainty and competitive volatility? What are the enemies of innovation in both new ventures and successful established firms? How to build strategic alliances for technology/product innovation? And how to manage innovation in the global market?

MGMT 959 - STRATEGY AND MANAGING INTERNATIONAL STRATEGIC ALLIANCES
Short Title: STRAT & MANAGING INTL STRAT.
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: Examination of strategic planning approaches and methods for managing 21st Century organizations. Emphasizes design and implementation of planning systems that are highly responsive to the dynamic, competitive, stakeholder-influenced planning contexts facing modern organizations.

MGMT 970 - OPERATIONS STRATEGY
Short Title: OPERATIONS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: This course considers the operations executive's role in delivering to corporate objectives, in peer-to-peer executive relationships, and in operations organization leadership. The student will select a business case study that applies concepts discussed in the textbook, such as capacity planning, supply chain management, cost reduction and technology insertion. In preparing the case study, the student will consider the influence of process maturity, process improvement, corporate structure, and the operating challenges presented by the energy transition to a more carbon-neutral, climate-neutral future.

MGMT 973 - OPERATIONS LEADERSHIP
Short Title: OPERATIONS LEADERSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: Examination of strategic planning approaches and methods for managing 21st Century organizations. Emphasizes design and implementation of planning systems that are highly responsive to the dynamic, competitive, stakeholder-influenced planning contexts facing modern organizations.

MGMT 985 - GLOBAL LEADERSHIP
Short Title: GLOBAL LEADERSHIP
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.

Description: Leadership challenges, skills and strategies in the global context. Cross-cultural differences in characteristics of followership, values, information-processing styles, interpersonal relationships, group dynamics and many other areas. Implications of these differences for employee attitudes and behavior, and for leadership effectiveness in the workplace. Scientifically-proven course material and dynamic, interactive teaching style.
Management Integrated Course Offering (MICO)

MICO 601 - CRITICAL THINKING AND STRATEGIC DECISION MAKING

Short Title: CRITICAL THINKING & DECISION
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MICO 602 - CUSTOMER FOCUS PRODUCT MANAGEMENT FOR OILFIELD SERVICES FIRMS

Short Title: CUSTOMER FOCUS PRODUCT MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Understanding customer needs, and developing products that successfully meet those needs is a cornerstone of success for oilfield services firms. Products in such firms may range from nuts and bolts to multi-million dollar rigs. How should firms ensure that their products, processes, people, and pricing strategies are aligned to customer needs? The course will introduce a strategic framework that can enable firms to become customer focused, gain competitive advantage, become financially disciplined, and develop strategic focus. Case studies and articles from business press will be used to illustrate the key concepts. Department Permission Required.

MICO 603 - STRATEGIC DESIGN AND MANAGEMENT OF LOGISTICS DISTRIBUTION NETWORKS FOR THE ENERGY INDUSTRY

Short Title: STRATEGY DGN & MGMT: LOGISTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides the necessary quantitative modeling techniques for managers to address logistics problems – that is, finding the least expensive way to transport products from their origin to their destinations. Real logistics problems are often coupled with manufacturing/plant location decisions. We will study both Linear and Non-Linear modeling techniques. Many of these problems have a natural graphical network representation and are part of the minimum cost network flow model. Specific examples of network optimization problems include plant location problems, transportation problems, shortest route problems, maximal flow problems, equipment replacement problems and others. We will develop the basic concepts behind those methodologies with simple examples and then use them to solve complex problems in the oil and gas industry. We will use excel and other appropriate software. Department Permission Required.

MICO 604 - MINDFULNESS AND PERFORMANCE IN HIGH RELIABILITY ORGANIZATIONS

Short Title: MINDFULNESS AND PERFORMANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: While organizations frequently discuss the importance of safety, safety incidents are both commonplace and costly across a number of industries. This course is designed to equip you with tools and insights that will help you and your organization prevent costly, safety-related errors and achieve higher and more reliable performance. Department Permission Required.

MICO 605 - MANAGING FOREIGN MARKET ENTRY FOR THE ENERGY INDUSTRY

Short Title: MANAGING FOREIGN MARKET ENTRY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The energy industry is global in nature. This course is designed to equip you and your organization with the skills, knowledge and sensitivity required to successfully manage foreign market entries in the energy industry. This course will cover the following issues: (1) how to mitigate political risk in the global environment, (2) how to choose foreign entry strategies, (3) how to manage partnerships with local firms, (4) how to manage relationships with local stakeholders, and (5) the environmental concerns in the global energy industry. The course is structured around cases and newspaper articles to highlight the relevance and applications of the course concepts. We will also have guest speakers from major energy companies to join us and share their experiences and insights.
Master of Accounting (MACC)

MACC 500 - INTERNSHIP IN ACCOUNTING
Short Title: INTERNSHIP IN ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment is limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised off-campus, non-group instruction, including field experiences, practica, or internships in applied accounting. Written and oral critique of activity required. Internship plan must be approved in advance by the MACC Program Director. Instructor Permission Required.

MACC 501 - ACCOUNTING ETHICS AND PROFESSIONALISM
Short Title: ETHICS IN ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of the course is to prepare the future CPA for ethical judgement. Course materials emphasize ethical reasoning and giving voice to values; principles of integrity, objectivity, independence (in fact and appearance) and avoidance of intentional misrepresentation of facts; the role of core values in a dynamically changing global economy; and professional and ethical issues in accounting practice.

MACC 502 - BUSINESS LAW FOR ACCOUNTANTS
Short Title: BUSINESS LAW FOR ACCOUNTANTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the broad subject of law as it relates to business and is designed to help the accounting student develop "legal astuteness." The course provides an initial exposure to contracts and crucial concepts of tort, crime, agency, and business organization, as well as federal legal and regulatory schemes.

MACC 503 - ACCOUNTING AND CORPORATE GOVERNANCE
Short Title: ACCOUNTING & CORP GOVERNANCE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will engage in an intensive 5-day learning program held partially or fully off-campus. An accounting faculty member will oversee the course, and various officials involved in public policy will lead many presentations and discussions. The grade for this course will be 100% based on accounting and business writing.

MACC 504 - FINANCE FOR ACCOUNTANTS
Short Title: FINANCE FOR ACCOUNTANTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Coverage of core concepts in the areas of 1) corporate finance, 2) financial portfolio management, and 3) financial futures and options.

MACC 505 - ECONOMIC ENVIRONMENT OF BUSINESS
Short Title: ECONOMIC ENVIRONMT OF BUSINESS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: EEB stresses an understanding of the major macroeconomic forces affecting business in today's global economy. Fluency in major macroeconomic concepts and forces enhances business decision-making in the globally competitive product, financial, and labor markets that characterize the modern business environment.
MACC 506 - JUDGMENT AND DECISION MAKING FOR ACCOUNTANTS
Short Title: JUDGMENT/DECISION MAKING-ACCTS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Decisions in the workforce are often made under conditions of bias, conflict of interest, and missing information. In this course, accountants will learn how to identify and overcome common judgment and decision making errors through lecture, discussion, and experiential activities.

MACC 511 - ISSUES IN FINANCIAL REPORTING II
Short Title: ISSUES IN FIN REPORTING II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMB A. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include: accounting for dilutive securities and stock-based compensation; recognition and de-recognition of investments, leases, deferred taxes, and pension and other postretirement obligations; advanced topics on inter-corporate investment accounting. Codification research will be integrated throughout course. Comparison of U.S. GAAP and IFRS.

MACC 512 - FINANCIAL STATEMENT ANALYSIS AND VALUATION
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The first half of the course focuses on documenting and understanding a firm's profitability relative to past performance and comparable firms. The second half of the course covers: 1) forecasting financial statements and 2) deriving firm value under a variety of approaches, including DCF and residual income valuation (RIV).

MACC 513 - ISSUES IN FINANCIAL REPORTING III
Short Title: ISSUES IN FIN REPORTING III
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the advanced financial accounting topics of: preparation of consolidated statements, partnership accounting and reporting, accounting for bankruptcy and reorganization, segment disclosures, and interim reporting, and the role of the SEC in financial reporting for publicly traded companies.

MACC 514 - FAIR VALUE ACCOUNTING
Short Title: FAIR VALUE ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMB A. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines: fair value accounting, as outlined in Accounting Standard Codification section 820 and other U.S. accounting standards; use of 3rd party pricing services, credit risk considerations, and recent accounting updates impacting the valuation of various financial instruments, such as loans, equities, department securities, alternative investments, real estate investments and liabilities.

MACC 515 - ADVANCED TOPICS IN REVENUE RECOGNITION
Short Title: ADVANCED REVENUE RECOGNITION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Accounting degree.
Course Level: Graduate
Description: While revenue generation is a key source of business risk and represents the primary value creation activity, its measurement and reporting in financial statements can be subject to substantial judgment. The course will cover the principles embedded in the US GAAP for revenue recognition and will examine how revenue recognition can vary substantially according to the underlying economics of different business models.

MACC 530 - INTRODUCTION TO MANAGERIAL ACCOUNTING
Short Title: INTRO TO MGMT ACCOUNTING
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course introduces the vocabulary and mechanics of cost accounting. Basic managerial accounting topics will be covered, including cost-volume analysis, cost behavior, relevant costs, and the use of cost information for decision making.

MACC 531 - ADVANCED MANAGEMENT ACCOUNTING
Short Title: ADVANCED MGMT ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The use of management accounting information to serve management decision-making; review of cost accounting concepts; use of standards and variances; relevance and decision making; role of cost allocations; different costs for different purposes; product costing systems; and managing customers.
MACC 541 - ACCOUNTING CONTROL SYSTEMS
Short Title: ACCOUNTING CONTROL SYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MACC 542
Description: Examines the concepts of the integrated audit of internal control over financial reporting in accordance with PCAOB Audit Standard 5. Also covers fundamental procedures used in financial statement audits, specifically in the client acceptance and continuance, planning and risk assessment, and audit comfort cycle phases of the engagement.

MACC 542 - ADVANCED AUDITING
Short Title: ADVANCED AUDITING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BUSI 440
Description: This course provides students with an in-depth understanding of professional standards, the audit process, advanced auditing techniques, and the auditor's role. This course will use case studies to explore audit topics not extensively covered in a typical intro-auditing course, including planning/risk assessment, design and execution of procedures, testing techniques, and software tools.

MACC 541 - ACCOUNTING INFORMATION SYSTEMS
Short Title: ACCOUNTING INFORMATION SYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of automated systems of processing data for accounting information. The accounting system is discussed from the perspective of developing and maintaining systems capable of producing information for internal decision-making and external reporting. Hands-on experience may include general ledger, ERP, flowcharting software and other relevant computer technology.

MACC 542 - AUDITING: A DATA ANALYTICS APPROACH
Short Title: DATA ANALYTICS IN AUDITING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course applies accounting and critical thinking skills to real-world data analytics examples from auditing and forensics. The focus is on (1) the methodologies of transforming raw and unstructured data into workable data sets, (2) how to interpret data sets, and (3) the presentation of data to decision makers.

MACC 561 - DATA ANALYTICS FOR ACCOUNTANTS I
Short Title: DATA ANALYTICS FOR ACCT I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to using data analytics in an accounting context. Topics include how data are structured, methodologies for cleaning and merging data, and tools for analyzing and visualizing data.

MACC 562 - DATA ANALYTICS FOR ACCOUNTANTS II
Short Title: DATA ANALYTICS FOR ACCT II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced methods of leveraging data analytics in an accounting context. Students develop coding capabilities to extract, organize, and analyze various types of structured and unstructured financial data. Topics include statistical data analysis, probability, and introduction to machine learning.

MACC 571 - FEDERAL TAXATION
Short Title: FEDERAL TAXATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to federal income tax principles. Emphasis on general skills in identifying and resolving tax issues, understanding the administrative and public policy and reasoning underlying tax law choices and integrating the tax laws into business and personal decisions and planning. Coverage of taxation of C-corporations, S-corporations, and partnerships.
MACC 572 - TAXES AND BUSINESS STRATEGY
Short Title: TAXES AND BUSINESS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MACC 571
Description: An examination of how taxes affect companies’ decision-making and their financial and operational structure.

MACC 581 - GOVERNMENT AND NOT-FOR-PROFIT ACCOUNTING
Short Title: GOVT AND NFP ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Financial reporting, managerial, auditing, taxation, and information systems issues in governmental and nonprofit entities; ethics and professional standards; fund accounting concepts and practices, as well as government-wide financial reporting similar to private business consolidated reporting and the relationships between the two; not-for-profit budgeting, accounting, and reporting standards.

MACC 591 - ACCOUNTING THEORY
Short Title: ACCOUNTING THEORY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the “political” intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. Mutually Exclusive: Cannot register for MACC 591 if student has credit for BUSI 491/MGMT 591.

MACC 599 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Management
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Specialized aspect or topic in an area directly related to public accounting that is chosen by student and an appropriate faculty member. Department Permission Required. Repeatable for Credit.

MACC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MBA for Professionals-Evening (MGMP)

MGMP 500 - PMBA LAUNCH
Short Title: PMBA LAUNCH
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Rice MBA Program Launch is composed of a rigorous one week experience intended to help acclimate students to the Jones School Culture, as well as the rapid pace of a top-tier graduate business program. At the end of Launch, students will be better prepared academically, professionally, administratively, and culturally to reap the full benefits of the MBA experience. The Rice MBA Program Launch is a mandatory activity for all incoming students.

MGMP 501 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the preparation, analysis, and use of corporate financial reports. Covers the basic techniques of financial reporting analysis from the perspective of managers as well as external users of information such as investors. Required for MBA.

MGMP 502 - MANAGERIAL ACCOUNTING
Short Title: MANAGERIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the use of financial and cost information by managers in budgeting, resource allocation, pricing, quality control, and other contexts to help managers set goals and monitor and evaluate performance.
MGMP 510 - ORGANIZATIONAL BEHAVIOR
Short Title: ORGANIZATIONAL BEHAVIOR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the many factors, which influence how individuals, groups, and teams behave and function in complex organizations and how they can be effectively managed.

MGMP 511 - ORGANIZATIONAL CHANGE
Short Title: ORGANIZATIONAL CHANGE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Emphasizes understanding what constitutes effective organizational designs, considers both the macro designing initiatives and the micro execution of those initiatives.

MGMP 540 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We study production and pricing decisions under different assumptions about firm market power. Emphasis is placed on understanding the relevant costs in firm decision-making. Examples are used from marketing and accounting areas. Required for MBA.

MGMP 543 - FINANCE
Short Title: FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the theory and practice of corporate finance, with emphasis on topics such as valuation, capital budgeting, risk and return, and capital structure.

MGMP 560 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of the necessary ethical and legal basis of managerial decision making and the positive social and environmental contributions of the business firm.

MGMP 570 - COMPETITIVE STRATEGY
Short Title: COMPETITIVE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Systematic examination of models and techniques used to analyze a competitive situation within an industry from a strategic perspective. Examines the roles of key players in competitive situations and the fundamentals of analytical and fact-oriented strategic reasoning. Examples of applied competitive and industry analysis are emphasized. Required for MBA.

MGMP 571 - STRATEGY FORMULATION AND IMPLEMENTATION
Short Title: STRATEGY FORMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on formulating and implementing effective organizational strategy, including competitive positioning, core competencies and competitive advantage, cooperative arrangements, and tools for implementation.

MGMP 574 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the principles of production management and process improvement. Repeatable for Credit.
**MGMP 580 - MARKETING**  
**Short Title:** MARKETING  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Description:** This practically oriented, theoretically grounded course introduces core marketing concepts through the completion of integrative case studies and interactive class discussion. Specifically, students learn how to apply strategies and tactics related to assessing market fundamentals as well as developing and implementing marketing strategy (e.g. developing a quantitative forecast to support a new product launch decision, preparing a pricing/cost analysis to support a distribution channel partnership decision).

**MGMP 594 - STRATEGIC BUSINESS COMMUNICATION I**  
**Short Title:** STRAT BUSINESS COMMUNICATION I  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Description:** Introduction to the strategy and practice of business presentations. Includes frequent oral presentations (both individual and team) and feedback.  

**MGMP 595 - DATA ANALYSIS**  
**Short Title:** DATA ANALYSIS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Description:** The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis. Required for MBA.

**MGMP 596 - STRATEGIC BUSINESS COMMUNICATION II**  
**Short Title:** STRATEGIC BUSINESS COMM II  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Lecture  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Description:** Continued instruction in the core strategic business communication skills that were introduced during Strategic Business Communication I. In addition to a mandatory writing workshop, students will have the opportunity to select other communication topics, based on individual needs and interest.

**MGMP 597 - INTEGRATIVE COMPETITIVE EXERCISE ILE**  
**Short Title:** ILE  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.  

**Course Level:** Graduate  
**Description:** This course is designed with two major objectives in mind. First, is to thoroughly understand, and be able to competently apply, those statistical methods typically used in the analysis of business data. Secondly, is to affect how you think about problems. If data can help you resolve a business problem, this course should enable you to: structure the problem in a way that facilitates its analysis; specify the data that needs to be analyzed; decide on the statistical technique(s) most appropriate for analyzing the data; apply the technique correctly; and, insightfully interpret the results in terms of their implications for the original problem.

**MGMP 600 - EDUCATION LEADERSHIP INDEPENDENT STUDY**  
**Short Title:** EDUCATION LEADERSHIP IND STUDY  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Independent Study  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment is limited to Graduate or Graduate Quadmester level students.  

**Course Level:** Graduate  
**Description:** Repeatable for Credit.  

**MGMP 601 - USING FINANCIAL STATEMENTS TO EVALUATE FIRM PERFORMANCE**  
**Short Title:** USING FINANCIAL STATEMENTS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.  

**Course Level:** Graduate  
**Description:** This course is designed to develop basic skills in financial statement analysis with special emphasis on understanding, organizing and summarizing financial data for decision making purposes related to valuation. The course focuses on financial and accounting analysis which consists of documenting and understanding a firm's profitability relative to past performance and comparable firms. Ratio analysis, accounting quality, and earnings management are the focal points of this portion of the course. Mutually Exclusive: Cannot register for MGMP 601 if student has credit for BUSI 401.
MGMP 602 - ACCOUNTING-BASED VALUATION
Short Title: ACCOUNTING-BASED VALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs:
EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level
students.
Course Level: Graduate
Prerequisite(s): MGMP 601 (may be taken concurrently)
Description: This course covers two major topics: 1) forecasting financial statements based on a complete historical analysis of the firm; 2) deriving firm value under a variety of approaches including discounted cash flows (DCF) and residual operating income valuation (ROPV). Mutually Exclusive: Cannot register for MGMP 602 if student has credit for BUSI 401.

MGMP 603 - FEDERAL TAXATION
Short Title: FEDERAL TAXATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Graduate or Graduate Quadmester level students may not enroll.
Course Level: Graduate
Description: Taxes affect most business decisions in the industrialized world. This course provides the body of tax knowledge that corporate executives and professionals need as a part of basic business decision making. The course is designed for those with no formal tax background and for those whose tax work is dated or has not included a focus on business entities. The course emphasizes corporate tax matters and questions to consider in choosing a business entity. Class members should be tax literate at the end of the course.

MGMP 626 - FINANCING THE STARTUP VENTURE
Short Title: FINANCING THE STARTUP VENTURE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs:
EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level
students.
Course Level: Graduate
Description: The goal of this course is to provide students with an overview of financing options for startups. The course covers crowdfunding, angel investors, accelerators, and the venture capital industry; the organization and operation of venture capital funds; investment methodology; monitoring and portfolio liquidation.

MGMP 627 - ENTERPRISE EXCHANGE
Short Title: ENTERPRISE EXCHANGE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMP 651 - FIXED INCOME MANAGEMENT
Short Title: FIXED INCOME MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course provides an in-depth analysis of the concepts that are most often encountered in the market for fixed income securities. The goals of the course are twofold: (i) to illustrate the fundamental concepts that are commonly used for analyzing fixed income instruments; (ii) to investigate how the fundamental concepts are related to the institutional structures that are most often encountered in practice. The course will focus on topics that are most likely to have practical relevance for students once they graduate. The goals are accomplished via a combination of case studies, lectures, problem sets (to be handed in). Some of the topics that will be covered include term structure of interest rate, duration-based analysis, inverse floater, corporate bond markets, mortgage-backed securities. Repeatable for Credit.

MGMP 659 - REAL ESTATE FINANCE
Short Title: REAL ESTATE FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course has two major objectives: First, this course provides an overview of topics related to real estate finance. Specifically, this course provides a detailed description of the Discounted Cash Flow (DCF) model applied to real estate. The DCF model is the main financial decision tool used in the real estate industry and we use it extensively in this course. In addition, this course also describes the connection between financial markets and real estate. A large part of this course is devoted to the study of public traded securities that have their cash flows tied to real property cash flows, such as commercial mortgage-backed securities and REITs. Second, this course is the first elective related to real estate in a series available to Rice MBA students, and hence it briefly overviews basic concepts commonly used in the Real Estate Industry. Repeatable for Credit.
MGMP 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MGMP 684 - BRAND STRATEGY  
**Short Title:** BRAND STRATEGY  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Brand Management is an elective class that addresses important branding decisions faced by an organization. Its basic objectives are: 1) to provide students with a complete understanding of the consumer and of how consumers develop brand attitudes and behaviors; 2) to increase understanding of the important issues in planning and evaluating brand strategies; and 3) to provide a forum for students to apply branding strategies in a variety of domains. Particular emphasis is placed in the course on understanding psychological principles at the consumer or customer level that will improve managerial decision-making with respect to brands. One aim of the course is to make these concepts relevant for any type of organization (public or private, large or small, etc).

MGMP 689 - DECISION MODELS  
**Short Title:** DECISION MODELS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Successful management requires the ability to recognize a decision situation, understand its essential features, and make a choice. However, many of these situations - particularly those involving uncertainty and/or complex interactions - may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. This course introduces spreadsheet modeling, simulation, decision analysis and optimization to represent and analyze such complex problems. The skills learned in this course are applicable in almost all aspects of business and should be helpful in future courses. The course is divided into two parts. In the first part, we discuss the use of decision trees for structuring decision problems under uncertainty. In the second part of the course, we discuss Monte Carlo simulation, a technique for simulating complex, uncertain systems. Throughout the course, we will use Microsoft Excel as a modeling environment, using add-in programs as necessary. Familiarity with Excel is an important prerequisite for this course. Repeatable for Credit.

MGMP 700 - REEP SUMMER INSTITUTE: EDUCATION ENTREPRENEURSHIP  
**Short Title:** EDUCATION ENTREPRENEURSHIP  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Graduate or Graduate Quadmester level students may not enroll.  
**Course Level:** Graduate  
**Description:**

MGMP 701 - COMMUNICATION I ILE  
**Short Title:** COMMUNICATION I ILE  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Internal and Interpersonal Communications Students discuss and practice effective ways to communicate both to groups within and organization and one-on-one. Content includes analyzing pitfalls of hierarchical communication; listening skills; productive vs. unproductive feedback, etc. Repeatable for Credit.

MGMP 703 - CORPORATE RESPONSIBILITY II  
**Short Title:** CORPORATE RESPONSIBILITY II  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** This ILE expands on the topics of the first ILE with three learning objectives in mind: 1. Heightened moral imagination defined as the ability to recognize ethical dilemmas / moral problems in business situations. 2. Increased skill at analyzing those dilemmas / problems in terms of economic outcomes, legal requirement, and moral duties through use of ethical decision-making frameworks. 3. Increased skill at ethical leadership as an executive / manager in presenting your moral point of view to others in order to best develop and maintain an ethical climate / culture in all our organizations, communities, and societies. Repeatable for Credit.

MGMP 704 - COMMUNICATION II ILE  
**Short Title:** COMMUNICATION II ILE  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** Crisis Communications Students discuss and practice the methodology of managing crisis in business settings. Both proactive and reactive actions are reviewed; historic examples of both good and bad communication in a crisis are studied. Guest lecturer will discuss crisis communications. Repeatable for Credit.
MGMP 707 - COMMUNICATIONS ILE
Short Title: COMMUNICATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Intercultural Communications Students focus on understanding how to conduct business in cultures different from their own. Content includes cultural and emotional intelligence; cross-cultural exercises; and ways to approach and learn about foreign culture and its related business practices.

MGMP 708 - LEADERSHIP ILE
Short Title: LEADERSHIP ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to teach you some skills and give you some hands on practice around leading others in group settings. The course will focus on Fundamental Leadership Skills: Influence and Vision; Fundamental Leadership Skills: Leading a Key Decision; Fundamental Leadership Skills: Interpretive Leading under Crisis; Putting it Together: Climbing Mt. Everest.

MGMP 709 - NEGOTIATIONS ILE
Short Title: NEGOTIATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Managers and professionals cannot be successful without possessing effective negotiation skills and strategies. The purpose of this ILE is to help one understand the processes of negotiation in a variety of settings. The ILE will cover a broad spectrum of negotiation problems faced by managers and professionals. This ILE helps students develop negotiation skills by tackling a series important topics central to effective negotiation.

MGMP 789 - GLOBAL FIELD EXPERIENCE
Short Title: GLOBAL FIELD EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This unique experiential learning opportunity requires students to apply what was learned in the first year of the program through consulting projects on the ground in a designated country. The course fosters a global mindset and further develops the ability to tackle business challenges in dynamic, divers and complex environments. Department Permission Required.

MGMP 798 - STRATEGIC MANAGEMENT SIMULATION
Short Title: STRATEGIC MGMT SIMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This core course uses a capstone business strategy simulation conducted in close proximity to the required formulation/implementation course. Student teams operate simulated companies in a highly competitive industry. Emphasis is placed on integrating strategy, financial control, operational excellence, and team building. Teams make presentations at the end of the course.

MGMP 799 - CAPSTONE CONSULTING PROJECT
Short Title: CAPSTONE CONSULTING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The PMBA Capstone course is a comprehensive, real-world strategic planning course with a unique twist to challenge student teams – they will work with a non-corporate, Houston-based, community organization. Students will apply all of the disciplines (strategy, finance, marketing, organizational behavior, etc.) that they have learned in the program to thoroughly assess the organization's current situation and develop a strategy, detailed functional design, business case, and implementation plan for the senior executives and board of directors at these organizations.

MBA for Professionals-Weekend (MGMW)

MGMW 500 - PMBA LAUNCH
Short Title: PMBA LAUNCH
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Rice MBA Program Launch is composed of a rigorous one week experience intended to help acclimate students to the Jones School Culture, as well as the rapid pace of a top-tier graduate business program. At the end of Launch, students will be better prepared academically, professionally, administratively, and culturally to reap the full benefits of the MBA experience. The Rice MBA Program Launch is a mandatory activity for all incoming students.
MGMW 501 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Financial statements are a key source of information about the economic activities of a firm. This course addresses the construction and interpretation of financial statements. The goal of the course is not to train you to become an accountant. Rather, the course should equip you to become an informed user of financial statement information. Because annual reports are somewhat formidable, we will study how firms present the information for various accounts in their financial statements, including the footnotes. By the end of the course, you should have a basic understanding of financial statements and the ability to use them for decision making. Fulfillment of these objectives involves acquiring several skills. The course will emphasize (i) gaining familiarity with the types of transaction firms engage in, (ii) the mapping of transactions into accounting numbers, (iii) understanding the accounting-related choices that managers have for transactions and the rationale behind the various methods, (iv) developing fluency in accounting terminology, and (v) appreciating the complexity of accounting due to the (often considerable) discretion and judgment involved in choosing among alternative accounting methods, making estimates, and disclosing information in financial statements.

MGMW 502 - MANAGERIAL ACCOUNTING
Short Title: MANAGERIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course provides an introduction to accounting systems that managers use to support decision making and to align behaviors. The objective of cost management systems is to provide information about costs; including, but not limited to costs of products and services. While financial accounting requires that product cost information be accumulated in particular ways for external reporting, these approaches often provide inadequate information for managing the firm. Management accounting is distinct from financial accounting in its focus on internal (to the firm) uses of accounting and nonfinancial data and in the relative absence of external rules-making bodies such as the SEC or FASB and external monitors such as public accounting firms.

MGMW 510 - ORGANIZATIONAL BEHAVIOR
Short Title: ORG. BEHAVIOR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Issues involving power and influence, norms and values, and incentives and rewards shape individual and group behavior in organizations. Throughout your work life, you have accrued a number of experiences and insights concerning the “human” side of management. In this course, we will discuss your experiences, evaluate and interpret them, and develop a toolkit that will further enhance your ability to make effective decisions, motivate and lead employees, and understand the processes underlying social interaction in organizations.

MGMW 511 - ORGANIZATIONAL CHANGE
Short Title: ORGANIZATIONAL CHANGE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Over the course of your life you have already encountered—and will continue to encounter—the need to lead change or, at a minimum, adapt to change. Chances are good that you already do an adequate job navigating change and may have experienced satisfactory or even better-than-expected results. However, by applying frameworks that elevate your abilities beyond the “common sense” level of performance, you can markedly improve the degree and/or frequency of your success. The primary goal of this course is to help you become an effective leader of organizational change. In this very brief class, you will learn, discuss and put into action an important framework for managing organizational change. Your participation in this course will: 1) provide you with an effective framework for managing organizational change. 2) improve your competencies as both a leader and participant in change.

MGMW 540 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Managerial economics deals with the application of microeconomic analysis to managerial decision-making. It is therefore a very broad subject and serves as the foundation for making decisions in finance, accounting, marketing, and management/strategy.
MGMW 541 - ECONOMIC ENVIRONMENT OF BUSINESS  
Short Title: ECONOMIC ENV. OF BUSINESS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: EEB stresses an understanding of the major macroeconomic forces affecting business in today's global economy. Fluency in major macroeconomic concepts and forces enhances business decision making in the globally competitive product, financial, and labor markets that characterize the modern business environment. With this in mind, the learning objectives for the course include an understanding of 1) the key economic policy goals and how they are related: low unemployment, price stability and long-term sustainable growth, 2) the primary economic policy tools: fiscal policy and monetary policy; and 3) key economy-wide prices: inflation, interest rates, and exchange rates. Repeatable for Credit.

MGMW 543 - FINANCE  
Short Title: FINANCE  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The objective of this course is to introduce you to the theory and practice of corporate finance, and to provide you with a set of analytical tools necessary to answer the most important questions related to firms' financing and investment policies. The theory of corporate finance consists of the following building blocks: Valuation, Investment Decisions, Risk and Return, Financing Decisions, Derivative Securities.

MGMW 560 - CORPORATE SOCIAL RESPONSIBILITY  
Short Title: CORP SOCIAL RESPONSIBILITY  
Department: Management  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Lecture  
Credit Hours: 0.75  
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: MGMW 560 is an interdisciplinary, interactive study of business ethics and the social responsibility of business organizations. It is not designed to dictate individual values, but to show how values can be integrated effectively in successful business decision-making. It encompasses an in-depth examination of the sorts of ethical conflicts that arise in business and an exploration of the interplay between professional and applied ethics, law and management. Emphasis is placed on consideration of stakeholder concerns and the development of personal ethical decision-making skills. Repeatable for Credit.

MGMW 561 - BUSINESS - GOVERNMENT RELATIONS  
Short Title: BUS - GOVERNMENT RELATIONS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: MGMW 561 is a study of the relationship between business and government and its impact on the formation of public policy. The course examines how business issues are influenced by: political structures and institutions, information, relationships, stakeholders, crisis, media and ethics. Students will participate in a Congressional simulation exercise and create an issue management plan that applies class lectures, readings and independent research to an issue of their choice.

MGMW 570 - COMPETITIVE STRATEGY  
Short Title: COMPETITIVE STRATEGY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The field of strategic management explores how firms achieve competitive advantage in a dynamic and complex environment from the general manager's perspective. This course is organized around fundamental frameworks to assist you in analyzing a wide range of strategic issues facing a firm. It will: 1) Cover theories for in-depth industry analysis, for anticipating and predicting future industry developments; 2) Examine some of the firm specific underpinnings of competitive advantage and growth in both domestic and international settings; 3) Explore some of the challenges in implementing the strategy that has been formulated. Nevertheless, the best analysis in the world will have little effect if it cannot be communicated to others. Managers must be able to articulate their views coherently and persuasively, and they must be skilled at understanding and critiquing other points of view. Management is a "verbal sport," perhaps 90% of a typical manager's day is consumed by oral communication. Time is often scarce. You must learn to make convincing arguments and to make them quickly, or the merits of your ideas are likely to become simply irrelevant. This skill takes practice, and we will place a great deal of emphasis on it in class.
MGMW 571 - STRATEGY FORMULATION AND IMPLEMENTATION
Short Title: STRATEGY FORMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The central concern of strategic management is to help companies succeed in competitive environments. Hence, the purpose of the course is to expose students to core concepts, ideas and analytical techniques that can be used to create sustainable advantage and growth in difficult competitive environments. The perspective adopted is that of a general manager who has overall responsibility for the performance of the firm as a whole. To this end, the course will attempt to build students’ ability to develop, evaluate, and implement value-creating strategies at the business and corporate level. In doing so, the course will not only introduce new or advanced concepts in strategy, but also review and build upon some of the concepts students have already studied in the first core course in strategy. Given the integrative nature of strategic management, we shall attempt to establish links with important concepts that students have been exposed to in other functional areas.

MGMW 574 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products, customers, and information. Touching upon bottlenecks, inventory, quality management, and strategic issues in operations.

MGMW 580 - MARKETING
Short Title: MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is built around the premise that providing superior value to customers is a central means of creating value for the firm's stakeholders. The course focuses on marketing strategy – the strategic decision of what value to provide, how to provide it, and to whom. You will lean the importance of balancing effectiveness and efficiency through formulation, implementation, evaluation, and control of marketing mix programs directed at target segments.

MGMW 594 - STRATEGIC BUSINESS COMMUNICATION I
Short Title: STRAT BUSINESS COMMUNICATION I
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the strategy and practice of business presentations. Includes frequent oral presentations (both individual and team) and feedback.

MGMW 595 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective of this course is to help you learn to analyze data and use methods of statistical inference in making business decisions.

MGMW 596 - STRATEGIC BUSINESS COMMUNICATION II
Short Title: STRATEGIC BUSINESS COMM II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continued instruction in the core strategic business communication skills introduced in Strategic Business Communication I. In addition to a mandatory writing workshop, students have the opportunity to select workshops on other communication topics, based on individual needs and interests.
MGMW 597 - ICE ILE
Short Title: ICE ILE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Ice Cream Game is a realistic, competitive game set in a Marketing Context. Student teams have a fixed budget to spend on Production and Advertising across each of three different time periods. They control: 1) How many different product types they offer (up to 4); 2) What specific raw material ingredient combinations make up those products; 3) How many units of each product type to produce; 4) What price to charge; 5) How much money to allocate to advertising (if any) for each product in each media; and, 6) How much to spend stressing each product attribute. All teams compete with each other for share, sales, and profit in a world composed of three segments which (may) differ in their preferences – thus each team’s strategy can definitely affect all the other team’s results. The game allows the student to apply what they have learned in Data Analysis, Marketing, Economics, Strategy, and Organization Behavior all in a world where both analysis and creativity are important ingredients in the recipe for success.

MGMW 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MGMW 700 - 2ND YEAR IMMERSION
Short Title: 2ND YEAR IMMERSION
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMW 701 - COMMUNICATIONS
Short Title: COMMUNICATIONS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: In this course students will explore current topics in business communications. The course applies theory and research in business communications to everyday business communication practice. Individual sessions focus on the following issues: Internal Corporate Communications and Web 2.0; Crisis Communications; Cross-Cultural Communications; Interpersonal Communications in Business. Students will be expected to conduct research, analyze case studies, and present their findings. The course strives to teach knowledge and skills immediately applicable to solving business communication problems in the 21st century workplace. Repeatable for Credit.

MGMW 706 - LEADERSHIP
Short Title: LEADERSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course aims to develop a more thorough understanding of leadership and the leadership process. Through this exploration, it is hoped that students will come to understand themselves better within the leadership context (i.e., as a follower, as a self-leader, and as a leader of others).

MGMW 709 - NEGOTIATIONS
Short Title: NEGOTIATIONS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Negotiating is an important part of our everyday lives, whether we realize this or not. As research tends to show, however, most of us are often not as effective as we could be in negotiation situations. The purpose of this course is simply to improve your ability to negotiate in ways that are consistent with the demands of the situation and your own personal values. The course is designed around the premise that negotiation is a science and an art. The assigned readings are informed by the latest research on negotiations. The exercises and other learning activities were chosen to help you gain a feel for how this science informs the practice of securing agreements between interdependent parties. Repeatable for Credit.
MGMW 798 - STRATEGIC MANAGEMENT SIMULATION
Short Title: STRATEGIC MGMT SIMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.

Course Level: Graduate
Description: The goal of MGMW 798: First Year Capstone Course is to deliver an applied learning educational experience that provides broad functional and foundational coverage of first year MBA core courses. In order to be successful, students must be able to demonstrate the following: (1) integrating concepts across business functional areas, (2) articulating value and solicit buy in for their plan internally and externally, and (3) demonstrating results from a strategic plan.

MGMW 799 - CAPSTONE CONSULTING PROJECT
Short Title: CAPSTONE CONSULTING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.

Course Level: Graduate
Description: The PMBA Capstone course is a comprehensive, real-world strategic planning course with a unique twist to challenge student teams — they work with a non-corporate, Houston-based, community organization. Students apply all of the disciplines (strategy, finance, marketing, organizational behavior, etc.) that they have learned in the program to thoroughly assess the organization's current situation and develop a strategy, detailed functional design, business case, and implementation plan for the senior executives and board of directors at these organizations.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code for Business: BUSI
• Course offerings/subject code for Management: MGMT
• Course offerings/subject code for Management Integrated Course Offering: MICO
• Course offerings/subject code for Master of Accounting: MACC
• Course offerings/subject code for MBA for Professionals-Evening: MGPM
• Course offerings/subject code for MBA for Professionals-Weekend: MGMW

Department Description and Code
• Business: BUSI
• Management: MGMT

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Business: BUSI

Graduate Degree Descriptions and Codes
• Master of Accounting degree: MAcc
• Master of Arts degree: MA
• Master of Business Administration degree: MBA
• Doctor of Philosophy degree: PhD

Graduate Degree Program Descriptions and Codes
• Degree Program in Accounting: ACCO
• Degree Program in Business Administration (MBA degree): MGMT
• Degree Program in Business (MA and PhD degrees): BUSP

Graduate Major Concentration Descriptions and Codes
• Major Concentration in Accounting: BACT (for both the MBA degree, full-time program and PhD degree)
• Major Concentration in Energy: BENR (MBA degree, full-time program)
• Major Concentration in Entrepreneurship: BENT (MBA degree, full-time program)
• Major Concentration in Finance: BFIN (for both the MBA degree, full-time program and PhD degree)
• Major Concentration in Health Care: BHCR (MBA degree, full-time program)
• Major Concentration in Marketing: BMKT (for both the MBA degree, full-time program and PhD degree)
• Major Concentration in Operations Management: BOPM (MBA degree, full-time program)
• Major Concentration in Real Estate: BRES (MBA degree, full-time program)
• Major Concentration in Strategic Management: BSTM (for both the MBA degree, full-time program and PhD degree)

Graduate Degree Program Option Descriptions and Codes*
• Degree Program Option - Executive (MBA degree only): EMBA
• Degree Program Option - Full-Time (MBA degree only): MBA
• Degree Program Option - Online (MBA degree only): O MBA
• Degree Program Option - Professional, Evening (MBA degree only): PMBA
• Degree Program Option - Professional, Evening Extended (MBA degree only): XMBA
• Degree Program Option - Professional, Weekend (MBA degree only): WMBA

CIP Code and Description
• ACCO Major/Program: CIP Code/Title: 52.1399 - Management Sciences and Quantitative Methods, Other
• BUSM Major/Program: CIP Code/Title: 52.1399 - Management Sciences and Quantitative Methods, Other
 Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Finance

Program Learning Outcomes for the BA Degree with a Major in Business and a Major Concentration in Finance

Upon completing the BA degree with a major in Business, students will be able to:

1. Demonstrate critical thinking and a broad knowledge of core concepts in courses requiring quantitative analysis and application of economic theories to business problems.
2. Demonstrate critical thinking and a broad knowledge of core concepts in courses requiring application of behavioral theories and strategy principles to business problems.
3. Communicate effectively, orally and in writing, advanced analysis in the field of Business.

Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Finance

Requirements for the BA Degree with a Major in Business and a Major Concentration in Finance

For general university requirements, see Graduation Requirements (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/). Students pursuing the BA degree with a major in Business must complete:

- A minimum of 15 courses (47-50 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 11 courses (35-36 credit hours, depending on course selection) taken at the 300-level or above.
- A maximum of 3 courses (9 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 459) tab.
- The requirements of a major concentration. When students declare the major in Business, students must additionally identify and declare one of two major concentrations, either in:
  * Finance (p. 459), or
  * Management (p. 460).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 395</td>
<td>DATA ANALYTICS</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the BA Degree with a Major in Business

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

Degree Requirements

Core Requirements

Foundation

Additionally, upon completing the BA degree with a major in Business and a major concentration in Finance, students will be able to:

1. Acquire knowledge, research and analytical skills to solve a broad array of corporate finance and investment problems, such as analyzing a company or an investment’s performance and valuing real and financial assets.
or STAT 310 / PROBABILITY AND STATISTICS
ECON 307

or STAT 315 / PROBABILITY AND STATISTICS FOR DATA SCIENCE
DSCI 301

ECON 100 PRINCIPLES OF ECONOMICS 1 3
MATH 101 SINGLE VARIABLE CALCULUS I 3
or MATH 105 AP/OTH CREDIT IN CALCULUS I

Major Concentration
Select 1 from the following Major Concentrations (see below for Major Concentration requirements):

Finance
Management

Total Credit Hours Required for the Major in Business 47-50
Additional Credit Hours to Complete Degree Requirements 9 39-42
University Graduation Requirements (p. 29) 9 31
Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.
Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.
1 No substitution or transfer credit (including exams such as IP/AP/A-Levels credit) is allowed for ECON 100. It must be taken at Rice.

Major Concentration: Finance

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 305</td>
<td>FINANCIAL ACCOUNTING</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 343</td>
<td>FINANCIAL MANAGEMENT</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 5 courses from the following: 15-16

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 310</td>
<td>LEADING PEOPLE IN ORGANIZATIONS</td>
</tr>
<tr>
<td>BUSI 374</td>
<td>OPERATIONS MANAGEMENT</td>
</tr>
<tr>
<td>BUSI 380</td>
<td>MARKETING</td>
</tr>
<tr>
<td>BUSI 390</td>
<td>STRATEGIC MANAGEMENT</td>
</tr>
<tr>
<td>BUSI 430</td>
<td>MANAGEMENT ACCOUNTING</td>
</tr>
<tr>
<td>ECON 200</td>
<td>MICROECONOMICS</td>
</tr>
</tbody>
</table>

Major Concentration (Finance) Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 401</td>
<td>FINANCIAL STATEMENT ANALYSIS</td>
<td>4</td>
</tr>
<tr>
<td>BUSI 447</td>
<td>ADVANCED CORPORATE FINANCE</td>
<td>4</td>
</tr>
<tr>
<td>BUSI 448</td>
<td>INVESTMENTS</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 450</td>
<td>DERIVATIVES</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirement
Select 1 course from the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BUSI 420</td>
<td>LEADERSHIP AND TEAMS</td>
</tr>
<tr>
<td>BUSI 421</td>
<td>POWER, INFLUENCE AND ORGANIZATIONAL CHANGE</td>
</tr>
<tr>
<td>BUSI 422</td>
<td>NEOTIATIONS AND DECISION MAKING</td>
</tr>
<tr>
<td>BUSI 431</td>
<td>ADVANCED STRATEGIC MANAGEMENT</td>
</tr>
<tr>
<td>BUSI 432</td>
<td>BUSINESS AND SOCIETY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 433</td>
<td>TECHNOLOGY AND INNOVATION STRATEGY</td>
<td></td>
</tr>
<tr>
<td>BUSI 480</td>
<td>MARKETING STRATEGY</td>
<td></td>
</tr>
<tr>
<td>ECON 203</td>
<td>MACROECONOMICS</td>
<td></td>
</tr>
<tr>
<td>ECON 209</td>
<td>APPLIED ECONOMETRICS</td>
<td></td>
</tr>
<tr>
<td>ECON 300</td>
<td>GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS</td>
<td></td>
</tr>
<tr>
<td>ECON 305</td>
<td>GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 38-40

Course Registration (Enrollment Lottery)
If a given BUSI course is oversubscribed, the Jones Graduate School of Business will conduct a weighted lottery to determine which students will be admitted to the course. The lottery will give advantage to students who have successfully completed a greater number of Business major courses and who are closer to graduation.

Policies for the BA Degree with a Major in Business and a Major Concentration in Finance

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Business and a Major Concentration in Finance should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.
- Students pursuing the major in Business may only pursue one major concentration within the major.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Business should be aware of the following departmental transfer credit guidelines:

- No more than 3 courses (9 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/
Opportunities for the BA Degree with a Major in Business and a Major Concentration in Management

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors in Business
To earn departmental honors in Business, students pursuing the major in Business and a major concentration in Finance must:

1. Complete 1 courses (3 credit hours) from approved advanced coursework in Accounting or Finance selected with a faculty advisor.
2. Complete 3 credit hours of a research project selected with a faculty advisor.

For additional information, consult the Business Honors Program website at: https://business.rice.edu/undergraduate-business-major

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Management

Program Learning Outcomes for the BA Degree with a Major in Business and a Major Concentration in Management
Upon completing the BA degree with a major in Business, students will be able to:

1. Demonstrate critical thinking and a broad knowledge of core concepts in courses requiring quantitative analysis and application of economic theories to business problems.
2. Demonstrate critical thinking and a broad knowledge of core concepts in courses requiring application of behavioral theories and strategy principles to business problems.
3. Communicate effectively, orally and in writing, advanced analysis in the field of Business.

Additionally, upon completing the BA degree with a major in Business and a major concentration in Management, students will be able to:

1. Acquire knowledge, research and analytical skills to solve a broad array of management problems, such as devising and implementing a firm's strategy, and those involving leadership, teamwork, negotiation and decision-making, and marketing strategy.

Requirements for the BA Degree with a Major in Business and a Major Concentration in Management
For general university requirements, see Graduation Requirements (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/). Students pursuing the BA degree with a major in Business must complete:

- A minimum of 15 courses (47-50 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 11 courses (35-36 credit hours, depending on course selection) taken at the 300-level or above.
- A maximum of 3 courses (9 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 461) tab.
- The requirements of a major concentration. When students declare the major in Business, students must additionally identify and declare one of two major concentrations, either in:
  - Finance (p. 458), or
  - Management (p. 461).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Degree Requirements

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<tbody>
<tr>
<td>BUSI 395</td>
<td>DATA ANALYTICS</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 310 / ECON 307</td>
<td>PROBABILITY AND STATISTICS</td>
<td></td>
</tr>
<tr>
<td>or STAT 315 / DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS ¹</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 101</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td></td>
</tr>
<tr>
<td>Major Concentration</td>
<td>Select 1 from the following Major Concentrations (see below for Major Concentration requirements):</td>
<td>38-40</td>
</tr>
<tr>
<td>Finance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
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</tbody>
</table>

Total Credit Hours Required for the Major in Business 47-50

Additional Credit Hours to Complete Degree Requirements ³ 39-42
Major Concentration: Management

Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 No substitution or transfer credit (including exams such as IP/AP/A-Levels credit) is allowed for ECON 100. It must be taken at Rice.

Major Concentration: Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 305</td>
<td>FINANCIAL ACCOUNTING</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 310</td>
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<td>BUSI 421</td>
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<td>MARKETING STRATEGY</td>
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</table>

Total Credit Hours | 38-39

Footnotes and Additional Information

1 A course that is not selected to fulfill the Major Concentration (Management) Core Requirements may fulfill the Elective Requirement; no course may count toward both requirements.

Course Registration (Enrollment Lottery)

If a given BUSI course is oversubscribed, the Jones Graduate School of Business will conduct a weighted lottery to determine which students will be admitted to the course. The lottery will give advantage to students who have successfully completed a greater number of Business major courses and who are closer to graduation.

Policies for the BA Degree with a Major in Business and a Major Concentration in Management

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Business and a Major Concentration in Management should be aware of the following program restrictions:

• As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

• Students pursuing the major in Business may only pursue one major concentration within the major.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Business should be aware of the following departmental transfer credit guidelines:

• No more than 3 courses (9 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the BA Degree with a Major in Business and a Major Concentration in Management

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work
(p. 51). Some departments have department-specific Honors awards or designations.

**Departmental Honors in Business**

To earn departmental honors in Business, students pursuing the major in Business and a major concentration in Management must:

1. Complete 1 courses (3 credit hours) from approved advanced coursework in Strategy, Organizational Behavior, or Marketing selected with a faculty advisor.
2. Complete 3 credit hours of a research project selected with a faculty advisor.

For additional information, consult the Business Honors Program website at: [https://business.rice.edu/undergraduate-business-major](https://business.rice.edu/undergraduate-business-major)

**Additional Information**

For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

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**Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Accounting**

**Program Learning Outcomes for the PhD Degree in the field of Business and a Major Concentration in Accounting**

Upon completing the PhD degree in the field of Business and a major concentration in Accounting, students will be able to:

1. Understand advanced Accounting concepts, theories, principles, and quantitative methods including strategic role of accounting in business organizations and society.
2. Identify and explain questions and problems existing within the field of Accounting and propose research to address them.
3. Execute original research in the field of Accounting.
4. Communicate effectively, orally and in writing, research conducted in the field of Accounting.

**Requirements for the PhD Degree in the field of Business and a Major Concentration in Accounting**

**PhD Degree Program**

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time coursework and at least two years writing the thesis. Four to five years is a reasonable goal for completing the program. Students pursuing the PhD degree in Business must:

- Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete all coursework with a minimum overall GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
- Complete all of the course requirements in their selected major concentration.
- Complete and defend orally a doctoral thesis, setting forth in publishable form, the results of original research.

**Summary**

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<td>BUSI 523</td>
<td>EMPIRICAL METHODS IN FINANCE</td>
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<td>BUSI 530</td>
<td>INTRODUCTION TO ACCOUNTING</td>
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**Major Concentration: Accounting**

Students pursuing the major concentration in Accounting must:

- Complete a minimum of 90 credit hours as listed below to satisfy the PhD degree and the major concentration requirements.
- Complete a minimum of three doctoral-level courses (preferably four courses) per semester as approved by the area faculty advisor.
- Attend four doctoral seminars organized in the accounting area during the student’s first two years in the PhD program and additional accounting doctoral seminars as required by the student’s advisor.
- Attend all research workshops organized in the accounting area during the student’s tenure in the PhD program. Student must lead a discussion preceding the workshop with the other PhD students each semester.
- Complete a summer research/study paper in the first two years of student in the program.
- Successfully pass a comprehensive exam administered by the accounting faculty at the end of the second year. Student must not be on probation and must have a satisfactory annual evaluation.
- Successfully defend a thesis proposal by the end of the fourth year.
- Complete and defend thesis within a maximum of 7 years from the time of matriculation.

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**Elective Requirements**

For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time coursework and at least two years writing the thesis. Four to five years is a reasonable goal for completing the program. Students pursuing the PhD degree in Business must:

- Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete all coursework with a minimum overall GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
- Complete all of the course requirements in their selected major concentration.
- Complete and defend orally a doctoral thesis, setting forth in publishable form, the results of original research.

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**Major Concentration: Accounting**

Students pursuing the major concentration in Accounting must:

- Complete a minimum of 90 credit hours as listed below to satisfy the PhD degree and the major concentration requirements.
- Complete a minimum of three doctoral-level courses (preferably four courses) per semester as approved by the area faculty advisor.
- Attend four doctoral seminars organized in the accounting area during the student’s first two years in the PhD program and additional accounting doctoral seminars as required by the student’s advisor.
- Attend all research workshops organized in the accounting area during the student’s tenure in the PhD program. Student must lead a discussion preceding the workshop with the other PhD students each semester.
- Complete a summer research/study paper in the first two years of student in the program.
- Successfully pass a comprehensive exam administered by the accounting faculty at the end of the second year. Student must not be on probation and must have a satisfactory annual evaluation.
- Successfully defend a thesis proposal by the end of the fourth year.
- Complete and defend thesis within a maximum of 7 years from the time of matriculation.

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**Elective Requirements**

For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time coursework and at least two years writing the thesis. Four to five years is a reasonable goal for completing the program. Students pursuing the PhD degree in Business must:

- Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete all coursework with a minimum overall GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
- Complete all of the course requirements in their selected major concentration.
- Complete and defend orally a doctoral thesis, setting forth in publishable form, the results of original research.

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Policies for the PhD Degree in the field of Business

Jones Graduate School of Business Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Jones Graduate School of Business publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/ Business_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Business should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the PhD Degree in the field of Business

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Footnotes and Additional Information

1 The summer prior to the student’s first fall semester, a review Quantitative Methods course (an “Intensive Math and Statistics Camp”, hosted by the Economics department and Rice Online Learning) must be successfully completed as a required prerequisite to Core Requirements.

2 Students may select other elective courses if approved by an advisor in consultation with the faculty under the Major Concentration.

Other

The major concentration in Accounting involves the systematic and scientific study of accounting systems, institutions, standards and regulations for the purpose of understanding and characterizing their decision-facilitating and decision-influencing roles within organizations, in product and capital markets, and across economies. For instance, financial reporting systems play many roles in publicly held organizations characterized by separation of ownership from control. They help investors in valuing their claims to firms in financial markets (valuation role), are essential for corporate control and managerial performance evaluation (auditing, governance and stewardship roles), and impact how firms allocate their resources and make financial decisions (real effects).

In a similar vein, management accounting systems facilitate planning and control within organizations. Often, these many roles of accounting information interact, posing challenges for system designers, policy makers, and standard setters.

The main goal of the accounting doctoral program is to train students to do high-quality research, and become influential scholars in top academic institutions. The accounting group has world-class senior faculty and young, talented scholars with considerable expertise in the above topics and a vibrant research environment. In addition, the program leverages the resources and excellence of Rice University in related fields such as finance, economics and statistics. Students will be required to take courses in economics, statistics, econometrics, finance, and a rigorous set of cutting-edge research seminars covering the essentials in theory, research methods, and contemporary accounting issues.
Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Finance

Program Learning Outcomes for the PhD Degree in the field of Business and a Major Concentration in Finance

Upon completing the PhD degree in the field of Business and a major concentration in Finance, students will be able to:

1. Understand advanced Finance concepts, theories, principles, and quantitative methods including financial markets, financial management, and financial models.
2. Identify and explain questions and problems existing within the field of Finance and propose research to address them.
3. Execute original research in the field of Finance.
4. Communicate effectively, orally and in writing, research conducted in the field of Finance.

Requirements for the PhD Degree in the field of Business and a Major Concentration in Finance

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time coursework and at least two years writing the thesis. Four to five years is a reasonable goal for completing the program. Students pursuing the PhD degree in Business must:

- Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete all coursework with a minimum overall GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
- Complete all of the course requirements in their selected major concentration.
- Complete and defend orally a doctoral thesis, setting forth in publishable form, the results of original research.

Major Concentration: Finance

Students pursuing the major concentration in Finance must:

- Complete a minimum of 90 credit hours as listed below to satisfy the PhD degree and the major concentration requirements.
- Complete a minimum of three doctoral-level courses (preferably four courses) per semester as approved by the area faculty advisor.
- Attend all research seminars organized in the finance area, and then write a summary and critical comments on the papers presented in the seminar.
- Engage in research during summer throughout tenure in the program.
- Successfully pass comprehensive exams in economic theory and econometrics at the end of the first year.
- Successfully pass comprehensive exam administered by the finance faculty at the end of the fall semester of the second year.
- Write and present a sole-authored original research paper during the student's third year in the program.
- Complete and defend thesis within a maximum of 7 years from the time of matriculation.

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Selective Requirements 3

Select coursework from Business, Economics, Statistics, Computational and Applied Mathematics, or other departments with the approval of the area advisor to total a minimum of 46-49 credit hours.

Total Credit Hours

Minimum of 90

Footnotes and Additional Information

1 The summer prior to the student’s first fall semester, a review Quantitative Methods course (an “Intensive Math and Statistics Camp”, hosted by the Economics department and Rice Online Learning) must be successfully completed as a required prerequisite to Core Requirements.

2 Students should consult the finance area advisor regarding whether to take MATH 321 or substitute a more advanced math course in the fall semester of the first year.

3 Students may select other elective courses if approved by an advisor in consultation with the faculty under the Major Concentration.
Other

The major concentration in Finance prepares doctoral graduates to be superior classroom instructors and research scholars in financial economics upon graduation.

Our emphasis on research productivity, collaboration and collegiality is reflected in the students’ high completion rate in the program and the faculty’s commitment to the success of their students.

Deeply invested in the path their students take, the finance faculty believe in an open-door policy and collegial atmosphere during the program and after graduation. The essence of the finance doctoral program is the opportunity to learn from and work with top quality faculty members on a broad range of topics in modern finance.

Policies for the PhD Degree in the field of Business

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Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Marketing

Program Learning Outcomes for the PhD Degree in the field of Business and a Major Concentration in Marketing

Upon completing the PhD degree in the field of Business and a major concentration in Marketing, students will be able to:

1. Understand advanced Marketing concepts, theories, principles, and quantitative methods including market and consumer behavior, and marketing policy.
2. Identify and explain questions and problems existing within the field of Marketing and propose research to address them.
3. Execute original research in the field of Marketing.
4. Communicate effectively, orally and in writing, research conducted in the field of Marketing.

Requirements for the PhD Degree in the field of Business and a Major Concentration in Marketing

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree spend at least two years in full-time coursework and at least two years writing the thesis. Four to five years is a reasonable goal for completing the program. Students pursuing the PhD degree in Business must:

• Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
• Complete all coursework with a minimum overall GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
• Complete all of the course requirements in their selected major concentration.
• Complete and defend orally a doctoral thesis, setting forth in publishable form, the results of original research.
Summary

Major Concentration: Marketing

Students pursuing the major concentration in Marketing must:

- Complete a minimum of 90 credit hours as listed below to satisfy the PhD degree and the major concentration requirements.
- Complete a minimum of four-doctoral-level courses per semester during the first two years. Coursework completed will be a combination of Core Requirements and Elective Requirements, as approved by the area faculty advisor.
- Attend periodic research seminars in their area.
- Successfully pass a comprehensive exam administered by marketing faculty at the end of the second year.
- Write a summer research paper during the first and second year of study.
- Write and defend a thesis and proposal.
- Complete and defend thesis within a maximum of 7 years from the time of matriculation.

Total Credit Hours Required for the PhD Degree in the field of Business and a Major Concentration in Marketing

90

Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>STAT 582</td>
<td>MATHEMATICAL PROBABILITY II</td>
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<td>STAT 581</td>
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<tr>
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<td>GAME THEORY</td>
<td>3</td>
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<td>BUSI 523</td>
<td>EMPIRICAL METHODS IN FINANCE</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 540</td>
<td>STRATEGY I</td>
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<td>STAT 525</td>
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<td>BUSI 503</td>
<td>SEMINAR IN JUDGEMENT AND DECISION MAKING</td>
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<td>BUSI 505</td>
<td>SEMINAR IN CONSUMER BEHAVIOR</td>
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<td>BUSI 506</td>
<td>ADVANCED TOPICS IN MARKETING RESEARCH</td>
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<tr>
<td>BUSI 800</td>
<td>PHD RESEARCH</td>
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<td>ECON 501</td>
<td>MICROECONOMICS I</td>
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<td>ECON 504</td>
<td>COMPUTATIONAL ECONOMICS</td>
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<td>MATHEMATICAL ECONOMICS I</td>
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<td>ECON 510</td>
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<td>ECON 515</td>
<td>EMPIRICAL INDUSTRIAL ORGANIZATION</td>
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<td>ECON 577</td>
<td>TOPICS IN ECONOMIC THEORY I</td>
<td>3</td>
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<td>PSYC 502</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS I</td>
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<td>PSYC 503</td>
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<td>PSYC 507</td>
<td>RESEARCH METHODS</td>
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<td>PSYC 511</td>
<td>HISTORY AND SYSTEMS OF PSYCHOLOGY</td>
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<td>PSYC 512</td>
<td>FOUNDATIONS OF COGNITIVE PSYCHOLOGY</td>
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<td>PSYC 550</td>
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<tr>
<td>STAT 581</td>
<td>MATHEMATICAL PROBABILITY I</td>
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</tr>
<tr>
<td>STAT 582</td>
<td>MATHEMATICAL PROBABILITY II</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 The summer prior to the student’s first fall semester, a review Quantitative Methods course (an “Intensive Math and Statistics Camp”, hosted by the Economics department and Rice Online Learning) must be successfully completed as a required prerequisite to Core Requirements.

2 Students may select other elective courses if approved by an advisor in consultation with the faculty under the Major Concentration.

Other

Marketing is naturally interdisciplinary in nature and therefore draws theory and methodology widely from a variety of fields, including economics, statistics, psychology, anthropology, sociology, and neurosciences. Research in marketing encompasses three broad overlapping areas: quantitative modeling, consumer behavior, and strategy.

Policies for the PhD Degree in the field of Business

Jones Graduate School of Business Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Jones Graduate School of Business publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/](https://gradhandbooks.rice.edu/2021_22/)

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Business should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Additional Information

For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
Opportunities for the PhD Degree in the field of Business

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Strategic Management

Program Learning Outcomes for the PhD Degree in the field of Business and a Major Concentration in Strategic Management

Upon completing the PhD degree in the field of Business and a major concentration in Strategic Management, students will be able to:

1. Understand advanced Strategic Management concepts, theories, principles, and quantitative methods including how to analyze an organization’s environment regarding social, political, technological, economic, and global factors and its strength, weaknesses, efficiencies, decision-making frameworks, and resource management.
2. Identify and explain questions and problems existing within the field of Strategic Management and propose research to address them.
3. Execute original research in the field of Strategic Management.
4. Communicate effectively, orally and in writing, research conducted in the field of Strategic Management.

Requirements for the PhD Degree in the field of Business and a Major Concentration in Strategic Management

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). For program details, see the PhD Program Guidebook distributed by the Jones Graduate School of Business. Admissions applications should include scores on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE). Full financial support will be provided to admitted doctoral students. Candidates for the PhD degree must:

- Complete a program of doctoral-level courses that is approved by the area (or major concentration) faculty advisor. Students take courses from departments such as economics, psychology, statistics, and political science in addition to courses from Jones Graduate School of Business.
- Complete all coursework with a minimum overall GPA of 3.00 and a minimum grade of B (3.00 grade points) in each required course.
- Complete all of the course requirements in their selected major concentration.
- Complete and defend a major paper and thesis within a maximum of 7 years from the time of matriculation.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 540</td>
<td>STRATEGY I</td>
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<td>BUSI 541</td>
<td>STRATEGY II</td>
<td>3</td>
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<tr>
<td>BUSI 549</td>
<td>STRATEGY PRO-SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 800</td>
<td>PhD RESEARCH</td>
<td>9-12</td>
</tr>
<tr>
<td>ECON 501</td>
<td>MICROECONOMICS I</td>
<td>3</td>
</tr>
<tr>
<td>POLI 504</td>
<td>INTRODUCTION TO MAXIMUM</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the PhD Degree in the field of Business and a Major Concentration in Strategic Management: 90

Major Concentration: Strategic Management

Students pursuing the major concentration in Strategic Management must:

- Complete a minimum of 90 credit hours as listed below to satisfy the PhD degree and the major concentration requirements.
- Complete coursework approved by the area faculty advisor; these courses will be a combination of Core Requirements and Elective Requirements.
- Complete a minimum of 12 credit hours of approved graduate level courses per semester, in the first two years in the program.
- Attend all research seminars organized in the strategic management area.
- Complete summer research paper requirements during the first two years in the program.
- Successfully pass a comprehensive exam.
- Write one major paper (sole-authored or co-authored) and present in a faculty workshop.
- Teach at least one semester as the primary instructor (during the third year in the program).
- Complete and defend thesis within a maximum of 7 years from the time of matriculation.
Elective Requirements

Elective Requirements to total a minimum of 90 credit hours. The following are typically approved courses that may be chosen to fulfill Elective Requirements with advisor approval, select 48-51 credit hours of additional coursework.

Course List to Satisfy Requirements

With advisor approval, select 48-51 credit hours of additional coursework as Elective Requirements to total a minimum of 90 credit hours. The following are typically approved courses that may be chosen to fulfill Elective Requirements.

Approved Electives

Select coursework with the approval of the area advisor to total a minimum of 90 credit hours (see course list below).

Total Credit Hours

Minimum

of 90

Footnotes and Additional Information

1. The summer prior to the student’s first fall semester, a review Quantitative Methods course (an “Intensive Math and Statistics Camp”, hosted by the Economics department and Rice Online Learning) must be successfully completed as a required prerequisite to Core Requirements.

2. Students may select other elective courses if approved by an advisor in consultation with the faculty under the Major Concentration.

Other

The major concentration in strategic management provides coursework in the base theories in strategic management. The field of strategic management studies big picture issues facing managers of firms, such as deciding what markets and industries to enter, how to enter and exit various markets, how to position the firm in the market in order to gain competitive advantage, and the timing, sequencing, and orchestration of competitive initiatives. Topics in strategic management include: Competitive strategy, resource allocation and corporate strategy, strategic decision processes, international and emerging market strategies, knowledge and innovation management, strategic entrepreneurship, corporate governance, and environment and non-market strategies. The main goal of the strategic management doctoral program is to train students to do high-quality research in any of these areas and to prepare them for careers as mainstream professors of strategic management at top academic research institutions. To achieve this goal, PhD students are required to take courses in strategic management, research methods and statistics, as well as possible disciplinary elective courses in economics, psychology and political science, and to write research papers examining important and relevant issues in strategic management. The program also has a teaching requirement to the extent that teaching opportunities are available.

Policies for the PhD Degree in the field of Business

Jones Graduate School of Business Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Jones Graduate School of Business publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/
Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Business should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the PhD Degree in the field of Business
Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree / Doctor of Medicine (MD) Degree with Baylor College of Medicine
Program Learning Outcomes for the MBA/MD Dual Degree Program
Upon completing the MBA/MD dual degree program, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.

2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.

3. Function effectively in a team setting both as a leader and contributor.

Requirements for the MBA/MD Dual Degree Program
As part of the coordinated dual degree program, students have the opportunity to earn both the (Rice) MBA degree and the (Baylor College of Medicine) MD degree in 5 years. The program is structured as follows:

- Years 1, 2, and 3—Medical training at Baylor College of Medicine.
- Year 4—First-year MBA core courses at Rice including 2 custom core courses and 2 elective courses.
- Summer—Students are encouraged to do an internship. To ensure that the internship is a combination of business/management and health care, approval is required from both schools. The internship does not count toward credit for either degree.
- Year 5—Second-year MBA elective courses in fall including MGMT 678, Business of Health Care, and medical training at Baylor College of Medicine in the spring semester.

Students are expected to follow the requirements for the health care major concentration as the blueprint for their MBA studies, to the extent possible and in consultation with the Program Director of the Health Care Initiative at Jones Graduate School of Business. To obtain the major concentration, students take MGMT 678, Business of Health Care, in fall of their second year and complete 12 credit hours from a suite of health care courses offered throughout the year.

Students are eligible to receive their MBA degree from Rice i.) after they have completed 45 credit hours of approved business coursework, and ii.) after they have completed the MD degree requirements specified by the Baylor College of Medicine.

Policies for the MBA/MD Dual Degree Program
Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA/MD Dual Degree Program
Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree / Master of Chemical Engineering (MChE) Degree
Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:
1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.

2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.

3. Function effectively in a team setting both as a leader and a contributor.

**Program Learning Outcomes for the MChE Degree**

Upon completing the MChE degree, students will be able to:

1. Identify, formulate, and solve complex engineering problems that require synthesis of advanced knowledge in chemical engineering fundamentals.

2. Demonstrate broad advanced knowledge in science and math, and depth in one chemical engineering sub-discipline (energy engineering, biomolecular engineering, materials science).

3. Demonstrate knowledge of business policies and practices in the current business environment in identifying, formulating, and solving engineering challenges in a problem/engineering challenge they undertake to solve as part of independent study.

4. Demonstrate effective oral and written communication skills.

**Requirements for the MBA/MChE Coordinated Degrees Program**

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 45 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

- *Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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<th>Code</th>
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<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
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</table>

**Coordinated MBA Degree Requirements**

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<td>Full-time MBA Work Experience Requirement</td>
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<td>Full-time MBA Global Field Experience Requirement</td>
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<td></td>
<td>Full-time MBA Custom Core Courses</td>
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</tr>
<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
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</tbody>
</table>

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.  

| Total Credit Hours | 45 |
Footnotes and Additional Information

To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Coordinated MChE Degree Requirements

Students in the coordinated MBA/MChE degrees program must complete the Core Requirements of the MChE degree program (p. 577) and Coordinated MChE Elective Requirements below.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
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<tr>
<td>MChE Core Requirements</td>
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</tr>
<tr>
<td>Coordinated MChE Elective Requirements</td>
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<td>15</td>
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</table>

Select a minimum of 9 credit hours from approved departmental (CHBE) course offerings at the 500-level or above

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

Total Credit Hours 30

Policies for the MBA/MChE Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Opportunities for the MBA/MChE Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Master of Business Administration (MBA) Degree / Master of Computational and Applied Mathematics (MCAAM) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MCAAM Degree

Upon completing the MCAAM degree, students will be able to:

1. Acquire broad, advanced knowledge in Computational and Applied Mathematics that is also deep within a major sub-discipline.
2. Demonstrate an ability to gain employment or advancement in a technical field related to Computational and Applied Mathematics.

Requirements for the MBA/MCAAM Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

Full-time MBA Core Requirements
- A minimum of 45 credit hours of business coursework
- All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements
- *Note:* A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
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<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
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</tr>
<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
</tbody>
</table>

### Coordinated MBA Elective Requirements

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.

### Footnotes and Additional Information

To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Coordinated MCAAM Degree Requirements

Students in the coordinated MBA/MCAAM degrees program must complete the Core Requirements of the MCAAM degree program (p. 713) and the Coordinated MCAAM Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MCAAM Core Requirements</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MCAAM Elective Requirements</td>
<td>24</td>
</tr>
</tbody>
</table>

Select a minimum of 18 credit hours from approved departmental (CAAM) course offerings at the 500-level or above

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

### Policies for the MBA/MCAAM Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
2. Please see the Computational and Applied Mathematics website: [https://www.caam.rice.edu/](https://www.caam.rice.edu/)

### Opportunities for the MBA/MCAAM Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
2. Please see the Computational and Applied Mathematics website: [https://www.caam.rice.edu/](https://www.caam.rice.edu/)
Master of Business Administration (MBA) Degree / Master of Computer Science (MCS) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MCS Degree

Upon completing the MCS degree, students will be able to:

1. Solve advanced Computer Science problems. Students will acquire and apply a graduate-level understanding of material in sub-areas of Computer Science.
2. Design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
3. Communicate effectively to a client and user.

Requirements for the MBA/MCS Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
- A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
- All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements
- *Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree Minimum of 30</td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree Minimum of 45</td>
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Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
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<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
</tbody>
</table>

Coordinated MBA Elective Requirements
Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. \(^1\)

| Footnotes and Additional Information
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are <strong>not</strong> accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.</td>
</tr>
</tbody>
</table>

Coordinated MCS Degree Requirements

Students in the coordinated MBA/MCS degrees program must complete the Core Requirements, Area of Specialization, and Design Project of the **MCS degree program** (p. 756) and Coordinated MCS Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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</thead>
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<tr>
<td></td>
<td>MCS Core Requirements</td>
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</tr>
<tr>
<td></td>
<td>MCS Area of Specialization</td>
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<tr>
<td></td>
<td>MCS Design Project</td>
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<td></td>
<td>Coordinated MCS Elective Requirements</td>
<td>10-15</td>
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</table>

Select a minimum of 4-9 credit hours from departmental (COMP) course offerings at the 500-level or above

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

Total Credit Hours 30

Policies for the MBA/MCS Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
2. Please see the Computer Science website: [https://www.cs.rice.edu/](https://www.cs.rice.edu/)

Opportunities for the MBA/MCS Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
2. Please see the Computer Science website: [https://www.cs.rice.edu/](https://www.cs.rice.edu/)
• A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
• A minimum of 45 credit hours of business coursework
• All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

• *Note:* A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
<td></td>
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</table>

### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time MBA Core Requirements</td>
<td>25.5</td>
<td></td>
</tr>
<tr>
<td>Full-time MBA Work Experience Requirement</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
<td></td>
</tr>
</tbody>
</table>

### Coordinated MIE Degree Requirements

Students in the coordinated MBA/MIE degrees program must complete the Core Requirements and Capstone Requirement of the MIE degree program (p. 1195) and Coordinated MIE Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIE Core Requirements</td>
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<tr>
<td>MIE Capstone Requirement</td>
<td>1</td>
<td></td>
</tr>
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<td>Coordinated MIE Elective Requirements</td>
<td>6</td>
<td></td>
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</tbody>
</table>

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.

**Footnotes and Additional Information**

1. To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Policies for the MBA/MIE Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
2. Please see the Industrial Engineering website: [https://engrprofmasters.rice.edu/](https://engrprofmasters.rice.edu/)

### Opportunities for the MBA/MIE Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)
2. Please see the Industrial Engineering website: [https://engrprofmasters.rice.edu/](https://engrprofmasters.rice.edu/)
Master of Business Administration (MBA) Degree / Master of Materials Science and Nanoengineering (MMSNE) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MMSNE Degree

Upon completing the MMSNE degree, students will be able to:

1. Acquire broad, advanced knowledge within either Materials Science or NanoEngineering, which is also in-depth in one major sub-discipline of the field.
2. Conduct research at an advanced level in at least one area of Materials Science and Nanoengineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MBA/MMSNE Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
- A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
- A minimum of 45 credit hours of business coursework
- All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
</tbody>
</table>

Coordinated MBA Elective Requirements
Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.  

| Total Credit Hours | 45 |

Footnotes and Additional Information

To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Coordinated MMSNE Degree Requirements

Students in the coordinated MBA/MMSNE degrees program must complete the Core Requirements, Technical Electives, Research Project, and Professional Development of the MMSNE degree program (p. 1362) and Coordinated MMSNE Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>MMSNE Core Requirements</td>
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<tr>
<td></td>
<td>MMSNE Technical Electives</td>
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<td></td>
<td>MMSNE Research Project</td>
<td>6</td>
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<td>MMSNE Professional Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Coordinated MMSNE Elective Requirements</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours

30

Master of Business Administration (MBA) Degree / Master of Mechanical Engineering (MME) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MME Degree

Upon completing the MME degree, students will be able to:

1. Demonstrate an advanced command of Mechanical Engineering fieldwork.
2. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MBA/MME Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements

Policies for the MBA/MMSNE Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Opportunities for the MBA/MMSNE Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Materials Science and Nanoengineering website: https://msne.rice.edu/
Coordinated MBA Elective Requirements

Full-time MBA Custom Core Courses

- 25.5

Full-time MBA Work Experience Requirement

- 0.75

Full-time MBA Global Field Experience Requirement

- 1.5

Full-time MBA Custom Core Courses

- 3-6

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

Optional Credit Hours:

- A minimum of 45 credit hours of business coursework
- All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
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<th>Credit Hours</th>
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</thead>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program are accepted in both degree programs. For additional information on these two degrees:

1. Please see the Mechanical Engineering website: https://mech.rice.edu/
2. Please see the Mechanical Engineering website: https://business.rice.edu/
Master of Business Administration (MBA) Degree / Master of Science in Bioscience and Health Policy (MSBHP) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MSBHP Degree

Upon completing the MSBHP degree, students will be able to:

1. Become knowledgeable in current advanced bioscience and health policy topics affecting society.
2. Integrate science knowledge into policies and practices.
3. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.

Requirements for the MBA/MSBHP Coordinated Degrees Program

Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master's (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSSpS)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) program, students must complete:

- A minimum of 75 credit hours in approved coursework, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master's (PSM) degree requirements
  - A minimum of 30 credit hours in the corresponding science discipline
  - All PSM degree-specific requirements
  - A three to six month internship
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements

- All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Wiess School of Natural Sciences PSM program director and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master's (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<td>Total Credit Hours Required for the Coordinated Master of Science Degree</td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
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### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
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<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
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</tr>
<tr>
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<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
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<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
<td>11.25-14.25</td>
</tr>
<tr>
<td></td>
<td>Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>45</td>
</tr>
</tbody>
</table>
Footnotes and Additional Information

To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Coordinated MSBHP Degree Requirements

Students in the coordinated MBA/MSBHP degrees program must complete the Core Requirements and Three to Six Month Internship of the MSBHP degree program (p. 381) and Coordinated MSBHP Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>MSBHP Core Requirements</td>
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<tr>
<td></td>
<td>MSBHP Three to Six Month Internship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coordinated MSBHP Elective Requirements</td>
<td>6</td>
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</tbody>
</table>

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

Total Credit Hours 39-40

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MSEA Degree

Upon completing the MSEA Degree, students will be able to:

1. Apply technical and analytical skills and scientific evaluation methods to help solve problems affecting the environment.
2. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.
3. Possess business and management skills and professional ethics to be effective in a business environment.

Requirements for the MBA/MSEA Coordinated Degrees Program

Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master’s (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSSpS)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) program, students must complete:

- A minimum of 75 credit hours in approved coursework, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master’s (PSM) degree requirements
  - A minimum of 30 credit hours in the corresponding science discipline
  - All PSM degree-specific requirements
  - A three to six month internship
- A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Bioscience and Health Policy website: https://profms.rice.edu/
Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Science degree program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
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Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Science degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

Code | Title | Credit Hours |
<table>
<thead>
<tr>
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<td>Full-time MBA Core Requirements</td>
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<td>Full-time MBA Work Experience Requirement</td>
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<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
<td>11.25-14.25</td>
</tr>
</tbody>
</table>

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Coordinated MSEA Degree Requirements

Students in the coordinated MBA/MSEA degrees program must complete the Core Requirements and Three to Six Month Internship of the MSEA degree program (p. 996) and the Coordinated MSEA Elective Requirements below.

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<td>Coordinated MSEA Elective Requirements</td>
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</table>

Select a minimum of 15 credit hours from approved departmental (CEVE, EBIO, ESCI, or STAT) course offerings at the 500-level or above

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

Total Credit Hours 39

Policies for the MBA/MSEA Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Environmental Analysis website: https://profms.rice.edu/

Opportunities for the MBA/MSEA Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Environmental Analysis website: https://profms.rice.edu/

Footnotes and Additional Information

To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
Master of Business Administration (MBA) Degree / Master of Science in Space Studies (MSSpS) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MSSpS Degree

Upon completing the MSSpS Degree, students will be able to:

1. Achieve advanced science, engineering, and computational skills and a broad understanding of the methodologies applied in the space industry.
2. Gain real life experience in solving technical problems in a science and technology environment.
3. Develop business and communication skills to bridge the gap between science and business.

Requirements for the MBA/MSSpS Coordinated Degrees Program

Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master’s (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSSpS)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) program, students must complete:

- A minimum of 75 credit hours in approved coursework, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master’s (PSM) degree requirements
  - A minimum of 30 credit hours in the corresponding science discipline
  - All PSM degree-specific requirements
  - A three to six month internship
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
- A minimum of 45 credit hours of business coursework
- All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Wiess School of Natural Sciences PSM program director and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master’s (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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<td>Total Credit Hours Required for the Coordinated Master of Science Degree</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
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</tbody>
</table>

**Coordinated MBA Degree Requirements**

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
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<th>Code</th>
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<th>Credit Hours</th>
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<td>Full-time MBA Work Experience Requirement</td>
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<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
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**Coordinated MBA Elective Requirements**

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.

<table>
<thead>
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<th>Code</th>
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<tbody>
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<td>Full-time MBA Elective Requirements</td>
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</table>
Footnotes and Additional Information

1 To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Coordinated MBA/MSSpS Degree Requirements

Students in the coordinated MBA/MSSpS degrees program must complete the Core Requirements and Three to Six Month Internship of the MSSpS degree program (p. 1963) and the Coordinated MSSpS Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>MSSpS Core Requirements</td>
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<tr>
<td>MSSpS Three to Six Month Internship</td>
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<td></td>
</tr>
<tr>
<td>Coordinated MSSpS Elective Requirements</td>
<td>Select a minimum of 3 credit hours from approved departmental (ASTR, BIOC, CEVE, COMP, EEPS, ENGI, or MECH) course offerings at the 500-level or above</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
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Policies for the MBA/MSSpS Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Space Studies website: https://profms.rice.edu/

Opportunities for the MBA/MSSpS Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Space Studies website: https://profms.rice.edu/

Master of Business Administration (MBA) Degree / Master of Science in Subsurface Geoscience (MSSG) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MSSG Degree

Upon completing the MSSG degree, students will be able to:

1. Become proficient in applying geological and geophysical knowledge and data management methods.
2. Develop business and management skills, and obtain practical skills valuable to the energy industry.
3. Develop written, oral, and visual communication skills to bridge the gap between science and business.

Requirements for the MBA/MSSG Coordinated Degrees Program

Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master's (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSEA)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) program, students must complete:

- A minimum of 75 credit hours in approved coursework, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master's (PSM) degree requirements
  - A minimum of 30 credit hours in the corresponding science discipline
  - All PSM degree-specific requirements
  - A three to six month internship
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
• A minimum of 45 credit hours of business coursework
• All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Wiess School of Natural Sciences PSM program director and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master’s (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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<tr>
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<td>Total Credit Hours Required for the Coordinated Master of Science Degree Minimum of 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
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<td>Full-time MBA Custom Core Courses</td>
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<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
<td>11.25-14.25</td>
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</table>

Footnotes and Additional Information

1 To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Coordinated MBA/MSSG Degree Requirements

Students in the coordinated MBA/MSSG degrees program must complete the Core Requirements and Three to Six Internship of the MSSG degree program (p. 2052) and the Coordinated Area of Specialization below.

<table>
<thead>
<tr>
<th>Code</th>
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</table>

Select 1 of the following Areas of Specialization:

- Energy Data Management
- Geology
- Geophysics

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

Total Credit Hours 40-42

Policies for the MBA/MSSG Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Subsurface Geoscience website: https://profms.rice.edu/

Opportunities for the MBA/MSSG Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Jones Graduate School of Business website: https://business.rice.edu/
2. Please see the Subsurface Geoscience website: https://profms.rice.edu/
Master of Business Administration (MBA) Degree / Master of Statistics (MStat) Degree

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Program Learning Outcomes for the MStat Degree

Upon completing the MStat degree, students will be able to:

1. Master fundamental theory in probability and statistics.
2. Become familiar with a broad range of statistical methods for applications.
4. Develop effective communication skills as a professional statistician.

Requirements for the MBA/MStat Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
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</tbody>
</table>

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

Coordinated MBA Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Full-time MBA Core Requirements</td>
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<td></td>
<td>Full-time MBA Work Experience Requirement</td>
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<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
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</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
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</tbody>
</table>
Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MStat Core Requirements</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>MStat Area of Specialization</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Coordinated MStat Elective Requirements</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Select a maximum of 6 credit hours of approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

1 To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

**Coordinated MStat Degree Requirements**

Students in the coordinated MBA/MStat degrees program must complete the Core Requirements and Area of Specialization of the MStat degree program (p. 2028) and Coordinated MStat Elective Requirements below.

**Master of Business Administration (MBA) Degree, Executive Program**

**Program Learning Outcomes for the MBA Degree**

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MBA Degree, Executive Program**

The MBA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Executive MBA degree must complete:

- A minimum of 54 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 487) tab.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of C (2.00 grade points) in each course.

The program is a lock-step progression in which students take required courses in sequence. The program includes four 5-day intensive executive forums that focus on leadership, strategy, critical decision-making, and global management.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral
Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MBA Degree, Executive Program</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
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<tr>
<td>EMB 911</td>
<td>EXECUTIVE SEMINAR I</td>
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</tr>
<tr>
<td>EMB 912</td>
<td>EXECUTIVE SEMINAR II</td>
<td>3</td>
</tr>
<tr>
<td>EMB 913</td>
<td>EXECUTIVE SEMINAR III</td>
<td>1.5</td>
</tr>
<tr>
<td>EMB 914</td>
<td>EXECUTIVE SEMINAR IV</td>
<td>1.5</td>
</tr>
<tr>
<td>EMB 922</td>
<td>MANAGING THE GLOBAL FIRM: STRATEGY</td>
<td>1.5</td>
</tr>
<tr>
<td>EMB 991</td>
<td>EXECUTIVE FORUM I: STRATEGY AND LEADERSHIP</td>
<td>3</td>
</tr>
<tr>
<td>EMB 992</td>
<td>EXECUTIVE FORUM II: CRITICAL DECISION</td>
<td>3</td>
</tr>
<tr>
<td>EMB 993</td>
<td>EXECUTIVE FORUM III: ENTERPRISE STRATEGY AND LEADERSHIP</td>
<td>3</td>
</tr>
<tr>
<td>EMB 994</td>
<td>EXECUTIVE FORUM IV</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 801</td>
<td>FINANCIAL ACCOUNTING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 802</td>
<td>MANAGERIAL ACCOUNTING</td>
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</tr>
<tr>
<td>MGMT 840</td>
<td>ECONOMICS FOR BUSINESS</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 843</td>
<td>CORPORATE FINANCIAL MANAGEMENT</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 874</td>
<td>OPERATIONS MANAGEMENT</td>
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<tr>
<td>MGMT 880</td>
<td>STRATEGIC MARKETING</td>
<td>3</td>
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<tr>
<td>MGMT 895</td>
<td>BUSINESS ANALYTICS</td>
<td>3</td>
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</tbody>
</table>

Elective Requirements

Select an additional 15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>54</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 To fulfill the remaining requirements for the degree program, students must complete an additional 15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 54 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) 9 credit hours (of the 15 credit hours of Elective Requirements) are to be completed during the 3rd semester of the student's program of study along with EMB 913 and EMB 993. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the weekend schedule, the evening schedule, and the daytime schedule.

2 EMB 914 is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As an S/U course it does not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3 Students participate in a required global experience during the second year of the program. Additional costs apply toward this global experience.

Policies for the MBA Degree, Executive Program

MBA Admission Requirements

Admission to the MBA degree program is open to students regardless of their undergraduate major, but the program is highly selective and access is limited to those who have performed with distinction across all areas of the application. A bachelor's degree (or equivalent) from an accredited undergraduate institution is required. Applicants participate in an interview by invitation as part of their admission requirements.

All applicants to the MBA degree program must submit the following:

- resume pre-assessment*
- an online application and application fee
- scores from the Graduate Management Admission Test (GMAT),** the Graduate Record Examination (GRE),** or the Executive Assessment (EA)**
- transcripts from all degree-granting institutions and/or institutions at which an applicant completed 9 or more credit hours
- resume with complete work history
- essays
- letter(s) of recommendation
- scores from the TOEFL, PTE, Duolingo, or IELTS are also required for international applicants, whose undergraduate degree was from an institution where the primary language of instruction was not English.***

Notes:

*For the MBA executive program only, a resume pre-assessment is required to determine eligibility, as well as eligibility for a standardized test waiver.

**A GMT/GRE test waiver request may be submitted to determine eligibility to apply without test scores. Resumes and transcripts are necessary to submit this form. The Executive Assessment (EA) is not accepted for applicants to the full-time MBA degree program.

***English proficiency test waivers are also available.

MBA Deferred Enrollment Program Admission Requirements

Admission to the MBA Deferred Enrollment program allows college seniors to secure a spot two to five years after graduation in the Full-Time MBA Program at Jones Graduate School of Business. International and all majors are welcome to apply during their final year of college. Eligible students must be employed during the interim years to hold onto their space. A bachelor's degree (or equivalent) from an accredited undergraduate institution is required. All applicants must conduct an interview as part of their admission requirements. The program is highly selective and access is limited to those who have performed with distinction across all areas of the application.
Executive MBA Degree Program
In addition to meeting the standards for admission to the other MBA programs, students admitted to the Executive MBA degree program typically have between 15-20 years of relevant work experience with 10 of those being at the management level.

Academic and Professional Standards
Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards
A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where the student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

Class Attendance Policy
Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal
The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than
calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures

Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook

Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA Degree, Executive Program

Independent Study

Minimum Hours Requirement

Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions

No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed
that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study’s academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

**Faculty Sponsorship**
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee’s approval before the term in which the project is to begin.

**Common Requirements**
The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

**Applications**
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

**Additional Information**
For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

**Master of Business Administration (MBA) Degree, Full-Time Program**

**Program Learning Outcomes for the MBA Degree**

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MBA Degree, Full-Time Program**

The MBA degree is a non-thesis master’s degree. For general university requirements, please see **Non-Thesis Master’s Degrees** (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see **All Graduate Students** (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the **Policies** tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the **Policies** tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.
Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facestaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

| Degree Requirements |
|---------------------|-----------------|
| **Course**          | **Title**       |
| **Credit Hours**    |                 |
| Total Credit Hours  | 60              |

### Elective Requirements

Select an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours.

#### Footnotes and Additional Information

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.
2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.
4. The custom core courses are taken during the second semester of the first year.
5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
6. Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Major Concentrations: MBA Degree, Full-Time Program

The Rice MBA program at the Jones Graduate School of Business offers major concentrations to students enrolled in the full-time MBA program. The goal of a major concentration is to provide students with the ability to demonstrate functional, professional, or industry expertise in a particular area of interest within a general management program. Major concentrations are revised annually and students are encouraged...
to contact the Jones Graduate School Associate Registrar for additional information.

Students have the option of selecting up to 2 functional or professional major concentrations. Completing a major concentration is not required to complete the requirements for the MBA degree, it is optional. Students must officially declare the major concentration through the Jones Graduate School of Business Associate Registrar.

Major concentrations typically consist of 9 to 12 credit hours of course work. If a student completes 2 major concentrations, a maximum of 3 credit hours can be shared between the 2 concentrations. Similarly, a custom core course listed in the Core Requirements above can be counted toward the completion of a major concentration only if the student has taken 3.0 credit hours of custom core which can be counted toward the custom core requirement. Specific major concentration requirements for the academic year are available on Campus Groups. Students should know that the classes listed will likely not be offered each semester, and that the course offerings are subject to change. Students should see courses.rice.edu (http://courses.rice.edu) to review the course offerings each semester.

Major Concentration: Accounting
The major concentration in Accounting provides a broad understanding of the use and importance of accounting information to decision makers within the firm and to external users of financial statements. The core financial and management accounting courses provide a basic understanding of accounting principles. Completion of the major concentration in accounting will serve to reinforce the fundamental concepts for the core, to provide additional insight into accounting processes and principles, and to enhance the ability to analyze and interpret accounting reports.

Major Concentration: Energy
The major concentration in Energy provides commercial acumen and leadership perspective to students with a technical background and develops their capability for taking additional responsibilities and higher-level management roles at companies in the energy sector. This is accomplished by engaging students in a curriculum that addresses three distinct, but inter-related, career paths which are widely regarded as conduits to leadership positions in energy industry midstream and upstream organizations: finance, operations, and product/customer focus.

Major Concentration: Entrepreneurship
The major concentration in Entrepreneurship provides students a framework for being an entrepreneur. The required courses equip students with the tools and processes for starting a business. The remaining courses allow students to select specific entrepreneurial topics suited to their objectives.

Major Concentration: Finance
The major concentration in Finance provides students with a broad foundation in financial management principles and an opportunity for further specialization. Students are required to complete the primary finance electives in the MBA program and Financial Statement Analysis. Students supplement these foundational courses with at least two specialized courses from a list of approved offerings.

Policies for the MBA Degree Programs
MBA Admission Requirements
Admission to the MBA degree program is open to students regardless of their undergraduate major, but the program is highly selective and access is limited to those who have performed with distinction across all areas of the application. A bachelor's degree (or equivalent) from an accredited undergraduate institution is required. Applicants participate in an interview by invitation as part of their admission requirements.

All applicants to the MBA degree program must submit the following:

- resume pre-assessment*
- an online application and application fee
- scores from the Graduate Management Admission Test (GMAT),** the Graduate Record Examination (GRE),** or the Executive Assessment (EA)**
- transcripts from all degree-granting institutions and/or institutions at which an applicant completed 9 or more credit hours
- resume with complete work history
- essays
- letter(s) of recommendation

- **GMAT, GRE, Executive Assessment (EA)
- ** Optional
• scores from the TOEFL, PTE, Duolingo, or IELTS are also required for international applicants, whose undergraduate degree was from an institution where the primary language of instruction was not English.***

Notes:
*For the MBA executive program only, a resume pre-assessment is required to determine eligibility, as well as eligibility for a standardized test waiver.

**A GMAT/GRE test waiver request may be submitted to determine eligibility to apply without test scores. Resumes and transcripts are necessary to submit this form. The Executive Assessment (EA) is not accepted for applicants to the full-time MBA degree program.

***English proficiency test waivers are also available.

MBA Deferred Enrollment Program Admission Requirements

Admission to the MBA Deferred Enrollment program allows college seniors to secure a spot two to five years after graduation in the Full-Time MBA Program at Jones Graduate School of Business. International and all majors are welcome to apply during their final year of college. Eligible students must be employed during the interim years to hold onto their space. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. All applicants must conduct an interview as part of their admission requirements. The program is highly selective and access is limited to those who have performed with distinction across all areas of the application.

MBA/Master of Engineering Program

To enter this coordinated degree program, applicants must apply separately and be accepted to the full-time MBA program and by the engineering department in which they wish to pursue graduate study. Applicants must adhere to all of the application requirements for the full-time MBA program.

MBA/Professional Science Master’s Program

To enter this coordinated degree program, applicants must apply separately and be accepted to the full-time MBA program and by a Weiss School of Natural Sciences Professional Science Master’s (PSM) program. Applicants must adhere to all of the application requirements for the full-time MBA program.

MBA/Doctor of Medicine (MD) Program

To enter this coordinated degree program, applicants must first be accepted by Baylor College of Medicine and apply separately to the full-time MBA program during MS3. Applicants must adhere to all of the application requirements for the full-time MBA program, but the MCAT is also accepted in place of a GMAT or GRE. Three years of medical school are required before starting MBA classes.

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards

MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).
Class Attendance Policy

Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal

The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions.
on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA Degree Programs

Independent Study

Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Accounting

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:
1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.

2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.

3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program

The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
- A minimum overall GPA of 3.00 or higher in all Rice coursework. 
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/1acstaff/degreeworks/officialcertifier). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

Total Credit Hours Required for the MBA Degree, Full-Time Program

<table>
<thead>
<tr>
<th>Core Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 501 FINANCIAL ACCOUNTING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 502 MANAGERIAL ACCOUNTING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 510 ORGANIZATIONAL BEHAVIOR</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 512 LEADING CHANGE</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 540 MANAGERIAL ECONOMICS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 543 FINANCE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 560 CORPORATE SOCIAL RESPONSIBILITY</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 570 COMPETITIVE AND INDUSTRY ANALYSIS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 571 STRATEGY FORMULATION AND IMPLEMENTATION</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 574 OPERATIONS MANAGEMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 580 MARKETING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 594 STRATEGIC BUSINESS COMMUNICATION</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 595 DATA ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 596 STRATEGIC BUSINESS COMMUNICATION</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 710 LEADERSHIP ILE</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 711 NEGOTIATIONS ILE</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Work Experience Requirement

- MGMT 500 APPLIED BUSINESS EXPERIENCE 2 0.75
- MGMT 789 GLOBAL FIELD EXPERIENCE 3 1.5

Custom Core Courses: 4

Select 2 courses from the following:

- MGMT 503 MANAGEMENT CONTROL 3-6
- MGMT 541 ECONOMIC ENVIRONMENT OF BUSINESS
- MGMT 561 BUSINESS-GOVERNMENT RELATIONS
- MGMT 599 ACTION LEARNING PROJECT
- MGMT 621 THE NEW ENTERPRISE
- MGMT 721 BUSINESS LAW

Elective Requirements

Select an additional 27-30 credit hours from departmental (MGM, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours 5 6

Total Credit Hours

60

Footnotes and Additional Information

1 The first year of the program is primarily dedicated to core courses in the basic functional areas of business.
MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.

The custom core courses are taken during the second semester of the first year.

To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Students in the coordinated MBA/Master of Science degree program, students must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Major Concentration: Accounting

The major concentration in Accounting provides a broad understanding of the use and importance of accounting information to decision makers within the firm and to external users of financial statements. The core financial and management accounting courses provide a basic understanding of accounting principles. Completion of the major concentration in accounting will serve to reinforce the fundamental concepts for the core, to provide additional insight into accounting processes and principles, and to enhance the ability to analyze and interpret accounting reports.

Students pursuing the major concentration in Accounting must complete:

- A minimum of 9 credit hours as listed below to satisfy major concentration requirements*

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### Policies for the MBA Degree Programs

#### MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

#### Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the
MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

**Academic Standards**
A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

**Professional Standards**
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

**Class Attendance Policy**
Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

**Guidelines for Appealing Academic Dismissal**

**The Process**
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

**Timing**
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

**Appeals**
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

**Confidentiality**
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

**Grade Appeal Process**
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be
filed no later than two weeks after the final grade for a course was assigned.

3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.

4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.

5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).

6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

**MBA Elective Course Add/Drop Policy and Procedures**

Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

**Withdrawal Policy**

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university's Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

**Jones Graduate School of Business Student Handbook**

Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

**Financial Aid**

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

**Opportunities for the MBA Degree Programs**

**Independent Study**

**Minimum Hours Requirement**

Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

**Restrictions**

No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.
Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

**Faculty Sponsorship**

Independent study projects are normally sponsored only by full-time Jones Graduate School of Business faculty. Faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee’s approval before the term in which the project is to begin.

**Common Requirements**

The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

**Applications**

Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

**Additional Information**

For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

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**Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Energy**

**Program Learning Outcomes for the MBA Degree**

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MBA Degree, Full-Time Program**

The MBA degree is a non-thesis master’s degree. For general university requirements, please see *Non-Thesis Master’s Degrees* (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see *All Graduate Students* (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the *Policies* tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the *Policies* tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under *Campus Groups*.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through *ESTHER*.
The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into DegreeWorks by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MBA Degree, Full-Time Program</td>
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**Degree Requirements**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<td></td>
<td>Core Requirements</td>
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<tr>
<td></td>
<td><strong>MGMT 501</strong></td>
<td>FINANCIAL ACCOUNTING</td>
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<td><strong>MGMT 502</strong></td>
<td>MANAGERIAL ACCOUNTING</td>
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<td><strong>MGMT 510</strong></td>
<td>ORGANIZATIONAL BEHAVIOR</td>
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<td><strong>MGMT 512</strong></td>
<td>LEADING CHANGE</td>
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<td><strong>MGMT 540</strong></td>
<td>MANAGERIAL ECONOMICS</td>
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<td><strong>MGMT 543</strong></td>
<td>FINANCE</td>
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<td><strong>MGMT 560</strong></td>
<td>CORPORATE SOCIAL RESPONSIBILITY</td>
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<td><strong>MGMT 570</strong></td>
<td>COMPETITIVE AND INDUSTRY ANALYSIS</td>
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<td><strong>MGMT 571</strong></td>
<td>STRATEGY FORMULATION AND IMPLEMENTATION</td>
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<td><strong>MGMT 574</strong></td>
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<td><strong>MGMT 580</strong></td>
<td>MARKETING</td>
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<td><strong>MGMT 594</strong></td>
<td>STRATEGIC BUSINESS COMMUNICATION</td>
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<td><strong>MGMT 595</strong></td>
<td>DATA ANALYSIS</td>
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<td></td>
<td><strong>MGMT 596</strong></td>
<td>STRATEGIC BUSINESS COMMUNICATION</td>
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<td><strong>MGMT 703</strong></td>
<td>LEADERSHIP ILE</td>
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<td><strong>MGMT 711</strong></td>
<td>NEGOTIATIONS ILE</td>
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<td></td>
<td>Work Experience Requirement</td>
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<td></td>
<td><strong>MGMT 500</strong></td>
<td>APPLIED BUSINESS EXPERIENCE</td>
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<td></td>
<td>Global Field Experience Requirement</td>
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<td></td>
<td><strong>MGMT 789</strong></td>
<td>GLOBAL FIELD EXPERIENCE</td>
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<td>Custom Core Courses: 4</td>
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<td></td>
<td>Select 2 courses from the following: 3-6</td>
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<tr>
<td></td>
<td><strong>MGMT 503</strong></td>
<td>MANAGEMENT CONTROL</td>
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<tr>
<td></td>
<td><strong>MGMT 541</strong></td>
<td>ECONOMIC ENVIRONMENT OF BUSINESS</td>
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<tr>
<td></td>
<td><strong>MGMT 561</strong></td>
<td>BUSINESS-GOVERNMENT RELATIONS</td>
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<tr>
<td></td>
<td><strong>MGMT 599</strong></td>
<td>ACTION LEARNING PROJECT</td>
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<td></td>
<td><strong>MGMT 621</strong></td>
<td>THE NEW ENTERPRISE</td>
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<td><strong>MGMT 721</strong></td>
<td>BUSINESS LAW</td>
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<td></td>
<td>Elective Requirements</td>
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<tr>
<td></td>
<td>Select an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours 5, 6</td>
<td>27-30</td>
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</table>

**Total Credit Hours**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.
2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.
4. The custom core courses are taken during the second semester of the first year.
5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
6. Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

**Major Concentration: Energy**

The major concentration in Energy provides commercial acumen and leadership perspective to students with a technical background and develops their capability for taking additional responsibilities and higher-level management roles at companies in the energy sector. This is accomplished by engaging students in a curriculum that addresses three distinct, but inter-related, career paths which are widely regarded as conduits to leadership positions in energy industry midstream and upstream organizations: finance, operations, and product/customer focus.
Students pursuing the major concentration in Energy must complete:

- A minimum of 9 credit hours as listed below to satisfy major concentration requirements*

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MGMT 610</td>
<td>FUNDAMENTALS OF THE ENERGY INDUSTRY</td>
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<tr>
<td>MGMT 611</td>
<td>GEOPOLITICS OF ENERGY</td>
<td>1.5</td>
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**Environment Courses**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MGMT 541</td>
<td>ECONOMIC ENVIRONMENT OF BUSINESS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 561</td>
<td>BUSINESS-GOVERNMENT RELATIONS</td>
<td>1.5</td>
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</table>

**Application and Context Courses**

Select 4.5 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 600</td>
<td>INTERNATIONAL ENERGY SIMULATION</td>
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<td>MGMT 609</td>
<td>MANAGING ENERGY TRANSITIONS</td>
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<td>MGMT 616</td>
<td>ENERGY MARKET ORGANIZATION</td>
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<td>MGMT 656</td>
<td>ENERGY DERIVATIVES</td>
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<tr>
<td>MGMT 708</td>
<td>PRICING STRATEGIES: OIL &amp; GAS INDUSTRY</td>
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<tr>
<td>MGMT 712</td>
<td>PROCESS MANAGEMENT AND QUALITY IMPROVEMENT</td>
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<td>MGMT 739</td>
<td>CAPITAL FORMATION IN ENERGY AND INFRASTRUCTURE</td>
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<tr>
<td>MGMT 745</td>
<td>INTERNATIONAL ENERGY DEVELOPMENT</td>
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</tr>
<tr>
<td>MGMT 752</td>
<td>SUPPLY CHAIN MANAGEMENT LAB</td>
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<tr>
<td>MICO 605</td>
<td>MANAGING FOREIGN MARKET ENTRY FOR THE ENERGY INDUSTRY</td>
<td></td>
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</tbody>
</table>

**Total Credit Hours**: 9

### Footnotes and Additional Information

*The courses listed are approved to satisfy the requirements for the Energy concentration for the current academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

1 Students may complete Integrative Course Offerings as substitutes for the credit hours required as Foundational, Environment, or Application and Context coursework. These courses include: MGMT 604, MICO 602, MICO 603, or MICO 605.

2 MGMT 541 or MGMT 561 can be applied if the course is not used to satisfy the Custom Core requirement.

3 MGMT 600 is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As an S/U course it does not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

### Policies for the MBA Degree Programs

#### MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

#### Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

#### Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

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Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

#### Professional Standards

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Transfer Credit
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Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

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Additional Information
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Opportunities for the MBA Degree Programs

Independent Study

Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

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Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity. To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.
**Additional Information**
For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

**Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Entrepreneurship**

**Program Learning Outcomes for the MBA Degree**
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MBA Degree, Full-Time Program**
The MBA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu/). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/oficialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Credit Hours Required for the MBA Degree, Full-Time Program</strong></td>
<td>60</td>
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**Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MGMT 501</td>
<td>FINANCIAL ACCOUNTING</td>
<td>3</td>
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<tr>
<td>MGMT 502</td>
<td>MANAGERIAL ACCOUNTING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 510</td>
<td>ORGANIZATIONAL BEHAVIOR</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 512</td>
<td>LEADING CHANGE</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 540</td>
<td>MANAGERIAL ECONOMICS</td>
<td>1.5</td>
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<tr>
<td>MGMT 543</td>
<td>FINANCE</td>
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</tr>
<tr>
<td>MGMT 560</td>
<td>CORPORATE SOCIAL RESPONSIBILITY</td>
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<tr>
<td>MGMT 570</td>
<td>COMPETITIVE AND INDUSTRY ANALYSIS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 571</td>
<td>STRATEGY FORMULATION AND IMPLEMENTATION</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 574</td>
<td>OPERATIONS MANAGEMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 580</td>
<td>MARKETING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 594</td>
<td>STRATEGIC BUSINESS COMMUNICATION</td>
<td>0.75</td>
</tr>
<tr>
<td>MGMT 595</td>
<td>DATA ANALYSIS</td>
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<tr>
<td>MGMT 596</td>
<td>STRATEGIC BUSINESS COMMUNICATION</td>
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<tr>
<td>MGMT 710</td>
<td>LEADERSHIP ILE</td>
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<tr>
<td>MGMT 711</td>
<td>NEGOTIATIONS ILE</td>
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<tr>
<td>MGMT 715</td>
<td>PRACTICAL EXPERIENCE</td>
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**Work Experience Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 500</td>
<td>APPLIED BUSINESS EXPERIENCE</td>
<td>0.75</td>
</tr>
</tbody>
</table>

**Global Field Experience Requirement**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MGMT 789</td>
<td>GLOBAL FIELD EXPERIENCE</td>
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</tr>
</tbody>
</table>

**Custom Core Courses:**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 503</td>
<td>MANAGEMENT CONTROL</td>
<td>3-6</td>
</tr>
</tbody>
</table>
The major concentration in Entrepreneurship provides students a framework for being an entrepreneur. The required courses equip students with the tools and processes for starting a business. The remaining courses allow students to select specific entrepreneurial topics suited to their objectives.

Students pursuing the major concentration in Entrepreneurship must complete:

- A minimum of 12 credit hours as listed below to satisfy major concentration requirements*

**Footnotes and Additional Information**

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.

2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.

4. The custom core courses are taken during the second semester of the first year.

5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours.  

6. Students in the coordinated MBA/Master of Science degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business Associate Registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

**Major Concentration: Entrepreneurship**

The major concentration in Entrepreneurship provides students a framework for being an entrepreneur. The required courses equip
Policies for the MBA Degree Programs

MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

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To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/ or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Finance Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program
The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
• A minimum overall GPA of 3.00 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu/). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://esther.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>MGMT 570  COMPETITIVE AND INDUSTRY ANALYSIS</td>
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<td>MGMT 571  STRATEGY FORMULATION AND IMPLEMENTATION</td>
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<td>MGMT 574  OPERATIONS MANAGEMENT</td>
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<td>MGMT 580  MARKETING</td>
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<td>MGMT 594  STRATEGIC BUSINESS COMMUNICATION I</td>
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<td>MGMT 595  DATA ANALYSIS</td>
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**Custom Core Courses:** 4

Select 2 courses from the following:

Select an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours 5, 6

**Total Credit Hours** 60

### Elective Requirements

Select an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours 5, 6

### Footnotes and Additional Information

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.
2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.
4. The custom core courses are taken during the second semester of the first year.
5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule. Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
Major Concentration: Finance

The major concentration in Finance provides students with a broad foundation in financial management principles and an opportunity for further specialization. Students are required to complete the primary finance electives in the MBA program and Financial Statement Analysis. Students supplement these foundational courses with at least two specialized courses from a list of approved offerings.

Students pursuing the major concentration in Finance must complete:

- A minimum of 12-14 credit hours as listed below to satisfy major concentration requirements*

<table>
<thead>
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<th>Title</th>
<th>Credit Hours</th>
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<td>MGMT 642</td>
<td>FUTURES AND OPTIONS I</td>
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<td>MGMT 645</td>
<td>PORTFOLIO MANAGEMENT</td>
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<td>MGMT 646</td>
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<tr>
<td>MGMT 648</td>
<td>APPLIED FINANCE</td>
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</tbody>
</table>

Elective Requirements

Select 2 courses from the following: 3-5

- MGMT 630 FINANCIAL MARKETS AND INSTRUMENTS
- MGMT 632 CONSUMER FINANCE
- MGMT 638 QUANTITATIVE INVESTMENT STRATEGIES
- MGMT 643 EQUITY PRACTICUM I - WRIGHT FUND
- MGMT 644 EQUITY PRACTICUM II - WRIGHT FUND
- MGMT 647 CORPORATE FINANCIAL POLICY
- MGMT 650 FUTURES AND OPTIONS II
- MGMT 651 FIXED INCOME MANAGEMENT
- MGMT 652 MERGERS AND ACQUISITIONS
- MGMT 656 ENERGY DERIVATIVES
- MGMT 657 INTERNATIONAL FINANCE
- MGMT 658 APPLIED RISK MANAGEMENT
- MGMT 659 REAL ESTATE FINANCE: ASSET VALUATION
- MGMT 674 REAL ESTATE FINANCE: SECURITIES
- MGMT 726 FIXED INCOME PRACTICUM I - RICE FI FUND
- MGMT 727 FIXED INCOME PRACTICUM II - RICE FI FUND
- MGMT 739 CAPITAL FORMATION IN ENERGY AND INFRASTRUCTURE
- MGMT 788 CORPORATE RIVALRY

Total Credit Hours 12-14

Footnotes and Additional Information

* The courses listed are approved to satisfy the requirements for the Finance concentration for the current academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

1 Only 3 credit hours from an investment practicum course will count as elective hours toward the major concentration in Finance. These 3 credit hours may come from either a) three of the four credit hours from the Wright Fund curriculum (MGMT 643 plus one credit hour from MGMT 644) or b) the two 1.5 credit hour courses in the Zions Portfolio curriculum (MGMT 726 and MGMT 727).

Policies for the MBA Degree Programs

MBA Admission Requirements

All applicants to the MBA program must complete an online application. In addition, they must have or provide:

- Bachelor’s Degree or equivalent from an accredited undergraduate institution
- Submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation, is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take...
the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

Class Attendance Policy
Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal
The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the contested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.
Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university's Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/.

Opportunities for the MBA Degree Programs

Independent Study
Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee’s approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with...
an executive summary of the project (in the case of experiential projects).
4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Health Care

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program
The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu/). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Degree Requirements

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<tr>
<td>MGMT 512</td>
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<tr>
<td>MGMT 540</td>
<td>MANAGERIAL ECONOMICS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 543</td>
<td>FINANCE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 560</td>
<td>CORPORATE SOCIAL RESPONSIBILITY</td>
<td>0.75</td>
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<tr>
<td>MGMT 570</td>
<td>COMPETITIVE AND INDUSTRY ANALYSIS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 571</td>
<td>STRATEGY FORMULATION AND IMPLEMENTATION</td>
<td>1.5</td>
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<tr>
<td>MGMT 574</td>
<td>OPERATIONS MANAGEMENT</td>
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<tr>
<td>MGMT 580</td>
<td>MARKETING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 594</td>
<td>STRATEGIC BUSINESS COMMUNICATION</td>
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</table>

1. Additional Information regarding Exchange Policies.

2. Additional Information regarding Transfer Credit.
Total Credit Hours

<table>
<thead>
<tr>
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<td>MGMT 710</td>
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</tr>
<tr>
<td>MGMT 711</td>
<td>NEGOTIATIONS ILE</td>
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</tr>
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</table>

**Work Experience Requirement**

MGMT 500  APPLIED BUSINESS EXPERIENCE II         0.75

**Global Field Experience Requirement**

MGMT 789  GLOBAL FIELD EXPERIENCE III            1.5

**Custom Core Courses:**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MGMT 503</td>
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<td></td>
</tr>
<tr>
<td>MGMT 721</td>
<td>BUSINESS LAW</td>
<td></td>
</tr>
</tbody>
</table>

**Elective Requirements**

Select an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours.**

**Footnotes and Additional Information**

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.

2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.

4. The custom core courses are taken during the second semester of the first year.

5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives. Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

6. Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

**Major Concentration: Health Care**

The focus of the major concentration in Health Care is to provide students with an understanding of how management principles are interpreted and applied in the different inter-locking sectors (providers, hospitals/small practices, payers, pharmaceutical, biotechnology) of the health care industry, and how the different dynamics in these sectors make it uniquely health care.

Students pursuing the major concentration in Health Care must complete:

- A minimum of 12 credit hours as listed below to satisfy the major concentration requirements*

**Code** | **Title**                                           | **Credit Hours** |
<table>
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<tr>
<td>MGMT 678</td>
<td>BUSINESS OF HEALTHCARE</td>
<td>1.5</td>
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</table>

**Elective Requirements**

Select a minimum of 10.5 credit hours from the following:

MGMT 631  HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS         10.5

MGMT 673  COST ANALYSIS IN HEALTHCARE                         |

MGMT 690  HEALTHCARE STRATEGY                                  |

MGMT 691  BREAKTHROUGH NEGOTIATIONS IN A HEALTH CARE CONTEXT  |

MGMT 695  VALUE-BASED HEALTHCARE                               |

MGMT 706  ANALYTICS IN HEALTHCARE                              |

MGMT 712  PROCESS MANAGEMENT AND QUALITY IMPROVEMENT          |

or MGMT 74 SERVICES OPERATIONS

MGMT 753  OPERATIONS LAB: HEALTH CARE                         |

MGMT 76 HEALTHCARE INNOVATION AND ENTREPRENEURSHIP LAB         |

MGMT 778  CUSTOMER EXPERIENCE MANAGEMENT                       |

MGMT 799  HEALTHCARE INNOVATION AND ENTREPRENEURSHIP           |

MGMT 911  THE WASHINGTON CAMPUS: STRATEGICALLY MANAGING HEALTH CARE POLICY |

**Total Credit Hours**  12
Footnotes and Additional Information

* The courses listed are approved to satisfy the requirements for the Health Care concentration for the current academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar.

Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

Policies for the MBA Degree Programs

MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards

MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

Class Attendance Policy

Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal

The Process

A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing

If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to
keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

**Appeals**
Applies beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

**Confidentiality**
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

**Grade Appeal Process**
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student, and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

**MBA Elective Course Add/Drop Policy and Procedures**
Due to the unique term schedule followed by the Jones Graduate School of Business, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

**Withdrawal Policy**
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

**Jones Graduate School of Business Student Handbook**
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

**Financial Aid**
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

**Transfer Credit**
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/
arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/ MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Marketing

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program

The MBA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from
transfer credit. For additional departmental guidelines regarding
transfer credit, see the Policies tab.
• A Required Work Experience (MGMT 500) during summer between the
first and second year of enrollment in the degree program.
• A Global Field Experience (MGMT 789) during the first year of
enrollment in the degree program.
• A maximum of 2 courses (6 graduate semester credit hours) from
transfer credit. For additional program guidelines regarding transfer
credit, see the Policies tab. Additional information regarding Exchange
Program transfer credit can be found in the Student Handbook under
Campus Groups. Students and their academic advisors should identify and clearly
these must be approved by the Office of Graduate and Postdoctoral
registrar.rice.edu/facstaff/degreeworks/officialcertifier/
Degree Works by the department or program's
where applicable, the department or program's Director of Graduate
program. In certain instances, courses not on this official list may
be substituted upon approval of the program's academic advisor, or
program. Students who register for a standard course load of 9-18 credit hours
per semester are considered full-time students. All registration and
elective selection via add/drop is completed online through ESTHER
(https://esther.rice.edu/). It is the responsibility of students to monitor
and maintain their schedule and academic record.
The courses listed below satisfy the requirements for this degree
program. In certain instances, courses not on this official list may
be substituted upon approval of the program's academic advisor, or
where applicable, the department or program's Director of Graduate
Studies. Course substitutions must be formally applied and entered into
Degree Works by the department or program’s Official Certifier (https://
registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally,
these must be approved by the Office of Graduate and Postdoctoral
Studies. and their academic advisors should identify and clearly
document the courses to be taken.

**Summary**

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<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
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**Degree Requirements**

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**Work Experience Requirement**

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<tr>
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**Global Field Experience Requirement**

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<td>MGMT 789</td>
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**Custom Core Courses:**

Select 2 courses from the following:

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<td>THE NEW ENTERPRISE</td>
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**Elective Requirements**

Select an additional 27-30 credit hours from departmental
(MGMP, MGMT, or MICO) course offerings at the 500-level or
above to reach 60 total credit hours

**Total Credit Hours**

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<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the MBA Degree, Full-Time Program</td>
<td>60</td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

1. The first year of the program is primarily dedicated to core courses in
the basic functional areas of business.

2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711
are taken for a Satisfactory/Unsatisfactory grade and must be
completed with a Satisfactory grade. As S/U courses, they do not
apply to the requirement of a minimum grade of C (2.00 grade points)
in each required course.

3. Students participate in a required global field experience during the
first year of enrollment in the degree program. Additional costs apply
towards this global experience.

4. The custom core courses are taken during the second semester of the
first year.

5. To fulfill the remaining requirements for the full-time MBA degree
program, students must complete an additional 27-30 credit hours from
departmental (MGMP, MGMT, or MICO) course offerings at the
500-level or above to reach 60 total credit hours. (MGMT 703,
MGMT 704, and MGMT 705 are not accepted as electives.) Students
take two elective courses during the spring semester of the first
year. The second year of the program is dedicated entirely to elective
coursework. Although the Jones Graduate School of Business offers
a variety of courses for students to take as electives, students may
wish to take courses from other departments at Rice University.
If students wish to apply courses that are offered outside of the
Jones Graduate School of Business (MGMP, MGMT, or MICO course
offerings), the student must obtain permission from the Jones
Graduate School associate registrar. Electives are offered on the
daytime schedule, the evening schedule, and the weekend schedule.
Major Concentration: Marketing

The major concentration in Marketing prepares students for careers in strategic marketing across a wide range of organizations, markets and industries. It provides critical knowledge for understanding and analyzing customers, and emphasizes the development of requisite quantitative and conceptual skills to contribute to the firm’s overall success. Among the career trajectories for which students will be prepared are product management, customer analytics and customer success. The major concentration in Marketing prepares students for careers in strategic marketing across a wide range of organizations, markets and industries. It provides critical knowledge for understanding and analyzing customers, and emphasizes the development of requisite quantitative and conceptual skills to contribute to the firm’s overall success.

Students pursuing the major concentration in Marketing must complete:

- A minimum of 12 credit hours as listed below to satisfy the major concentration requirements*

### Footnotes and Additional Information

* The courses listed are approved to satisfy the requirements for the Marketing concentration for the current academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

### Policies for the MBA Degree Programs

#### MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

#### Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

#### Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current annual rate of tuition.
pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

Class Attendance Policy
Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal
The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.
Withdrawal Policy

A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook

Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/.

Opportunities for the MBA Degree Programs

Independent Study

Minimum Hours Requirement

Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions

No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study’s academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship

Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee’s approval before the term in which the project is to begin.

Common Requirements

The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with
an executive summary of the project (in the case of experiential projects).
4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/.

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Operations Management

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program

The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.

- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu/). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
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<td>Total Credit Hours Required for the MBA Degree, Full-Time Program</td>
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Degree Requirements

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<tr>
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<tr>
<td>MGMT 580</td>
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<td>MGMT 594</td>
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</tbody>
</table>

1. Additional Information regarding Exchange Policies

2. Additional Information regarding Independent Study
Footnotes and Additional Information

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.
2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.
4. The custom core courses are taken during the second semester of the first year.
5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours.
6. Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Major Concentration: Operations Management

The major concentration in Operations Management presents students with a framework for design, planning, control, coordination, and improvement of business processes, systems, and resources essential to meet consumers’ needs. Instead of the technical engineering view of operations, the focus is on managing the business well.

Students pursuing the major concentration in Operations Management must complete:

- A minimum of 9 credit hours as listed below to satisfy the major concentration requirements*

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<td>MGMT 712</td>
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<td>SUPPLY CHAIN MANAGEMENT</td>
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<td>MGMT 744</td>
<td>SERVICES OPERATIONS</td>
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<td>MGMT 749</td>
<td>PROCESS IMPROVEMENT CAPSTONE</td>
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<td>MGMT 752</td>
<td>SUPPLY CHAIN MANAGEMENT LAB</td>
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<td>MGMT 753</td>
<td>OPERATIONS LAB: HEALTH CARE</td>
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<tr>
<td>MGMT 653</td>
<td>BLOCKCHAIN: DIGITAL ASSETS AND THE INTERNET OF VALUE</td>
<td>1</td>
</tr>
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<td>MGMT 682</td>
<td>PRICING STRATEGIES</td>
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<td>MGMT 715</td>
<td>STRATEGIC INNOVATION AND COMPETITIVE ADVANTAGE</td>
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<td>MGMT 717</td>
<td>PROJECT MANAGEMENT</td>
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<td>MGMT 729</td>
<td>CURRENT ISSUES IN TECHNOLOGY MANAGEMENT</td>
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<td>MGMT 748</td>
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<td>DIGITAL TRANSFORMATION</td>
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<td>MGMT 793</td>
<td>CREATING THE DATA DRIVEN BUSINESS</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours

60
Footnotes and Additional Information

* The courses listed are approved to satisfy the requirements for the Operations Management concentration for the current academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

1 MGMT 719 may be applied to the Foundation Courses requirement if it was not applied to the Core Requirements.

Policies for the MBA Degree Programs

MBA Admission Requirements

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

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Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

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A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

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3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA Degree Programs

Independent Study

Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may
arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Real Estate

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program

The MBA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.

A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.

A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.

A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.

A minimum overall GPA of 3.00 or higher in all Rice coursework.

A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

A Global Field Experience Requirement

MGMT 500 APPLIED BUSINESS EXPERIENCE $^2$ 0.75

Global Field Experience Requirement

MGMT 789 GLOBAL FIELD EXPERIENCE $^3$ 1.5

Custom Core Courses: 4

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 503</td>
<td>MANAGEMENT CONTROL</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 541</td>
<td>ECONOMIC ENVIRONMENT OF BUSINESS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 561</td>
<td>BUSINESS-GOVERNMENT RELATIONS</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 599</td>
<td>ACTION LEARNING PROJECT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 721</td>
<td>BUSINESS LAW</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Elective Requirements

Select an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours $^5$.

Total Credit Hours 60

Footnotes and Additional Information

1 The first year of the program is primarily dedicated to core courses in the basic functional areas of business.

2 MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3 Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.

4 The custom core courses are taken during the second semester of the first year.

5 To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMR MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

**Major Concentration: Real Estate**

The major concentration in Real Estate prepares students for a career in the real estate industry. The required course introduces a series of basic business concepts commonly used in the real estate industry, and it covers in detail the application of the discounted cash flow model to real estate decisions. The elective courses provide for both a depth and breadth of understanding of the industry.

Students pursuing the MBA degree and a major concentration in Real Estate must complete:

- A minimum of 12 credit hours as listed below to satisfy the major concentration requirements*

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 659</td>
<td>REAL ESTATE FINANCE: ASSET VALUATION</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Elective Requirements**

Select 10.5 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 608</td>
<td>DISRUPTION IN COMMERCIAL REAL ESTATE</td>
<td></td>
</tr>
<tr>
<td>MGMT 648</td>
<td>APPLIED FINANCE</td>
<td></td>
</tr>
<tr>
<td>MGMT 654</td>
<td>REAL ESTATE CAPITAL MARKETS: PUBLIC &amp; PRIVATE</td>
<td></td>
</tr>
<tr>
<td>MGMT 660</td>
<td>REAL ESTATE CONTRACT NEGOTIATIONS FOR BUSINESS PROFESSIONALS</td>
<td></td>
</tr>
<tr>
<td>MGMT 667</td>
<td>REAL ESTATE DEVELOPMENT: FEASIBILITY</td>
<td></td>
</tr>
<tr>
<td>MGMT 669</td>
<td>REAL ESTATE MARKET ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>MGMT 674</td>
<td>REAL ESTATE FINANCE: SECURITIES</td>
<td></td>
</tr>
<tr>
<td>MGMT 728</td>
<td>REAL ESTATE DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>MGMT 742</td>
<td>INTERNATIONAL PRIVATE EQUITY REAL ESTATE</td>
<td></td>
</tr>
<tr>
<td>MGMT 746</td>
<td>REAL PROPERTY</td>
<td></td>
</tr>
<tr>
<td>MGMT 757/ ARCH 691</td>
<td>REAL ESTATE LAB: DEVELOP, DESIGN AND CONSTRUCTION</td>
<td></td>
</tr>
<tr>
<td>MGMT 776</td>
<td>INTRODUCTION TO REAL ESTATE INDUSTRY</td>
<td></td>
</tr>
<tr>
<td>MGMT 785</td>
<td>CORPORATE REAL ESTATE STRATEGY</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credit Hours** 12

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**Footnotes and Additional Information**

* The courses listed are approved to satisfy the requirements for the Real Estate concentration for the current academic year only. Courses not on this official list may be substituted upon approval of the Jones Graduate School of Business Associate Registrar. Students and their academic advisors should identify and clearly document the courses to be taken with the Jones Graduate School of Business Associate Registrar.

**Policies for the MBA Degree Programs**

**MBA Admission Requirements**

Applicants to the MBA programs must submit scores on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE). International applicants, who did not earn an undergraduate degree from an institution where the primary language of instruction was English must submit a valid score report from either TOEFL, PTE, or IELTS. Admission to the MBA programs is open to students regardless of their undergraduate major, but it is highly selective and limited to those who have performed with distinction in their previous academic work and on the GMAT or GRE.

**Academic and Professional Standards**

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

**Academic Standards**

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation.

In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean's office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current tuition rate.
pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

Class Attendance Policy
Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal
The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
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MBA Elective Course Add/Drop Policy and Procedures
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Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

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• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/.

Opportunities for the MBA Degree Programs

Independent Study
Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

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Common Requirements
The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity. To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or

2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.

2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.

3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with
an executive summary of the project (in the case of experiential projects).

4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Strategic Management

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Full-Time Program
The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the full-time MBA degree program must complete:

- A minimum of 60 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A Required Work Experience (MGMT 500) during summer between the first and second year of enrollment in the degree program.
- A Global Field Experience (MGMT 789) during the first year of enrollment in the degree program.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab. Additional Information regarding Exchange Program transfer credit can be found in the Student Handbook under Campus Groups.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

Students who register for a standard course load of 9-18 credit hours per semester are considered full-time students. All registration and elective selection via add/drop is completed online through ESTHER (https://esther.rice.edu/). It is the responsibility of students to monitor and maintain their schedule and academic record.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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Degree Requirements

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<td>MGMT 594</td>
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</table>
Total Credit Hours
above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

**Major Concentration: Strategic Management**

The major concentration in Strategic Management prepares students for careers in strategic planning, management consulting, and global business management across a variety of industries such as health care, energy, high technologies, consumer products, and professional services. It provides knowledge and analytic tools for students to understand why some companies are financially much more successful than others and to analyze how executives (at different levels) can devise a set of strategies and design processes that allow companies to achieve competitive advantage.

Students pursuing the major concentration in Strategic Management must complete:

- A minimum of 9 credit hours as listed below to satisfy the major concentration requirements*

### Footnotes and Additional Information

1. The first year of the program is primarily dedicated to core courses in the basic functional areas of business.
2. MGMT 500, MGMT 594, MGMT 596, MGMT 710, and MGMT 711 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.
4. The custom core courses are taken during the second semester of the first year.
5. To fulfill the remaining requirements for the full-time MBA degree program, students must complete an additional 27-30 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 60 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) Students take two elective courses during the spring semester of the first year. The second year of the program is dedicated entirely to elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School associate registrar. Electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
6. Students in the coordinated MBA/Master of Science degree from the PSM (professional science master’s) program or in the coordinated MBA/Master of Engineering degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements as listed above for the full-time MBA degree program. For students in those coordinated programs, the Elective Requirements are 12-15 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach the total of 45 credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.)
Footnotes and Additional Information
* The courses listed are approved to satisfy the requirements for
  the Strategic Management concentration for the current academic
  year only. Courses not on this official list may be substituted upon
  approval of the Jones Graduate School of Business Associate
  Registrar. Students and their academic advisors should identify and
  clearly document the courses to be taken with the Jones Graduate
  School of Business Associate Registrar.
1 MGMT 561 can only be applied toward major concentration
  requirements if not counted as a Custom Core course.
2 MGMT 786 is taken for a Satisfactory/Unsatisfactory grade and must
  be completed with a Satisfactory grade. As an S/U course it does not
  apply to the requirement of a minimum grade of C (2.00 grade points)
  in each required course.

Policies for the MBA Degree Programs

MBA Admission Requirements
Applicants to the MBA programs must submit scores on the Graduate
Management Admission Test (GMAT) or the Graduate Record
Examination (GRE). International applicants, who did not earn an
undergraduate degree from an institution where the primary language
of instruction was English must submit a valid score report from either
TOEFL, PTE, or IELTS. Admission to the MBA programs is open to
students regardless of their undergraduate major, but it is highly selective
and limited to those who have performed with distinction in their previous
academic work and on the GMAT or GRE.

Academic and Professional Standards
Students must meet both academic and professional standards to
continue academic work and to graduate. In accepting admission to the
MBA program, all students agree to be governed by the standards and
procedures for dismissal or disciplinary action stated below.

Academic Standards
A minimum overall grade point average of 3.00 (B) is required for
graduation. All courses taken for the MBA degree (including approved
courses taken at the university, but outside the JGSB) are counted in
the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end
of any semester will be notified of academic standing. Students not
meeting the 3.00 requirement will be provided specific instruction
and guidance on the next steps specific to their academic situation.
In some cases, students may submit an appeal to the JGSB Academic
Standards Committee, requesting to be placed on academic probation.
The committee reviews all academic cases, and may consult
the dean's office for counsel and/or suggestions on proposed handling of the case.
The committee will decide, based on the circumstances of the appeal,
whether the student may resume studies on academic probation; is to be
academically suspended for one semester or an academic year; or is to
be dismissed from the MBA program.

Students proposing to return after a period of academic suspension
must follow the appropriate procedures outlined in the General
Announcements by the Office of Graduate and Postdoctoral Studies
to receive permission to be readmitted. If permitted to return, the student
will pay the current rate of tuition, based upon the class of students they
are joining.

Only courses in which a grade of C or above is earned will be counted for
credit toward graduation. If students receive a grade below C in a course
required for graduation, they must repeat the course. If students receive a
grade lower than C in an elective course, they need not repeat the specific
course, but they must make up the credit hours. If the required course is
not offered again prior to graduation, the student will be permitted to take
the course the following academic year, but will be charged the current
pro-rated tuition for the program in which the additional coursework is
completed.

Students on academic probation must complete all future courses with
a grade of C or above and may be considered candidates for student
offices by permission only. Students are removed from probation only
upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward
their degree requirements. JGSB students may audit courses with
departmental and professor approval. The courses will not count toward
the MBA, but will appear on the transcript.

Professional Standards
MBA students are held to the highest standards of professional conduct
expected of managers—standards substantially exceeding those
expected of them simply as students. Students may be dismissed or
suspended for failure to meet professional standards, as defined in the
University Code of Conduct (p. 90). The dean may place a student on
disciplinary probation for unacceptable conduct, giving oral and written
notice that future misconduct will lead to filing specific charges. This
probationary notice, however, is not required as a precondition for filing
specific charges.

Scholarship reinstatement is not guaranteed for students who do not
maintain continuous active status - and good standing - at the Jones
Graduate School of Business and Rice University. In cases where a
student does not maintain active status, and/or does not maintain
continuous good standing, students may need to request reinstatement
of their scholarship. Scholarships may be discontinued for students
who are on academic probation or receive university conduct sanctions
(including suspension).

Class Attendance Policy
Students are expected to be in class on the first day of each term. The
instructor reserves the right to exclude a student from their course who is
absent on the first day. Students should refer to the specific attendance
policy for each program. This information can be found in the Jones
Graduate School of Business Student Handbook, which is referenced
below. For special circumstances, students should see the Director of
Advising in the Student Program Office and the instructor.

Guidelines for Appealing Academic Dismissal
The Process
A student who wishes to appeal a dismissal should address the following
issues in a letter to the Academic Standards Committee. The student
must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester
   and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below
   par, describe any circumstances specific to that course that explain
   your performance.
3. Do you expect the circumstances that created the problems for you
   last semester to change next semester? If so, how?
Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:
- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA Degree Programs
Independent Study
Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of
Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the "deliverable."

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.

2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.

3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).

4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Online Program

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.

2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.

3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Online Program

The MBA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MBA@Rice degree must complete:

- A minimum of 54 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 538) tab.
• A minimum overall GPA of 3.00 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of C (2.00 grade points) in each course.

MBA@Rice Program
The MBA@Rice program consists of a 24-month curriculum generally earned over eight consecutive terms (3-month quadmesters) over a two-year period.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/dgeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Degree Requirements

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Footnotes and Additional Information

1. MGMT 513 and MGMT 514 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
2. To fulfill the remaining requirements for the Online MBA degree program, students must complete an additional 13.5 credit hours from departmental (MGMT) course offerings at the 500-level or above to reach 54 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.)

Proposed Plan-of-Study
The following plan-of-study represents the lockstep two-year sequence in which students pursuing the MBA@Rice degree complete the required coursework. In some instances students may follow a three-year or a four-year program. In those instances, students must agree to follow a specific course sequence as outlined by the Student Success Advisor.

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Rice University 537

2021-2022 General Announcements PDF Generated 09/22/21
All applicants to the MBA degree program must submit the following:

- an interview by invitation as part of their admission requirements.
- an undergraduate institution is required. Applicants participate in their undergraduate major, but the program is highly selective and access is limited to those who have performed with distinction across all areas of the application. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation.

**Academic and Professional Standards**

**Academic Standards**

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in graduation. A minimum overall grade point average of 3.00 (B) is required for graduation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean's office for counsel and/or suggestions on proposed handling of the case.
The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

Professional Standards
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

Guidelines for Appealing Academic Dismissal
The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. If step 3 does not resolve the issue to the satisfaction of both parties, the student must file a written appeal to the instructor following the formal or informal process the instructor has outlined for the course.
4. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
5. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
6. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.
MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university's Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:
• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA Degree, Online Program

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Professional Program

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:
1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Professional Program
The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The Jones Graduate School of Business offers the MBA for Professionals program in three formats. These programs cover the same content, but are offered at different times and over different periods.

Students choose a program based on life-style preference and professional and personal commitments. The current three formats are:

- MBA for Professionals, Evening Program (p. 540), or
- MBA for Professionals, Weekend Program (p. 541), or
- MBA for Professionals, Evening Extended Program (p. 542)

MBA for Professionals, Evening Program
The MBA for Professionals Evening Program consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA for Professionals Evening Program must complete:

- A minimum of 54 credit hours as listed below to satisfy degree requirements.
- A Global Field Experience (during the first year of enrollment in the degree program).
- A minimum overall GPA of 3.00 in required coursework and with a minimum grade of C (2.00 grade points) in each course.
Summary

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<th>Code</th>
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</thead>
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Degree Requirements

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Global Field Experience Requirement

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Custom Core Courses

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Elective Requirements 4

Select an additional 16.5 credit hours from departmental (MGMMP, MGMT, or MICO) course offerings at the 500-level or above

<table>
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Footnotes and Additional Information

1. Required first year classes are offered during the week from 6:15pm to 9:30pm predominantly on Monday and Wednesday evenings.

2. MGMMP 500, MGMMP 560, MGMMP 594, MGMMP 596, MGMMP 708, MGMMP 709 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.

4. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the evening schedule, the weekend schedule, and the daytime schedule.

MBA for Professionals Weekend Program

The MBA for Professionals Weekend Program consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA for Professionals Weekend Program must complete:

- A minimum of 54 credit hours as listed below to satisfy degree requirements.
- A Global Field Experience.
- A minimum overall GPA of 3.00 in required coursework and with a minimum grade of C (2.00 grade points) in each course.

Summary

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Global Field Experience Requirement

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<tr>
<td>MGMW 789</td>
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Footnotes and Additional Information

1. Required first year classes are offered during the week from 6:15pm to 9:30pm predominantly on Monday and Wednesday evenings.

2. MGMMP 500, MGMMP 560, MGMMP 594, MGMMP 596, MGMMP 708, MGMMP 709 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.

4. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the evening schedule, the weekend schedule, and the daytime schedule.

2021-2022 General Announcements PDF Generated 09/22/21
All applicants to the MBA degree program must submit the following:

- an interview by invitation as part of their admission requirements.
- a bachelor's degree (or equivalent) from an accredited undergraduate institution is required. Applicants participate in all areas of the application. A bachelor's degree (or equivalent) from an accredited undergraduate institution is required. All applicants must conduct an interview onto their space. A bachelor's degree (or equivalent) from an accredited undergraduate institution is required. The program is highly selective and access is limited to those who have performed with distinction across all areas of the application.

Elective Requirements

Select an additional 16.5 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above

Total Credit Hours

54

Footnotes and Additional Information

1. Classes are offered predominately on Friday evenings from 4:00pm – 9:30pm and Saturdays from 7:30am – 6:30pm every other weekend.

2. MGMTW 500, MGMTW 594, and MGMTW 596 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

3. Students participate in a required global field experience during the first year of the program. Additional costs apply towards this global experience.

4. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the weekend schedule, the evening schedule, and the daytime schedule.

MBA for Professionals Evening Extended Program

The MBA for Professionals-Evening Extended Program allows students to complete the same curricular requirements as the MBA for Professionals Evening Program (a minimum of 54 credit hours) over a longer period of time (typically 3-5 academic years, rather than 22 months). There are minimum requirements each semester, but the structure facilitates the alignment of the pace of completion with professional preferences and commitments.

Policies for the MBA Degree, Professional Program

MBA Admission Requirements

Admission to the MBA degree program is open to students regardless of their undergraduate major, but the program is highly selective and access is limited to those who have performed with distinction across all areas of the application. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. Applicants participate in an interview by invitation as part of their admission requirements.

All applicants to the MBA degree program must submit the following:

- resume pre-assessment*
- an online application and application fee
- scores from the Graduate Management Admission Test (GMAT),** the Graduate Record Examination (GRE),** or the Executive Assessment (EA)**
- transcripts from all degree-granting institutions and/or institutions at which an applicant completed 9 or more credit hours
- resume with complete work history

- essays
- letter(s) of recommendation
- scores from the TOEFL, PTE, Duolingo, or IELTS are also required for international applicants, whose undergraduate degree was from an institution where the primary language of instruction was not English.***

Notes:

*For the MBA executive program only, a resume pre-assessment is required to determine eligibility, as well as eligibility for a standardized test waiver.

**A GMAT/GRE test waiver request may be submitted to determine eligibility to apply without test scores. Resumes and transcripts are necessary to submit this form. The Executive Assessment (EA) is not accepted for applicants to the full-time MBA degree program.

***English proficiency test waivers are also available.

MBA Deferred Enrollment Program Admission Requirements

Admission to the MBA Deferred Enrollment program allows college seniors to secure a spot two to five years after graduation in the Full-Time MBA Program at Jones Graduate School of Business. International and all majors are welcome to apply during their final year of college. Eligible students must be employed during the interim years to hold onto their space. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. All applicants must conduct an interview as part of their admission requirements. The program is highly selective and access is limited to those who have performed with distinction across all areas of the application.

The MBA for Professionals Programs

The MBA for Professionals Programs do not have specific prerequisite courses required for admission.

Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

Academic Standards

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General
Guidelines for Appealing Academic Dismissal

The Process
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

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5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
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MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times.
throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

**Class Attendance Policy**

Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

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A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

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Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

**Financial Aid**

Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

**Additional Information**

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

**Opportunities for the MBA Degree, Professional Program**

**Independent Study**

**Minimum Hours Requirement**

Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about ex post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

**Restrictions**

No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study’s academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

**Faculty Sponsorship**

Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee’s approval before the term in which the project is to begin.

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The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity. To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Business Administration (MBA) Degree, Professional Program (Evening, Evening Extended)

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MBA Degree, Professional Program (Evening, Evening Extended)
The MBA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The Jones Graduate School of Business offers the MBA Professional Program in three formats. These programs cover the same content, but are offered at different times and over different periods.

Students choose a program based on lifestyle preference and professional and personal commitments. The current three formats are:

- MBA Professional Program, Evening (p. 545), or
- MBA Professional Program, Evening Extended (p. 546), or
- MBA Professional Program, Weekend (p. 549)

MBA Professional Program, Evening
The MBA Professional Program, Evening, consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA Professional Program, Evening, must complete:

- A minimum of 54 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 546) tab.
- A Global Field Experience (during the first year of enrollment in the degree program).
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of C (2.00 grade points) in each course.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MBA Degree, Professional Program (Evening, Evening Extended)</td>
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</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Core Requirements ¹</td>
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</tr>
<tr>
<td>MGMP 500</td>
<td>PMBA LAUNCH ²</td>
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<tr>
<td>MGMP 501</td>
<td>FINANCIAL ACCOUNTING</td>
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<tr>
<td>MGMP 502</td>
<td>MANAGERIAL ACCOUNTING</td>
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<tr>
<td>MGMP 510</td>
<td>ORGANIZATIONAL BEHAVIOR</td>
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<tr>
<td>MGMP 511</td>
<td>ORGANIZATIONAL CHANGE</td>
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<tr>
<td>MGMP 540</td>
<td>MANAGERIAL ECONOMICS</td>
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<tr>
<td>MGMP 543</td>
<td>FINANCE</td>
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</tr>
<tr>
<td>MGMP 550</td>
<td>CORPORATE SOCIAL RESPONSIBILITY ²</td>
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<tr>
<td>MGMP 570</td>
<td>COMPETITIVE STRATEGY</td>
<td>1.5</td>
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<tr>
<td>MGMP 571</td>
<td>STRATEGY FORMULATION AND IMPLEMENTATION</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMP 574</td>
<td>OPERATIONS MANAGEMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMP 580</td>
<td>MARKETING</td>
<td>3</td>
</tr>
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</table>

¹ Core requirements are designed for students pursuing the MBA Professional Program, Evening.
### Master of Business Administration (MBA) Degree, Professional Program (Evening, Evening Extended)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>MGMP 594</td>
<td>STRATEGIC BUSINESS COMMUNICATION I</td>
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<tr>
<td>MGMP 595</td>
<td>DATA ANALYSIS</td>
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</tr>
<tr>
<td>MGMP 596</td>
<td>STRATEGIC BUSINESS COMMUNICATION II</td>
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<tr>
<td>MGMP 708</td>
<td>LEADERSHIP ILE</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMP 709</td>
<td>NEGOTIATIONS ILE</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMP 788</td>
<td>STRATEGIC MANAGEMENT SIMULATION</td>
<td>1.5</td>
</tr>
</tbody>
</table>

#### Capstone
- MGMP 799: CAPSTONE CONSULTING PROJECT - 3

#### Global Field Experience Requirement
- MGMP 789: GLOBAL FIELD EXPERIENCE - 3

### Elective Requirements
- Select an additional 16.5 credit hours from departmental (MGMP, MGMT, MICO) course offerings at the 500-level or above: 16.5

#### Total Credit Hours
- 54

### Footnotes and Additional Information
1. Required first year classes are offered during the week from 6:15pm to 9:30pm predominantly on Monday and Wednesday evenings.
2. MGMP 500, MGMP 560, MGMP 594, MGMP 596, MGMP 708, MGMP 709 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.
3. Students participate in a required global field experience during the first year of enrollment in the degree program. Additional costs apply towards this global experience.
4. To fulfill the remaining requirements for the degree program, students must complete an additional 16.5 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at 500-level or above to reach 54 total credit hours. MGMP 703, MGMT 704, and MGMT 705 are not accepted as electives. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered outside of the Jones Graduate School of Business (MGMP, MGMT, or MICO course offerings), the student must obtain permission from the Jones Graduate School of Business registrar department. Electives are offered on the evening schedule, the weekend schedule, and the daytime schedule.

### MBA Professional Program, Evening Extended

The MBA Professional Program, Evening Extended, allows students to complete the same curricular requirements as the MBA Professional Program, Evening, (a minimum of 54 credit hours) over a longer period of time (typically 3-5 academic years, rather than 22 months). There are minimum requirements each semester, but the structure facilitates the alignment of the pace of completion with professional preferences and commitments.

### Policies for the MBA Degree, Professional Program (Evening, Evening Extended)

#### MBA Admission Requirements

Admission to the MBA degree program is open to students regardless of their undergraduate major; but the program is highly selective and access is limited to those who have performed with distinction across all areas of the application. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. Applicants participate in an interview as part of their admission requirements.

All applicants to the MBA degree program must submit the following:
- resume pre-assessment*
- an online application and application fee
- scores from the Graduate Management Admission Test (GMAT),** the Graduate Record Examination (GRE),** or the Executive Assessment (EA)**
- transcripts from all degree-granting institutions and/or institutions at which an applicant completed 9 or more credit hours
- resume with complete work history
- essays
- letter(s) of recommendation
- scores from the TOEFL, PTE, Duolingo, or IELTS are also required for international applicants, whose undergraduate degree was from an institution where the primary language of instruction was not English.***

**Notes:**
- *For the MBA executive program only, a resume pre-assessment is required to determine eligibility, as well as eligibility for a standardized test waiver.
- **A GMT/GRE test waiver request may be submitted to determine eligibility to apply without test scores. Resumes and transcripts are necessary to submit this form. The Executive Assessment (EA) is not accepted for applicants to the full-time MBA degree program.
- ***English proficiency test waivers are also available.

#### MBA Deferred Enrollment Program Admission Requirements

Admission to the MBA Deferred Enrollment program allows college seniors to secure a spot two to five years after graduation in the Full-Time MBA Program at Jones Graduate School of Business. International and all majors are welcome to apply during their final year of college. Eligible students must be employed during the interim years to hold onto their space. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. All applicants must conduct an interview as part of their admission requirements. The program is highly selective and access is limited to those who have performed with distinction across all areas of the application.

### The MBA Professional Program (Evening, Evening Extended)

The MBA Professional Program (Evening, Evening Extended) does not have specific prerequisite courses required for admission.

### Academic and Professional Standards

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the
MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

**Academic Standards**
A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counseling or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation, is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

**Professional Standards**
MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

**Class Attendance Policy**
Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

**Guidelines for Appealing Academic Dismissal**

**The Process**
A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.

**Timing**
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

**Appeals**
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

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3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.

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**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

**Opportunities for the MBA Degree, Professional Program (Evening, Evening Extended)**

**Independent Study**

**Minimum Hours Requirement**

Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work. Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

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No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones
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**Common Requirements**
The goal of independent study projects is to advance or deepen a student’s knowledge or competency in a business discipline or activity.

To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

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2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student’s final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

**Applications**
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

**Additional Information**
For additional information, please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

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**Master of Business Administration (MBA) Degree, Professional Program (Weekend)**

**Program Learning Outcomes for the MBA Degree**

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MBA Degree, Professional Program (Weekend)**

The MBA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The Jones Graduate School of Business offers the MBA Professional Program in three formats. These programs cover the same content, but are offered at different times and over different periods.

Students choose a program based on lifestyle preference and professional and personal commitments. The current three formats are:

- MBA Professional Program, Evening (p. 545), or
- MBA Professional Program, Evening Extended (p. 545), or
- MBA Professional Program, Weekend (p. 545)

**MBA Professional Program, Weekend**

The MBA Professional Program, Weekend, consists of a 22-month, lock-step curriculum delivered in four consecutive semesters over a two-year period. Students pursuing the MBA Professional Program, Weekend, must complete:

- A minimum of 54 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 550) tab.
- A Global Field Experience.
- A minimum overall GPA of 3.00 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework
that satisfies requirements for the non-thesis master’s degree with a
minimum grade of C (2.00 grade points) in each course.

The courses listed below satisfy the requirements for this degree
program. In certain instances, courses not on this official list may
be substituted upon approval of the program’s academic advisor, or
where applicable, the department or program’s Director of Graduate
Studies. Students and their academic advisors should identify and clearly
document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
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<td>Total Credit Hours Required for the MBA Degree, Professional Program (Weekend)</td>
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Degree Requirements

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Footnotes and Additional Information

1. Classes are offered predominately on Friday evenings from 4:00pm –
9:30pm and Saturdays from 7:30am – 6:30pm every other weekend.
2. MGMTW 500, MGMTW 511, MGMTW 560, MGMTW 594, MGMTW 596, and
MGMTW 709 are taken for a Satisfactory/Unsatisfactory grade
and must be completed with a Satisfactory grade. As S/U courses,
they do not apply to the requirement of a minimum grade of C (2.00
grade points) in each required course.
3. Students participate in a required global field experience during the
first year of the program. Additional costs apply towards this global
experience.
4. To fulfill the remaining requirements for the degree program, students
must complete an additional 16.5 credit hours from departmental
(MGMP, MGMT, or MICO) course offerings at the 500-level or above to
reach 54 total credit hours. (MGMT 703, MGMT 704, and MGMT 705
are not accepted as electives.) Although the Jones Graduate School of
Business offers a variety of courses for students to take as
electives, students may wish to take courses from other departments at Rice University. If students wish to apply courses that are offered
outside of the Jones Graduate School of Business (MGMP, MGMT, or
MICO course offerings), the student must obtain permission from the
Jones Graduate School of Business registrar department. Electives
are offered on the weekend schedule, the evening schedule, and the
daytime schedule.

Policies for the MBA Degree, Professional Program (Weekend)

MBA Admission Requirements

Admission to the MBA degree program is open to students regardless
of their undergraduate major, but the program is highly selective and
access is limited to those who have performed with distinction across
all areas of the application. A bachelor’s degree (or equivalent) from
an accredited undergraduate institution is required. Applicants participate in
an interview by invitation as part of their admission requirements.

All applicants to the MBA degree program must submit the following:
• resume pre-assessment*
• an online application and application fee
• scores from the Graduate Management Admission Test (GMAT),** the
Graduate Record Examination (GRE),** or the Executive Assessment (EA)**
• transcripts from all degree-granting institutions and/or institutions at
which an applicant completed 9 or more credit hours
• resume with complete work history
• essays
• letter(s) of recommendation
• scores from the TOEFL, PTE, Duolingo, or IELTS are also required
for international applicants, whose undergraduate degree was from
an institution where the primary language of instruction was not
English ***

Notes:
For the MBA executive program only, a resume pre-assessment is required to determine eligibility, as well as eligibility for a standardized test waiver.

**A GMT/GRE test waiver request may be submitted to determine eligibility to apply without test scores. Resumes and transcripts are necessary to submit this form. The Executive Assessment (EA) is not accepted for applicants to the full-time MBA degree program.**

***English proficiency test waivers are also available.***

**MBA Deferred Enrollment Program Admission Requirements**

Admission to the MBA Deferred Enrollment program allows college seniors to secure a spot two to five years after graduation in the Full-Time MBA Program at Jones Graduate School of Business. International and all majors are welcome to apply during their final year of college. Eligible students must be employed during the interim years to hold onto their space. A bachelor’s degree (or equivalent) from an accredited undergraduate institution is required. All applicants must conduct an interview as part of their admission requirements. The program is highly selective and access is limited to those who have performed with distinction across all areas of the application.

**The MBA Professional Program (Weekend)**

The MBA Professional Program (Weekend) does not have specific prerequisite courses required for admission.

**Academic and Professional Standards**

Students must meet both academic and professional standards to continue academic work and to graduate. In accepting admission to the MBA program, all students agree to be governed by the standards and procedures for dismissal or disciplinary action stated below.

**Academic Standards**

A minimum overall grade point average of 3.00 (B) is required for graduation. All courses taken for the MBA degree (including approved courses taken at the university, but outside the JGSB) are counted in the overall grade point average calculation.

Students with an overall grade point average lower than 3.00 at the end of any semester will be notified of academic standing. Students not meeting the 3.00 requirement will be provided specific instruction and guidance on the next steps specific to their academic situation. In some cases, students may submit an appeal to the JGSB Academic Standards Committee, requesting to be placed on academic probation. The committee reviews all academic cases, and may consult the dean’s office for counsel and/or suggestions on proposed handling of the case. The committee will decide, based on the circumstances of the appeal, whether the student may resume studies on academic probation; is to be academically suspended for one semester or an academic year; or is to be dismissed from the MBA program.

Students proposing to return after a period of academic suspension must follow the appropriate procedures outlined in the General Announcements by the Office of Graduate and Postdoctoral Studies to receive permission to be readmitted. If permitted to return, the student will pay the current rate of tuition, based upon the class of students they are joining.

Only courses in which a grade of C or above is earned will be counted for credit toward graduation. If students receive a grade below C in a course required for graduation, they must repeat the course. If students receive a grade lower than C in an elective course, they need not repeat the specific course, but they must make up the credit hours. If the required course is not offered again prior to graduation, the student will be permitted to take the course the following academic year, but will be charged the current pro-rated tuition for the program in which the additional coursework is completed.

Students on academic probation must complete all future courses with a grade of C or above and may be considered candidates for student offices by permission only. Students are removed from probation only upon achieving an overall grade point average of at least 3.00.

JGSB students may not take courses pass/fail to count toward their degree requirements. JGSB students may audit courses with departmental and professor approval. The courses will not count toward the MBA, but will appear on the transcript.

**Professional Standards**

MBA students are held to the highest standards of professional conduct expected of managers—standards substantially exceeding those expected of them simply as students. Students may be dismissed or suspended for failure to meet professional standards, as defined in the University Code of Conduct (p. 90). The dean may place a student on disciplinary probation for unacceptable conduct, giving oral and written notice that future misconduct will lead to filing specific charges. This probationary notice, however, is not required as a precondition for filing specific charges.

Scholarship reinstatement is not guaranteed for students who do not maintain continuous active status - and good standing - at the Jones Graduate School of Business and Rice University. In cases where a student does not maintain active status, and/or does not maintain continuous good standing, students may need to request reinstatement of their scholarship. Scholarships may be discontinued for students who are on academic probation or receive university conduct sanctions (including suspension).

**Class Attendance Policy**

Students are expected to be in class on the first day of each term. The instructor reserves the right to exclude a student from their course who is absent on the first day. Students should refer to the specific attendance policy for each program. This information can be found in the Jones Graduate School of Business Student Handbook, which is referenced below. For special circumstances, students should see the Director of Advising in the Student Program Office and the instructor.

**Guidelines for Appealing Academic Dismissal**

**The Process**

A student who wishes to appeal a dismissal should address the following issues in a letter to the Academic Standards Committee. The student must send the letter to the chair of the Academic Standards Committee.

1. What circumstances led to your academic performance last semester and to what degree were those circumstances beyond your control?
2. If your performance in a particular course(s) last semester was below par, describe any circumstances specific to that course that explain your performance.
3. Do you expect the circumstances that created the problems for you last semester to change next semester? If so, how?

Students may include any additional information they deem relevant in the appeal letter.
Timing
If the student intends to appeal, the letter to the committee must be filed within one week after receiving a dismissal letter. If a student plans to appeal, the student should continue to attend classes. It is important to keep up with studies during the appeal process. If the appeal is accepted, the student may continue progress towards the completion of their degree.

Appeals
Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.

Confidentiality
The Family Educational Rights and Privacy Act of 1974 and amendments govern the records of actions related to appeals.

Grade Appeal Process
Once a course grade has been assigned by an instructor, it is generally considered final and is rarely changed for any reason other than calculation or transcription errors. The procedure below outlines the process by which a student may appeal a course grade.

1. The student should first pursue any grading question with the instructor following the formal or informal process the instructor has outlined for the course.
2. If the matter is not resolved in step 1 above, the student must file a written appeal to the instructor and send a copy to the senior associate dean of degree programs. This written appeal must be filed no later than two weeks after the final grade for a course was assigned.
3. The instructor must schedule a meeting with the student within two weeks of receiving the written appeal to further discuss the appeal with the student. Notice of the appeal time and date will be provided by the instructor to the senior associate dean of degree programs.
4. If step 3 does not resolve the issue to the satisfaction of both parties, the student may appeal to the Academic Standards Committee by sending a written notice describing the grounds for the appeal within two weeks of the date of the scheduled meeting in step 3.
5. The Academic Standards Committee will seek out information on the appeal from the instructor and the student and, at its discretion, hold a hearing to further consider the matter. The decision of the Academic Standards Committee will be rendered within 4 weeks of receiving a written notice of appeal (step 4).
6. Appeals beyond the Academic Standards Committee must go to the dean of the Jones Graduate School of Business, who may seek guidance from other constituents of the school. All decisions rendered by the dean are final.
7. In the event that the protested grade is necessary for the student to graduate, an accelerated schedule will be followed.

The Family Educational Rights and Privacy Act of 1974 and amendments govern records of these actions.

MBA Elective Course Add/Drop Policy and Procedures
Due to the unique term schedule followed by the Jones Graduate School of Business MBA programs, MBA students have special procedures they must follow to make schedule changes. The Jones Graduate School of Business Registrar Department administers an add/drop policy which allows students to add or drop elective courses at various times throughout the semester. For all elective courses, student may not add or drop a course after the deadline for the appropriate term.

Withdrawal Policy
A Jones Graduate School of Business student, participating in any offered program, may voluntarily withdraw from school at any time. Upon withdrawal, Rice University applies a sliding scale to tuition, which is noted in the university’s Academic Calendar posted on the Rice Office of the Registrar website (https://registrar.rice.edu/calendars/).

Jones Graduate School of Business Student Handbook
Generally, the Jones Graduate School of Business adheres to the academic regulations of Rice University. However, the Jones Graduate School of Business MBA program has unique policies and procedures that vary from the Office of Graduate and Postdoctoral Studies regarding, but not limited to, leave of absence, withdrawals and readmission, add/drop, and academic dismissal. A copy of the handbook is available on Campus Groups (for all programs except the MBA@Rice Program).

Financial Aid
Jones Graduate School of Business scholarships are awarded at the point of admission and are based on the merit of the application. Financial assistance is generally awarded one academic year at a time. Continuation of assistance depends on Satisfactory Academic Progress (SAP) in accordance with Academic and Professional Standards of performance, professional behavior, and is subject to the availability of funds. Academic or disciplinary probation, suspension, or general failure to maintain academic pace will result in the removal of all forms of financial assistance (i.e. scholarship, employment, Federal/State student loans, etc.). Students have the right to appeal the suspension. All appeals will be reviewed by a committee.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MBA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MBA Degree, Professional Program (Weekend)

Independent Study
Minimum Hours Requirement
Each credit of independent study should contain approximately as much time content as a one-credit course at Jones Graduate School of Business, which is 12 hours of class time, plus an average of at least 24–36 outside-class hours, for a minimum total of 36–48 hours of work.
Independent study projects can be accommodated in increments of 1.0, 1.5, 2.0, or 3.0 credit hours; 3.0 credit independent study projects are rarely approved. Occasionally, a group independent study project may arise, though most independent studies are undertaken by individual students.

The number of credits for an independent study must be determined at the beginning of a project. Increases to the number of project credit hours after the project overview has been filed with the Jones Graduate School of Business associate registrar must be approved by the Academic Standards Committee. The committee will rely on input from sponsoring faculty in making its decision about post credit increases. Requests to increase the number of project credit hours must be made before the end of the second week of classes in the term in which the project begins.

Restrictions
No student may take more than three credit hours of independent study during the course of the MBA program without the approval of the Academic Standards Committee. If an independent study is proposed that would cause a student to exceed the 3.0 credit limit, the Academic Standards Committee will select two faculty members, other than the faculty member who will supervise the project, within the area most closely related to the study's academic content to review and approve the study. Independent study exceeding 3.0 credits in total should consider current policies restricting use of independent study as well as the incremental value of additional independent study in light of past independent studies. If the study does not align with any of the Jones Graduate School of Business academic groups, the Academic Standards Committee will perform the review and make the final approval decision.

Independent study projects are for academic credit, not for hire. Students may not earn credit for paid work.

Faculty Sponsorship
Independent study projects normally are sponsored only by full-time Jones Graduate School of Business faculty; faculty typically sponsor projects only in their area of expertise. Students wanting sponsorship by a part-time faculty member must submit a project overview to the Academic Standards Committee and obtain the committee's approval before the term in which the project is to begin.

Common Requirements
The goal of independent study projects is to advance or deepen a student's knowledge or competency in a business discipline or activity. To facilitate these goals, independent study projects generally fall into two broad categories:

1. directed reading and study resulting in a research paper, or
2. an experiential or hands-on project resulting in an outcome such as an empirical analysis with an executive summary of the “deliverable.”

While the content of individual independent study projects are at the discretion of a student and the sponsoring faculty member, to ensure relatively equal workloads per unit of independent study credit and some common requirements across independent study projects, students and/or sponsoring faculty should:

1. Prepare and submit to the Jones Graduate School of Business associate registrar an overview of the independent study project with number of project credits, anticipated final results, and a broad timeline of anticipated project milestones.
2. Meet to discuss the project, after the initial agreement on the project scope, at least once every two to three weeks.
3. Prepare a final paper (in the case of directed reading and research projects) or complete a concrete deliverable (for example, computer program, survey results, empirical analyses, etc.) together with an executive summary of the project (in the case of experiential projects).
4. File a copy of each student's final paper, or executive summary, with the Jones Graduate School of Business associate registrar.

Applications
Independent study applications are available for interested students on Campus Groups. Completed independent study applications must be approved by the senior associate dean of academic affairs. Completed and approved applications are due to the Jones Graduate School of Business associate registrar by the first week of the term in which the project will be completed. The student will be registered for MGMT 700/ MGMT 800 independent study for the appropriate credit amount, only when the appropriate permissions have been obtained.

Additional Information
For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Minor in Business

Program Learning Outcomes for the Minor in Business
Upon completing the minor in Business, students will be able to:

1. Demonstrate an understanding of financial statements from the perspective of a user of this information.
2. Demonstrate an understanding of the major sociological and social psychological processes that underlie individual and group behavior in organizations.
3. Demonstrate an understanding of the basic concepts of corporate financial management and of the set of analytical tools used to evaluate corporate investment and financing decisions.
4. Demonstrate an understanding of the basic concepts of strategic management and the frameworks necessary to execute competitive and industry analysis and strategy formulation and implementation.
5. Demonstrate a basic understanding of the role of marketing in organizations and of the primary marketing decisions facing management.
6. Demonstrate mastery of best practices in creating communication strategies and delivering effective internal and external communications.

Requirements for the Minor in Business
Students pursuing the minor in Business must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 554) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://
program restriction:

Students pursuing the minor in Business should be aware of the following

Program Restrictions and Exclusions

available on

review and signature. The

declaration form and unofficial transcript to the program director for

To declare the minor in Business, students must bring a completed

Declaration of the Business Minor

Policies for the Minor in Business

Enrollment Lottery

If a given BUSI course is oversubscribed, the Jones Graduate School of Business will conduct a weighted lottery to determine which students will be admitted to the course. The lottery will give advantage to students who have successfully completed a greater number of Business minor courses and who are closer to graduation.

Program Restrictions and Exclusions

Students pursuing the minor in Business should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in Business should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.

• Requests for transfer credit will be considered by the Program Director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the Minor in Business

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Jones Graduate School of Business website: https://business.rice.edu (https://business.rice.edu)/

Chemical and Biomolecular Engineering

Contact Information

Chemical and Biomolecular Engineering
https://chbe.rice.edu/
B218 Abercrombie Engineering Lab
713-348-4902

Michael S. Wong
Department Chair
mswong@rice.edu

Kenneth R. Cox
Director of Undergraduate Studies
ken.cox@rice.edu

Frederick C. MacKintosh
Director of Graduate Studies
fcmack@rice.edu
The Chemical and Biomolecular Engineering Department’s programs provide undergraduates with a sound scientific and technical grounding for further development in a variety of professional environments. Courses in mathematics, chemistry, physics, and computational engineering provide the background for the chemical engineering core, which introduces students to chemical process fundamentals, fluid mechanics, heat and mass transfer, thermodynamics, kinetics, reactor design, process control, product and process design. Course electives may be used to create a focus area in one of the following five disciplines: biotechnology/bioengineering, environmental engineering, materials science/engineering, sustainability and energy engineering, and computational engineering. Upon completing either the flexible BA requirements or the more scientific and professional BSChE requirements, students may apply for a fifth year of study leading to the non-thesis Master of Chemical Engineering (MChE) degree.

Students admitted for graduate studies leading to the MS or PhD degrees must complete a rigorous program combining advanced coursework and original research that must be formalized in an approved thesis. Graduate research is possible in a number of areas, including catalysis and nanotechnology, thermodynamics and phase equilibria, interfacial phenomena, colloids, microemulsions, rheology and fluid mechanics, biosystems engineering, biocatalysis and metabolic engineering, cell population heterogeneity and biological pattern formation, cellular and tissue engineering, sustainability and energy, gas hydrates, enhanced oil recovery, reservoir characterization, and pollution control.

A coordinated MBA/MChE degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

**Bachelor’s Programs**
- Bachelor of Arts (BA) Degree with a Major in Chemical Engineering (p. 569)
- Bachelor of Science in Chemical Engineering (BSChE) Degree (p. 571)

**Master’s Programs**
- Master of Chemical Engineering (MChE) Degree (p. 577)
- Master of Science (MS) Degree in the field of Chemical Engineering

**Doctoral Program**
- Doctor of Philosophy (PhD) Degree in the field of Chemical Engineering (p. 576)

**Coordinated Programs**
- Master of Chemical Engineering (MChE) Degree / Master of Business Administration (MBA) Degree (p. 578)

* Prospective students must receive permission from the graduate program to apply directly to the Master of Science (MS) degree program.

**Chair**
Michael S. Wong

**Professors**
Sibani Lisa Biswal
Walter G. Chapman
Frederick C. MacKintosh
Matteo Pasquali
Marc A. Robert
Kyriacos Zygorakis

**Associate Professors**
Aditya D. Mohite
Rafael Verduzco

**Assistant Professors**
Xue Gao
Amanda B. Marcil
Thomas Senftle
Ross Thyer
Haotian Wang

**Professors Emeriti**
Constantine D. Armeniades
Sam H. Davis, Jr.
Jesse David Hellums
George J. Hirasaki
Clarence A. Miller

**Research Professors**
Abbas Firoozabadi
Glen C. Irvin

**Associate Research Professor**
Dilip Asthagiri

**Professors in the Practice**
Kenneth R. Cox
Gerald G. McGlamery

**Lecturer**
Marya Cokar

**Joint Appointments**
Pulickel M. Ajayan
Pedro J.J. Alvarez
George N. Bennett
Cecilia Clementi
Eilaf Egap
Robert J. Griffin
Anatoly B. Kolomeisky
Christy F. Landes
Qilin Li
Antonios G. Mikos
Peter Rossky
Ka-Yiu San
Laura Segatori
Jonathan J. Silberg
Junghae Suh
Edwin L. Thomas

**Adjunct Professors**
Marek Behr
Jefferson L. Creek
Ramon Gonzalez
Bhagavatula Moorthy

2021-2022 General Announcements PDF Generated 09/22/21
Chemical & Biomolecular Engineering (CHBE)

CHBE 100 - INTRODUCTION TO CHEMICAL AND BIOMOLECULAR ENGINEERING
Short Title: INTRO TO CHEM&BIOMOLECULAR ENG
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A series of lectures for freshman that outline how chemical and biomolecular engineers tackle today’s major energy, health, environmental and economic challenges by working to provide sustainable and affordable energy, by designing new materials, biological products or medical therapeutics, and by developing production methods that are friendly to our environment.

CHBE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHBE 243 - CHEMICAL ENGINEERING LAB I
Short Title: CHEMICAL ENGINEERING LAB I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHBE 301 and CHBE 303
Description: Fundamental chemical engineering experiments demonstrating laboratory safety procedures, use of analytical equipment, and basic fluid mechanics, phase behavior, energy and mass balances, and fluid properties. Lectures will introduce technical report writing and communication.

CHBE 281 - ENGINEERING SUSTAINABLE COMMUNITIES
Short Title: ENGRG SUSTAINABLE COMMUNITIES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will work in teams to develop sustainable solutions for energy or environmental problems affecting our Houston and Rice communities. Emphasis will be placed on the integration of engineering fundamentals with societal issues, environmental and safety considerations, sustainability and professional communications.
Prerequisites: Introductory Engineering Courses, or Permission of Instructor. Cross-list: ENST 281.

CHBE 301 - CHEMICAL ENGINEERING FUNDAMENTALS
Short Title: CHEMICAL ENGR FUNDAMENTALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Use of basic mathematical concepts and computer tools, physical laws, stoichiometry and the thermodynamic properties of matter to obtain material and energy balances for steady and unsteady state systems. Required for sophomores intending to major in chemical engineering.
CHBE 302 - APPLIED MATHEMATICS AND NUMERICAL METHODS FOR CHEMICAL ENGINEERS I
Short Title: APPLIED MATH FOR CHEM ENGS I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course and its second part in the Spring semester will cover mathematical concepts that are at the heart of mathematical modeling in Chemical Engineering. Machine calculations are indispensable for studying the mathematical models in realistic applications, while classical, analytical techniques applied to simplified models serve to strengthen one's intuition. In this course, we will learn both the analytical techniques and also complementary numerical methods. For the latter part, programming literacy is essential. This requires gaining proficiency in (1) the programming language, an aspect that involves learning the grammar and the syntax of the language, and (2) computational thinking, an aspect that is independent of the programming language and is a skill that is broadly applicable to all problem solving and analysis. We will study all these aspects with applications in Chemical and Biomolecular Engineering. If registering for CHBE 302, you must register for CHBE 301.

CHBE 303 - COMPUTER-AIDED ANALYSIS OF CHEMICAL AND BIOMOLECULAR PROCESSES
Short Title: COMP ANALYSIS CHEM BIOM PROC
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to data analysis, numerical methods, structured programming and computation used to solve relevant chemical and biomolecular engineering problems.

CHBE 305 - APPLIED MATHEMATICS AND NUMERICAL METHODS FOR CHEMICAL ENGINEERS II
Short Title: APPLIED MATH FOR CHEM ENGS II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 301 and (CHBE 302 or CHBE 303) and MATH 211

CHBE 310 - FUNDAMENTALS OF BIOMOLECULAR ENGINEERING
Short Title: INTRO BIOMOLECULAR ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and CHBE 301 and CHBE 303

CHBE 343 - CHEMICAL ENGINEERING LAB II
Short Title: CHEMICAL ENGINEERING LAB II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411
Description: Experiments demonstrating principles presented in core chemical engineering courses.
CHBE 344 - CHEMICAL ENGINEERING LAB II
Short Title: CHEMICAL ENGINEERING LAB II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411
Description: Experiments demonstrating principles presented in core chemical engineering courses.

CHBE 350 - PROCESS SAFETY IN CHEMICAL ENGINEERING
Short Title: PROCESS SAFETY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411 and MATH 211
Description: Examination of principles of chemical process safety through case studies and group discussions.

CHBE 382 - INNOVATION AND SUSTAINABILITY
Short Title: INNOVATION & SUSTAINABILITY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics in development and environmental economics focusing on how innovation can improve underdeveloped economies and our environment. Introduction to a general framework for assessing the impact of humans on the environment. Environmental consequences of increasing energy use. Case studies showing how innovation information technologies can provide alternatives for sustainable growth. Graduate/Undergraduate Equivalency: CHBE 582. Mutually Exclusive: Cannot register for CHBE 382 if student has credit for CHBE 582.

CHBE 390 - CHEMICAL KINETICS AND REACTOR DESIGN
Short Title: KINETICS & REACTOR DESIGN
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: General areas that are covered in this course are (1) principles of chemical kinetics; (2) analysis of reaction rate data; (3) heterogeneous catalysis; (4) ideal reactor design and sizing; and (5) heat effects in reactor designs.

CHBE 401 - TRANSPORT PHENOMENA I
Short Title: TRANSPORT PHENOMENA I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHBE 305 and MATH 211) and MATH 212 or MATH 222 and (PHYS 101 and PHYS 102) or (PHYS 112 and PHYS 111)
Description: Fundamental principles of energy, mass, and momentum transport applied to the continuum; analysis of macroscopic physical systems based on the continuum equations; applications in chemical engineering practice.

CHBE 402 - TRANSPORT PHENOMENA II
Short Title: TRANSPORT PHENOMENA II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 401 and CAAM 336 (may be taken concurrently)
Description: Continuation of CHBE 401. Emphasis on energy and mass transport applied to the continuum. CAAM 336 and MATH 381 may be taken concurrently with CHBE 402.

CHBE 403 - DESIGN FUNDAMENTALS
Short Title: DESIGN FUNDAMENTALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 402 and CHBE 412
Description: Design principles as applied to chemical engineering systems. Engineering economic principles. Costs of equipment, feedstocks, and utilities. Equipment design. Use of modern simulation tools. Graduate/Undergraduate Equivalency: CHBE 503. Mutually Exclusive: Cannot register for CHBE 403 if student has credit for CHBE 503.

CHBE 404 - CHEMICAL ENGINEERING DESIGN
Short Title: CHEMICAL ENGINEERING DESIGN
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 403
Description: Strategies for conceptual design of complex chemical engineering systems. Components include sustainability, heat and power integration. Students tackle engineering design projects in small groups. Instructor Permission Required.
CHBE 405 - DECISION TOOLS FOR CHEMICAL ENGINEERS
Short Title: DECISION TOOLS FOR CHEM ENGRS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Use of concepts from economics, accounting, and finance in making design and operating decisions in the field of chemical engineering. Introduction to use of life-cycle analysis in decision-making. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 506. Mutually Exclusive: Cannot register for CHBE 405 if student has credit for CHBE 506.

CHBE 410 - APPLIED BIOMOLECULAR ENGINEERING
Short Title: APPLIED BIOMOLECULAR ENGR
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 301 and CHBE 310
Description: Covers core principles, design considerations and empirical techniques required for biomolecular engineering workflows, control systems engineering for biological chassis including feedback and dynamic regulation, separations of biological molecules, and bioprocess engineering.

CHBE 411 - THERMODYNAMICS I
Short Title: THERMODYNAMICS I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 301 and CHBE 305 and MATH 211 and MATH 212
Description: Development and application of the first and second laws of thermodynamics.

CHBE 412 - THERMODYNAMICS II
Short Title: THERMODYNAMICS II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 411
Description: Advanced treatment of chemical and phase equilibria in multicomponent systems. Includes a detailed study of nonideal solutions. Instructor Permission Required.

CHBE 415 - SEPARATION TECHNOLOGIES FOR CHEMICAL AND BIOMOLECULAR PROCESSES
Short Title: SEPARATION TECHNOLOGIES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 301
Description: This course covers general separation principles by equilibrium, diffusion and convective mass transport. Topics covered include mass transport, distillation, solid-liquid and liquid-liquid extraction, crystallization, absorption, adsorption, stripping and membrane processes. Graduate/Undergraduate Equivalency: CHBE 515. Mutually Exclusive: Cannot register for CHBE 415 if student has credit for CHBE 515.

CHBE 418 - ELECTRON TRANSPORT IN SOLIDS
Short Title: ELECTRON TRANSPORT IN SOLIDS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to understand how charge and energy flow in basic semiconductor devices. First or second year graduate students from different disciplines and backgrounds will learn about fundamental concepts that describe the physics of semiconductors all the way from atoms and crystal structure to the workings of solar cells and light emitting diodes. Graduate/Undergraduate Equivalency: CHBE 518.

CHBE 420 - TRANSPORT PHENOMENA IN BIOENGINEERING
Short Title: TRANSPORT PHENOMENA BIOENG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: BIOE 420/CHBE 420 covers transport phenomena as applied to biological systems and biomedical devices. Conservation of momentum and mass equations are first derived and then used to analyze transport of momentum and mass in biology, physiology, and in biomedical devices. This course is designed for senior bioengineering students. Cross-list: BIOE 420.
CHBE 425 - THERMODYNAMIC APPLICATIONS FOR ENERGY AND ENVIRONMENTAL SYSTEMS
Short Title: THERMO FOR ENERGY/ENVIRONMENT
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 412
Description: Review of fundamentals of phase and chemical equilibrium thermodynamics and electro-chemistry, and their applications to model the phase behavior of petroleum reservoir fluids, and the generation and transformation of energy from renewable resources. Modeling of the partitioning of contaminants in the environment, capture and sequestration and other environmental applications. Graduate/Undergraduate Equivalency: CHBE 525.

CHBE 443 - CHEMICAL ENGINEERING LAB III
Short Title: CHEMICAL ENGINEERING LAB III
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 343 and CHBE 402 and CHBE 412
Description: Experiments demonstrating principles presented in core chemical engineering courses including transport phenomena, thermodynamics, and process control professionalism and engineering ethics.

CHBE 450 - PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE
Short Title: PETRO PHASE BEHAV & FLOW ASSUR
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 305 and CHBE 412
Description: Reviews fundamentals of phase and chemical equilibrium thermodynamics focusing on the application of experimental and advanced modeling techniques to characterize reservoir fluids and predict their phase behavior and thermo-physical properties. Intended for students who wish to develop expertise on PVT modeling and gain understanding of common petroleum flow assurance problems. Graduate/Undergraduate Equivalency: CHBE 550. Mutually Exclusive: Cannot register for CHBE 450 if student has credit for CHBE 550.

CHBE 455 - TWO PHASE FLOW/MULTIPHASE FLOW IN PIPES
Short Title: TWO PHASE FLOW/MULTIPHASE FLOW IN PIPES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Graduate/Undergraduate Equivalency: CHBE 555. Mutually Exclusive: Cannot register for CHBE 455 if student has credit for CHBE 555.

CHBE 465 - STATISTICAL PHYSICS WITH APPLICATIONS TO MOLECULAR NANOSCIENCE AND TECHNOLOGY
Short Title: STAT PHY W/MOL NANOSCI & TECH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explains the foundations of modern statistical physics, including the renormalization group theory, and describes applications to phenomena at the molecular ("nano") scale in various disciplines including chemical engineering, physics, chemistry, electrical engineering, and material science. No knowledge of statistical physics is required, but fundamentals of thermodynamics are useful. Graduate/Undergraduate Equivalency: CHBE 565. Mutually Exclusive: Cannot register for CHBE 465 if student has credit for CHBE 565.

CHBE 468 - INDUSTRIAL CHEMICAL PROCESSES
Short Title: INDUSTRIAL CHEMICAL PROCESSES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and CHBE 390
Description: Survey of the range of key industrial chemical processes to understand the application of industrial chemistry, catalysis, reactor design, and other chemical engineering technologies in the development of those processes. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 568.
CHBE 470 - PROCESS DYNAMICS AND CONTROL
Short Title: PROCESS DYNAMICS & CONTROL
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 402 and CHBE 412
Description: Modeling of dynamic processes. Response of uncontrolled systems. Feedback controllers; response and stability of controlled systems; frequency response. Design of feedback controllers. Cascade, feed forward and multivariable control systems. Introduction to computer control. Use of simulators to design feedback controllers. Required for B.S. majors in chemical engineering.

CHBE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHBE 490 - CHEMICAL CAR ENGINEERING AND DESIGN
Short Title: CHEM CAR ENG AND DESIGN
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An engineering design course focused on the design and fabrication of a car powered by a chemical reaction. Repeatable for Credit.

CHBE 495 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of advanced topics of interest. Students will spend time exploring special topics chosen with their advisor, and will participate in weekly discussion groups. The number of credits will vary and are awarded based on total time required to explore the chosen project. Instructor Permission Required. Repeatable for Credit.

CHBE 498 - SUMMER UNDERGRADUATE RESEARCH
Short Title: SUMMER UNDERGRADUATE RESEARCH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern chemical and biomolecular engineering research under the direction of a selected faculty member. Recommended Prerequisite(s): CHBE 301 or CHBE 305 or CHBE 310 Repeatable for Credit.

CHBE 499 - UNDERGRADUATE RESEARCH THESIS
Short Title: UNDERGRADUATE RESEARCH THESIS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern chemical engineering research under the direction of a selected faculty member. Department Permission Required. Repeatable for Credit.

CHBE 501 - FLUID MECHANICS AND TRANSPORT PROCESSES
Short Title: FLUID MECH & TRANSPORT PROCS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced study in fluid mechanics and transport processes including analytical and numerical approximation methods, boundary layer theory, and potential flow theory.

CHBE 503 - DESIGN FUNDAMENTALS
Short Title: DESIGN FUNDAMENTALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design principles as applied to chemical engineering systems. Engineering economic principles. Costs of equipment, feedstocks, and utilities. Equipment design. Use of modern simulation tools. Graduate level course will include an advanced project as a separate requirement. Department Permission Required. Graduate/Undergraduate Equivalency: CHBE 403. Mutually Exclusive: Cannot register for CHBE 503 if student has credit for CHBE 403.
CHBE 505 - ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS

Short Title: ADVANCED NUMERICAL METHODS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to advanced numerical methods in chemical engineering. Topics include: systems of linear and nonlinear equations, quadratures, ODEs and PDEs. Monte Carlo methods, optimization, fast Fourier transforms and statistical description of data. Students will be expected to learn and use a high-level programming language as MATLAB or Python.

CHBE 506 - DECISION TOOLS FOR CHEMICAL ENGINEERS

Short Title: DECISION TOOLS FOR CHEM ENGRS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Use of concepts from economics, accounting, and finance in making design and operating decisions in the field of chemical engineering. Introduction to use of life-cycle analysis in decision-making. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 405. Mutually Exclusive: Cannot register for CHBE 506 if student has credit for CHBE 405.

CHBE 510 - FUNDAMENTALS AND APPLICATIONS IN ELECTROCHEMICAL ENERGY CONVERSION

Short Title: ELECTROCHEMISTRY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide students with an introduction to electrochemistry fundamentals and their applications in renewable energy conversion technologies. Specific topics will include water splitting, fuel cells, CO2 reduction to fuels, Li ion batteries, flow batteries, and supercapacitors. Recommended Prerequisite(s): Thermodynamics and Physical Chemistry

CHBE 514 - MACROMOLECULAR ENGINEERING

Short Title: MACROMOLECULAR ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an in-depth understanding of the structure-property relationships of soft materials (primarily polymers) at the molecular and macromolecular level. Topics will include polymers synthesis, structure, transport and dynamics. In addition, this course will highlight the applications of complex fluids in energy, medicine and coatings/adhesives. Recommended Prerequisite(s): CHEM 211 AND (CHEM 212 OR CHEM 320) AND (MATH 211 OR MATH 221)

CHBE 515 - SEPARATION TECHNOLOGIES FOR CHEMICAL AND BIOMOLECULAR PROCESSES

Short Title: SEPARATION TECHNOLOGIES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers general separation principles by equilibrium, diffusion and convective mass transport. Topics covered include mass transport, distillation, solid-liquid and liquid-liquid extraction, crystallization, absorption, adsorption, stripping and membrane processes. Graduate/Undergraduate Equivalency: CHBE 415. Mutually Exclusive: Cannot register for CHBE 515 if student has credit for CHBE 415.

CHBE 518 - ELECTRON TRANSPORT IN SOLIDS

Short Title: ELECTRON TRANSPORT IN SOLIDS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to understand how change and energy flow in basic semiconductor devices. First or second year graduate students from different disciplines and backgrounds will learn about fundamental concepts that describe the physics of semiconductors all the way from atoms and crystal structure to the workings of solar cells and light emitting diodes. Graduate/Undergraduate Equivalency: CHBE 418.

CHBE 519 - ATOMICISTIC SIMULATION METHODS AND ENGINEERING APPLICATIONS

Short Title: ATOMICISTIC SIMULATION
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide students with an introduction to atomistic-scale simulation methods ranging from empirical force fields to electronic structure theory, as well as overview concepts underlying energy minimization, molecular dynamics, and monte carlo simulations. The course will demonstrate the utilization of these methods for predicting chemical and material properties

CHBE 523 - BIOENGINEERING SYSTEMS AND CONTROL

Short Title: BIOENG SYSTEMS & CONTROLS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to basic principles of control theory and applications of these methods and tools to analyze the dynamics of biological systems with examples from metabolic pathway control, synthetic biology and physiological systems. Cross-list: BIOE 523.
<table>
<thead>
<tr>
<th>Short Title</th>
<th>Course Title</th>
<th>Department</th>
<th>Course Type</th>
<th>Grade Mode</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>CHBE 525</td>
<td>THERMODYNAMIC APPLICATIONS FOR ENERGY AND ENVIRONMENTAL SYSTEMS</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Review of fundamentals of phase and chemical equilibrium thermodynamics and electro-chemistry, and their applications to model the phase behavior of petroleum reservoir fluids, and the generation and transformation of energy from renewable resources. Modeling of the partitioning of contaminants in the environment, carbon capture and sequestration and other environmental applications. Graduate/Undergraduate Equivalency: CHBE 425.</td>
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<tr>
<td>CHBE 540</td>
<td>STATISTICAL PHYSICS FOR NANOSCIENCE AND NANOENGINEERING</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Students are introduced to statistical physics and its applications in numerous current fields of nanoscience and nanoeengineering, in particular nanotubes, polymers, colloids, magnets, ferroelectrics, liquid crystals, and biological systems. Theories are presented, and the RG theory of phase transitions is discussed. Only basic undergraduate physics and mathematics are required.</td>
</tr>
<tr>
<td>CHBE 545</td>
<td>PRINCIPLES OF BIOMOLECULAR ENGINEERING, DESIGN AND SELECTION</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Introduction to the core principles, design considerations and empirical techniques used for engineering biomolecules. Topics include the construction of genetic screens and selections, the concepts of stringency and selective pressure, use of controls, prediction of failure modes, and an overview of modern biomolecular engineering workflows. Recommended Prerequisite(s): UG Molecular Bio Eqiv or CHBE 310 or BIOE 341</td>
</tr>
<tr>
<td>CHBE 548</td>
<td>ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Application of energy conversion and the energy-environment-economy system. Energy Indexes and its correlation with energy supply and demand. The impact of energy consumption in health, income and education. Environmental policy, climate change and the impact of energy systems. Present and projected supply and demand of energy from primary sources, renewables and non-renewables. Hydroelectric, Thermoelectric power generation, from Hydrogen, Nuclear, Solar, Wind, and biomass. Recommended Prerequisite(s): CHBE 411 or MECH 200</td>
</tr>
<tr>
<td>CHBE 550</td>
<td>PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Reviews fundamentals of phase and chemical equilibria thermodynamics focusing on the application of experimental and advanced modeling techniques to characterize reservoir fluids and predict their phase behavior and thermo-physical properties. Intended for students who wish to develop expertise on PVT modeling and gain understanding of common petroleum flow assurance problems. At the graduate level (CHBE 550), a final project will be required. Graduate/Undergraduate Equivalency: CHBE 450. Mutually Exclusive: Cannot register for CHBE 550 if student has credit for CHBE 450.</td>
</tr>
<tr>
<td>CHBE 552</td>
<td>ENERGY CONVERSION AND APPLICATION</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This course will give an overview of various unconventional and renewable energy resources and technical challenges facing their production and usage. Issues around energy security, sustainability and affordability will be addressed. In addition, the role of disruptive innovations on energy systems will be discussed. The student will develop both a global and regional view on energy production. Recommended Prerequisite(s): CHBE 411 or CHBE 412 or MECH 200</td>
</tr>
</tbody>
</table>
CHBE 555 - TWO PHASE FLOW/MULTIPHASE FLOW IN PIPES
Short Title: TWO PHASE FLOW/MULTIPHASE FLOW
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses the basics concepts, fundamentals, mathematical modeling and practical issues in multiphase fluid flow containing oil, water, gas and suspended solid particles in the oil and gas well columns, offshore and onshore production systems and pipelines. This course will have both an undergraduate and graduate level.
Graduate/Undergraduate Equivalency: CHBE 455. Mutually Exclusive: Cannot register for CHBE 555 if student has credit for CHBE 455.

CHBE 557 - DISCOVERY AND ENGINEERING OF BIOACTIVE NATURAL PRODUCTS
Short Title: DISCOVERY & ENG BIO NAT PROD
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course surveys the discovery and biosynthesis of natural products and engineering approaches to modify and optimize production of natural products. Topics include: Mechanistic enzymology, Biosynthetic gene clusters and pathways. Bioinformatic analysis and genome mining. Engineering of enzymes for biocatalysis. Metabolic engineering for natural and non-natural products.

CHBE 558 - INTRODUCTION TO GENOME EDITING AND ENGINEERING
Short Title: GENOME EDITING AND ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to the recent advances in the genome editing and engineering field. Past and current stages of genome-editing technologies, the fundamental mechanisms of different classes of genome-editing proteins, and cutting-edge strategies for engineering novel genome-editing agents and their applications in synthetic biology and therapeutics. Cross-list: BIOE 558.

CHBE 560 - COLLOIDAL AND INTERFACIAL PHENOMENA
Short Title: COLLOIDAL & INTERFACIAL PHENOM
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will provide knowledge into the fundamentals of colloidal interactions (e.g., stabilisation, adsorption, self-assembly) and the techniques currently applied for their assessment. Apart from the theoretical background, the course will also provide applicable knowledge by covering current and emerging applications involving these phenomena. Interfacial tension, wetting and spreading, contact angle hysteresis, interaction between colloid particles, stability of interfaces, flow and transport near interfaces will be covered. NOTE: Offered in alternative year with MSNE 594/CHBE 594. Cross-list: MSNE 560.

CHBE 565 - STATISTICAL PHYSICS WITH APPLICATIONS TO MOLECULAR NANOSCIENCE AND TECHNOLOGY
Short Title: STAT PHY W/MOL NANO SCI & TECH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explains the foundations of modern statistical physics, including the renormalization group theory, and describes applications to phenomena at the molecular ("nano") scale in various disciplines including chemical engineering, physics, chemistry, electrical engineering, and material science. No knowledge of statistical physics is required, but fundamentals of thermodynamics are useful. Graduate/Undergraduate Equivalency: CHBE 465. Mutually Exclusive: Cannot register for CHBE 565 if student has credit for CHBE 465.

CHBE 568 - INDUSTRIAL CHEMICAL PROCESSES
Short Title: INDUSTRIAL CHEMICAL PROCESSES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the range of key industrial chemical processes to understand the application of industrial chemistry, catalysis, reactor design, and other chemical engineering technologies in the development of those processes. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 468.
CHBE 570 - INDUSTRIAL CATALYSIS AND PETROCHEMICAL PROCESSES
Short Title: INDUSTRIAL CATALYSIS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers industrial applications of catalysis and petrochemical processes. It intends to bridge the gap between the fundamentals and theories of heterogeneous catalysis and the practical applications in petrochemical industries. It is suitable for graduate students and advanced undergraduate students with permission. Repeatable for Credit.

CHBE 571 - FLOW AND TRANSPORT THROUGH POROUS MEDIA I
Short Title: FLOW&TRANSPT POROUS MEDIA I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the geology, chemistry, and physics of multicomponent, multiphase fluids in porous media. Includes hydrostatic and hydrodynamic properties of fluids in soils and rocks and the simulation of fundamental transport processes in one dimension.

CHBE 580 - PROTEIN ENGINEERING
Short Title: PROTEIN ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Manipulation of gene expression in prokaryotic and eukaryotic cells. Rational design and directed solutions for cell and protein engineering. Selection and screening technologies and process optimization. Synthetic Biology, engineering and application of gene circuits. Molecular biotechnology applications: Diagnosis, Therapeutics and Vaccines. Cross-list: BIOE 580. Recommended Prerequisite(s): CHBE 310/510 or equivalent is highly recommended.

CHBE 582 - INNOVATION AND SUSTAINABILITY
Short Title: INNOVATION & SUSTAINABILITY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in development and environmental economics focusing on how innovation can improve underdeveloped economies and our environment. Introduction to a general framework for assessing the impact of humans on the environment. Environmental consequences of increasing energy use. Case studies showing how innovation information technologies can provide alternatives for sustainable growth. NOTE: Graduate students taking this course will have to write and present a term paper on sustainability, economics and environmental costs, or IT innovation. Graduate/Undergraduate Equivalency: CHBE 382. Mutually Exclusive: Cannot register for CHBE 582 if student has credit for CHBE 382.

CHBE 590 - KINETICS, CATALYSIS, AND REACTION ENGINEERING
Short Title: ADV REACTION ENGRG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of kinetics and reactor design equations; steady state multiplicity and stability; heterogeneous catalysis; catalyst preparation, characterization, testing; catalytic reaction mechanisms; diffusion and reaction in catalyst pellets; conservation equations; reactor analysis; fixed bed reactor design; reactions of solids; mixing in chemical reactors; parameter estimation for reactor models.

CHBE 593 - INTRODUCTION TO POLYMER PHYSICS AND ENGINEERING
Short Title: POLYMER PHYSICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course focuses on demonstrating how the physical properties of polymers can be understood from simple models. Students will be introduced to the terminology and mathematics involved in the physical understanding of polymer systems. The course is intended for students who would like to gain an understanding of modern approaches to polymer physics. NOTE: Not offered every year. Cross-list: MSNE 593.

CHBE 594 - PROPERTIES OF POLYMERS
Short Title: PROPERTIES OF POLYMERS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 211 or CHEM 251) and (MATH 211 or MATH 221)
Description: The course will introduce basic concepts in polymer science including the synthesis and chemical modification of polymers as well as physical properties of polymers. Topics include approaches to polymer synthesis, processing and characterization of polymer materials, and an introduction to mathematical models applied to describe the structure and dynamics of polymeric materials. NOTE: Offered in alternative year with MSNE 560/CHBE 560. Cross-list: MSNE 594. Repeatable for Credit.

CHBE 600 - MASTER OF CHEMICAL ENGINEERING RESEARCH
Short Title: MASTER CHEM ENGINEER RESEARCH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent investigation of a topic or problem in modern chemical engineering research under the direction of a selected faculty member. Department Permission Required. Repeatable for Credit.
CHBE 602 - PHYSICO-CHEMICAL HYDRODYNAMICS
Short Title: PHYSICO-CHEMICAL HYDRODYNAMICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in hydrodynamics including areas such as waves on liquid surfaces, convection and diffusion in liquids, motion of drops and bubbles, and electrophoresis.

CHBE 603 - RHEOLOGY
Short Title: RHEOLOGY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CHBE 605 - TEACHING ASSISTANT
Short Title: TEACHING ASSISTANT
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Registration for this class is required for all graduate students assigned as teaching assistants within the Department of Chemical and Biomolecular Engineering. Repeatable for Credit.

CHBE 606 - DEAN’S TEACHING ASSISTANT
Short Title: DEAN’S TEACHING ASSISTANT
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Registration for this class is required for all graduate students assigned as Dean’s teaching assistants within the Department of Chemical and Biomolecular Engineering. Repeatable for Credit.

CHBE 609 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS I
Short Title: OIL AND GAS ASSET INTEGRITY I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I," to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: MSNE 609.

CHBE 610 - THERMODYNAMICS AND APPLICATIONS TO HYDROCARBON PRODUCTION AND CHEMICAL ENGINEERING PHENOMENA
Short Title: THERMO APP TO OIL PRODUCTION
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn how thermodynamics can be used to gain insights into hydrocarbon energy production processes. Classical thermodynamics is covered in bulk phase equilibrium and stability, interfaces, and then liquid films areas. Some statistical thermodynamics and molecular simulations. Effect of nano-size and charge on material properties, nucleation, species distribution, climate change, and shale gas/oil.

CHBE 611 - ADVANCED TOPICS-THERMODYNAMICS
Short Title: ADVANCED TOPICS-THERMODYNAMICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced treatment of the thermodynamics of pure and multicomponent systems. Topics range from classical thermodynamics to a discussion of modern developments, and include an introduction to statistical thermodynamics.

CHBE 615 - APPLICATION OF MOLECULAR SIMULATION AND STATISTICAL MECHANICS
Short Title: APPL MOLEC SIMULATN&STAT MECH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to molecular simulation techniques and applications of statistical mechanics-based theory to engineering problems. Projects involve topics of current research interest. Students are expected to know thermodynamics and to have had some introduction to statistical mechanics.
CHBE 618 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS II
Short Title: OIL AND GAS ASSET INTEGRITY II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I," to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: MSNE 618.

CHBE 620 - TISSUE ENGINEERING
Short Title: TISSUE ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Includes strategies to regenerate metabolic organs and repair structural tissues, as well as cell-based therapies to deliver proteins and other therapeutic drugs, with emphasis on issues related to cell and tissue transplantation such as substrate properties, angiogenesis, growth stimulation, cell differentiation, and immunoprotection. Cross-list: BIOE 620.

CHBE 630 - CHEMICAL ENGINEERING OF NANOSTRUCTURED MATERIALS
Short Title: CHEM ENG NANOSTRUCTURE MATRLS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of materials with structural features on the nanometer scale. Discussion of general concepts of synthesis, characterization and applications. Highlight advances found in recent literature.

CHBE 633 - SPECIAL TOPICS ON THE STATISTICAL FOUNDATIONS OF NON-EQUILIBRIUM MOLECULAR NANOSYSTEMS
Short Title: SPEC TOPICS:STAT FNDT MOL NANO
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Selected topics in the foundations of the statistical physics of soft condensed matter, including colloidal, nanoscale, and macromolecular systems. Foundations of transport phenomena statistical theory; stochastic processes in macromolecular and colloidal systems; course-graining; modeling and simulation of intramolecular forces; stochastic differential equations; simulation techniques. Instructor Permission Required.

CHBE 634 - SURFACE ANALYSIS METHODS IN MATERIALS SCIENCE
Short Title: SURFACE ANALYSIS METHODS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the theory and practice of modern surface analysis methods, including secondary ion mass spectroscopy, atomic force microscopy, and X-ray photoelectron spectroscopy. The theory and example application of each technique will be presented, and prior experience with surface analysis is not required. This course may be taken concurrently with the Surface Science Lab, CHBE 636.

CHBE 636 - SURFACE ANALYSIS METHODS LAB
Short Title: SURFACE ANALYSIS METHODS LAB
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHBE 634
Description: Surface science laboratory course for surface analysis techniques including time-of-flight secondary ion mass spectroscopy (ToF-SIMS), X-ray photoelectron spectroscopy (XPS), and atomic force microscopy. Must be taken concurrently with CHBE 634. Instructor Permission Required.

CHBE 640 - METABOLIC ENGINEERING
Short Title: METABOLIC ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CHBE 650 - THERMODYNAMICS OF INTERFACES, FLUIDS AND ELASTIC MATERIALS
Short Title: FLUIDS AND ELASTIC MATERIALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Bulk-Phase Equilibrium and Irreversibility, and Interfacial Thermodynamics of fluids and elastic materials are presented in a unified framework. Thermodynamic stability of fluids and elastic solids are also covered. Examples include past climates changes, various diffusion processes, and size effect on properties.
CHBE 655 - THERMODYNAMICS AND APPLICATIONS TO HYDROCARBON PRODUCTION AND CHEMICAL ENGINEERING PHENO
Short Title: THERMODYNAMICS & APPS HC PROD
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How thermodynamics can be used to gain fundamental insights into many chem-e problems and hydrocarbon energy production processes. Course covers classical thermodynamics in the broad context of bulk phase equilibrium and stability, bulk phase irreversible phenomena, interfacial thermodynamics, and thermodynamics of thin liquid films; some statistical thermodynamics and molecular simulations.

CHBE 661 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 662 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 671 - FLOW AND TRANSPORT THROUGH POROUS MEDIA II
Short Title: FLOW&TRANSPORT POROUS MEDIA II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Calculation of multicomponent-multiphase transport in one to three dimensions using finite difference methods. Includes development of multidimensional models of systems and representation and estimation of geological heterogeneity.

CHBE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHBE 682 - SYSTEMS BIOLOGY OF HUMAN DISEASES
Short Title: SYS BIO OF HUMAN DISEASES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to concepts necessary for application of systems - Biology Approaches to Human Diseases. Topics include transcriptional and metabolic design principles, introduction to various regulatory network motifs in diseases and potential treatments using embryonic stem cells. Analysis of complex diseases using engineering concepts such as optimality, nonequilibrium thermodynamics, multiscale analysis and spatiotemporal transport. Cross-list: BIOP 682.

CHBE 692 - APPLIED MATHEMATICS FOR CHEMICAL ENGINEERING
Short Title: APPL MATHEMATICS FOR CHEM ENG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The class focuses on the numerical analysis of various times integration techniques for ordinary differential equations, as well as spatial and temporal discretization methods for hyperbolic and parabolic partial differential equations that describe processes in engineering and biology. Homework and projects aim at the comparative evaluation of the various schemes discussed in class. Recommended prerequisite(s): Knowledge of a programming language (Fortran preferably) elementary P.D.E.'s, basic concepts of calculus.

CHBE 693 - APPLIED MATHEMATICS FOR CHEMICAL ENGINEERING PART II: APPLICATIONS
Short Title: APPLIED MATH CHEM ENG II: APPS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students are introduced to several basic applications of mathematics problems of chemical engineering and other fields of engineering and science. Recommended Prerequisite(s): CHBE 692

CHBE 695 - MCHE INDEPENDENT STUDY
Short Title: MCHE INDEPENDENT STUDY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will do research and/or carry out independent study on a particular problem as agreed by the student and advisor. The number of credit hours granted will be determined in each case based upon work load. Students will be provided an outline (syllabus) of the expectations for hours and product that will be reviewed periodically with the advisor and course instructor. Instructor Permission Required. Repeatable for Credit.
CHBE 700 - M.S. RESEARCH AND THESIS
Short Title: M.S. RESEARCH AND THESIS
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 720 - SPECIAL TOPICS IN CHEMICAL ENGINEERING I
Short Title: SPECIAL TOPICS CHEM ENGRG I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 760 - BAYLOR/RICE MD/PHD PROGRAM
Short Title: BAYLOR/RICE MD/PHD PROGRAM
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 801 - SPECIAL TOPICS IN CHEMICAL ENGINEERING II
Short Title: SPECIAL TOPICS CHEM ENGRG II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Department Description and Code
• Chemical and Biomolecular Engineering: CHBE

Undergraduate Degree Descriptions and Codes
• Bachelor of Arts degree: BA
• Bachelor of Science in Chemical Engineering degree: BSChE

Undergraduate Major Description and Code
• Major in Chemical Engineering (both BA and BSChE degrees) code: CENG

Undergraduate Major Areas of Specialization Descriptions and Attribute Codes
• Area of Specialization in Biomolecular Engineering (BSChE degree only): CEBE
• Area of Specialization in Computational Engineering (BSChE degree only): CECE
• Area of Specialization in Energy/Sustainability (BSChE degree only): CEES
• Area of Specialization in Materials/Nanotechnology (BSChE degree only): CEMN
• Area of Specialization in Engineering Breadth (BSChE degree only): CEBR

Please Note: Areas of Specialization are department/program-specific and are not formally recognized academic credentials. Unlike Major Concentrations, Areas of Specialization do not appear on the student's official academic transcript, etc.

Graduate Degree Descriptions and Codes
• Master of Chemical Engineering degree: MChE
• Master of Science degree: MS
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Chemical Engineering: CENG

CIP Code and Description
• CENG Major/Program: CIP Code/Title: 14.0701 - Chemical Engineering

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Chemical Engineering
Program Learning Outcomes for the BA Degree with a Major in Chemical Engineering
Upon completing the BA degree with a major in Chemical Engineering, students will be able to demonstrate:
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2. An ability to communicate effectively with a range of audiences.

3. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

4. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

5. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Requirements for the BA Degree with a Major in Chemical Engineering

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Chemical Engineering must complete:

- A minimum of 72 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (39 credit hours) taken at the 300-level or above.

The BA with a Major in Chemical Engineering is a flexible program and allows a student to pursue other areas of interest with or without a second major (or an academic minor).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/.) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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Total Credit Hours Required for the Major in Chemical Engineering 72

Additional Credit Hours to Complete Degree Requirements 17

University Graduation Requirements (p. 29) 31

Total Credit Hours 120
Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 CHEM 121 or CHEM 111 can be satisfied by completing CHEM 151; CHEM 123 or CHEM 113 can be satisfied by completing CHEM 153. CHEM 122 or CHEM 112 can be satisfied by completing CHEM 152; CHEM 124 or CHEM 114 can be satisfied by completing CHEM 154.

2 MATH 221 and MATH 222 may substitute for MATH 212.

Policies for the BA Degree with a Major in Chemical Engineering

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Chemical Engineering should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Chemical Engineering may not additionally pursue the Bachelor of Science in Chemical Engineering (BSChE) Degree.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Chemical Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/.

Opportunities for the BA Degree with a Major in Chemical Engineering

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Chemical Engineering (MChE) degree. For additional information, students should contact their undergraduate major advisor and the MChE chair of the department graduate studies committee.

Additional Information

For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/.

Bachelor of Science in Chemical Engineering (BSChE) Degree

The program leading to the BSChE degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, https://www.abet.org (https://www.abet.org/).

Program Learning Outcomes (Student Outcomes) for the BSChE Degree

Upon completing the BSChE degree, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must
consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program Educational Objectives for the BSChE Degree
Within 3 to 5 years of graduation, graduates with a Bachelor of Science in Chemical Engineering (BSChE) degree are expected to be:
1. Graduate students, professionals, and entrepreneurs who are moving towards leadership positions as exemplary members of the global workforce; and
2. Professionals who practice their societal, environmental, and ethical responsibilities.

Requirements for the BSChE Degree
For general university requirements, see Graduation Requirements (p. 29).
Students pursuing the BSChE degree must complete:
• A minimum of 95 credit hours to satisfy major requirements.
• A minimum of 127 credit hours to satisfy degree requirements.
• A minimum of 20 courses (59 credit hours) taken at the 300-level or above.
• The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Chemical Engineering (associated with the BSChE degree), students must additionally identify and declare one of five areas of specialization, either in:
  • Biomolecular Engineering (p. 573), or
  • Computational Engineering (p. 573), or
  • Energy/Sustainability (p. 574), or
  • Materials/Nanotechnology (p. 574), or
  • Engineering Breadth (p. 575) (Engineering Breadth is an area of specialization comprised of electives from a mix of engineering disciplines).

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Degree Requirements

#### Core Requirements

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#### Chemical and Biomolecular Engineering Core Courses

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Area of Specialization: Biomolecular Engineering

To fulfill the BSChE degree requirements, students pursuing the Biomolecular area of specialization must complete:

- 1 course (3 credit hours) from the area of specialization Core Requirement
- 3 courses (9 credit hours) from the area of specialization Elective Requirements

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<td>CHBE 415</td>
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Area of Specialization: Computational Engineering

To fulfill the BSChE degree requirements, students pursuing the Computational Engineering area of specialization must complete:

- 1 course (3 credit hours) from the area of specialization Core Requirement
- 3 courses (9 credit hours) from the area of specialization Elective Requirements

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<td>CHBE 415</td>
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Elective Requirements

Select 3 courses from the following:

- BIOS 201 INTRODUCTORY BIOLOGY I
- BIOS 301 BIOCHEMISTRY I
- BIOE 321 CELLULAR ENGINEERING
- BIOE 330 BIOREACTION ENGINEERING
- BIOE 370 BIOMATERIALS
- BIOE 372 BIOMECHANICS
- BIOE 383 BIOMEDICAL ENGINEERING INSTRUMENTATION
- BIOE 408 SYNTHETIC BIOLOGY
- BIOE 420 / CHBE 420 TRANSPORT PHENOMENA IN BIOENGINEERING
- BIOE 422 GENE THERAPY
- BIOE 464 EXTRACELLULAR MATRIX
- BIOE 485 / COMP 485 / ELEC 485 FUNDAMENTALS OF MEDICAL IMAGING I
- BIOE 490 INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS
- BIOE 620 / CHBE 620 TISSUE ENGINEERING

Total Credit Hours 12
### Bachelor of Science in Chemical Engineering (BSChE) Degree

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**Total Credit Hours**: 12

### Area of Specialization: Energy/Sustainability

To fulfill the BSChE degree requirements, students pursuing the Energy/Sustainability area of specialization must complete:

- 1 course (3 credit hours) from the Core Requirement
- 3 courses (9 credit hours) from the area of specialization Elective Requirements

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**Select 3 courses from the following**: 9

- CEVE 302 / ENGI 302 | SUSTAINABLE DESIGN
- CEVE 307 / ENST 307 / EEPS 307 | ENERGY AND THE ENVIRONMENT
- CEVE 310 | PRINCIPLES OF ENVIRONMENTAL ENGINEERING
- CEVE 314 / BIOE 365 / GLHT 314 | SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
- CEVE 401 | CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
- CEVE 434 | FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
- CEVE 484 / STAT 484 | ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
- CEVE 518 | ENVIRONMENTAL HYDROGEOLOGY
- CEVE 535 | PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL
- CHBE 405 | DECISION TOOLS FOR CHEMICAL ENGINEERS
- CHBE 450 | PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE
- CHBE 468 | INDUSTRIAL CHEMICAL PROCESSES
- CHBE 570 | INDUSTRIAL CATALYSIS AND PETROCHEMICAL PROCESSES
- CHBE 571 | FLOW AND TRANSPORT THROUGH POROUS MEDIA I
- CHBE 671 | FLOW AND TRANSPORT THROUGH POROUS MEDIA II
- EEPS 420 | ORGANIC GEOCHEMISTRY
- EEPS 448 | EXPLORATION GEOPHYSICS
- EEPS 465 | ROCK DEFORMATION AND RHEOLOGY
- EEPS 484 | DECISION MAKING AND ECONOMICS IN THE ENERGY INDUSTRY
- EEPS 486 | PETROLEUM INDUSTRY ECONOMICS AND MANAGEMENT

**Total Credit Hours**: 12

### Area of Specialization: Materials/Nanotechnology

To fulfill the BSChE degree requirements, students pursuing the Materials/Nanotechnology area of specialization must complete:

- 1 course (3 credit hours) from the area of specialization Core Requirement
- 3 courses (9 credit hours) from the area of specialization Elective Requirements

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**Select 3 courses from the following**: 9

- BIOE 311 | BIOMATERIALS APPLICATIONS
- CHBE 560 / MSNE 560 | COLLOIDAL AND INTERFACIAL PHENOMENA
- CHBE 594 / MSNE 594 | PROPERTIES OF POLYMERS
- ELEC 361 | QUANTUM MECHANICS FOR ENGINEERS
- MSNE 301 | MATERIALS SCIENCE FOR ENGINEERS
- MSNE 302 | MATERIALS PROCESSING AND NANOMANUFACTURING
- MSNE 365 / ELEC 365 | NAMOMATERIALS FOR ENERGY
- MSNE 401 | THERMODYNAMICS IN MATERIALS SCIENCE
- MSNE 402 | MECH PROPERTIES OF MATERIALS
- MSNE 406 | PHYSICAL PROPERTIES OF SOLIDS
- MSNE 411 | MATERIALS CHARACTERIZATION FROM NANO TO MACRO
- MSNE 415 | CERAMICS AND GLASSES
- MSNE 433 | COMPUTATIONAL MATERIALS MODELING
- MSNE 435 | CRYSTALLOGRAPHY & DIFFRACCTION
- MSNE 523 | PROPERTIES, SYNTHESIS AND DESIGN OF COMPOSITE MATERIALS

**Total Credit Hours**: 12
Area of Specialization: Engineering Breadth
To fulfill the BSChE degree requirements, students pursuing the Engineering Breadth area of specialization must complete:

- 1 course (3 credit hours) from the area of specialization Core Requirement
- 3 courses (9 credit hours) from the area of specialization Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHBE 415</td>
<td>SEPARATION TECHNOLOGIES FOR CHEMICAL AND BIOMOLECULAR PROCESSES</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements
Select 3 courses from at least 3 categories below:

Basic Science
- BIOS 201 INTRODUCTORY BIOLOGY I
- CHEM 330 ANALYTICAL CHEMISTRY
- CHEM 360 INORGANIC CHEMISTRY
- EEPS 334 THE EARTH LABORATORY
- EEPS 340 GLOBAL BIOGEOCHEMICAL CYCLES
- PHYS 202 MODERN PHYSICS

Environmental Engineering Courses
- CEVE 310 PRINCIPLES OF ENVIRONMENTAL ENGINEERING
- CEVE 311 / MECH 311 MECHANICS OF SOLIDS AND STRUCTURES
- CEVE 434 FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT

Materials Science Engineering Courses
- MSNE 301 MATERIALS SCIENCE FOR ENGINEERS
- MSNE 402 MECH PROPERTIES OF MATERIALS
- MSNE 406 PHYSICAL PROPERTIES OF SOLIDS
- MSNE 594 / CHBE 594 PROPERTIES OF POLYMERS

Bioengineering Courses
- BIOE 370 BIOMATERIALS
- BIOE 372 BIOMECHANICS
- BIOE 420 / CHBE 420 TRANSPORT PHENOMENA IN BIOENGINEERING
- CHBE 640 METABOLIC ENGINEERING

Sustainability and Energy Courses
- CEVE 302 / ENGI 302 SUSTAINABLE DESIGN
- CEVE 307 / ENST 307 / EEPS 307 ENERGY AND THE ENVIRONMENT
- CHBE 450 PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE

Computation and Applied Mathematics Course
- CAAM 335 MATRIX ANALYSIS

Other Approved Engineering Courses
- CHBE 560 / MSNE 560 COLLOIDAL AND INTERFACIAL PHENOMENA

Total Credit Hours: 12

Footnotes and Additional Information
1 A maximum of 3 credit hours for CHBE 495, CHBE 498, or CHBE 499 may replace 3 credit hours of any of the discipline electives above, but not the Core Requirement.

Policies for the BSChE Degree
Program Restrictions and Exclusions
Students pursuing the BSChE Degree should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the Bachelor of Science in Chemical Engineering (BSChE) Degree may not additionally pursue the BA Degree with a Major in Chemical Engineering.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BSChE degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Opportunities for the BSChE Degree
Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid...
status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

1. must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
2. should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
3. more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Chemical Engineering (MChE) degree. For additional information, students should contact their undergraduate major advisor and the MChE chair of the department graduate studies committee.

Additional Information
For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Chemical Engineering

Program Learning Outcomes for the MS and PhD Degrees in the field of Chemical Engineering

Upon completing the MS and PhD degrees in the field of Chemical Engineering, students will be able to:

1. Demonstrate a solid foundation in the fundamentals of chemical engineering in four areas: applied mathematics, kinetics and reaction engineering, thermodynamics, and transport phenomena.
2. Apply advanced knowledge from several major areas of modern chemical engineering.
3. Conduct independent research by working on research projects, individually and in interdisciplinary groups.
4. Demonstrate professional written and oral communication skills.

Requirements for the MS and PhD Degrees in the field of Chemical Engineering

MS Degree Program
The MS degree is a thesis masters degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MS degree in the field of Chemical Engineering must:

- Obtain permission by the department to apply for the program.
- Accepted candidates must complete at least 18 credit hours, which must include:
  - 5 courses (15 credit hours) of core Chemical Engineering courses, and
  - 1 course (3 credit hours) as an Elective, taken at the 500-level or above.
- Complete at least 18 approved advanced course credit hours with high standing.
- Submit an original research thesis.
- Defend the thesis in a public oral examination.
- Complete a teaching requirement.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours for the MS Degree in the field of Chemical Engineering</td>
<td>30</td>
</tr>
</tbody>
</table>

For additional requirements, regulations, and procedures for all graduate programs, please see Graduate Program Handbook (p. 60). Students pursuing the PhD degree in the field of Chemical Engineering must:

- Satisfactorily complete 24 credit hours of advanced coursework at the 500-level or above, including required core courses. Students who already have an MS degree in chemical engineering can request departmental approval to be excluded from the required core courses, but must satisfactorily complete the 24 required credit hours.
- Pass qualifying examinations demonstrating a general understanding of reaction engineering, thermodynamics, transport phenomena, and applied mathematics.
- Prepare and present a thesis proposal.
- Complete a publishable thesis representing research that is an original and significant contribution to the field of chemical and biomolecular engineering.
- Pass a public oral examination in defense of the thesis.
- Fulfill a residency requirement.
- Complete a teaching assignment.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours for the PhD Degree in the field of Chemical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

For additional requirements, regulations, and procedures for all graduate programs, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Chemical Engineering must:

- Obtain permission by the department to apply for the program.
- Accepted candidates must complete at least 18 credit hours, which must include:
  - 5 courses (15 credit hours) of core Chemical Engineering courses, and
  - 1 course (3 credit hours) as an Elective, taken at the 500-level or above.
- Complete at least 18 approved advanced course credit hours with high standing.
- Submit an original research thesis.
- Defend the thesis in a public oral examination.
- Complete a teaching requirement.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours for the PhD Degree in the field of Chemical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

Policies for the PhD Degree in the field of Chemical Engineering

Department of Chemical and Biomolecular Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Chemical and Biomolecular Engineering publishes a graduate program handbook,

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Chemical Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Opportunities for the PhD Degree in the field of Chemical Engineering

Additional Information
For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Master of Chemical Engineering (MChE) Degree

Program Learning Outcomes for the MChE Degree

Upon completing the MChE degree, students will be able to:

1. Identify, formulate, and solve complex engineering problems that require synthesis of advanced knowledge in chemical engineering fundamentals.
2. Demonstrate broad advanced knowledge in science and math, and depth in one chemical engineering sub-discipline (energy engineering, biomolecular engineering, materials science).
3. Demonstrate knowledge of business policies and practices in the current business environment in identifying, formulating, and solving engineering challenges in a problem/engineering challenge they undertake to solve as part of independent study.
4. Demonstrate effective oral and written communication skills.

Requirements for the MChE Degree

The MChE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MChE degree must complete:

- A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 578) tab.
- A minimum of 5 courses (15 credit hours) from the Core Requirements.
- A minimum of 5 courses (15 credit hours) from Elective Requirements, covering core chemical engineering principles.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of B- (2.67 grade points) in each course.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MChE Degree</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td>CHBE 501</td>
<td>FLUID MECHANICS AND TRANSPORT PROCESSES</td>
<td>3</td>
</tr>
<tr>
<td>CHBE 505</td>
<td>ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS 1</td>
<td>3</td>
</tr>
<tr>
<td>CHBE 590</td>
<td>KINETICS, CATALYSIS, AND REACTION ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>CHBE 602</td>
<td>PHYSICO-CHEMICAL HYDRODYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>CHBE 611</td>
<td>ADVANCED TOPICS-THERMODYNAMICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements

Select 5 elective courses at the 500-level or above 2 15

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>30</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 As an alternative to CHBE 505, CHBE 692 - Applied Mathematics for Chemical Engineering I - may be taken to fulfill this mathematics requirement. Students should consult with the Program Advisor when selecting CHBE 692.
Policies for the MChE Degree

Department of Chemical and Biomolecular Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Chemical and Biomolecular Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Chemical_Biomolecular_Engineering_MCHE_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MChE degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Opportunities for the MChE Degree

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Chemical Engineering (MChE) degree. For additional information, students should contact their undergraduate major advisor and the MChE chair of the department graduate studies committee.

Additional Information

For additional information, please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/

Master of Chemical Engineering (MChE) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MChE Degree

Upon completing the MChE degree, students will be able to:

1. Identify, formulate, and solve complex engineering problems that require synthesis of advanced knowledge in chemical engineering fundamentals.
2. Demonstrate broad advanced knowledge in science and math, and depth in one chemical engineering sub-discipline (energy engineering, biomolecular engineering, materials science).
3. Demonstrate knowledge of business policies and practices in the current business environment in identifying, formulating, and solving engineering challenges in a problem/engineering challenge they undertake to solve as part of independent study.
4. Demonstrate effective oral and written communication skills.

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MChE/MBA Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
Coordinated MChE Elective Requirements below.

the Core Requirements of the Students in the coordinated MBA/MChE degrees program must complete

Coordinated MChE Degree Requirements
Students in the coordinated MBA/MChE degrees program must complete the Core Requirements of the MChE degree program (p. 577) and Coordinated MChE Elective Requirements below.

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 45 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Science degree or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
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<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
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<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.</td>
<td></td>
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</tbody>
</table>

Total Credit Hours 45

Footnotes and Additional Information

1. To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

Policies for the MChE/MBA Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/
Opportunities for the MChE/MBA Coordinated Degrees Program

Additional Information
For additional information on these two degrees:
1. Please see the Chemical and Biomolecular Engineering website: https://chbe.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Chemical Physics

Contact Information
Chemical Physics
Stanley A. Dodds
Program Co-Director
dodds@rice.edu

R. Bruce Weisman
Program Co-Director
weisman@rice.edu

The Bachelor of Science (BS) degree in Chemical Physics is jointly managed by the Department of Chemistry and the Department of Physics and Astronomy. Students take upper-level courses in both chemistry and physics, focusing on the applications of physics to chemical systems.

For additional information regarding Chemical Physics, please see the following department websites:
• Chemistry: https://chemistry.rice.edu/
• Physics and Astronomy: https://physics.rice.edu/

Bachelor's Program
• Bachelor of Science (BS) Degree with a Major in Chemical Physics (p. 580)

Chemical Physics does not currently offer an academic program at the graduate level.

Co-Directors
Stanley A. Dodds
R. Bruce Weisman

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: Courses from various subjects may apply towards the major.

Program Description and Code
• Chemical Physics: CPHY

Undergraduate Degree Description and Code
• Bachelor of Science degree: BS

Undergraduate Major Description and Code
• Major in Chemical Physics: CPHY

CIP Code and Description ¹
• CPHY Major/Program: CIP Code/Title: 40.0508 - Chemical Physics

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Science (BS) Degree with a Major in Chemical Physics

Program Learning Outcomes for the BS Degree with a Major in Chemical Physics
Upon completing the BS degree with a major in Chemical Physics, students will be able to:
1. Demonstrate a solid foundation of knowledge in chemistry as applicable to chemical physics.
2. Demonstrate a solid foundation of knowledge in physics as applicable to chemical physics.
3. Solve challenging scientific and technical problems as encountered in chemical physics.
4. Read basic scientific literature and communicate scientific results orally and in writing for scientists and the general public.

Requirements for the BS Degree with a Major in Chemical Physics
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Chemical Physics must complete:
• A minimum of 73 credit hours to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 33-35 credit hours, depending on course selection, taken at the 300-level or above.

The Chemical Physics major is offered jointly by the Department of Chemistry and the Department of Physics and Astronomy. Students take upper-level courses in both chemistry and physics, focusing on the applications of physics to chemical systems. Students may obtain credit for some courses by advanced placement, and the program’s undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted
upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for Major in Chemical Physics</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BS Degree with a Major in Chemical Physics</td>
<td>120</td>
</tr>
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</table>

### Degree Requirements

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<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
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<tr>
<td></td>
<td><strong>General Chemistry</strong></td>
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<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I</td>
<td>4</td>
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<tr>
<td>&amp; CHEM 123</td>
<td>and GENERAL CHEMISTRY LABORATORY I</td>
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<tr>
<td>Select 1 from the following:</td>
<td></td>
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<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 124</td>
<td>and GENERAL CHEMISTRY LABORATORY II</td>
<td></td>
</tr>
<tr>
<td>CHEM 201</td>
<td>ADVANCED TOPICS IN GENERAL CHEMISTRY and ADVANCED TOPICS IN GENERAL CHEMISTRY LABORATORY</td>
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<tr>
<td>&amp; CHEM 205</td>
<td>and ADVANCED TOPICS IN GENERAL CHEMISTRY LABORATORY</td>
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<tr>
<td>Select 1 from the following:</td>
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<tr>
<td>CHEM 211</td>
<td>ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY DISCUSSION</td>
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</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>and ORGANIC CHEMISTRY DISCUSSION</td>
<td></td>
</tr>
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<td>CHEM 319</td>
<td>ORGANIC CHEMISTRY I</td>
<td>3</td>
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<tr>
<td>CHEM 215</td>
<td>ORGANIC CHEMISTRY LAB</td>
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<tr>
<td>or CHEM 365</td>
<td>ORGANIC CHEMISTRY LAB</td>
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<td>CHEM 301</td>
<td>PHYSICAL CHEMISTRY I</td>
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<td>CHEM 302</td>
<td>PHYSICAL CHEMISTRY II</td>
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<td></td>
<td><strong>Physics</strong></td>
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<tr>
<td>PHYS 101</td>
<td>MECHANICS (WITH LAB) and MECHANICS DISCUSSION</td>
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<tr>
<td>&amp; PHYS 103</td>
<td>and MECHANICS DISCUSSION</td>
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<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<td>&amp; PHYS 104</td>
<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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<td>PHYS 201</td>
<td>WAVES, LIGHT, AND HEAT</td>
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<td>PHYS 202</td>
<td>MODERN PHYSICS</td>
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<td>ELEMENTARY PHYSICS LAB</td>
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<td>INTERMEDIATE MECHANICS</td>
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<td>PHYS 302</td>
<td>INTERMEDIATE ELECTRODYNAMICS</td>
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<td><strong>Mathematics</strong></td>
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<td>MATH 101</td>
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<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<td>MATH 102</td>
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<td><strong>Elective Requirements</strong></td>
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<td>Advanced Coursework in Physics and Chemistry</td>
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<td>PHYS 312</td>
<td>INTRODUCTION TO QUANTUM PHYSICS II</td>
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<td>or CHEM 435</td>
<td>QUANTUM CHEMISTRY</td>
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<td>CHEM 360</td>
<td>INORGANIC CHEMISTRY</td>
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<td>CHEM 415</td>
<td>CHEMICAL KINETICS AND DYNAMICS</td>
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<td>CHEM 420</td>
<td>CLASSICAL AND STATISTICAL THERMODYNAMICS</td>
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<td>or PHYS 425</td>
<td>STATISTICAL &amp; THERMAL PHYSICS</td>
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<td>Advanced Laboratories</td>
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<td>CHEM 366</td>
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<td>CHEM 367</td>
<td>MATERIALS CHEMISTRY LAB</td>
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<td>CHEM 368</td>
<td>CHEMICAL MEASUREMENT LAB</td>
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<td>CHEM 491</td>
<td>RESEARCH FOR UNDERGRADUATES</td>
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<td>or PHYS 461</td>
<td>INDEPENDENT RESEARCH</td>
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<tr>
<td>or PHYS 462</td>
<td>INDEPENDENT RESEARCH</td>
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<td>PHYS 332</td>
<td>JUNIOR PHYSICS LAB II</td>
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<th>Code</th>
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<th>Credit Hours</th>
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<tr>
<td></td>
<td><strong>Additional Credit Hours to Complete Degree Requirements</strong></td>
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<td>University Graduation Requirements (p. 29)</td>
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<td><strong>Total Credit Hours</strong></td>
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</table>

### Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.*

1. CHEM 111 may be substituted for CHEM 121; CHEM 113 may be substituted for CHEM 123; CHEM 112 may be substituted for CHEM 122; CHEM 114 may be substituted for CHEM 124.

2. A limit of 2 credit hours from CHEM 491 or PHYS 461 or PHYS 462 may count toward the Advanced Laboratories requirement.
Policies for the BS Degree with a Major in Chemical Physics

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the major in Chemical Physics should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis. Please see https://chemistry.rice.edu/transfer-credit (https://chemistry.rice.edu/transfer-credit/) for more information.

Additional Information
For additional information, please see the following department websites:

• Chemistry: https://chemistry.rice.edu/
• Physics and Astronomy: https://physics.rice.edu/

Opportunities for the BS Degree with a Major in Chemical Physics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the following department websites:

• Chemistry: https://chemistry.rice.edu/
• Physics and Astronomy: https://physics.rice.edu/

Chemistry

Contact Information
Chemistry
https://chemistry.rice.edu/
111 Space Science Building
713-348-4082

Anatoly B. Kolomeisky
Department Chair
tolya@rice.edu

Jeffrey D. Hartgerink
Chair for Undergraduate Studies
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kurti.laszlo@rice.edu

Eugene Zubarev
Associate Chair for Graduate Studies
zubarev@rice.edu

The Department of Chemistry offers undergraduate chemistry majors leading to both the bachelor of science (BS) degree and the bachelor of arts (BA) degree. The BS program rigorously prepares students for advanced work in chemistry or a related discipline, and the degree requirements are consistent with the guidelines for certification by the American Chemical Society. This curriculum provides a broad and comprehensive introduction to core areas of chemistry while promoting depth of understanding in one or more specific fields. BS students complete a series of foundation courses in general chemistry, analytical chemistry, biological chemistry, inorganic chemistry, organic chemistry, and physical chemistry. Students then complete one or more areas of specialization, consisting of in-depth courses both in and out of the specialization. The BA degree is a more flexible program that provides a comprehensive overview of all areas of chemistry, including laboratory experiences, but can be coupled more easily with other majors or professional career paths. Both degree programs offer students a solid background in the fundamental principles of chemistry, the properties and reactions of chemical compounds, and their uses.

Graduate studies emphasize individual research together with a fundamental understanding of chemistry beyond the students’ specific interests. Faculty research interests include the synthesis and biosynthesis of organic natural products; supramolecular chemistry; molecular recognition and biological catalysis; bioinorganic and organometallic chemistry; main group element and transition metal chemistry; the design of nanophase solids; molecular photochemistry and photophysics; infrared kinetic spectroscopy, laser, and NMR spectroscopy; studies of electron transfer in crossed beams; theoretical and computational chemistry; the study of fullerene molecules, carbon nanotubes, and their derivatives; polymer synthesis and characterization; molecular electronics; molecular machines; and chemical-based nanotechnology.

Bachelor's Programs
• Bachelor of Arts (BA) Degree with a Major in Chemistry (p. 598)
• Bachelor of Science (BS) Degree with a Major in Chemistry (p. 600)

Coordinated Program
• Bachelor of Science (BS) Degree with a Major in Chemical Physics (p. 580)*

* This degree is jointly managed by the Department of Chemistry and the Department of Physics and Astronomy.
For more information, see Chemical Physics, (p. 580)

Master's Program
• Master of Arts (MA) Degree in the field of Chemistry*

Doctoral Program
• Doctor of Philosophy (PhD) Degree in the field of Chemistry (p. 603)
Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair
Anatoly B. Kolomeisky

Professors
Pulickel M. Ajayan
Pedro J.J. Alvarez
Zachary T. Ball
Gang Bao
Enrique V. Barrera
Cecilia Clementi
Paul S. Engel
Jason H. Hafner
Naomi J. Halas
Jeffrey D. Hartgerink
John S. Hutchinson
Oleg A. Igoshin
Anatoly B. Kolomeisky
László Kürti
Christy F. Landes
Stephan Link
Jun Lou
Frederick C. MacKintosh
Angel A. Martí-Arbona
Caroline A. Masiello
Seiichi F. T. Matsuda
Antonios G. Mikos
Emilia Morosan
K.C. Nicolaou
Jose Nelson Onuchic
Matteo Pasquali
George Phillips
Peter Rossky
Gustavo E. Scuseria
James M. Tour
R. Bruce Weisman
Kenton H. Whitmire
Peter G. Wolynes
Michael S. Wong
Boris I. Yakobson

Associate Professors
Michael Diehl
Eugene Zubarev

Assistant Professors
Xue Gao
Anna-Karin Gustavsson
Matthew Jones
Haotian Wang
Julian West
Han Xiao

Research Professor
Bruce R. Johnson

Assistant Research Professor
Carolyn A. Nichol

Associate Teaching Professor
Kristi Kincaid

Assistant Teaching Professor
Krista Kobylanski

Lecturers
Lawrence B. Alemany
Michelle Gilbertson
Caroline V. McNeil
Lesa Tran Lu

Instructor
Kasey Leigh Yearty

Adjunct Faculty
Andrew R. Barron
Marco A. Ciufolini
Tohru Fukuyama
Scott Gilbertson
Ganesh Kailasam
Thomas Kent
Luz Maria Martinez Calderon
Henk Mooiweer
Frank Noe
Mark "Marty" Pagel
Keith Pannell
B. Montgomery Pettitt
Emilie Ringe
Corina Rogge
Yongcheng Song
Ben van den Brule
Marcelo Videa Vargas
Damian Young

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
**Chemistry (CHEM)**

**CHEM 101 - INTRODUCTION TO SCIENTIFIC RESEARCH**

**Short Title:** INTRO SCIENTIFIC RESEARCH  
**Department:** Chemistry  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 5  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course is for rising junior and senior high school students. As visiting students, the students will conduct scientific research in the laboratories of Rice faculty in the areas of Nanotechnology, Chemistry, Materials, and Engineering. Two applications need to be submitted for enrollment into this course. First, the Research Experience in Chemistry application (download the Chemistry application here: https://chemistry.rice.edu/community/chem-101-intro-scientific-research) should be emailed, along with all the required documents as indicated in the application, to CHEM101@rice.edu. Upon confirmation of acceptance from the Chemistry department, students must then complete the visiting student application process for high school students. Instructions to do this can be found in the Application Checklist at summer.rice.edu. Instructor Permission Required. Repeatable for Credit.

**CHEM 110 - FRESHMAN CHEMISTRY SEMINAR**

**Short Title:** FRESHMAN CHEMISTRY SEMINAR  
**Department:** Chemistry  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This half-semester course introduces freshmen to chemical research at Rice and in Houston. All first-year non-transfer students are eligible to enroll in CHEM 110 regardless of AP credit.

**CHEM 111 - AP/OTH CREDIT IN GENERAL CHEMISTRY I**

**Short Title:** AP/OTH CREDIT IN GEN CHEM I  
**Department:** Chemistry  
**Grade Mode:** Transfer Courses  
**Course Type:** Transfer  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 121, but does not count for distribution.

**CHEM 112 - AP/OTH CREDIT IN GENERAL CHEMISTRY II**

**Short Title:** AP/OTH CREDIT IN GEN CHEM II  
**Department:** Chemistry  
**Grade Mode:** Transfer Courses  
**Course Type:** Transfer  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 122, but does not count for distribution.

**CHEM 113 - AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I**

**Short Title:** AP/OTH CREDIT-GEN CHEM LAB I  
**Department:** Chemistry  
**Grade Mode:** Transfer Courses  
**Course Type:** Transfer  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 123, but does not count for distribution.

**CHEM 114 - AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II**

**Short Title:** AP/OTH CREDIT-GEN CHEM LAB II  
**Department:** Chemistry  
**Grade Mode:** Transfer Courses  
**Course Type:** Transfer  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 124, but does not count for distribution.
CHEM 121 - GENERAL CHEMISTRY I
Short Title: GENERAL CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction of chemical phenomena emphasizing problems and methods in Chemistry. Either CHEM 121 or CHEM 151 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. Students must also register for CHEM 123 General Chemistry Laboratory I. The course and the co-requisite lab are graded jointly.

CHEM 122 - GENERAL CHEMISTRY II
Short Title: GENERAL CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 111 or CHEM 121 or CHEM 151
Description: A continuation of CHEM 121. Either CHEM 122 or CHEM 152 may be taken as prerequisites for higher study in chemistry, but only one may be taken for credit. Students must also register for CHEM 124 General Chemistry Laboratory II. The course and the co-requisite lab are graded jointly.

CHEM 123 - GENERAL CHEMISTRY LABORATORY I
Short Title: GENERAL CHEMISTRY LAB I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Required laboratory component of CHEM 121. Students must also register for CHEM 121. Credit may only be received for either CHEM 123 or CHEM 153 but not both. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 123 no longer eligible beginning Fall 2019.

CHEM 124 - GENERAL CHEMISTRY LABORATORY II
Short Title: GENERAL CHEMISTRY LAB II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 113 or CHEM 123 or CHEM 153
Description: Required laboratory component of CHEM 122. Students must also register for CHEM 122. Credit may not be received for both CHEM 124 and CHEM 154. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 124 no longer eligible beginning Fall 2019.

CHEM 151 - HONORS CHEMISTRY I
Short Title: HONORS CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 153
Description: An accelerated introduction to chemical phenomena emphasizing principles and theories in chemistry. Recommended strongly for students who plan to major in chemistry or have a strong high school background. Students with AP credit in Chemistry who intend to pursue advanced study in Chemistry are strongly encouraged to take CHEM 151 and CHEM 152. Students must also register for CHEM 153, which is laboratory that meets once per week. Either CHEM 121 or CHEM 151 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. The course and the co-requisite lab are graded jointly. Recommended prerequisite(s): high school chemistry and physics.

CHEM 152 - HONORS CHEMISTRY II
Short Title: HONORS CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 154
Description: A continuation of CHEM 151. Students with AP credit in Chemistry who intend to pursue advanced study in Chemistry are strongly encouraged to take CHEM 151 and CHEM 152. Students must also register for CHEM 154 which is a laboratory that meets once per week. Either CHEM 122 or CHEM 152 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. The course and the co-requisite are graded jointly.
CHEM 153 - HONORS CHEMISTRY LABORATORY I
Short Title: HONORS CHEMISTRY LABORATORY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 151
Description: Required laboratory component of CHEM 151. Students must also register for CHEM 151. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 153 no longer eligible beginning Fall 2019.

CHEM 154 - HONORS CHEMISTRY LABORATORY II
Short Title: HONORS CHEMISTRY LABORATORY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 153 or CHEM 123 or CHEM 113
Corequisite: CHEM 152
Description: Required laboratory component of CHEM 152. Students must also register for CHEM 152. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 154 no longer eligible beginning Fall 2019.

CHEM 175 - WILD TOPICS IN CHEMISTRY AND NANOTECHNOLOGY
Short Title: WILD TOPICS CHEM AND NANOTECH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The chemistry of the materials and methods used to create, conserve and authenticate art objects will be presented. Topics may include nanocars, molecular electronics, how to form a start-up company. Grades will be based upon attendance and quizzes. Cross-list: CEVE 210, MSNE 210. Repeatable for Credit.

CHEM 201 - ADVANCED TOPICS IN GENERAL CHEMISTRY
Short Title: ADV TOPICS IN GEN CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (CHEM 111 and CHEM 112) and (MATH 101 (may be taken concurrently) or MATH 102 (may be taken concurrently) or MATH 105 or MATH 106 or MATH 111 or MATH 112)
Description: CHEM 201 is a one-semester lecture course intended for 1st-year undergraduate prospective Chemistry majors who have received credit for AP Chemistry (or equivalent). It is strongly encouraged for those who will take upper-level chemistry courses as a means to refresh and deepen their understanding of challenging core topics. Focus areas include: quantum descriptions of atoms and molecules, chemical thermodynamics, equilibria, and reaction kinetics. Completion of AP Calculus or concurrent enrollment in Math 101 or 102 is expected.

CHEM 205 - ADVANCED TOPICS IN GENERAL CHEMISTRY LAB
Short Title: ADV TOPICS IN GEN CHEM LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 201
Description: Required laboratory component for CHEM 201. Students must also register for CHEM 201.

CHEM 210 - WILD TOPICS IN CHEMISTRY AND NANOTECHNOLOGY
Short Title: WILD TOPICS CHEM AND NANOTECH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A variety of topics related to chemistry and nanotechnology will be discussed. Some topics are classical while others are current. Topics may include nanocars, molecular electronics, how to form a start-up company. Grades will be based upon attendance and quizzes. Cross-list: CEVE 210, MSNE 210. Repeatable for Credit.
CHEM 211 - ORGANIC CHEMISTRY I
Short Title: ORGANIC CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 112 or CHEM 122 or CHEM 152
Corequisite: CHEM 213
Description: Organic chemistry of aliphatic and aromatic compounds with emphasis on structure, functional groups, bonding, stereochemistry, and reaction mechanisms. CHEM 211 may be taken as a prerequisite for higher study in chemistry. CHEM 211 and CHEM 213 are co-requisites and must be taken together in the same semester.

CHEM 212 - ORGANIC CHEMISTRY II
Short Title: ORGANIC CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 211 or CHEM 319
Corequisite: CHEM 214
Description: Continuation of CHEM 211 with an emphasis on aromatic compounds, reactivity and biologically relevant molecules. Either CHEM 212 or CHEM 320 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. CHEM 212 and CHEM 214 are co-requisites and must be taken together the same semester. Mutually Exclusive: Cannot register for CHEM 212 if student has credit for CHEM 320.

CHEM 213 - ORGANIC CHEMISTRY DISCUSSION
Short Title: ORGANIC CHEMISTRY DISCUSSION
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 211
Description: CHEM 211 and CHEM 213 are co-requisites and must be taken together in the same semester.

CHEM 214 - ORGANIC CHEM DISCUSSION II
Short Title: ORGANIC CHEM DISCUSSION II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 212
Description: CHEM 212 and CHEM 214 are co-requisites and must be taken together in the same semester. Repeatable for Credit.

CHEM 215 - ORGANIC CHEMISTRY LAB
Short Title: ORGANIC CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 211 or CHEM 319
Description: Synthesis, purification, and characterization of organic compounds. Experiments related to topics covered in CHEM 211, 212. Includes identification of unknown organic compounds. One lab per week.

CHEM 217 - ORGANIC LABORATORY FOR CHEMICAL ENGINEERS
Short Title: ORGANIC LAB CHEM ENGINEERS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 211
Description: Organic laboratory designed for chemical engineering majors. Emphasis placed on the synthesis and the characterization of organic compounds. This laboratory does not satisfy requirements for science majors or premedical students. This course meets 7 times during the semester.

CHEM 220 - UNDERGRADUATE CHEMISTRY SEMINAR
Short Title: UNDERGRADUATE CHEMISTRY SEM
Department: Chemistry
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to modern chemical research through seminars and/or directed reading.

CHEM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
CHEM 280 - UNDERGRADUATE TEACHING PRACTICUM
Short Title: UG TEACHING PRACTICUM
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, undergraduates who have previously excelled in CHEM courses will develop teaching skills while supporting faculty as teaching assistants (TAs) in a particular CHEM course for the benefit of the students taking that particular course. This course is open only to undergraduates with special permission of the course instructor and can be repeated for credit. Instructor Permission Required. Repeatable for Credit.

CHEM 301 - PHYSICAL CHEMISTRY I
Short Title: PHYSICAL CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 212 or MATH 222)
Description: An introduction to fundamental principles in quantum chemistry, chemical bonding and molecular spectroscopy. Mutually Exclusive: Cannot register for CHEM 301 if student has credit for CHEM 312.

CHEM 302 - PHYSICAL CHEMISTRY II
Short Title: PHYSICAL CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and MATH 212
Description: An introduction to the principles of thermodynamics, statistical thermodynamics, kinetic theory of gases, chemical kinetics and the statistical mechanics. Mutually Exclusive: Cannot register for CHEM 302 if student has credit for CHEM 311.

CHEM 319 - ORGANIC CHEMISTRY I
Short Title: ORGANIC CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: CHEM 319 focuses on the understanding of organic reaction mechanisms as well as on the prediction of reactivity by carefully analyzing the participating molecular orbitals, stereochemistry and relevant molecular conformations of the substrates as well as the specific reaction conditions.

CHEM 320 - ORGANIC CHEMISTRY II
Short Title: ORGANIC CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Chemistry or Chemical Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 or CHEM 319 and (CHEM 215 (may be taken concurrently) or CHEM 365 (may be taken concurrently))
Description: A continuation of CHEM 211 that is in greater depth than CHEM 212. Primarily for chemistry majors and science or engineering students with a strong interest in chemistry research. Either CHEM 212 or CHEM 320 completes the two-semester organic chemistry sequence and may be taken as a prerequisite for higher study in chemistry. Majors other than CHEM should request instructor permission to enroll. Pre-requisite of CHEM 215/CHEM 365 may be taken concurrently with CHEM 320. Mutually Exclusive: Cannot register for CHEM 320 if student has credit for CHEM 212.

CHEM 330 - ANALYTICAL CHEMISTRY
Short Title: ANALYTICAL CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211
Description: A treatment of modern analytical chemistry with an emphasis on instrumentation. Applications of analytical chemistry as applied to areas of medicine, forensics, and material. Taught in the Fall.

CHEM 360 - INORGANIC CHEMISTRY
Short Title: INORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CHEM 362
Description: Survey of the periodic table; atomic and molecular structure; bonding in covalent, ionic, and electron deficient systems; thermochemical principles and experimental techniques for analysis, structure determination, and synthesis.

CHEM 362 - INORGANIC CHEMISTRY DISCUSSION
Short Title: INORGANIC CHEMISTRY DISCUSSION
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CHEM 360
Description: Repeatable for Credit.
CHEM 365 - ORGANIC CHEMISTRY LAB
Short Title: ORGANIC CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 or CHEM 319
Description: Provides a hands-on experience for undergraduate student interested in the synthesis and structural characterization of nanostructured materials. Synthetic methods will include wet chemistry techniques and lithographic preparation of nanostructures. The course will provide understanding of and exposure to modern analysis and characterization techniques, including spectroscopy, X-ray methods, and microscopy.
CHEM 366 - INORGANIC CHEMISTRY LAB
Short Title: INORGANIC CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Offers an opportunity to develop practical skills in the preparation and characterization of synthetic compounds. The course will provide an understanding of the properties of various inorganic compounds and the synthesis of many inorganic materials. The emphasis is on the fundamental properties of these materials, such as their structures and reactivity. The methods of analysis are based on standard techniques such as mass, infrared, nuclear magnetic resonance, and other techniques. This is an advanced laboratory course.
CHEM 367 - MATERIALS CHEMISTRY LAB
Short Title: MATERIALS CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides a hands-on experience for undergraduate student interested in the synthesis and structural characterization of nanostructured materials. Synthetic methods will include wet chemistry techniques and lithographic preparation of nanostructures. The course will provide understanding of and exposure to modern analysis and characterization techniques, including spectroscopy, X-ray methods, and microscopy.
CHEM 368 - CHEMICAL MEASUREMENT LAB
Short Title: CHEMICAL MEASUREMENT LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Experimental Physical Chemistry. NOTE: only one of CHEM 381 and CHEM 368 may be taken for credit. Mutually Exclusive: Cannot register for CHEM 381 if student has credit for CHEM 381.
CHEM 376 - ADVANCED INORGANIC SYNTHESIS
Short Title: ADVANCED INORGANIC SYNTHESIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced techniques in inorganic and organometallic synthesis will be covered including air sensitive manipulations using Schlenk line, vacuum lines and dry box. Graduate students may register with an approved Special Registration form.
CHEM 391 - RESEARCH FOR UNDERGRADUATES
Short Title: RESEARCH FOR UNDERGRADUATES
Department: Chemistry
Grade Mode: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent chemical research at Rice or in other Texas Medical Center groups. Students spend at least 3 hours per week in the laboratory for each semester hour of credit, in addition to other requirements. If taken for 3 or more hours, counts toward the CHEM 391 requirement for the BS degree in chemistry. Instructor permission required. Students are expected to complete CHEM 391 before the end of their junior year; permission is not normally granted for students in their final year of undergraduate study. Prior to enrollment, students must secure a position in a laboratory. Application materials found on the department website must be submitted by August 1st for Fall term and December 1st for the Spring term. Instructor Permission Required.
CHEM 398 - ADVANCED MODULE: DEVELOPMENT OF EXPERIMENTS FOR UNDERGRADUATE CHEMISTRY LABS
Short Title: ADV MOD DEV EXP UG CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An advanced laboratory module open to exceptional majors to develop laboratory experiments under the supervision of a chemistry faculty member. Each student will design an experiment to be included in an undergraduate teaching lab. Required is a written document, which should include an experimental protocol, background information and possible pre- and post-lab questions. Instructor Permission Required.
CHEM 401 - ADVANCED ORGANIC CHEMISTRY
Short Title: ADVANCED ORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 212 or CHEM 320
Description: The principles of structure and bonding are used to explain and predict reactivity in organic chemistry. Extensive practice with reaction mechanism and curved-arrow formalism. Topics include conformational analysis, acidity/basicity, functional group preparation, stereoselective synthesis, and organo-element chemistry. Graduate/Undergraduate Equivalency: CHEM 501. Mutually Exclusive: Cannot register for CHEM 401 if student has credit for CHEM 501.

CHEM 415 - CHEMICAL KINETICS AND DYNAMICS
Short Title: CHEMICAL KINETICS & DYNAMICS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 212 and (PHYS 102 or PHYS 112)
Description: Description and analysis of the rates of unimolecular, bimolecular and composite chemical reactions in gas and solution phases. Both macroscopic kinetics and microscopic reaction dynamics are covered. Graduate/Undergraduate Equivalency: CHEM 515. Mutually Exclusive: Cannot register for CHEM 415 if student has credit for CHEM 515.

CHEM 420 - CLASSICAL AND STATISTICAL THERMODYNAMICS
Short Title: CLASSICAL & STAT THERMODYNAMIC
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 212 and (PHYS 102 or PHYS 112)
Description: A review of the principles of classical thermodynamics and an introduction to the theories and methods of statistical thermodynamics with applications to problems in chemistry. Graduate/Undergraduate Equivalency: CHEM 520. Mutually Exclusive: Cannot register for CHEM 420 if student has credit for CHEM 520.

CHEM 430 - QUANTUM CHEMISTRY
Short Title: QUANTUM CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 310 or CHEM 312 or CHEM 301) and MATH 212 and (PHYS 102 or PHYS 112)
Description: The purpose of this course is to provide the student with a working knowledge of the basic concepts and mathematical formalism of quantum mechanics. Topics include the mathematics of quantum mechanics, one-dimensional problems, central field problems, the harmonic oscillator, angular momentum, perturbation theory, spin, and introduction to methods of modern electronic structure theory, with applications in atomic and molecular structures, spectroscopy, and chemical bonding. Graduate/Undergraduate Equivalency: CHEM 530. Mutually Exclusive: Cannot register for CHEM 430 if student has credit for CHEM 530.

CHEM 475 - PHYSICAL METHODS IN INORGANIC CHEMISTRY
Short Title: PHYS METH INORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 360
Description: A survey course of research techniques used in modern inorganic chemistry. Topics covered will include X-ray diffraction, mass spectrometry, magnetism, and various spectroscopies (IR, Raman, UV-Vis, NMR, EPR, XPS, and Mossbauer). Graduate/Undergraduate Equivalency: CHEM 575. Mutually Exclusive: Cannot register for CHEM 475 if student has credit for CHEM 575.

CHEM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
CHEM 491 - RESEARCH FOR UNDERGRADUATES
Short Title: RESEARCH FOR UNDERGRADUATES
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 391
Description: Independent chemical research at Rice or in other Teams Medical Center groups. Ordinarily taken by students who have taken CHEM 391. Students spend at least 3 hours per week in the laboratory for each semester hour of credit, in addition to other requirements. Instructor permission required. Prior to enrollment, students must secure a position in a laboratory. Application materials, found on the department website, must be submitted by August 1st for Fall term, December 1st for Spring term, or April 1st for Summer term. Instructor Permission Required. Repeatable for Credit.

CHEM 492 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATES HONORS RESEARCH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 391
Description: The 1st half of the Honors Research Program. CHEM 492 and CHEM 493 function as a pair and must be taken in the same academic year. Requirements include at least 15 hours or laboratory research per week and a thesis (research report). Students who complete the Chemistry Honors Research Program are given primary consideration for "Distinction in Research and Creative Work," a university award for select undergraduates, chosen by the department and granted at commencement, which appears on the transcript and diploma. Ordinarily offered Fall term. Instructor Permission Required.

CHEM 493 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 492
Description: The 2nd half of the Honors Research Program. CHEM 492 and CHEM 493 function as a pair and must be taken in the same academic year. Requirements include at least 15 hours or laboratory research per week and a thesis (research report). Students who complete the Chemistry Honors Research Program are given primary consideration for "Distinction in Research and Creative Work," a university award for select undergraduates, chosen by the department and granted at commencement, which appears on the transcript and diploma. Ordinarily offered in Spring. Instructor Permission Required.

CHEM 495 - TRANSITION METAL CHEMISTRY
Short Title: TRANSITION METAL CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 360
Description: Structure, bonding and reactivity of coordination and organometallic compounds; ligand field theory; electronic spectroscopy; magnetism; reaction mechanisms; catalysis. Graduate/Undergraduate Equivalency: CHEM 595. Mutually Exclusive: Cannot register for CHEM 495 if student has credit for CHEM 595.

CHEM 501 - ADVANCED ORGANIC CHEMISTRY
Short Title: ADVANCED ORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The principles of structure and bonding are used to explain and predict reactivity in organic chemistry. Extensive practice with reaction mechanism and curved-arrow formalism. Topics include conformational analysis, acidity/basicity, functional group preparation, stereoselective synthesis, and organo-element chemistry. Graduate/Undergraduate Equivalency: CHEM 401. Mutually Exclusive: Cannot register for CHEM 501 if student has credit for CHEM 401.

CHEM 505 - PROPOSAL WRITING AND REVIEW IN CHEMISTRY
Short Title: PROPOSAL WRITING IN CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches how to prepare scientific proposals including developing an idea, writing, and peer review including creating a mock panel review.
CHEM 511 - SPECTRAL METHODS IN ORGANIC CHEMISTRY
Short Title: SPECTRAL METHODS ORGANIC CHEM
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 212 or CHEM 320
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. Elucidation of organic structures by physical techniques. Interpretation of infrared, ultraviolet, nuclear magnetic resonance, and mass spectral.

CHEM 515 - CHEMICAL KINETICS AND DYNAMICS
Short Title: CHEMICAL KINETICS & DYNAMICS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Description and analysis of the rates of unimolecular, bimolecular, and composite chemical reactions in gas and solution phases. Both macroscopic kinetics and microscopic reaction dynamics are covered. Graduate/Undergraduate Equivalency: CHEM 415. Mutually Exclusive: Cannot register for CHEM 515 if student has credit for CHEM 415.

CHEM 520 - CLASSICAL AND STATISTICAL THERMODYNAMICS
Short Title: CLASSICAL & STAT THERMODYNAMIC
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 310 or (CHEM 311 or CHEM 312) and MATH 212 and (PHYS 102 or PHYS 112)
Description: A review of the principles of classical thermodynamics and an introduction to the theories and methods of statistical thermodynamics with applications to problems in chemistry. Graduate/Undergraduate Equivalency: CHEM 420. Mutually Exclusive: Cannot register for CHEM 520 if student has credit for CHEM 420.

CHEM 523 - ADVANCED ANALYSIS METHODS FOR MOLECULAR DYNAMICS FROM STATISTICAL MECHANICS TO MACHINE LEARNING
Short Title: MOLECULAR DYNAMICS METHODS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. Modern methods to extract physical and chemical information from molecular dynamics simulation will be presented, including the determination of reaction coordinates, free energies calculations, and estimation of experimentally measurable observables. The theoretical background and different applications will be discussed. The students will apply the methods on practical examples.

CHEM 525 - FUNDAMENTAL PHOTOLUMINESCENCE SPECTROSCOPY
Short Title: FUND PHOTOLUM SPECT
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course aims to cover basic topics in photoluminescence spectroscopy such as instrumentation, different photoluminescent species, solvent relaxation, photoluminescence quenching, energy transfer and anisotropy. Novel applications of photoluminescence spectroscopy such as sensing, multiphoton excitation and the fluorescence of proteins will also be discussed. Undergraduates may register for this course by a Special Registration form.

CHEM 530 - QUANTUM CHEMISTRY
Short Title: QUANTUM CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to provide the student with a working knowledge of the basic concepts and mathematical formalism of quantum mechanics. Topics include the mathematics of quantum mechanics, one-dimensional problems, central field problems, the harmonic oscillator, angular momentum, perturbation theory, spin, and introduction to methods of modern electronic structure theory, with applications in atomic and molecular structures, spectroscopy, and chemical bonding. Graduate/Undergraduate Equivalency: CHEM 430. Mutually Exclusive: Cannot register for CHEM 530 if student has credit for CHEM 430.

CHEM 531 - ADVANCED QUANTUM CHEMISTRY
Short Title: ADV QUANTUM CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. A hands-on approach to the methods of computational quantum chemistry and their application.
CHEM 533 - NANOSCIENCE AND NANOTECHNOLOGY I
Short Title: NANOSCIENCE & NANOTECHNOLOGY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introduction to the basic principles of nanoscience and nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester. Expected to be taught Spring 2019. Cross-list: CEVE 533, MSNE 534.

CHEM 537 - BIOPHYSICAL CHEMISTRY
Short Title: BIOPHYSICAL CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover selected modern experimental and theoretical approaches to biophysical problems. Specifically, protein folding, single molecules and cytoskeleton dynamics will be discussed from theoretical and experimental points of view.

CHEM 541 - MOLECULES THAT CHANGED THE WORLD
Short Title: MOLECULES CHANGED THE WORLD
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 212 or CHEM 320
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will expand on our learned knowledge of some of the Nature’s most intriguing molecules and the ability of Man to discover, synthesize, modify and use them to our advantage in what areas were not formerly envisioned. Undergraduates may register for the course by filling out a special registration form. These forms can be brought to DBH 243 for processing.

CHEM 542 - MEDICINAL CHEMISTRY I
Short Title: MEDICINAL CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 212 or CHEM 320) and BIOC 301
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introductory course intended to provide the student with an overview of the elements of drug discover, design and development. Targets for drug discovery will be discussed, as well as considerations of drug optimization with respect to the biological target and drug metabolism. A summary of the FDA and patent processes will also be included. Undergraduates may register for the course by filling out a special registration form. These forms can be brought to DBH 243 for processing.

CHEM 545 - PHYSICAL ORGANIC CHEMISTRY
Short Title: PHYSICAL ORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of organic reaction mechanisms. Includes Huckel M.O. theory, kinetics, isotope effects, linear free energy relationships, thermochemical group additivity, substituent and solvent effects, acidity, and free radical chemistry. Recommended Prerequisite(s): CHEM 311. Repeatable for Credit.

CHEM 547 - SUPRAMOLECULAR CHEMISTRY
Short Title: SUPRAMOLECULAR CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 212 or CHEM 320
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An examination of noncovalent interactions and their impact in biology, chemistry, and engineering. Topics will include self-assembly, molecular recognition, protein folding and structure, nucleic acid structure, polymer organization, crystallization and applications of the above for the design and synthesis of nanostructured materials.
CHEM 548 - PEPTIDE CHEMISTRY DESIGN, SYNTHESIS AND STRUCTURE

Short Title: PEPTIDE CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollments may register for this course by Special Registration form. The course examines solid phase peptide synthesis and strategies to prepare both simple and complex peptide primary architectures. This is followed by looking at analytical methods to assess peptide purity and structure. The course will then consider the design and characterization of peptide sequences that will result in specific 3D structures.

CHEM 551 - BIOMOLECULAR CONCEPTS

Short Title: BIOMOLECULAR CONCEPTS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will explore quantitative concepts and tools from chemistry and physics relevant to molecular biology. An executive survey of molecular biology and the basic experimental approaches to biomolecular structure will be followed by a discussion of the structural basics of proteins and nucleic acids. The motion and energy landscapes of proteins will be discussed. Protein folding and evolution and the dynamic basis of gene regulation will be explored. Mutually Exclusive: Cannot register for CHEM 551 if student has credit for CHEM 451.

CHEM 552 - CHEMICAL BIOLOGY

Short Title: CHEMICAL BIOLOGY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines biological problems from a chemical perspective. Starting with the structural and functional properties of amino acids, nucleotides, and sugars, we discuss how these molecules organize into higher-order structures (e.g., proteins and nucleic acids). Topics include macromolecular structure-function relationships, developing hybrid chemical/biological drugs, and modern target discovery approaches.

CHEM 553 - STRATEGIC APPLICATIONS OF NAMED REACTIONS IN ORGANIC SYNTHESIS

Short Title: NAMED REACTIONS IN SYNTHESIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course we will cover the mechanism and strategic applications of approximately 150 widely used named reactions in organic synthesis. The students will learn how to navigate the vast chemical literature effectively using sophisticated search engines like SciFinder and Reaxys and will get the opportunity to prepare and give 10-minute presentations on 5 recent named rxns. Recommended Prerequisite(s): CHEM 211 and CHEM 212. Repeatable for Credit.

CHEM 554 - DRUG DISCOVERY AT THE INTERFACE OF CHEMISTRY AND BIOLOGY

Short Title: DRUG DISCOVERY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Drug discovery requires a close integration of chemistry and biology. This course explores the design and development of new medicine from a chemical biological perspective. Topics includes fundamental methods for biomolecule synthesis and engineering and application to hybrid chemical/biologic drugs, as well as modern approaches for target discovery and validation.

CHEM 555 - NANOCARBONS

Short Title: NANOCARBONS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will survey the chemistry, physics, and selected applications of carbon nanostructures. Fullerenes, carbon nanotubes, and graphene will be the main focus. Students are expected to have a solid background in physical chemistry. Undergraduate students may register for this course by Special Registration form.

CHEM 556 - NANOCRYSTALS

Short Title: NANOCRYSTALS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a detailed investigation into the chemical and physical principles of inorganic nanocrystals. Topics will include nucleation and growth, crystal faceting, surface ligand chemistry, size-dependent properties and scaling relationships, interparticle forces, and nanoparticle self-assembly. Proficiency in physical chemistry and inorganic materials is strongly encouraged.
CHEM 559 - SPECTROSCOPY AT THE SINGLE MOLECULE/PARTICLE LIMIT
Short Title: SPEC SINGLE MOLECULE/PARTICLE
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will cover principles of electronic spectroscopy of molecules and nanoparticles with emphasis on single molecule/particle spectroscopy methods and analysis techniques.

CHEM 560 - ADVANCED OPTICAL MICROSCOPY
Short Title: ADV OPTICAL MICROSCOPY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course covers a broad array of optical techniques for single-molecule detection, spectroscopy, and imaging for detection of (A) motional dynamics, (B) super-resolution structures beyond the diffraction limit, and (C) nanoscale interactions and orientations in biological samples. This course integrates rigorous quantitative analysis approaches and theoretical considerations across the disciplines of chemistry, biology, and physics.

CHEM 570 - NANOTECHNOLOGY FOR TEACHERS, TEACHING CHEMICAL CONCEPTS VIA INQUIRY I
Short Title: TEACHING CHEMICAL CONCEPTS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Using the Concept Development Approach, this course will teach teachers how to engage students in inquiry science and provide teachers with in depth conceptual knowledge about chemical fundamentals. The course will include hands-on activities and discussions about chemical concepts that include kinetic molecular theory, acid base equilibrium, and phase equilibrium. Nanotechnology research with biological applications will be highlighted throughout the course. Instructor Permission Required.

CHEM 571 - TEACHING CHEMICAL CONCEPTS VIA INQUIRY II, NANOTECHNOLOGY FOR TEACHERS
Short Title: CHEMICAL CONCEPTS - INQUIRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Using the Concept Development Approach, this course will teach teachers how to engage students in inquiry science and provide teachers with in depth conceptual knowledge about chemical fundamentals. The course will include hands-on activities and discussions about chemical concepts that include gas laws, kinetic molecular theory, acid base equilibrium, and phase equilibrium. Nanotechnology research with biological applications will be highlighted throughout the course. Instructor Permission Required. Recommended Prerequisite(s): CHEM 570.

CHEM 575 - PHYSICAL METHODS IN INORGANIC CHEMISTRY
Short Title: PHYS METH INORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey course of research techniques used in modern inorganic chemistry. Topics covered will include X-ray diffraction, matrix isolation, mass spectrometry, magnetism, electrochemistry, and various spectroscopies (IR, Raman, UV-Vis, NMR, EPR, XPS, EXAFS, and Mossbauer). Graduate/Undergraduate Equivalency: CHEM 475. Mutually Exclusive: Cannot register for CHEM 575 if student has credit for CHEM 475.

CHEM 580 - MICROSCOPY METHODS IN MATERIALS SCIENCE
Short Title: MICROSCOPY METHODS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers theory and applications of electron microscopy techniques with an emphasis on transmission and scanning transmission electron microscopy (TEM, STEM). Topics include modern instrumentation and hardware, electron diffraction, imaging modes, tomography, and spectroscopy (energy dispersive x-ray spectroscopy (EDS), electron-energy loss spectroscopy (EELS), cathodoluminescence (CL)). Previous experience with electron microscopes recommended. Can be taken alone or concurrently with lab course MSNE 582. Instructor Permission Required. Cross-list: MSNE 580.
CHEM 582 - ELECTRON MICROSCOPY CENTER LAB
Short Title: ELECTRON MICROSCOPY CENTER LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 580
Description: Hands-on laboratory using the instruments in the electron microscopy center. The students will gain the knowledge necessary to operate the instruments and analyze data independently. Must be taken concurrently with CHEM 580. Instructor Permission Required. Cross-list: MSNE 582.

CHEM 583 - ORGANOMETALLIC CHEMISTRY I
Short Title: ORGANOMETALLIC CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 580
Description: Organometallic Chemistry I. An introduction to organometallic chemistry, focusing on transition metal structure, bonding, and reactivity. This course is the first half of a two-course sequence, together with CHEM 584: Organometallic Chemistry II. Each course is a half-semester course. Expected to be taught 1st half of the term. Undergraduates with appropriate preparation may register by filling out a special registration form. Recommended Prerequisite(s): CHEM 320 or CHEM 212 or CHEM 360

CHEM 584 - ORGANOMETALLIC CHEMISTRY II
Short Title: ORGANOMETALLIC CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 583
Description: Organometallic Chemistry II. An introduction to organometallic chemistry, focusing on transition metal structure, bonding, and reactivity. This course is the first half of a two-course sequence, together with CHEM 583: Organometallic Chemistry I. Each course is a half-semester course. Expected to be taught 2nd half of the term. Undergraduates with appropriate preparation may register by filling out a special registration form.

CHEM 586 - CHEMICAL TOOLS FOR BIOLOGY
Short Title: CHEMICAL TOOLS FOR BIOLOGY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 584
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. Selected topics in modern chemical biology. The development and application of chemical methods to probe, perturb, and understand biological systems. Topics include protein and DNA chemistry, classical and modern approaches to inhibitor development, and chemical reaction design in living cells. Expected to be taught Fall 2018.

CHEM 590 - PROFESSIONAL MASTERS SEMINAR IN APPLIED CHEMISTRY
Short Title: PROF. MS. SEMINAR IN APPL. CHEM
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 586
Description: This course is designed for students in the Professional Masters’ Program in Applied Chemistry. The course will consist of two parts. In the first part, speakers from industrial, education and government entities will be invited to give talks on the topics of their activities. In the second part, students will be required to present on various topics related to Applied Chemistry.

CHEM 591 - RESEARCH LAB EXPERIENCE
Short Title: RESEARCH LAB EXPERIENCE
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 590
Description: This course is designed for students in the Professional Masters’ Program in Applied Chemistry. The student will be assigned to a project and mentor in a current research laboratory in the Chemistry Department.

CHEM 592 - STATISTICAL DATA ANALYSIS
Short Title: STATISTICAL DATA ANALYSIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 582
Description: This course provides an overview of the statistical tools and methods needed for the analysis of large scientific datasets including an overview of fundamental statistical concepts, statistical tests, and estimation methods. This course will also provide and introduction to MATLAB as an example of computational toll for the analysis and visualization of large datasets.
CHEM 595 - TRANSITION METAL CHEMISTRY
Short Title: TRANSITION METAL CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structure, bonding and reactivity of coordination and organometallic compounds; ligand field theory; electronic spectroscopy; magnetism; reaction mechanisms; catalysis. Graduate/Undergraduate Equivalency. CHEM 495. Mutually Exclusive: Cannot register for CHEM 595 if student has credit for CHEM 495. Repeatable for Credit.

CHEM 600 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1: PHYSICAL CHEMISTRY-NANO Section 2: ORGANIC AND BIOLOGICAL CHEMISTRY Section 3: NANOCHEMISTRY Section 4: CARBON NANO CHEMISTRY. This seminar series is open to all chemistry graduate students or graduate students whose home department is chemistry. Students from other departments may audit the course with instructor permission. Repeatable for Credit.

CHEM 630 - MOLECULAR SPECTROSCOPY AND GROUP THEORY
Short Title: MOLEC SPECTROSCPY &GROUP THRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The spectra of simple molecules, including microwave, infrared, visible, ultraviolet, and Raman spectra; introductory aspects of molecular symmetry and group theory; resonance spectroscopy; surface-enhanced spectroscopy.

CHEM 650 - CHEMICAL PHYSICS OF CONDENSED AND BIOLOGICAL MATTER
Short Title: CHEM PHYS CONDENSED&BIO MATTER
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The principles underlying the structure and dynamics of condensed phase and biological matter. Both experimental phenomenology and theoretical approaches will be used. Starting with a review of intermolecular forces, the course will describe the structure and thermodynamics of clusters, crystalline solids, metals, liquids, glasses and biomolecules. A unified picture of reactions and classical and quantum phase transitions in condensed matter will be presented. The energy landscape theory of the dynamics of glasses and protein folding will also be covered. Expected to be taught Fall 2018. Mutually Exclusive: Cannot register for CHEM 650 if student has credit for CHEM 450.

CHEM 656 - CLASSICS IN TOTAL SYNTHESIS
Short Title: CLASSICS IN SYNTHESIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 401 or CHEM 501
Description: Selected total synthesis will be discussed. Special emphasis will be placed on retro-synthetic analysis, synthetic strategies and technologies, asymmetric synthesis and catalysis.

CHEM 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHEM 700 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to graduate students in chemistry and only in exceptional circumstances to undergraduates. Repeatable for Credit.

CHEM 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Department and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: CHEM

Department Description and Code
- Chemistry: CHEM

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS
Undergraduate Major Description and Code
• Major in Chemistry: CHEM
• Major in Chemical Physics: CPHY

Graduate Degree Descriptions and Codes
• Master of Arts degree: MA
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Chemistry: CHEM

CIP Code and Description
• CHEM Major/Program: CIP Code/Title: 40.0501 - Chemistry, General
• CPHY Major/Program: CIP Code/Title: 40.0508 - Chemical Physics

Bachelor of Arts (BA) Degree with a Major in Chemistry

Program Learning Outcomes for the BA Degree with a Major in Chemistry
Upon completing the BA degree with a major in Chemistry, students will be able to:

1. Demonstrate understanding of and proficiency with:
   a. the structure, bonding, spectroscopy, and reactivity of organic compounds and functional groups;
   b. curved-arrow formalism to describe reaction mechanisms, and
   c. the synthesis of organic compounds.

2. Demonstrate understanding of and proficiency with:
   a. thermochemical principles, acid-base and redox reactions,
   b. structure of simple solids and construction of molecular orbital diagrams (group theory), and
   c. survey of main group chemistry.

3. Demonstrate understanding of:
   a. the principles of quantum mechanics and applications to atomic and molecular structure and spectroscopy,
   b. classical and basic statistical thermodynamics and applications to equilibrium physico-chemical systems, and
   c. kinetics of gas phase processes and chemical reactions.

Requirements for the BA Degree with a Major in Chemistry
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Chemistry must complete:

• A minimum of 21-23 courses, depending on course selection, (55 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 9 courses (24 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Degree Requirements

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<td>BIOS 301</td>
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<td>HONORS MECHANICS (WITH LAB)</td>
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<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
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Footnotes and Additional Information
1. CHEM 111 may be substituted for CHEM 121; CHEM 113 may be substituted for CHEM 123; CHEM 112 may be substituted for CHEM 122; CHEM 114 may be substituted for CHEM 124.
2. Chemistry students may enroll in BIOS 301 without the prerequisite BIOS 201 (previously BIOC 201). Requests to waive the prerequisite course are approved by the course instructor. Students should contact the course instructor for more information.
3. Though not required, MATH 211 is strongly recommended for students planning to specialize in Physical and Theoretical chemistry or planning to pursue graduate studies. Additionally, the Department of Mathematics may, after consultation with students concerning their previous math preparation, recommend that a student be placed into a higher level math course than that for which the student has received official credit. The Department of Chemistry will accept this substitution of the math classes upon a written confirmation of the substitution from the Department of Mathematics and upon the student’s successful completion of the higher level math course.
4. MATH 221 and MATH 222 may substitute for MATH 212.

For the purposes of this requirement, “advanced coursework” includes chemistry lecture courses at the 400-level or higher (courses in Rice’s course catalog that have a course type listed as "lecture"). CHEM 212 or CHEM 320 or BIOS 302 (previously BIOC 302) counts as “advanced coursework” for purposes of this requirement. Courses in other departments with substantial chemistry content may count toward this requirement with approval of the Director of the Undergraduate Program.

Policies for the BA Degree with a Major in Chemistry
Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Chemistry should be aware of the following program restriction:
- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Chemistry may not additionally pursue the BS Degree with a Major in Chemistry.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Chemistry should be aware of the following departmental transfer credit guidelines:
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis. Please see https://chemistry.rice.edu/tranfer-credit for more information.

Additional Information
For additional information, please see the Chemistry website: https://chemistry.rice.edu

Opportunities for the BA Degree with a Major in Chemistry
Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Chemistry website: https://chemistry.rice.edu
Bachelor of Science (BS) Degree with a Major in Chemistry

Program Learning Outcomes for the BS Degree with a Major in Chemistry

Upon completing the BS degree with a major in Chemistry, students will be able to:

1. Demonstrate understanding of and proficiency with:
   a. the structure, bonding, spectroscopy, and reactivity of organic compounds and functional groups;
   b. curved-arrow formalism to describe reaction mechanisms, and
   c. the synthesis of organic compounds.
2. Demonstrate understanding of and proficiency with:
   a. thermochemical principles, acid-base and redox reactions,
   b. structure of simple solids and construction of molecular orbital diagrams (group theory), and
   c. survey of main group chemistry.
3. Demonstrate understanding of:
   a. the principles of quantum mechanics and applications to atomic and molecular structure and spectroscopy,
   b. classical and basic statistical thermodynamics and applications to equilibrium physico-chemical systems, and
   c. kinetics of gas phase processes and chemical reactions.
4. Design, conduct, record, and analyze chemical experiments, while practicing responsible and ethical scientific conduct.

Requirements for the BS Degree with a Major in Chemistry

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Chemistry must complete:

- A minimum of 24-28 courses, depending on course selection, (69 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14-16 courses, depending on course selection, (39 credit hours) at the 300-level or above.
- The requirements for one area of specialization (see below for areas of specialization). The BS degree with a major in Chemistry offers four areas of specialization:
  - Biological and Medicinal Chemistry (p. 601), or
  - Inorganic Chemistry and Inorganic Materials (p. 601), or
  - Organic Chemistry (p. 602), or
  - Physical and Theoretical Chemistry (p. 602).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

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Degree Requirements

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Core Requirements

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Chemistry Foundation Courses

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<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY DISCUSSION</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 319</td>
<td>ORGANIC CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 301</td>
<td>PHYSICAL CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>PHYSICAL CHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 330</td>
<td>ANALYTICAL CHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 360</td>
<td>INORGANIC CHEMISTRY</td>
<td>3</td>
</tr>
</tbody>
</table>

Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td></td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
<td></td>
</tr>
<tr>
<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
<td>4</td>
</tr>
</tbody>
</table>

Physics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>MECHANICS (WITH LAB) and MECHANICS DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 102 &amp; PHYS 104</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>PHYS 126</td>
<td>GENERAL PHYSICS II (WITH LAB)</td>
<td></td>
</tr>
</tbody>
</table>

Advanced Laboratories

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 311</td>
<td>ADVANCED EXPERIMENTAL BIO SCIENCES</td>
<td></td>
</tr>
<tr>
<td>CHEM 365</td>
<td>ORGANIC CHEMISTRY LAB</td>
<td></td>
</tr>
</tbody>
</table>
### University Graduation Requirements

- **Additional Credit Hours to Complete Degree Requirements**: 20
- **Total Credit Hours**: 120

### Footnotes and Additional Information

1. CHEM 111 may be substituted for CHEM 121; CHEM 113 may be substituted for CHEM 123; CHEM 112 may be substituted for CHEM 122; CHEM 114 may be substituted for CHEM 124.

2. Chemistry students may enroll in BIOS 301 without the prerequisite BIOS 201 (previously BIOS 201). Requests to waive the prerequisite course are approved by the course instructor. Students should contact the course instructor for more information.

3. Though not required, MATH 211 is strongly recommended for students planning to specialize in Physical and Theoretical chemistry or planning to pursue graduate studies. Additionally, the Department of Mathematics may, after consultation with students concerning their previous math preparation, recommend that a student be placed into a higher level math course than that for which the student has received official credit. The Department of Chemistry will accept this substitution of the math classes upon a written confirmation of the substitution from the Department of Mathematics and upon the student's successful completion of the higher level math course.

4. MATH 221 and MATH 222 may substitute for MATH 212.

5. CHEM 391 must be taken as part of the Research requirement and for at least 3 credit hours. Enrollment in CHEM 391 requires permission of the course instructor. Students are expected to complete CHEM 391 before the end of their junior year; permission will not normally be granted for students in their final year of undergraduate study.

6. If CHEM 700 is selected as a Research course, it may only be taken for up to 2 credit hours.

## Areas of Specialization

To fulfill the remaining Chemistry major requirements, students must complete advanced work that satisfies the requirements of one area of specialization as listed below. A student may, working with their chemistry major advisor and with the approval of the Director of the Undergraduate Program, propose a course of study in another specialization. Such proposed areas of specialization must have course and laboratory experiences comparable to those of the areas of specialization listed below.

Additionally, a double specialization can be earned by completing the requirements for two specialties. For double specialization, only two advanced lecture courses may count towards both specializations. The remaining two advanced courses in each specialization must be unique (i.e., double specialization requires six advanced lecture courses, and triple specialization require eight). A NanoChemistry specialization can be added to any of the standard areas of specialization by adding two nanoscience courses.

### Area of Specialization: Biological and Medicinal Chemistry

Students must complete a minimum of 4 courses (12 credit hours) as listed below to satisfy the requirements for the area of specialization in Biological and Medicinal Chemistry.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212 &amp; CHEM 214</td>
<td>ORGANIC CHEMISTRY II and ORGANIC CHEM DISCUSSION II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 320</td>
<td>ORGANIC CHEMISTRY II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Coursework in Chemistry

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any lecture course between CHEM 400 and CHEM 489</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Any lecture course between CHEM 495 and CHEM 699</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 12

### Area of Specialization: Inorganic Chemistry and Inorganic Materials

Students must complete a minimum of 4 courses (12 credit hours) as listed below to satisfy the requirements for the area of specialization in Inorganic Chemistry and Inorganic Materials.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 475</td>
<td>PHYSICAL METHODS IN INORGANIC CHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 495</td>
<td>TRANSITION METAL CHEMISTRY</td>
<td>3</td>
</tr>
</tbody>
</table>

### Advanced Coursework in Chemistry

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any lecture course between CHEM 400 and CHEM 489</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Any lecture course between CHEM 495 and CHEM 699</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 12
Area of Specialization: Organic Chemistry
Students must complete a minimum of 4 courses (12 credit hours) as listed below to satisfy the requirements for the area of specialization in Organic Chemistry.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212</td>
<td>ORGANIC CHEMISTRY II &amp; CHEM 214 and ORGANIC CHEM DISCUSSION II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 320</td>
<td>ORGANIC CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>CHEM 401</td>
<td>ADVANCED ORGANIC CHEMISTRY</td>
<td>3</td>
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</tbody>
</table>

Advanced Coursework in Chemistry
Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>Any lecture course between CHEM 400 and CHEM 489</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any lecture course between CHEM 495 and CHEM 699</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 12

Area of Specialization: Physical and Theoretical Chemistry
Students must complete a minimum of 4 courses (12 credit hours) as listed below to satisfy the requirements for the area of specialization in Physical and Theoretical Chemistry.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 420</td>
<td>CLASSICAL AND STATISTICAL THERMODYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 430</td>
<td>QUANTUM CHEMISTRY</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 415</td>
<td>CHEMICAL KINETICS AND DYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 531</td>
<td>ADVANCED QUANTUM CHEMISTRY</td>
<td></td>
</tr>
<tr>
<td>CHEM 559</td>
<td>SPECTROSCOPY AT THE SINGLE MOLECULE/PARTICLE LIMIT</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 course (for at least 3 credit hours) from MATH or PHYS course offerings at the 400-level or above

Total Credit Hours 12

Footnotes and Additional Information

1. For purposes of this requirement, “advanced coursework” includes chemistry lecture courses at the 400-level or higher (courses in Rice’s course catalog that have a course type listed as “lecture”). CHEM 212 or CHEM 320 or BIOS 302 (previously BIOC 302) count as “advanced coursework” for purposes of this requirement. Courses in other departments at the 400-level or higher with substantial chemistry content may count toward this requirement with approval of the Director of the Undergraduate Program.

Policies for the BS Degree with a Major in Chemistry

Program Restrictions and Exclusions
Students pursuing the BS Degree with a Major in Chemistry should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Chemistry may not additionally pursue the BA Degree with a Major in Chemistry.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Chemistry should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis. Please see https://chemistry.rice.edu/transfer-credit (https://chemistry.rice.edu/transfer-credit/) for more information.

Additional Information
For additional information, please see the Chemistry website: https://chemistry.rice.edu

Opportunities for the BS Degree with a Major in Chemistry

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Honors Research Program in Chemistry
The Chemistry Honors Research Program is a suite of courses (CHEM 492/CHEM 493) offering the opportunity for a rigorous two-semester “capstone” individual research project in Chemistry. This immersive program is intended to give students a first-hand experience of a career in research. Students interested in graduate school are strongly encouraged to apply. Students having completed previous independent research (as CHEM 391 and/or CHEM 491) in an off-campus laboratory in the Texas Medical Center are eligible to apply to perform honors research in that laboratory. The honors research courses (CHEM 492 and CHEM 493) function as a pair and must all be taken in the same academic year. Registration for CHEM 492 requires a commitment to register for CHEM 493.

Students who complete the Chemistry Honors Research Program are given primary consideration for the Distinction in Research and Creative Work, a university honor for select undergraduates, carefully selected by the department and granted at commencement, which appears on the transcript and diploma.

Chemistry Honors Research Program Components

- CHEM 492: Fall semester, 5 credit hours. For approved students only, requires a formal application and recommendation of a faculty research advisor. Requirements include at least 15 hours of

2021-2022 General Announcements PDF Generated 09/22/21
laboratory research per week and regular written and/or oral progress reports.

• CHEM 493: Spring semester, 5 credit hours. Requirements include at least 15 hours of laboratory research per week and a formal thesis.

• Applications may be submitted to the course instructor, February 1–August 1. Students are encouraged to apply early.

Additional Information
For additional information, please see the Chemistry website: https://chemistry.rice.edu

Doctor of Philosophy (PhD) Degree in the field of Chemistry

Program Learning Outcomes for the MA and PhD Degrees in the field of Chemistry

Upon completing MA and PhD degrees in the field of Chemistry, students will be able to:

1. Design and conduct independent and novel experimental and/or theoretical/computational chemical-based research that contributes to the existing body of knowledge in the field.
2. Locate, retrieve, read, and interpret current chemical literature using modern literature search methods.
3. Demonstrate an awareness of the ethical, societal, and environmental impact of chemistry.
4. Effectively communicate to both the scientific community and the general public the results of their work both orally and in writing.

Requirements for the MA and PhD Degrees in the field of Chemistry

MA Degree Program

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for the MA degree, graduate students may earn the MA degree after obtaining approval of their candidacy for the PhD. The MA degree may also be earned by students who do not achieve PhD candidacy by:

• Completing the six one-semester courses required for PhD candidacy
• Producing a master’s thesis that presents the results of a program of research approved by the department
• Passing a final master’s thesis defense and submitting the thesis to the Office of Graduate and Postdoctoral Studies.

Requirements for the PhD Degree in the field of Chemistry

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students who have completed coursework equivalent to that required for a BA or BS in chemistry may apply for admission to the PhD degree program. For more information, see Admission to Graduate Study (p. 59). Students are not normally admitted to study for an MA degree.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the MA Degree in the field of Chemistry</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>
Responsible Conduct of Research
Each graduate student must successfully complete the ethics course UNIV 594.

Teaching
- Each graduate student must participate in teaching (CHEM 700) for the equivalent of three semesters. Assignments are determined by departmental needs.
- An average of a B- in all three courses is required. Assignments are determined by departmental needs.

Qualifying Examination
The qualifying exam has written and oral components, and the expectations for these are available in the department office. The examination committee will be composed of three faculty members, excluding the research advisor. The written document must be submitted to the committee at least one week before the date of the oral examination. The examination must be taken by the last day of class at the end of the student’s fourth semester in residency. Any follow-up work required by the committee must be completed by the assigned date, and the exam must be passed by the end of the sixth semester.

Advancement to Candidacy for the PhD
After completing the required coursework, teaching, and qualifying examination, a student must petition to be Advanced to Candidacy for the PhD degree. Upon Advancement to Candidacy, a student chooses a thesis committee of at least three faculty members with the guidance and approval of the research advisor and department chair. The thesis committee must be a minimum of three faculty members including the student’s PhD advisor, two faculty members from the qualifying exam committee, and one faculty member whose primary appointment is outside of the Chemistry department. (If one of the members of a student’s qualifying exam committee is outside the Chemistry department, they will qualify as an outside committee member).

Policies for the PhD Degree in the field of Chemistry
Department of Chemistry Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Chemistry publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2020_21/Chemistry_Graduate_Handbook.pdf

Appeals
Students may petition the Chemistry Graduate Studies Committee for variances on these academic regulations.

Satisfactory Performance
To remain in good academic standing, a student must maintain a GPA of 3.00 (B) or higher in all lecture courses, a GPA of 3.00 (B) or higher in all semesters of CHEM 700, and a grade of B or higher in every semester of CHEM 600 and CHEM 800. Failure to maintain satisfactory grades and sufficient progress in research will result in probation and possible dismissal. The student must be enrolled full-time in a departmentally approved research group beginning the second semester, and every semester thereafter. All graduate students are evaluated annually to ensure that they are making appropriate progress towards the degree. The student, advisor, or department may request a meeting between the student and a faculty committee at any time to evaluate progress or to determine a course of action. If progress is unsatisfactory, the committee may recommend a semester of probation, which could result in dismissal from the program if progress remains unsatisfactory in the probationary semester.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Chemistry should be aware of the following departmental transfer credit guidelines:
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Chemistry website: https://chemistry.rice.edu

Opportunities for the PhD Degree in the field of Chemistry
Contact Information
Cinema and Media Studies
103 Herring Hall
713-348-4276
Martin Blumenthal-Barby
Program Co-Director
martin.blumenthal-barby@rice.edu
Lida Oukaderova
Program Co-Director
lida.oukaderova@rice.edu

Cinema and Media Studies is an interdisciplinary program that focuses on the history, analysis, and theorization of film and other technologically driven visual media, including television, video art, the Internet, and expanded cinema.

Broader survey courses introduce students to the history of moving images and to the fundamentals of cinematic and media analysis, while advanced seminars focus on particular movements, concepts, and themes across specific periods and geographic areas.

The Cinema and Media Studies minor is housed in the Art History department.
Minor

- Minor in Cinema and Media Studies (p. 606)

Cinema and Media Studies does not currently offer an academic program at the graduate level.

Co-Directors and Advisors

Martin Blumenthal-Barby
Lida Oukaderova

Professors

Marcia Brennan
Luis Duno-Gottberg
Kirsten Ostherr
Judith Roof
Edward A. Snow

Associate Professors

Graham Bader
Martin Blumenthal-Barby
Gordon Hughes
Lida Oukaderova
Philip R. Wood

Professor in the Practice

Charles Dove

Steering Committee

Martin Blumenthal-Barby
Charles Dove
Luis Duno-Gottberg
Gordon Hughes
Kirsten Ostherr
Lida Oukaderova

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Cinema and Media Studies (CMST)

CMST 201 - HISTORY OF CINEMA AND MEDIA I: INVENTION TO 1945
Short Title: HISTORY OF CINEMA AND MEDIA I
Department: Cinema and Media Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will introduce students to the history of cinema from its inception to 1945 by considering individual cinematic artifacts in their technological, economic, aesthetic, political, and social contexts. Cross-list: GERM 280.

CMST 202 - HISTORY OF CINEMA AND MEDIA PART II: 1945-PRESENT
Short Title: HISTORY OF CINEMA AND MEDIA II
Department: Cinema and Media Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to major movements, practices and theories of film and media from 1945 to present.

CMST 203 - INTRODUCTION TO FILM AND MEDIA ANALYSIS
Short Title: INTRODUCTION TO FILM ANALYSIS
Department: Cinema and Media Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to major movements, practices and theories of film and media from 1945 to present.

CMST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cinema and Media Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CMST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cinema and Media Studies
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject codes: CMST
Program Description and Code
• Cinema and Media Studies: CMST

Undergraduate Minor Description and Code
• Minor in Cinema and Media Studies: CMST

CIP Code and Description
• CMST Minor: CIP Code/Title: 50.0601 - Film/Cinema/Video Studies

Minor in Cinema and Media Studies

Program Learning Outcomes for the Minor in Cinema and Media Studies
Upon completing the minor in Cinema and Media Studies, students will be able to:

1. Develop an understanding of film and media history in the context of cultural, economic, political, and national developments.
2. Utilize specialized disciplinary vocabulary and methodologies effectively, and communicate the function and meaning of film and media works both verbally and in writing.
3. Develop an understanding of modes of theoretical inquiry relevant to film and media studies.
4. Understand major film movements, trends, and genres across regional, national, and global contexts.
5. Develop analytical thinking skills to generate and answer original research questions and produce independent research.

Requirements for the Minor in Cinema and Media Studies
Students pursuing the minor in Cinema and Media Studies must complete:

• A minimum of 6 courses (18-22 credit hours, depending on course selection) to satisfy minor requirements.
• A minimum of 2 courses (6 credit hours) taken at the 300-level or above.
• A maximum of 3 courses (9 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 607) tab.

Students who pursue the minor in Cinema and Media Studies are encouraged to meet with a program co-director before the end of the winter semester of their third year to declare their intention to complete the minor.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Cinema and Media Studies</td>
<td>18-22</td>
</tr>
</tbody>
</table>

**Minor Requirements**

**Core Requirements**
Select 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMST 201 / GERM 280</td>
<td>HISTORY OF CINEMA AND MEDIA I: INVENTION TO 1945</td>
<td>9 or 10</td>
</tr>
<tr>
<td>CMST 202</td>
<td>HISTORY OF CINEMA AND MEDIA PART II: 1945-PRESENT</td>
<td></td>
</tr>
<tr>
<td>CMST 203</td>
<td>INTRODUCTION TO FILM AND MEDIA ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>FILM 280 / ARTS 280 / HART 280</td>
<td>HISTORY &amp; AESTHETICS OF FILM</td>
<td></td>
</tr>
</tbody>
</table>

**Elective Requirements**
Select 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 273 / SWGS 273</td>
<td>MEDICINE AND MEDIA</td>
<td>9-12</td>
</tr>
<tr>
<td>ENGL 286 / HART 286</td>
<td>CLASSICAL AND CONTEMPORARY FILM AND THEORY</td>
<td></td>
</tr>
<tr>
<td>ENGL 320</td>
<td>SHAKESPEARE ON FILM</td>
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<tr>
<td>ENGL 374</td>
<td>CINEMA STUDIES</td>
<td></td>
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<tr>
<td>ENGL 375</td>
<td>FILM AND LITERATURE</td>
<td></td>
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<tr>
<td>ENGL 398</td>
<td>SLAVERY IN 20TH CENTURY FILM AND FICTION</td>
<td></td>
</tr>
<tr>
<td>FILM 180 / HART 180</td>
<td>14 FILMS YOU SHOULD SEE BEFORE YOU GRADUATE FROM RICE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td>FILM 218 / ASIA 218 / HIST 218</td>
<td>HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA</td>
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</tr>
<tr>
<td>FILM 250 / HART 250</td>
<td>CONTEMPORARY EUROPEAN CINEMA</td>
<td></td>
</tr>
<tr>
<td>FILM 284 / HART 284</td>
<td>NONFICTION FILM</td>
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<tr>
<td>FILM 336 / ASIA 355 / HART 336</td>
<td>CINEMA AND THE CITY</td>
<td></td>
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<tr>
<td>FILM 359 / ARCH 359 / HART 359</td>
<td>CINEMAS OF URBAN ALIENATION</td>
<td></td>
</tr>
<tr>
<td>FILM 378 / ANTH 378 / HART 391</td>
<td>PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA</td>
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<tr>
<td>FILM 381 / ENGL 386</td>
<td>MEDICAL MEDIA ARTS LAB</td>
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<tr>
<td>FILM 382 / HART 382</td>
<td>MODALITIES OF CINEMA</td>
<td></td>
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<tr>
<td>FILM 383 / HART 383</td>
<td>GLOBAL CINEMA</td>
<td></td>
</tr>
</tbody>
</table>
maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the minor in Cinema and Media Studies should be aware of the following program-specific transfer credit guidelines:

- No more than 3 courses (9 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements by completing coursework designated as distribution-credit-eligible at the time of course registration.

**Additional Information**

For additional information, please see the Cinema and Media Studies website: https://arthistory.rice.edu/minors/cinema-and-media-studies-minor (https://arthistory.rice.edu/minors/cinema-and-media-studies-minor/)

**Opportunities for the Minor in Cinema and Media Studies**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**

For additional information, please see the Cinema and Media Studies website: https://arthistory.rice.edu/minors/cinema-and-media-studies-minor (https://arthistory.rice.edu/minors/cinema-and-media-studies-minor/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.
In support of Rice’s mission of providing a distinctive undergraduate experience, the Center for Civic Leadership (CCL) helps undergraduate students develop the knowledge, skills, and values to address the problems of the 21st century and to lead in a variety of community environments. The focus on civic leadership reflects not only Rice’s mission but a broader trend that recognizes the civic purpose of 21st century institutions of higher education to cultivate social responsibility and active citizenship. The CCL’s approach to leadership education stresses the development of knowledge to understand the complex challenges facing today’s society, skills to motivate and collaborate with diverse stakeholders to take informed action, and values to effect positive change.

Students begin the program by completing a CCL Immersion Program, which introduces them to social issues in community-based contexts (through lectures, community tours, and short-term service) and develops skills in reflective practice critical to leadership development.

Additionally, students complete a minimum of 3 credit hours of social issues electives and a minimum of 3 credit hours of leadership electives chosen from a list of courses covering relevant topics. Timely, personalized advising plays an important role in the selection of the electives in order to ensure that students follow an academically coherent path to the certificate. The purpose of this element of the certificate pathway is to provide foundational knowledge directly pertinent to a student’s capstone project.

Students will apply to participate in a CCL Action Program that allows them to work in collaboration with a community partner to address a social issue and identified need through research and service. To be selected to one of these programs, students must demonstrate relevant academic preparation.

Upon completion of the above listed requirements, students may apply in the spring of their sophomore or junior year for admittance to the Certificate in Civic Leadership.

To receive the certificate, students must complete a substantial civic leadership project in partnership with a community organization under the guidance of one faculty and a CCL advisor. In the fall semester, all admitted certificate students take UNIV 402, in which they prepare for their capstone projects by learning principles of community partnership development, researching a community need or issue in context, designing a sustainable response, developing a project proposal, and reflecting on leadership challenges and solutions. Students subsequently carry out their projects independently in the spring semester under the direction of their faculty advisor and the capstone instructor (UNIV 403). To register for UNIV 403, students must have successfully completed UNIV 402 and received approval for their CCL capstone project proposal from their advisor, their community partner, and the UNIV 402 course instructor. UNIV 403 students must present their project results to the community partner through a formal presentation and written report before the conclusion of the course. Additionally, students are encouraged to present at a formal venue, such as a conference or symposium, within one year of course completion.

Consideration for receipt of the certificate requires submission of a portfolio that includes the capstone project and description of its outcomes, responses to reflective questions regarding their civic leadership development, and a public presentation to the campus and community. Upon recommendation of the capstone instructor and faculty advisor, the certificate will be awarded by vote of the faculty and center directors and recognized on the student’s official transcript upon graduation.

Certificate

- Certificate in Civic Leadership (p. 610)

Civic Leadership does not currently offer an academic program at the graduate level.

Associate Dean of Undergraduates and Director of Undergraduate Research and Inquiry
Caroline Quenemoen

Directors
Danika Brown
Libby Vann

Associate Directors
Jessica Khalaf
Morgan Kinney

Assistant Directors
Chasmine Anderson
Shawn Reagan
Kelsey Ullom

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)
Center for Civic Leadership (LEAD)

LEAD 102 - INTRODUCTION TO CIVIC LEADERSHIP
Short Title: INTO CIVIC LEADERSHIP
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: LEAD 102 will increase students’ understanding of civic leadership in theory and practice. Simulations and case studies will examine how public leaders effect societal change while projects on campus and in the community will provide the opportunity to work in small groups to analyze and address leadership challenges and present findings to stakeholders.
Course URL: ccl.rice.edu (http://ccl.rice.edu)

LEAD 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LEAD 250 - LEADERSHIP AND CIVIC PROFESSIONALISM
Short Title: LEADERSHIP AND CIVIC PROF
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course develops knowledge and skills to exercise civic leadership in professional settings. Students will strengthen capacities for recognizing how values, skills, and interests relate to the capacity to exercise effective leadership; for establishing meaningful relationships with mentors, co-workers, and cohort peers and for understanding the interconnectedness of civic leadership in professional contexts. Required of and limited to Leadership Rice Mentorship Experience Fellows placed in mandatory associated internship. Instructor Permission Required.
Course URL: leadership.rice.edu (http://leadership.rice.edu)

LEAD 260 - ADVOCATING FOR IDEAS TO CHANGE THE WORLD
Short Title: ADVOCATING FOR CHANGE
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Advocating for change is an experiential learning course that teaches students how to engage in issue advocacy as a method of social change. Students work in teams with faculty mentors to develop and implement an advocacy plan for a particular cause or policy of interest. Cross-list: POLI 260.

LEAD 321 - LEADERSHIP COMMUNICATION
Short Title: LEADERSHIP COMMUNICATION
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Powerful communication skills are essential for effective leadership, and LEAD 321 equips students to articulate ideas with poise, confidence, and clarity. Students develop written, oral, interpersonal, and team skills while developing an understanding of leadership communication in different contexts, including specific fields of study. The Leadership Communication class gives students the opportunity to practice the types of communication that will be required of them in the workplace and that will be crucial for their success.

LEAD 330 - LEADERSHIP IN HIGHER EDUCATION
Short Title: LEADERSHIP IN HIGHER EDUCATION
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Higher education is a challenging environment for leaders - when transformative changes are desired, the process of leadership offers the only possibility for change that is viewed as legitimate. This course uses a case study approach to understand leadership through the lenses of strategic choice, governance, organizational change, culture and values, leader transitions, and crisis.
LEAD 333 - STEM (SCIENCE TECHNOLOGY ENGINEERING AND
MATHEMATICS) OUTREACH: INTRO TO CIVIC SCIENCE
Short Title: STEM OUTREACH
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students teach prepared 4th-grade science lessons in Houston area elementary schools. Students meet weekly with faculty to practice implementing the activities, discuss pedagogical techniques, and delve into issues relating to education and our community. The culminating project is writing a proposal to address a need in education, education policy, and/or community issues.

LEAD 335 - CRISIS LEADERSHIP
Short Title: CRISIS LEADERSHIP
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: It feels like we live in perpetual whitewater these days. We lurch from crisis to crisis, many of which might have been avoided. This course examines major public crises resulting from low-probability, high-consequence events. The core premise is that effective leadership improves the likelihood of avoiding or mitigating the consequences of crises, and allows us to take advantage of the opportunities that disasters create.

LEAD 340 - PHILANTHROPY IN THEORY AND PRACTICE
Short Title: PHILANTHROPY T & L
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the history, philosophy, and practice of philanthropy in addressing public need with an introduction to ethics and importance of financial giving and community investment. Students will spend substantial time working with local nonprofits in order to select a recipient for a grant awarded by the class.

LEAD 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CIP Code and Description

Certificate in Civic Leadership

Program Learning Outcomes for the Certificate in Civic Leadership

Upon completing the certificate in Civic Leadership, students will be able to:
1. Integrate academic and experiential knowledge in civic contexts.
2. Analyze issues through the framework of democratic values, processes, and policies.
3. Address real world issues through interaction and collaboration with diverse community partners.
4. Communicate with and present their work effectively to a range of audiences both within and beyond the academic community.
5. Employ reflection to express their individual values and goals and be able to act on them.
6. Demonstrate motivation to realizing equitable and inclusive communities.

Requirements for the Certificate in Civic Leadership

Students pursuing the certificate in Civic Leadership must complete:
A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.

A minimum of 2 Experiential Learning Programs:

- 1 LEARN Level Program
- 1 ACT Level Program

A Civic Leadership Portfolio.

A Capstone Requirement.

A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier.) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

#### Code

<table>
<thead>
<tr>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the Certificate in Civic Leadership</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Certificate Requirements

#### Core Requirements

- Select at least 1 course (minimum of 3 credit hours) from the Leadership Electives (see below for course list)

- Select at least 1 course (minimum of 3 credit hours) from the Social Issues Electives (see below for course list)

#### Required Experiential Learning Programs

- Select 1 LEARN Level Program from the following:
  - Urban Immersion Participant
  - Alternative Spring Break Participant
  - Houston Policy Challenge Participant

- Select 1 ACT Level Program from the following:
  - Urban Immersion Coordinator
  - Alternative Spring Break Site Leader
  - Houston Action Research Team (HART)
  - Houston Policy Challenge Coordinator
  - Leadership Rice Summer Mentorship Experience
  - Loewenstein Fellowship
  - Rich Family Endowment

#### Portfolio Requirement

Civic Leadership Portfolio

#### Capstone Requirement

UNIV 402 CIVIC LEADERSHIP CAPSTONE I 3

#### Footnotes and Additional Information

The submission of the Portfolio is required by the end of the semester in which the student is graduating. The Portfolio must include work samples completed for the certificate and a reflection essay that addresses how these experiences contributed to civic leadership development.

### Course Lists to Satisfy Requirements

#### Leadership Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BUSI 310</td>
<td>LEADING PEOPLE IN ORGANIZATIONS</td>
<td>3</td>
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<tr>
<td>ENGI 140</td>
<td>ENGINEERING LEADERSHIP DEVELOPMENT</td>
<td>2</td>
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<tr>
<td>ENGI 315</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 320 / CEVE 320</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td>3</td>
</tr>
<tr>
<td>LEAD 102</td>
<td>INTRODUCTION TO CIVIC LEADERSHIP</td>
<td>3</td>
</tr>
<tr>
<td>LEAD 260 / POLI 260</td>
<td>ADVOCATING FOR IDEAS TO CHANGE THE WORLD</td>
<td>3</td>
</tr>
<tr>
<td>LEAD 321</td>
<td>LEADERSHIP COMMUNICATION</td>
<td>3</td>
</tr>
<tr>
<td>LEAD 333</td>
<td>STEM (SCIENCE TECHNOLOGY ENGINEERING AND MATHEMATICS) OUTREACH: INTRO TO CIVIC SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>LEAD 340</td>
<td>PHILANTHROPY IN THEORY AND PRACTICE</td>
<td>3</td>
</tr>
<tr>
<td>NAVA 203</td>
<td>LEADERSHIP AND MANAGEMENT I</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 360</td>
<td>ETHICS</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Social Issues Electives

- Select at least 1 course (minimum of 3 credit hours) from the following:
  - ANTH 332 / ENST 332 | THE SOCIAL LIFE OF CLEAN ENERGY | 3          |
  - ANTH 344              | CITY/CULTURE                  | 3          |
  - ANTH 358              | THE FOURTH WORLD: ISSUES OF INDIGENOUS PEOPLE | 3      |
  - ARCH 313 / ENST 313   | CASE STUDIES IN SUSTAINABLE DESIGN | 3       |
  - ARCH 455              | HOUSING AND URBAN PROGRAMS: ISSUES IN POLICY | 3        |
  - ASIA 387 / ANTH 387   | ASIAN AMERICAN CONTEMPORARY COMMUNITIES | 3        |
  - BIOS 204              | ENVIRONMENTAL SUSTAINABILITY: THE DESIGN & PRACTICE OF COMMUNITY AGRICULTURE | 1    |
  - BUSI 464 / GLHT 464 / SOSC 464 | SOCIAL ENTREPRENEURSHIP | 3        |
Policies for the Certificate in Civic Leadership

Admissions

Upon completing an advising plan to complete the Required Electives and Experiential Learning Programs, students may apply in the spring of their sophomore or junior year for admittance to the certificate in Civic Leadership.

To apply, students must submit the following:

• An Official Transcript
• Curriculum Choice Statement
• 3 Supplemental Questions (complete instructions are available at https://ccl.rice.edu/certificate-requirements (https://ccl.rice.edu/certificate-requirements)).

Only students who demonstrate a coherent path of preparation will be admitted to the certificate program.

Program Restrictions and Exclusions

Students pursuing the Certificate in Civic Leadership should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their
academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the Certificate in Civic Leadership should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Center for Civic Leadership website: https://ccl.rice.edu/ (https://ccl.rice.edu).

Opportunities for the Certificate in Civic Leadership
Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Center for Civic Leadership website: https://ccl.rice.edu/ (https://ccl.rice.edu)

Civil and Environmental Engineering
Contact Information
Civil and Environmental Engineering
https://ceve.rice.edu/
116 Keck Hall, MS 519
713-348-4949

Philip B. Bedient
Department Chair
bedient@rice.edu

Civil and Environmental Engineering (CEE) is a broad and diverse field of study that offers students an education with several degree options. The most flexible degree options are at the bachelor's level, where students can pursue either the Bachelor of Science in Civil Engineering (BSCE) degree or the Bachelor of Arts (BA) degree. The more scientific BSCE includes four areas of specialization while the BA, with its two distinct major concentrations, affords students more flexibility, including the possibility to complete a double major with any other Rice University major.

At the graduate level, the department offers one non-thesis graduate degree, the Master of Civil and Environmental Engineering (MCEE), to students who desire additional education and specialization in the practice of civil engineering or environmental sciences and engineering. Students admitted for graduate study leading to a Master of Science (MS) or Doctor of Philosophy (PhD) degree must complete a rigorous course of study that combines advanced coursework with scholarly research culminating in the public defense of a written thesis. Graduate research is carried out in a range of areas reflecting the interests of the department's faculty. Examples include environmental engineering, geotechnical engineering, structural engineering and mechanics, infrastructure reliability, hydrology, water resources and water quality management, air pollution and its control, and hazardous waste treatment.

Bachelor's Programs
• Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering
  • and a Major Concentration in Civil Engineering (p. 632)
  • and a Major Concentration in Environmental Engineering (p. 636)
• Bachelor of Science in Civil Engineering (BSCE) Degree (p. 639)

Minor
• Minor in Energy and Water Sustainability (p. 922)

Master's Programs
• Master of Civil and Environmental Engineering (MCEE) Degree in the field of Civil Engineering (p. 647)
• Master of Civil and Environmental Engineering (MCEE) Degree in the field of Environmental Engineering, (p. 649)
• Master of Science (MS) Degree in the field of Civil Engineering (p. 652)
• Master of Science (MS) Degree in the field of Environmental Engineering (p. 653)

Doctoral Programs
• Doctor of Philosophy (PhD) Degree in the field of Civil Engineering (p. 644)
• Doctor of Philosophy (PhD) Degree in the field of Environmental Engineering (p. 645)

Chair
Philip B. Bedient

Professors
Pedro J. J. Alvarez
Philip B. Bedient
Reginald DesRoches
Leonardo A. Dueñas-Osorio
Qilin Li
Satish Nagarajaiah
Jamie Ellen Padgett
Pol D. Spanos
Mason B. Tomson

Associate Professor
Daniel Cohan

Assistant Professors
James Doss-Gollin
Bezawit Getachew
Lauren Stadler
Professors Emeriti
Ahmad J. Durrani
Ronald P. Nordgren
Anestis S. Veletsos
Calvin H. Ward

Professor in the Practice of Civil Engineering
Edmund P. Segner III

Professor in the Practice of Environmental Law
James B. Blackburn

Lecturers
David T. Adamson
Mandi Chapa
Kalil Erazo Cruz
Philip C. deBlanc
Travis McGuire
Charles M. Penland
Nestor Rubiano-Benavides
Christof Spieler
Bob Stevens

Joint Appointment
Michael S. Wong

Adjunct Professors
Jean-Yves Bottero
Wei Chen
Joseph Cibor
Nick Fang
Robert J. Griffin
Jorge Loyo
Charles J. Newell
Carroll L. Oubre
Jerome Rose
Baxter Vieux

Adjunct Lecturer
Richard Johnson

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Civil and Environmental Engineering (CEVE)

CEVE 100 - AP/OTH CREDIT IN ENVIRONMENTAL SCIENCE
Short Title: AP/OTH CR ENVIRONMENTAL SCIENCE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

CEVE 101 - FUNDAMENTALS OF CIVIL AND ENVIRONMENTAL ENGINEERING
Short Title: FUNDAMENTAL OF CIVIL & ENVIR E
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This introduction will cover the essential topics and quantitative techniques in civil and environmental engineering. General engineering, engineering math, fluid mechanics, hydrology, statistics, and mass balance techniques will be presented followed by applications.

CEVE 210 - WILD TOPICS IN CHEMISTRY AND NANOTECHNOLOGY
Short Title: WILD TOPICS CHEM AND NANOTECH
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A variety of topics related to chemistry and nanotechnology will be discussed. Some topics are classical while others are current. Topics may include nanocars, molecular electronics, how to form a start-up company. Grades will be based upon attendance and quizzes. Cross-list: CHEM 210, MSNE 210. Repeatable for Credit.

CEVE 211 - ENGINEERING MECHANICS
Short Title: ENGINEERING MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: The study equilibrium of static systems, the dynamics of a particle and particle systems, and rigid-body dynamics. Cross-list: MECH 211.
CEVE 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.  

CEVE 301 - ENGINEERING ECONOMICS AND PROJECT MANAGEMENT  
Short Title: ENG ECONOMICS & PROJECT MGMT  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): CEVE 211  
Description: Life cycle economics analysis to project development, project economic analysis, contracting, network scheduling, risk management, organizational structures and cases. Mutually Exclusive: Cannot register for CEVE 301 if student has credit for CEVE 201/CEVE 505.  

CEVE 302 - SUSTAINABLE DESIGN  
Short Title: SUSTAINABLE DESIGN  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The objective of this course is to develop skills in formulating and solving problems of societal development and advancement in light of increasing material, energy and water demands and decreasing resource availability. Sustainable design requires balancing economic, ecological/environmental and social issues to create physical as well as social structures that will work for current and future generations. In addition to learning to apply sustainable design principles to individual engineering and developing projects, students will be challenged to understand the application of sustainable design thinking a the municipal and corporate level. Cross-list: ENGI 302. Graduate/Undergraduate Equivalency: CEVE 502. Mutually Exclusive: Cannot register for CEVE 302 if student has credit for CEVE 502.  

CEVE 307 - ENERGY AND THE ENVIRONMENT  
Short Title: ENERGY AND THE ENVIRONMENT  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will discuss the history of air pollution and its effects as motivation for control of anthropogenic emissions to the atmosphere. Topics will include air pollution control strategies and regulations, predictive pollution concentration models, general ideas to reduce air pollution, and specific technologies to limit emissions of criteria pollutants and their precursors. Graduate/Undergraduate Equivalency: CEVE 508. Mutually Exclusive: Cannot register for CEVE 308 if student has credit for CEVE 508.  

CEVE 308 - INTRODUCTION TO AIR POLLUTION CONTROL  
Short Title: INTRO TO AIR POLLUTION CONTROL  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)  
Description: This course covers principles of water quality engineering, air pollution control and solid and hazardous waste management. Elements of risk assessment, global atmospheric change, and pollution prevention are also addressed to contribute to adequate-level competency in Environmental Engineering. Graduate students will write a term paper and prepare a lecture. Graduate/Undergraduate Equivalency: CEVE 510. Mutually Exclusive: Cannot register for CEVE 310 if student has credit for CEVE 510.
CEVE 311 - MECHANICS OF SOLIDS AND STRUCTURES
Short Title: MECHANICS OF SOLIDS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering, Civil & Environmental Engineer, Civil Engineering or Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 211 or MECH 211
Description: Analysis of stress and the deformation of solids with applications to beams, circular shafts, and columns. Required for following undergraduate majors: civil and environmental and mechanical engineering. Cross-list: MECH 311.

CEVE 312 - STRENGTH OF MATERIALS LAB
Short Title: STRENGTH OF MATERIALS LAB
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 (may be taken concurrently) or MECH 311 (may be taken concurrently)
Description: Instruction in standard tension, compression, and torsion tests of ferrous and nonferrous metals. Includes experimental techniques and the behavior of structural elements. Prerequisites may be taken concurrently.

CEVE 313 - UNCERTAINTY AND RISK IN URBAN INFRASTRUCTURES
Short Title: RISK-BASED DEC UNDER UNCERT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 312 or STAT 310 or STAT 315 or DSCI 301 or ECON 307 or ECON 382 or STAT 331 or ELEC 331
Description: This course explores methods for practical risk-based decision support, particularly for infrastructure systems. Uncertainty quantification (UQ) to external events including natural hazards is at the core of risk-informed design, operation, and mitigation actions. UQ also guides engineering practice and enables code developments. The course emphasizes decision theory, Bayesian approaches, risk analysis tools, and infrastructure safety. Cross-list: STAT 313. Repeatable for Credit.

CEVE 314 - SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
Short Title: SUST WTR PURIF FOR DEV WORLD
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an overview of sustainable strategies for safe water supply in off-the-grid, low-income regions. Topics covered include water quality and treatment, sustainability and WASH (water, sanitation and hygiene). A major element of the course is a project to solve a water-related issue in a real-world context. Cross-list: BIOE 365, GLHT 314. Repeatable for Credit.

CEVE 315 - URBAN WATER SYSTEMS: SOURCES, TREATMENT, DISTRIBUTION, RESOURCE RECOVERY AND REUSE
Short Title: URBAN WATER SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce urban water systems, including water sources, treatment processes, distribution and collection systems, and resource recovery and reuse. Students will learn the principles of physical, chemical, and biological processes, operations and reactor configurations commonly used for water quality control. In addition, students will learn analysis and design of specific water treatment and resource recovery processes and operations. Recommended Prerequisite(s): Recommend completion of CHEM 121, CHEM 122, MATH 211, and MATH 212.

CEVE 316 - URBAN WATER SYSTEMS LAB: WATER QUALITY PARAMETERS AND TREATMENT TECHNIQUES
Short Title: URBAN WATER SYSTEMS LAB
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CEVE 315
Description: This course will introduce measurement of physicochemical water quality parameters. The principles behind the measurements and the significance of measured values will be covered. Selected conventional and advanced water treatment techniques will be introduced with emphasis on experimental design, group problem solving, and report writing.
CEVE 320 - ETHICS AND ENGINEERING LEADERSHIP
Short Title: ETHICS & ENGINEERING LEADERSHIP
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Civil & Environmental Engineering, Civil Engineering or Environment Analysis & Decisions. Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 101
Description: Seminar introduces students to a framework for discussing and making ethical engineering and professional decisions. Using case studies and exercises, students will look at their own profession and its Engineering Code of Ethics as well as at the issues and risks they may face as managers and executives. Cross-list: ENGI 303. Graduate/Undergraduate Equivalency: CEVE 529. Mutually Exclusive: Cannot register for CEVE 320 if student has credit for CEVE 529.

CEVE 322 - ENGINEERING ECONOMICS
Short Title: ENGINEERING ECONOMICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are introduced. Requires oral and written presentations by students. Cross-list: ENGI 303. Graduate/Undergraduate Equivalency: CEVE 528. Mutually Exclusive: Cannot register for CEVE 322 if student has credit for RCEL 505.

CEVE 323 - APPLIED SUSTAINABLE PLANNING AND DESIGN
Short Title: APPL. SUST. PLANNING & DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 302 or CEVE 502
Description: This course applies principles learned in CEVE 302/502 to real-world sustainability projects. Three to four case studies will comprise the class. These case studies will involve development of design solutions for (1) carbon neutral design, (2) ecosystem services transactions, (3) sustainable industrial applications and/or (4) air pollution and environmental justice. Graduate/Undergraduate Equivalency: CEVE 523. Mutually Exclusive: Cannot register for CEVE 323 if student has credit for CEVE 523.

CEVE 325 - STRUCTURAL ANALYSIS AND MODELING
Short Title: STRUCTURAL ANALYSIS & MODELING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311
Description: This course provides students with a fundamental understanding of structural analysis and behavior with application to determinate and indeterminate structures. Classical methods of analysis along with an introduction to structural modeling will be examined. Mutually Exclusive: Cannot register for CEVE 325 if student has credit for CEVE 304.

CEVE 363 - APPLIED FLUID MECHANICS
Short Title: APPLIED FLUID MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 212 and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Study of fluid properties, fluid statics, and incompressible fluid steady flow. Includes energy and momentum equations with many applications, similitude and dimensional analysis, and viscous fluid flow in pipe networks. Required for B.S.C.E.

CEVE 400 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 202 or MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: MECH 400. Graduate/Undergraduate Equivalency: CEVE 500. Mutually Exclusive: Cannot register for CEVE 400 if student has credit for CEVE 500.
CEVE 401 - CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
Short Title: ENVIRONMENTAL CHEMISTRY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics include: introductory concepts of general chemistry; applied physical chemistry; and organic and biochemical concepts as used in the profession. Graduate/Undergraduate Equivalency: CEVE 501. Mutually Exclusive: Cannot register for CEVE 401 if student has credit for CEVE 501.

CEVE 404 - ATMOSPHERIC PARTICULATE MATTER
Short Title: ATMOSPHERIC PARTICULATE MATTER
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Description and examination of the processes determining the chemical and physical characteristics of atmospheric aerosol particles. Important focal points include aerosol measurements and control techniques and aerosol climate effects. Most attention will be paid to processes active in the troposphere, but important differences between the troposphere and stratosphere are addressed. Graduate/Undergraduate Equivalency: CEVE 504. Mutually Exclusive: Cannot register for CEVE 404 if student has credit for CEVE 504.

CEVE 406 - INTRODUCTION TO ENVIRONMENTAL LAW
Short Title: INTRO TO ENVIRONMENTAL LAW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Environmental Law is intended to introduce the student to the methods used by the United States and the international community to regulate and/or allocate air, water and land resources. A key focus of this course will be the emerging area of the law of sustainable development, including the implementation of full price costing, life cycle analysis, carbon cycle analysis, allocation of assimilative capacity and other similar issues. Cross-list: ENST 406. Graduate/Undergraduate Equivalency: CEVE 506.

CEVE 411 - ATMOSPHERIC CHEMISTRY AND CLIMATE
Short Title: ATMOSPHERIC CHEM & CLIMATE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 111 or CHEM 121) and (CHEM 112 or CHEM 122) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Study of the chemical and physical processes that govern the formation, transformation, and transport of gases and particles in the atmosphere. Overview of urban and regional air pollution, including tropospheric ozone formation and particulate matter; stratospheric chemistry; and global climate change. Graduate/Undergraduate Equivalency: CEVE 511. Mutually Exclusive: Cannot register for CEVE 411 if student has credit for CEVE 511.

CEVE 412 - HYDROLOGY AND WATER RESOURCES ENGINEERING
Short Title: HYDROLOGY & WATER RESOURCE ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The purpose of this course is to introduce the student to the fundamentals of the hydrologic cycle, surface water, open channel flow concepts, and water resources. The course will introduce concepts related to the hydrologic cycle in urban and natural watersheds, rainfall runoff and hydrograph response, overland and channel flood routing, open channel flow, and the basics of floodplain. At the end of the semester, we will also cover the current state of flood policy, flood disasters, and discuss innovative strategies for tackling flood-related issues and adapting to changes in flood risk over time. There will be significant emphasis on applying and solving the governing equations, calculations and models to analyze water balance, and hydrologic and hydraulic response to severe rainfall events. Student participation and a completion of a HEC-HMS modeling exercise will be expected. Case studies will be presented and discussed near end of the class. Graduate/Undergraduate Equivalency: CEVE 509. Mutually Exclusive: Cannot register for CEVE 412 if student has credit for CEVE 509.
CEVE 415 - URBAN INFRASTRUCTURE, ENVIRONMENT AND SUSTAINABILITY
Short Title: URBAN INFRA, ENVIRO & SUSTAIN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This course is an introduction to sustainable development and sustainable design. Sustainable development is one of the most interesting and challenging issues facing the world today. Sustainability is about living within the limits of natural and human systems as well as working to ensure that future generations have the ability to meet their needs even as we ensure that current generations can meet theirs. Sustainability is about social issues as well as environmental and economic ones. Sustainability either is or will become an issue of primary concern to virtually every country, state, city, corporation and institution in the world over the next decade or two. Upon completion of this course, you will be able to enter into the dialogue about sustainable human systems. Instructor Permission Required.

CEVE 416 - FUNDAMENTALS OF GROUNDWATER FLOW
Short Title: FUND. GROUNDWATER FLOW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: The course will cover the fundamental principles of groundwater flow, including moisture flow in the unsaturated zone; aquifer testing and interpretation of field data; sustainable production of groundwater for public water supplies; models of groundwater flow in the saturated and unsaturated zones; groundwater policy – use and landowner rights; the future of groundwater management. Graduate/Undergraduate Equivalency: CEVE 516. Mutually Exclusive: Cannot register for CEVE 416 if student has credit for CEVE 516.

CEVE 417 - FINITE ELEMENT ANALYSIS
Short Title: FINITE ELEMENT ANALYSIS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 212 or MATH 222) and (CAAM 210 or CAAM 211)
Description: An introduction to finite element analysis by Galerkin's method and the method of least squares as applied to both ordinary and partial differential equations common in engineering applications. Element interpolations, numerical integration, computational considerations for efficient solution and post-processing methods. Application of the commercial codes to ANSYS and Cosmosworks. Cross-list: MECH 417. Graduate/Undergraduate Equivalency: CEVE 517. Mutually Exclusive: Cannot register for CEVE 417 if student has credit for CEVE 517.

CEVE 419 - SMART MATERIALS FOR THE ENVIRONMENT
Short Title: SMART MATERIALS FOR THE ENVI
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: The course will introduce students to the concept of smart materials and their application to address challenges in environmental engineering. The course will cover three broad categories of smart materials, namely self-healing materials, stimuli-responsive materials, and materials with molecular-recognition capabilities. The use of these materials for structural, sensing, water treatment, and energy applications will be highlighted. The course will emphasize the underlying chemical and thermodynamic principles driving the behavior and responses of smart materials. Graduate/Undergraduate Equivalency: CEVE 526.
CEVE 427 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM
Short Title: PHY GUIDED ML-DATA DRIVEN FEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311 or MECH 315
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Cannot be taken concurrently with CEVE/MECH 527. Prerequisites CEVE/MECH 311. Cross-list: MECH 427. Mutually Exclusive: Cannot register for CEVE 427 if student has credit for CEVE 527.
Course URL: Satishnagarajaiah.rice.edu (http://Satishnagarajaiah.rice.edu)

CEVE 431 - DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS
Short Title: REINFORCED CONCRETE BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CEVE 432
Description: Design of reinforced concrete buildings including concepts and code practices routinely used in professional structural engineering design for concrete members and structural systems. Behavior of building members as related to design will be discussed as well. Graduate/Undergraduate Equivalency: CEVE 531. Recommended Prerequisite(s): CEVE 304 or CEVE 325 and CEVE 311 Mutually Exclusive: Cannot register for CEVE 431 if student has credit for CEVE 407/CEVE 530/CEVE 531.

CEVE 432 - CONCRETE & STEEL STRUCTURES LABORATORY
Short Title: CONCRETE & STEEL LABORATORY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CEVE 431
Description: Instruction in testing and data analysis, design of concrete mix, casting concrete cylinders and reinforced concrete beams, fabrication of steel frame, testing of concrete beams and steel frame. Mutually Exclusive: Cannot register for CEVE 432 if student has credit for CEVE 407/CEVE 408.

CEVE 434 - FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
Short Title: FATE/TRANSPORT OF CONTAMINANTS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Physical and chemical principles governing the fate and transport of contaminants in the aqueous environment, and the applications of such principles in environmental engineering. Emphasis is put on mass transport and transportation processes in natural and engineering systems. Previous course work in fluid mechanics and calculus through differential equations is strongly suggested. Graduate/Undergraduate Equivalency: CEVE 534. Mutually Exclusive: Cannot register for CEVE 434 if student has credit for CEVE 534.

CEVE 441 - DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS
Short Title: STRUCTURAL STEEL BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311
Description: Design of structural steel buildings including concepts and material routinely used in professional structural engineering design practice for steel members, connections and assemblies. Behavior of building members as related to design will be discussed as well. Graduate/Undergraduate Equivalency: CEVE 541. Recommended Prerequisite(s): CEVE 304 or CEVE 325 Mutually Exclusive: Cannot register for CEVE 441 if student has credit for CEVE 541.

CEVE 444 - ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY
Short Title: ENVIRON MICROBIOL & ECOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Fundamentals of microbiology and the ecology of microbes, highlighting their interactions with each other and the environment, and integration of these principles in the context of important natural and engineered environmental systems. Graduate/Undergraduate Equivalency: CEVE 544. Mutually Exclusive: Cannot register for CEVE 444 if student has credit for CEVE 544.
CEVE 452 - URBAN TRANSPORTATION SYSTEMS  
Short Title: URBAN TRANSPORTATION SYSTEMS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Survey of operation characteristics of transport modes and the elements of transportation planning, and the design of stationary elements.

CEVE 454 - COMPUTATIONAL FLUID MECHANICS  
Short Title: COMPUTATIONAL FLUID MECHANICS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)  
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: BIOE 454, MECH 454. Graduate/Undergraduate Equivalency: CEVE 554. Mutually Exclusive: Cannot register for CEVE 454 if student has credit for CEVE 554.

CEVE 455 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS  
Short Title: NUMERICAL METHODS FOR PDES  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. Cross-list: CAAM 452. Graduate/Undergraduate Equivalency: CEVE 555. Recommended Prerequisite(s): CAAM 336  
Mutually Exclusive: Cannot register for CEVE 455 if student has credit for CEVE 555.

CEVE 460 - BRIDGE ENGINEERING AND EXTREME EVENTS  
Short Title: BRIDGE ENG. & EXTREME EVENTS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (CEVE 311 or MECH 311) and (CEVE 304 or CEVE 325) and CEVE 431 (may be taken concurrently)  
Description: This course integrates information from various engineering and scientific disciplines to provide a rational basis for bridge design under regular and extreme loading. It provides an introduction to bridge engineering, including bridge systems, construction material, loading, and reliability-based design. Design, analysis, and retrofit for seismic and coastal threats will be introduced. Graduate/Undergraduate Equivalency: CEVE 560. Mutually Exclusive: Cannot register for CEVE 460 if student has credit for CEVE 560.

CEVE 471 - PRINCIPLES OF SOIL MECHANICS AND FOUNDATION ENGINEERING  
Short Title: SOIL MECHANICS AND FOUNDATIONS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to fundamentals of soil mechanics will include phase relationships, grain size, plasticity, soil classification, and clay mineralogy. The effect of water in soils, including capillarity, shrinkage and swelling, permeability, seepage and effective stress will be discussed. Consolidation, settlement, compressibility, failure theory, and the strength of sands and clays will be investigated. Design considerations will be discussed. Introduction to fundamentals of foundation engineering will include subsurface exploration methods and lateral earth pressures. The design of shallow and deep foundations, including pile installation and geophysical and geotechnical site investigation will be presented. CEVE 471, the undergrad version, includes a lab. Graduate/Undergraduate Equivalency: CEVE 571. Mutually Exclusive: Cannot register for CEVE 471 if student has credit for CEVE 470/CEVE 570/CEVE 571.

CEVE 472 - SOIL MECHANICS LABORATORY WITH INDIVIDUAL PARTICIPATION  
Short Title: SOIL MECHANICS LABORATORY  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Determine the water content, liquid limit, plastic limit, grain size from sieve and hydrometer analyses, falling head permeability, specific gravity, and the shear strength of clays from pocket penetrometer, Torvane, miniature vane, unconsolidated undrained triaxial compression and direct shear tests. Study the consolidation of clays and the compaction of clays and sands.
CEVE 476 - STRUCTURAL DYNAMIC SYSTEMS
Short Title: STRUCTURAL DYNAMIC SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311
Description: Introduction to structural dynamic systems. Linear SDOF and MDOF discrete systems, undamped and damped systems, free and forced vibration, dynamic response to periodic and arbitrary excitations, numerical evaluation of dynamic response, response spectrum and modal analysis. Additional topics for graduate version 576: Linear systems theory, transform methods, state space methods, feedback control, observers and identification. Applications using MATLAB. Demonstrations and laboratory examples. Students will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 576. Mutually Exclusive: Cannot register for CEVE 476 if student has credit for CEVE 576.

CEVE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory. Lecture, Internship/Practicum, Seminar, Lecture/ Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CEVE 480 - SENIOR DESIGN
Short Title: SENIOR DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The capstone designed course in the Spring Semester will provide senior engineering students with a complete designed experience including fundamental design issues in the major areas of the curriculum, small team experiences, project proposals, progress reports and presentations, design software and computations, major report writing, and a final presentation to the CEE faculty and an external jury of professional engineers. An established local firm will assist in teaching practical design methods and consultation with other faculty is required as part of the overall experience.

CEVE 481 - INTRODUCTION TO SENIOR DESIGN
Short Title: INTRODUCTION TO SENIOR DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Semester. Lectures will focus on various engineering design topics and CAD training. Potential design projects will be introduced and students will form interdisciplinary design teams. Design teams will present before jury to win their design projects.

CEVE 484 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIRON RISK ASSESS&HUMAN HLTH
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 305
Description: Learn and apply quantitative risk assessment methodology to estimate human health risk from environmental exposure to contamination in air, soil and water. Students will conduct a series of team projects focused on toxicology, risk based screening levels, exposure concentration estimation and risk characterization. Cross-list: STAT 484. Graduate/Undergraduate Equivalency: CEVE 684. Mutually Exclusive: Cannot register for CEVE 484 if student has credit for CEVE 684.

CEVE 488 - MODELING AND ANALYSIS OF NETWORKED SYSTEMS
Short Title: MODELING & ANALYSIS OF NET SYS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces methods for modeling, characterizing and predicting the behavior of complex infrastructure and technological systems. The discussed analysis methods rely on network science optimization, and computational complexity principles so as to unravel the emergent features of structural and infrastructure systems. Topological properties, ranking tools, dynamic processes, and percolation-based resilience are studied from analytical, algorithmic, and numerical simulation perspectives. The course also explores interdependencies and mitigation actions for spatially and temporally evolving systems. The graduate level course includes advanced exercises in homework and exams, as well as a research-oriented final project. Graduate/Undergraduate Equivalency: CEVE 592. Mutually Exclusive: Cannot register for CEVE 492 if student has credit for CEVE 592. Repeatable for Credit.
CEVE 496 - SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING
Short Title: SYSTEM I.D. & MACHINE LEARNING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to modeling and system identification of dynamic systems with machine learning. Students in CEVE 596 will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 596. Mutually Exclusive: Cannot register for CEVE 496 if student has credit for CEVE 596.

CEVE 499 - SPECIAL PROBLEMS
Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation, including a course toward directed research and/or a research project. Study of selected topics including individual investigations special lectures, and seminars. Student works independently with only minimal faculty direction. Offered upon mutual agreement of faculty and student. May earn varying amount of credit hours depending on the amount of time devoted and the amount of academic work associated with the course. Repeatable for Credit.

CEVE 500 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: MECH 500. Graduate/Undergraduate Equivalency: CEVE 400. Mutually Exclusive: Cannot register for CEVE 500 if student has credit for CEVE 400.

CEVE 501 - CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
Short Title: ENVIRONMENTAL CHEMISTRY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include: introductory concepts of general chemistry; applied physical chemistry; and organic and biochemical concepts as used in the profession. Graduate students are required to write and present an advanced paper. Graduate/Undergraduate Equivalency: CEVE 401. Mutually Exclusive: Cannot register for CEVE 501 if student has credit for CEVE 401.

CEVE 502 - SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective of this course is to develop skills in formulating and solving problems of societal development and advancement in light of increasing material, energy and water demands and decreasing resource availability. Sustainable design requires balancing economic, ecological/environmental and social issues to create physical as well as social structures that will work for current and future generations. In addition to learning to apply sustainable design principles to individual engineering and developing projects, students will be challenged to understand the application of sustainable design thinking at the municipal and corporate level. Graduate students will be required to undertake additional assignments relative to sustainable design. Graduate/Undergraduate Equivalency: CEVE 302. Mutually Exclusive: Cannot register for CEVE 502 if student has credit for CEVE 302.

CEVE 503 - NONLINEAR FINITE ELEMENT ANALYSIS
Short Title: NONLINEAR FEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
CEVE 504 - ATMOSPHERIC PARTICULATE MATTER
Short Title: ATMOSPHERIC PARTICULATE MATTER
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Description and examination of the processes determining the chemical and physical characteristics of atmospheric aerosol particles. Important focal points include aerosol measurements and control techniques and aerosol climate effects. Most attention will be paid to processes active in the troposphere, but important differences between the troposphere and stratosphere are addressed. Extra work required for graduate students. Graduate/Undergraduate Equivalency: CEVE 404. Mutually Exclusive: Cannot register for CEVE 504 if student has credit for CEVE 404.

CEVE 505 - ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
Short Title: ENG ECONOMICS & PROJECT MGMT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Environment Analysis & Decisions. Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy degree.
Course Level: Graduate
Description: Life cycle economics analysis to project development, project economic analysis, contracting, network scheduling, risk management, organizational structures and cases. 505 requires an additional paper. Cross-list: ENGI 505. Mutually Exclusive: Cannot register for CEVE 505 if student has credit for CEVE 301/CEVE 479.

CEVE 506 - INTRODUCTION TO ENVIRONMENTAL LAW
Short Title: INTRO TO ENVIRONMENTAL LAW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to Environmental Law is intended to introduce the student to the methods used by the United States and the international community to regulate and/or allocate air, water and land resources. A key focus of this course will be the emerging area of the law of sustainable development, including the implementation of full price costing, life cycle analysis, carbon cycle analysis, allocation of assimilative capacity and other similar issues. Graduate students will be required to undertake additional assignments Graduate/Undergraduate Equivalency: CEVE 406.

CEVE 507 - ENERGY AND THE ENVIRONMENT
Short Title: ENERGY AND THE ENVIRONMENT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the physical principles of energy use and its impacts on Earth's environment and climate. Topics will include energy mechanics, climate change, and the environmental impacts and future prospects of various fossil fuel and alternative energy sources. Additional problems will be assigned to Graduate students. Graduate/Undergraduate Equivalency: CEVE 307. Mutually Exclusive: Cannot register for CEVE 507 if student has credit for CEVE 307.

CEVE 508 - INTRODUCTION TO AIR POLLUTION CONTROL
Short Title: INTRO TO AIR POLLUTION CONTROL
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: This course will discuss the history of air pollution and its effects as motivation for control of anthropogenic emissions to the atmosphere. Topics will include air pollution control strategies and regulations, predictive pollution concentration models, general ideas to reduce air pollution, and specific technologies to limit emissions of criteria pollutants and their precursors. Additional paper is required for graduate students. Graduate/Undergraduate Equivalency: CEVE 308. Mutually Exclusive: Cannot register for CEVE 508 if student has credit for CEVE 308.

CEVE 509 - HYDROLOGY AND WATER RESOURCES ENGINEERING
Short Title: HYDROLOGY & WATER RESOURCE ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of the hydrologic cycle, meteorology, rainfall-runoff, flood routing, urban system design, and open channel flow are covered. Topics in ground water flow and well mechanics are also included. Applications include computational hydrology, floodplain analysis, watershed behavior, and low impact development. Group presentations are required. The graduate level course includes an extra paper. Graduate/Undergraduate Equivalency: CEVE 412. Mutually Exclusive: Cannot register for CEVE 509 if student has credit for CEVE 412.
CEVE 510 - PRINCIPLES OF ENVIRONMENTAL ENGINEERING
Short Title: PRINCIPLES OF ENVI ENGINEERING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers principles of water quality engineering, air pollution control and solid and hazardous waste management. Elements of risk assessment, global atmospheric change, and pollution prevention are also addressed to contribute to adequate-level competency in Environmental Engineering. Graduate students will write a term paper and prepare a lecture. Graduate/Undergraduate Equivalency: CEVE 310. Mutually Exclusive: Cannot register for CEVE 510 if student has credit for CEVE 310.

CEVE 511 - ATMOSPHERIC CHEMISTRY AND CLIMATE
Short Title: ATMOSPHERIC CHEM & CLIMATE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 111 or CHEM 121) and (CHEM 112 or CHEM 122) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Study of the chemical and physical processes that govern the formation, transformation, and transport of gases and particles in the atmosphere. Overview of urban and regional air pollution, including tropospheric ozone formation and particulate matter; stratospheric chemistry; and global climate change. Extra work required for graduate students. Graduate/Undergraduate Equivalency: CEVE 411. Mutually Exclusive: Cannot register for CEVE 511 if student has credit for CEVE 411.

CEVE 516 - FUNDAMENTALS OF GROUNDWATER FLOW
Short Title: FUND. GROUNDWATER FLOW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will cover the fundamental principles of groundwater flow, including moisture flow in the unsaturated zone; aquifer testing and interpretation of field data; sustainable production of groundwater for public water supplies; models of groundwater flow in the saturated and unsaturated zones; groundwater policy – use and landowner rights; the future of groundwater management. Graduate/Undergraduate Equivalency: CEVE 416. Mutually Exclusive: Cannot register for CEVE 516 if student has credit for CEVE 416.

CEVE 517 - FINITE ELEMENT ANALYSIS
Short Title: FINITE ELEMENTS ANALYSIS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Graduate level students may not enroll.
Course Level: Graduate
Prerequisite(s): (MATH 212 or MATH 222) and (CAAM 210 or CAAM 211)

CEVE 518 - ENVIRONMENTAL HYDROGEOLOGY
Short Title: ENVIRONMENTAL HYDROGEOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Darcy's law, 1-D and 2-D steady-state groundwater flow, transient groundwater flow, aquifer testing, movement of chemicals in the subsurface, modeling groundwater flow and contaminant transport, current issues in hydrogeology including salt water intrusion, subsidence, and emerging environmental contaminants. Includes a final project using groundwater flow and contaminant transport models MODFLOW and MT3D.

CEVE 519 - ELASTICITY, PLASTICITY AND DAMAGE MECHANICS
Short Title: ELASTICITY/PLASTICITY/DAMAGE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of phenomena that determine the response of solids to deformation and loading: elasticity, plasticity, damage mechanics and cracking. Review of continuum mechanics with emphasis on the physical mechanisms of deformation and fracture. Classification of the behavior of solids. Modeling of different types of material behavior. The physics underlying the phenomena and methods for the numerical analysis of the resulting equations are discussed. Cross-list: MECH 519.
CEVE 520 - ENVIRONMENTAL REMEDIATION RESTORATION
Short Title: ENVI REMEDIATION RESTORATION
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Remediation principles and application of full-scale remediation technologies for restoration of contaminated soil, groundwater, and surface water. Topics include mass balances and distribution of chemicals in environmental media; development of remediation goals through risk assessment; treatment technology selection criteria and costs; groundwater, soil, and surface water restoration technologies; and regulatory considerations. Graduate students receive additional, more challenging assignments. Graduate/Undergraduate Equivalency: CEVE 420. Mutually Exclusive: Cannot register for CEVE 520 if student has credit for CEVE 420.

CEVE 523 - APPLIED SUSTAINABLE PLANNING AND DESIGN
Short Title: APPL. SUST. PLANNING & DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 302 or CEVE 502
Description: This course applies principles learned in CEVE 302/502 to real-world sustainability projects. Three to four case studies will comprise the class. These case studies will involve development of design solutions for (1) carbon neutral design, (2) ecosystem services transactions, (3) sustainable industrial applications and/or (4) air pollution and environmental justice. Graduate/Undergraduate Equivalency: CEVE 323. Mutually Exclusive: Cannot register for CEVE 523 if student has credit for CEVE 323.

CEVE 524 - TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS
Short Title: SYSTEM RELIABILITY METHODS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn computational simulation and theoretical techniques for the reliability assessment of engineered systems as a function of their component failure probabilities. We will explore time-dependent and algorithmic system reliability, and will use modern structural infrastructure systems as case studies, including power systems, wind turbines, bridges, and buildings. Extra provisions for graduate students in assignments, exams, and projects. Graduate/Undergraduate Equivalency: CEVE 424. Mutually Exclusive: Cannot register for CEVE 524 if student has credit for CEVE 424.

CEVE 526 - SMART MATERIALS FOR THE ENVIRONMENT
Short Title: SMART MATERIALS FOR THE ENV
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to introduce students to the concept of smart materials and their application to address challenges in environmental engineering. The course will cover three broad categories of smart materials, namely self-healing materials, stimuli-responsive materials, and materials with molecular-recognition capabilities. The use of these materials for structural, sensing, water treatment, and energy applications will be highlighted. The course will emphasize the underlying chemical and thermodynamic principles driving the behavior and responses of smart materials. Graduate/Undergraduate Equivalency: CEVE 426.

CEVE 527 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM
Short Title: PHY GUIDED ML- DATA DRIVEN FEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 311 or MECH 311
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Students in CEVE 527 (GR version) will be required to do more advanced assignments and a project. Prerequisites CEVE/MECH 311. Cross-list: MECH 527. Mutually Exclusive: Cannot register for CEVE 527 if student has credit for CEVE 427.
Course URL: Satishnagarajaih.rice.edu (http://Satishnagarajaih.rice.edu)

CEVE 528 - ENGINEERING ECONOMICS
Short Title: ENGINEERING ECONOMICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are developed. Requires oral and written presentations by students. Grad students will have an additional case study to perform beyond CEVE 322 requirements. Cross-list: ENGI 528. Graduate/Undergraduate Equivalency: CEVE 322. Mutually Exclusive: Cannot register for CEVE 528 if student has credit for RCEL 505.
CEVE 529 - ETHICS AND ENGINEERING LEADERSHIP  
Short Title: ETHICS & ENGINEERING LEADERSHIP  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Civil & Environmental Engineer, Civil Engineering or Environment Analysis & Decisions. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar introduces students to a framework for discussing and making ethical engineering and professional decisions. Using case studies and exercises, students will look at their own profession and its Engineering Code of Ethics as well as at the issues and risks they may face as managers and executives. Graduate students will do an extra paper. Instructor Permission Required. Cross-list: ENGI 529. Graduate/Undergraduate Equivalency: CEVE 320. Mutually Exclusive: Cannot register for CEVE 529 if student has credit for CEVE 320.

CEVE 531 - DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS  
Short Title: REINFORCED CONCRETE BUILDINGS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Design of reinforced concrete buildings including concepts and code practices routinely used in professional structural engineering design for concrete members and structural systems. Behavior of building members as related to design will be discussed as well. Graduate/Undergraduate Equivalency: CEVE 431. Recommended Prerequisite(s): CEVE 311. Mutually Exclusive: Cannot register for CEVE 531 if student has credit for CEVE 407/CEVE 431/CEVE 530.

CEVE 533 - NANOSCIENCE AND NANOTECHNOLOGY  
Short Title: NANOSCIENCE & NANOTECHNOLOGY  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introduction to the basic principles of nanoscale science and nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester. Expected to be taught Spring 2019. Cross-list: CHEM 533, MSNE 534.

CEVE 534 - FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT  
Short Title: FATE/TRANSPORT OF CONTAMINANTS  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Physical and chemical principles governing the fate and transport of contaminants in the aqueous environment, and the applications of such principles in environmental engineering. Emphasis is put on mass transport and transportation processes in natural and engineering systems. Previous course work in fluid mechanics and calculus through differential equations is strongly suggested. Extra work required, for Graduate Students. Graduate/Undergraduate Equivalency: CEVE 434. Mutually Exclusive: Cannot register for CEVE 534 if student has credit for CEVE 434. Repeatable for Credit.

CEVE 535 - PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL  
Short Title: PHYS CHEM PROC WATER QUAL CTRL  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Principles, modeling and design aspects of physical chemical treatment processes in drinking water, wastewater and groundwater remediation applications. Modern treatment technologies such as membrane separation, advanced oxidation, and photocatalysis will be covered.

CEVE 536 - ENVIRONMENTAL BIOTECHNOLOGY AND BIOREMEDIATION  
Short Title: ENVIRONMENTAL BIOTECHNOLOGY  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Theory and application of biochemical processes in environmental engineering.

CEVE 538 - COMPUTATIONAL NANOSCIENCE FOR GREEN INFRASTRUCTURE  
Short Title: COMPUTATIONAL NANOSCIENCE  
Department: Civil & Environmental Engr  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Computational methods such as first principles, kinetic Monte Carlo (KMC), classical MC (in Canonical, Grand Canonical, and isobaric-isothermal ensembles), and classic MD in predicting materials formation and properties. Case studies include cementitious materials, metals, and thermoelectric materials. Other case studies are possible depending on the student’s background and instructor’s approval. Cross-list: MSNE 538.
CEVE 541 - DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS
Short Title: STRUCTURAL STEEL BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of structural steel buildings including concepts and material routinely used in professional structural engineering design practice for steel members, connections and assemblies. Behavior of building members as related to design will be discussed as well. Graduate students registered to CEVE 541 will explore advanced topics in structural steel building behavior and design. Graduate/Undergraduate Equivalency: CEVE 441. Mutually Exclusive: Cannot register for CEVE 541 if student has credit for CEVE 441.

CEVE 544 - ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOTOLOGY
Short Title: ENVIRON MICROBIOL & ECOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of microbiology and the ecology of microbes, highlighting their interactions with each other and the environment, and integration of these principles in the context of important natural and engineered environmental systems. Graduate/Undergraduate Equivalency: CEVE 444. Mutually Exclusive: Cannot register for CEVE 544 if student has credit for CEVE 444.

CEVE 545 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. May receive credit for only one of the following courses: CAAM 452/CEVE 455/CAAM 536/CEVE 555. Recommended Prerequisite(s): CAAM 336 (may be taken concurrently) or CHBE 420 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or MECH 554. Graduate/Undergraduate Equivalency: CEVE 455. Mutually Exclusive: Cannot register for CEVE 554 if student has credit for CEVE 454.

CEVE 550 - ENVIRONMENTAL ORGANIC CHEMISTRY
Short Title: ENVIRONMENTAL ORGANIC CHEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course covering parameter estimation methods, thermodynamics, and kinetic needed to predict the fate, transports, and reactivity of organic compounds in air, water, and soils. Topics: volatization, solubility, sorption, partitioning, diffusion, aquatic reactivity, photochemistry, and transport modeling.

CEVE 554 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, MECH 554. Graduate/Undergraduate Equivalency: CEVE 454. Mutually Exclusive: Cannot register for CEVE 554 if student has credit for CEVE 454.

CEVE 555 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. May receive credit for only one of the following courses: CAAM 452/CEVE 455/CAAM 536/CEVE 555. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CEVE 555 if student has credit for CEVE 455.

CEVE 560 - BRIDGE ENGINEERING AND EXTREME EVENTS
Short Title: BRIDGE ENG. & EXTREME EVENTS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course integrates information from various engineering and scientific disciplines to provide a rational basis for bridge design under regular and extreme loading. It provides an introduction to bridge engineering, including bridge systems, construction material, loading, and reliability-based design. Design, analysis, and retrofit for seismic and coastal threats will be introduced. Graduate/Undergraduate Equivalency: CEVE 460. Recommended Prerequisite(s): CEVE 304 and CEVE 311. Mutually Exclusive: Cannot register for CEVE 560 if student has credit for CEVE 460.
CEVE 565 - NANOTECHNOLOGY ENVIRONMENTAL ENGINEERING FOR TEACHERS (NEET)
Short Title: NANOENVIRONMENTL ENGR-TEACHERS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Nano-Environmental Engineering for Teachers (NEET) course is designed to serve AP environmental science teachers. The purpose of the program is to increase the current knowledge of educators to empower them in implementing rigorous project-based engineering activities on the topic of water sustainability. Instructor Permission Required.

CEVE 571 - PRINCIPLES OF SOIL MECHANICS AND FOUNDATION ENGINEERING
Short Title: SOIL MECHANICS AND FOUNDATIONS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to fundamentals of soil mechanics will include phase relationships, grain size, plasticity, soil classification, and clay mineralogy. The effect of water in soils, including capillarity, shrinkage and swelling, permeability, seepage and effective stress will be discussed. Consolidation, settlement, compressibility, failure theory, and the strength of sands and clays will be investigated. Design considerations will be discussed. Introduction to fundamentals of foundation engineering will include subsurface exploration methods and lateral earth pressures. The design of shallow and deep foundations, including pile installation and geophysical and geotechnical site investigation will be presented. CEVE 471, the undergrad version, includes a lab. Students in CEVE 571 (GR version—does not include a laboratory) will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 471. Mutually Exclusive: Cannot register for CEVE 571 if student has credit for CEVE 470/CEVE 471/CEVE 570.

CEVE 576 - STRUCTURAL DYNAMIC SYSTEMS
Short Title: STRUCTURAL DYNAMIC SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to structural dynamic systems. Linear SDOF and MDOF discrete systems, undamped and damped systems, free and forced vibration, dynamic response to periodic and arbitrary excitations, numerical evaluation of dynamic response, response spectrum and modal analysis. Additional topics for graduate version 576: Linear systems theory, transform methods, state space methods, feedback control, observers and identification. Applications using MATLAB. Demonstrations and laboratory examples. Students will be required to do more advanced assignments and a project. Cross-list: MECH 576. Graduate/Undergraduate Equivalency: CEVE 476. Mutually Exclusive: Cannot register for CEVE 576 if student has credit for CEVE 476.

CEVE 578 - EARTHQUAKE ENGINEERING
Short Title: EARTHQUAKE ENGINEERING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Characteristics of ground motion, analysis methods for linear and nonlinear base excited structures, and principles of seismic design including case studies and performance based engineering concepts. Probabilistic methods in earthquake engineering including seismic hazard analysis, fragility modeling, and risk assessment and mitigation. Recommended Prerequisite(s): CEVE 576 or equivalent course in Structural Dynamics.

CEVE 590 - MCEE SPECIAL STUDY
Short Title: MCEE SPECIAL STUDY
Department: Civil & Environmental Engr
Grade Mode: Research
Credit Hours: 2-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Professional master Project course involves the following (1) a project of practical relevance to the practice of Civil and Environmental Engineering, and (2) detailed project report. Students need to work with a faculty advisor. Instructor Permission Required. Repeatable for Credit.

CEVE 592 - MODELING AND ANALYSIS OF NETWORKED SYSTEMS
Short Title: MODELING & ANALYSIS OF NET SYS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces methods for modeling, characterizing and predicting the behavior of complex infrastructure and technological systems. The discussed analysis methods rely on network science optimization, and computational complexity principles so as to unravel the emergent features of structural and infrastructure systems. Topological properties, ranking tools, dynamic processes, and percolation-based resilience are studied from analytical, algorithmic, and numerical simulation perspectives. The course also explores interdependencies and mitigation actions for spatially and temporally evolving systems. The graduate level course includes advanced exercises in homework and exams, as well as a research-oriented final project. Graduate/Undergraduate Equivalency: CEVE 492. Mutually Exclusive: Cannot register for CEVE 592 if student has credit for CEVE 492. Repeatable for Credit.

CEVE 597 - EARTHQUAKE ENGINEERING
Short Title: EARTHQUAKE ENGINEERING
Department: Civil & Environmental Engr
Grade Mode: Research
Credit Hours: 2-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Characteristics of ground motion, analysis methods for linear and nonlinear base excited structures, and principles of seismic design including case studies and performance based engineering concepts. Probabilistic methods in earthquake engineering including seismic hazard analysis, fragility modeling, and risk assessment and mitigation. Recommended Prerequisite(s): CEVE 576 or equivalent course in Structural Dynamics.
CEVE 596 - SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING

Short Title: SYSTEM I.D. & MACHINE LEARNING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to modeling and system identification of dynamic systems with machine learning. Students in CEVE 596 will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 496. Mutually Exclusive: Cannot register for CEVE 596 if student has credit for CEVE 496.

CEVE 599 - SPECIAL TOPICS

Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent research and investigation, including a course toward directed research and/or a research project. Study of selected topics including individual investigations special lectures, and seminars. Student works independently with only minimal faculty direction. Offered upon mutual agreement of faculty and student. May earn varying amount of credit hours depending on the amount of time devoted and the amount of academic work associated with the course. Repeatable for Credit.

CEVE 601 - SEMINAR

Short Title: SEMINAR
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuing seminar on Civil and Environmental research. Repeatable for Credit.

CEVE 602 - SEMINAR

Short Title: SEMINAR
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuing seminar on Civil and Environmental research. Repeatable for Credit.

CEVE 603 - NANOTECHNOLOGY-ENABLED WATER TREATMENT (NEWT) CORE CONCEPTS SEMINAR

Short Title: NEWT CORE COURSE
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will introduce NEWT graduate students to the basic scientific concepts behind NEWT research. It is also intended to develop a common language for NEWT students in different research areas, and to contribute to the development of a center culture. Instructor Permission Required. Repeatable for Credit.

CEVE 635 - ADVANCED TOPICS: WATER CHEMISTRY

Short Title: ADV TOPICS: WATER CHEMISTRY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal lecture and assigned reading in topics such as redox kinetics and thermodynamics, absorption and desorption, and the associated mathematics. An advanced topics course. Repeatable for Credit.

CEVE 636 - ADVANCED TOPICS IN BIOREMEDIATION

Short Title: ADV TOPICS IN BIOREMEDIATION
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic principles of Microbial Physiology, Metabolism, Stoichiometry, Thermodynamics and Kinetics applied to the selection, design and performance evaluation of engineered and intrinsic bioremediation systems. Repeatable for Credit.

CEVE 640 - ADVANCED TOPICS IN ENVIRONMENTAL ENGINEERING SCIENCES

Short Title: ADV TOPICS/ENVIRONMENTAL ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Special topics in Graduate Study.

CEVE 641 - ADVANCED TOPICS IN ENVIRONMENTAL ENGINEERING

Short Title: ADV TOPICS/ENVIRONMENTAL ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics in Graduate Study.
CEVE 651 - M.S. RESEARCH AND THESIS
Short Title: M.S. RESEARCH AND THESIS
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CEVE 652 - M.S. RESEARCH AND THESIS
Short Title: M.S. RESEARCH AND THESIS
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CEVE 654 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): CEVE 554 or BIOE 554 or MECH 554 or BIOE 454 or CEVE 454 or MECH 454

CEVE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CEVE 678 - APPLIED STOCHASTIC MECHANICS
Short Title: APPLIED STOCHASTIC MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Nonlinear random vibrations, Statistical Linearization, ARMA filters modeling, Monte Carlo Simulation, Wiener-Volterra series, time-variant structural reliability, and Stochastic Finite Elements are presented from a perspective of usefulness to aerospace, civil, marine, and mechanical applications. Cross-list: MECH 678.

CEVE 679 - APPLIED MONTE CARLO ANALYSIS
Short Title: APPLIED MONTE CARLO ANALYSIS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Probability density and power spectrum based simulation concepts and procedures are discussed. Scalar and vectorial simulation are addressed. Spectral decomposition and digital filter algorithms are presented. Applications from aerospace, earthquake, marine, and wind engineering, and from other applied science disciplines are included. Cross-list: MECH 679.

CEVE 684 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIRON RISK ASSESS&HUMAN HLTH
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): STAT 280 or STAT 305
Course Level: Graduate
Description: Learn and apply quantitative risk assessment methodology to estimate human health risk from environmental exposure to contamination in air, soil and water. Students will conduct a series of team projects focused on toxicology, risk based screening levels, exposure concentration estimation and risk characterization. Cross-list: STAT 684. Graduate/Undergraduate Equivalency: CEVE 484. Mutually Exclusive: Cannot register for CEVE 684 if student has credit for CEVE 484.

CEVE 736 - ADVANCED RESEARCH TOPICS: ENVIRONMENTAL BIOTECHNOLOGY AND NANOTECHNOLOGY
Short Title: ADV TOPICS:ENVIR BIOTECH & NAN
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research oriented presentations and discussions of landmark papers and experimental methods for doctoral students in the Alvarez research group. Repeatable for Credit.
Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering

Program Learning Outcomes for the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering

Upon completing the BA degree with a major in Civil and Environmental Engineering and a major concentration in Civil Engineering, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to communicate effectively with a range of audiences.
3. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must

Concentrations, Areas of Specialization do not appear on the student's official academic transcript, etc.

Undergraduate Minor Description and Code
- Minor in Energy and Water Sustainability: EWSU

Graduate Degree Descriptions and Codes
- Master of Civil and Environmental Engineering degree: MCEE
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD

Graduate Degree Program Descriptions and Codes
- Degree Program in Civil Engineering: CIVI
- Degree Program in Environmental Engineering: ENVI

CIP Code and Description
- CEEG Major/Program: CIP Code/Title: 14.0801 - Civil Engineering, General
- CIVI Major/Program: CIP Code/Title: 14.0801 - Civil Engineering, General
- ENVI Major/Program: CIP Code/Title: 14.1401 - Environmental/Environmental Health Engineering
- CIEG Major Concentration: CIP Code/Title: 14.0802 - Geotechnical and Geoenvironmental Engineering
- ENEG Major Concentration: CIP Code/Title: 14.1401 - Environmental/Environmental Health Engineering
- EWSU Minor: CIP Code/Title: 40.0605 - Hydrology and Water Resources Science

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering

Course Catalog/Schedule
- Course offerings/subject code: CEVE

Department Description and Code
- Civil and Environmental Engineering: CEEG

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Science in Civil Engineering degree: BSCE

Undergraduate Major Descriptions and Codes
- Major in Civil Engineering (offered to students pursuing the BSCE degree): CIVI
- Major in Civil and Environmental Engineering (offered to students pursuing the BA degree): CEEG

Undergraduate Major Concentration Descriptions and Codes
- Major Concentration in Civil Engineering (attached to the BA degree): CIEG
- Major Concentration in Environmental Engineering (attached to the BA degree): ENEG

Undergraduate Major Areas of Specialization Descriptions and Attribute Codes*
- Area of Specialization in Area I - Environmental Engineering (BSCE degree only): CEEN
- Area of Specialization in Area II - Hydrology and Water Resources (BSCE degree only): CEHW
- Area of Specialization in Area III - Structural Engineering and Mechanics (BSCE degree only): CESM
- Area of Specialization in Area IV - Urban Infrastructure, Reliability, and Management (BSCE degree only): CEUR

Please Note: Areas of Specialization are department/program-specific and are not formally recognized academic credentials. Unlike Major

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

4. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

5. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

6. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

**Requirements for the Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering**

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Civil and Environmental Engineering must complete:

- A minimum of 62 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9-10 courses (25-28 credit hours), depending on declared major concentration, taken at the 300-level or above.
- 11 courses (25 credit hours) of General Math and Science courses.
- 6 courses (16 credit hours) as Major Concentration Core courses.
- 7 courses (21 credit hours) in a focused specialty area of study.
- The requirements of a major concentration. When students declare the major (p. 17) in Civil and Environmental Engineering, students must additionally identify and declare one of two major concentrations, either in:
  - Civil Engineering (p. 634), or
  - Environmental Engineering (p. 637).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the **Office of the Registrar** (registrar@rice.edu).

Each major concentration is to be tailored to the specific needs of the student by discussions with, and approval by, the Civil and Environmental Engineering departmental major concentration advisor. Although not required, students are encouraged to double major when pursuing the BA degree.

The coherent and complete core curriculum is designed to give Rice undergraduate students a consistent technological literacy through the lens of Civil and Environmental Engineering and to prepare students for graduate school in engineering, various sciences (depending upon focus), economics, business MBA, political science, law, or medicine. Select students will be invited to finish an accelerated MS/PhD degree in the CEVE Department (see your advisor or department chair for details).

Those students who want to obtain an engineering degree from a university must follow one of the Bachelor of Science programs the EAC has accredited at Rice, like the Bachelor of Science in Civil Engineering (BSCE). Students pursuing professional engineering licensure should also consider our BS in Civil and Environmental Engineering (BSCE).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Civil and Environmental Engineering</td>
<td>62-63</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Civil and Environmental Engineering</td>
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**Degree Requirements**

<table>
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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
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<tr>
<td></td>
<td><strong>General Math and Science Courses</strong></td>
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<tr>
<td>CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
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</tr>
<tr>
<td>or CAAM 335</td>
<td>MATRIX ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
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</tr>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
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<tr>
<td>or CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II</td>
<td>1</td>
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<tr>
<td>or CHEM 112</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 124</td>
<td>GENERAL CHEMISTRY LABORATORY II</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 114</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II</td>
<td>3</td>
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<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
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<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<td>or MATH 106</td>
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<tr>
<td>PHYS 101</td>
<td>MECHANICS (WITH LAB)</td>
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<tr>
<td>&amp; PHYS 103</td>
<td>and MECHANICS DISCUSSION</td>
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<tr>
<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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<tr>
<td>&amp; PHYS 104</td>
<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<table>
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<tr>
<th>Major Concentration</th>
<th>Select 1 of the following Major Concentrations (see below for Major Concentration requirements):</th>
<th>16</th>
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<tbody>
<tr>
<td></td>
<td>Civil Engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental Engineering</td>
<td></td>
</tr>
</tbody>
</table>

**Specialty Focus Area**

Select 7 courses from approved electives selected with the Civil and Environmental Engineering advisor (see below for more information, including course requirements).

| Total Credit Hours Required for the Major in Civil and Environmental Engineering | 62 |
| Additional Credit Hours to Complete Degree Requirements | 27 |
| University Graduation Requirements (p. 29) | 31 |
| **Total Credit Hours** | 120 |
Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Major Concentration: Civil Engineering
Students must complete the following 6 courses (16 credit hours) to satisfy the requirements for the major concentration in Civil Engineering.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 211 /</td>
<td>ENGINEERING MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 211</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEVE 310</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 311 /</td>
<td>MECHANICS OF SOLIDS AND STRUCTURES</td>
<td>3</td>
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<tr>
<td>MECH 311</td>
<td></td>
<td></td>
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<tr>
<td>CEVE 312</td>
<td>STRENGTH OF MATERIALS LAB</td>
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<tr>
<td>CEVE 315</td>
<td>URBAN WATER SYSTEMS: SOURCES, TREATMENT, DISTRIBUTION, RESOURCE RECOVERY AND REUSE</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 325</td>
<td>STRUCTURAL ANALYSIS AND MODELING</td>
<td>3</td>
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</tbody>
</table>

Total Credit Hours: 16

Specialty Focus Area
To satisfy the remaining Specialty Focus Area of the BA degree with a major in Civil and Environmental Engineering, students must complete a total of 7 courses (21 credit hours) from approved electives selected with the Civil and Environmental Engineering advisor. Course selection must meet the following requirements:

- A minimum of 4 courses (12 credit hours) must be within one Specialty Focus Area (See examples below).
- A minimum of 4 courses (12 credit hours) from the 300-level or above; 2 of these 4 courses (6 credit hours) must also be selected from departmental (CEVE) course offerings.

Example Specialty Focus areas are suggested below; however students are encouraged to prepare their own specialty related to their career objectives in consultation with, and approval by, their Civil and Environmental Engineering advisor.

1. Biology
2. Chemical Engineering
3. Chemistry
4. Civil Engineering
5. Economics
6. Environmental Science and Engineering
7. Management

Policies for the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering may not additionally pursue the Bachelor of Science in Civil Engineering (BSCE) Degree.
- Students pursuing the major in Civil and Environmental Engineering may pursue only one major concentration within the major.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Civil and Environmental Engineering should be aware of the following departmental transfer credit guidelines:

Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Opportunities for the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honor, Award, and Scholarship Opportunities

- Distinction in Research and Creative Work: The Department of Civil and Environmental Engineering will recognize graduating seniors for outstanding creative contributions with the award of Distinction in Research and Creative Work. The Department recognizes this award as being a significant honor. As such, it will be awarded to no more than 20% of a graduating class (rounded up to next whole number).
This award shall be given for significant contributions in research, design, and creative projects beyond class assignments (except CEVE 499). Generally, it is expected that the student recipients will have performed research/design for a minimum of two academic segments (one segment = one academic year or one summer) during their undergraduate career (either for credit or pay). It may be given for one outstanding piece of work for consistent meaningful contributions made over the course of an undergraduate career. All majors (BA and BS) are eligible and will be considered for this distinction in the spring prior to their graduation.

- **Rice Global Forum**: Rice Global Forum (RGF) is an engineering and construction industry funded center which is in its second decade of operation. It was founded by Ahmad Durrani, past chair of Civil and Environmental Engineering at Rice. RGF funds and facilitates interaction with the engineering and construction industry, particularly oil and gas related work. RGF funds $25,000 worth of scholarships every year. In addition, RGF also consistently sponsors and supports Engineers Without Borders (EWB) and has donated to other student clubs as well in addition to holding an engineering design competition every year in February during National Engineers Week.

**Fifth-Year Master’s Degree Option for Rice Undergraduate Students**

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found [here](p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Civil and Environmental Engineering (MCEE) degree. For additional information, students should contact their undergraduate major advisor and the (MCEE) chair of the department graduate studies committee.

**Student Organizations and Clubs**

- **American Society of Civil Engineers Student (ASCE)**: [https://www.asce.org/membership/student/](https://www.asce.org/membership/student/)
ASCE seeks to promote civil and environmental engineering, expose students to real world engineering, and connect students to alumni and professionals. Throughout the year we invite speakers from the industry, visit plants and sites, and organize social events. The objectives of this Chapter are to encourage the development of a professional consciousness, to afford an opportunity for civil engineering students to become acquainted and to practice working together effectively, to promote a spirit of congeniality among them, and to provide friendly contact with the engineering profession. We also support the Concrete Canoe competition (see below) and the Seismic Design Competition of the Earthquake Engineering Research Institute (EERI).
- **Chi Epsilon**: [https://www.chi-epsilon.org/xewebgeneral2/](https://www.chi-epsilon.org/xewebgeneral2/)
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Rice Concrete Canoe is a student-run club that creates a functional concrete canoe to race and present at the yearly ASCE sponsored competition. Through the year, members gain engineering experience through the research, planning and constructing of a concrete canoe. By offerings members exposure to the engineering design process, small-group work, software such as Matlab and Adobe Illustrator (and possibly more starting this year), and laser cutters, Concrete Canoe offers a unique experience to students regardless of whether or not they want to become engineers.
- **Society of Women Engineers**: [https://swe.rice.edu](https://swe.rice.edu)
The Society of Women Engineers aims to empower women to pursue and achieve their full potential in science and engineering related fields. We provide opportunities in professional development, academic and post-graduate planning, community outreach, and social events.

**Additional Information**

For additional information, please see the Civil and Environmental Engineering website: [https://ceve.rice.edu/](https://ceve.rice.edu/)
Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering

Program Learning Outcomes for the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering

Upon completing the BA with a major in Civil and Environmental Engineering and a major concentration in Environmental Engineering, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to communicate effectively with a range of audiences.
3. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
4. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
5. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
6. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Requirements for the Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Civil and Environmental Engineering must complete:

- A minimum of 62 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9-10 courses (25-28 credit hours), depending on declared major concentration, taken at the 300-level or above.
- 11 courses (25 credit hours) of General Math and Science courses.
- 6 courses (16 credit hours) as Major Concentration Core courses.
- 7 courses (21 credit hours) in a focused specialty area of study.
- The requirements of a major concentration. When students declare the major (p. 17) in Civil and Environmental Engineering, students must additionally identify and declare one of two major concentrations, either in:
  - Civil Engineering (p. 634), or
  - Environmental Engineering (p. 637).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Each major concentration is to be tailored to the specific needs of the student by discussions with, and approval by, the Civil and Environmental Engineering departmental major concentration advisor. Although not required, students are encouraged to double major when pursuing the BA degree.

The coherent and complete core curriculum is designed to give Rice undergraduate students a consistent technological literacy through the lens of Civil and Environmental Engineering and to prepare students for graduate school in engineering, various sciences (depending upon focus), economics, business MBA, political science, law, or medicine. Select students will be invited to finish an accelerated MS/PhD degree in the CEVE Department (see your advisor or department chair for details). Those students who want to obtain an engineering degree from a program accredited by the Engineering Accreditation Commission (EAC) of ABET must follow one of the Bachelor of Science programs the EAC has accredited at Rice, like the Bachelor of Science in Civil Engineering (BSCE). Students pursuing professional engineering licensure should also consider our BS in Civil and Environmental Engineering (BSCE).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
<th>Title</th>
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Degree Requirements

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<td>Core Requirements</td>
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<td>General Math and Science Courses</td>
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<td></td>
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<td>or CAAM 335 MATRIX ANALYSIS</td>
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<td>or CHEM 113 AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
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<td></td>
<td>CHEM 122 GENERAL CHEMISTRY II</td>
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<td></td>
<td>or CHEM 112 AP/OTH CREDIT IN GENERAL CHEMISTRY II</td>
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<td>or CHEM 114 AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II</td>
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</tr>
<tr>
<td></td>
<td>MATH 101 SINGLE VARIABLE CALCULUS I</td>
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</table>
Major Concentration: Environmental Engineering

Students must complete the following 6 courses (16 credit hours) to satisfy the requirements for the major concentration in Environmental Engineering.

<table>
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<th>Credit Hours</th>
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<td>EEPS 307 /</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
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<tr>
<td>ENST 307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEVE 310</td>
<td>URBAN WATER SYSTEMS: SOURCES, TREATMENT, DISTRIBUTION, RESOURCE RECOVERY AND REUSE</td>
<td>3</td>
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<tr>
<td>CEVE 315</td>
<td>URBAN WATER SYSTEMS LAB: WATER QUALITY PARAMETERS AND TREATMENT TECHNIQUES</td>
<td>1</td>
</tr>
<tr>
<td>CEVE 401</td>
<td>CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE</td>
<td>3</td>
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</table>

Total Credit Hours 16

Specialty Focus Area

To satisfy the remaining Specialty Focus Area of the BA degree with a major in Civil and Environmental Engineering, students must complete a total of 7 courses (21 credit hours) from approved electives selected with the Civil and Environmental Engineering advisor. Course selection must meet the following requirements:

- A minimum of 4 courses (12 credit hours) must be within one Specialty Focus Area (See examples below).
- A minimum of 4 courses (12 credit hours) from the 300-level or above; 2 of these 4 courses (6 credit hours) must also be selected from departmental (CEVE) course offerings.

Example Specialty Focus areas are suggested below; however students are encouraged to prepare their own specialty related to their career objectives in consultation with, and approval by, their Civil and Environmental Engineering advisor.

1. Biology
2. Chemical Engineering
3. Chemistry
4. Civil Engineering
5. Economics
6. Environmental Science and Engineering
7. Management

Policies for the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering may not additionally pursue the Bachelor of Science in Civil Engineering (BSCE) Degree.
- Students pursuing the major in Civil and Environmental Engineering may pursue only one major concentration within the major.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.
Departmental Transfer Credit Guidelines
Students pursuing the major in Civil and Environmental Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Civil and Environmental Engineering website: [https://ceve.rice.edu/](https://ceve.rice.edu/)

Opportunities for the BA Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honor, Award, and Scholarship Opportunities

- **Distinction in Research and Creative Work**: The Department of Civil and Environmental Engineering will recognize graduating seniors for outstanding creative contributions with the award of Distinction in Research and Creative Work. The Department recognizes this award as being a significant honor. As such, it will be awarded to no more than 20% of a graduating class (rounded up to next whole number). This award shall be given for significant contributions in research, design, and creative projects beyond class assignments (except CEVE 499). Generally, it is expected that the student recipients will have performed research/design for a minimum of two academic segments (one segment = one academic year or one summer) during their undergraduate career (either for credit or pay). It may be given for one outstanding piece of work for consistent meaningful contributions made over the course of an undergraduate career. All majors (BA and BS) are eligible and will be considered for this distinction in the spring prior to their graduation.

- **Rice Global Forum**: Rice Global Forum (RGF) is an engineering and construction industry funded center which is in its second decade of operation. It was founded by Ahmad Durrani, past chair of Civil and Environmental Engineering at Rice. RGF funds and facilitates interaction with the engineering and construction industry, particularly oil and gas related work. RGF funds $25,000 worth of scholarships every year. In addition, RGF also consistently sponsors and supports Engineers Without Borders (EWB) and has donated to other student clubs as well in addition to holding an engineering design competition every year in February during National Engineers Week.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found [here](p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Civil and Environmental Engineering (MCEE) degree. For additional information, students should contact their undergraduate major advisor and the (MCEE) chair of the department graduate studies committee.

Student Organizations and Clubs

- **American Society of Civil Engineers Student (ASCE)**: [https://www.asce.org/membership/student/](https://www.asce.org/membership/student/).

ASCE seeks to promote civil and environmental engineering, expose students to real world engineering, and connect students to alumni and professionals. Throughout the year we invite speakers from the industry, visit plants and sites, and organize social events. The objectives of this Chapter are to encourage the development of a professional consciousness, to afford an opportunity for civil engineering students to become acquainted and to practice working together effectively, to promote a spirit of congeniality among them, and to provide friendly contact with the engineering profession. We also support the Concrete Canoe competition (see below) and the Seismic Design Competition of the Earthquake Engineering Research Institute (EERI).

- **Chi Epsilon**: [https://www.chi-epsilon.org/xwebgeneral2/](https://www.chi-epsilon.org/xwebgeneral2/).

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- **Engineers Without Borders (EWB)**: [https://ewb.rice.edu/](https://ewb.rice.edu/).

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an experience in a developing country, where they are able to design and build a project to help society. Students have been attracted to the EWB program in large numbers and our local chapter is one of the most successful in the United States. Some CEVE courses are EWB-related, providing the opportunity to also obtain credit hours.

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**Additional Information**
For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

### Bachelor of Science in Civil Engineering (BSCE) Degree

The program leading to the BSCE degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, https://www.abet.org (https://www.abet.org/).

### Program Learning Outcomes (Student Outcomes) for the BSCE Degree

Upon completing the BSCE degree, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

### Program Educational Objectives for the BSCE Degree

Within 3 to 5 years of graduation, graduates with a Bachelor of Science in Civil Engineering (BSCE) degree are expected to attain the following Program Educational Objectives (PEOs):

1. Demonstrate strong problem-solving and communication skills.
2. Achieve leadership positions in technical or managerial areas.
3. Demonstrate initiative and innovation in professional endeavors.
4. Demonstrate engagement in addressing ethical, social, environmental, and global concerns.
5. Remain engaged in continuing learning, including advanced degrees.
6. Obtain a Professional Engineering license, if appropriate.

### Requirements for the BSCE Degree

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BSCE degree must complete:

- A minimum of 36 courses (94 credit hours) to satisfy major requirements.
- A minimum of 133 credit hours to satisfy degree requirements.
- A minimum of 21 courses (57 credit hours) taken at the 300-level or above.
- The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Civil Engineering (associated with the BSCE degree), students must additionally identify and declare one of four areas of specialization, either in:
  - **Area I - Environmental Engineering** (p. 641): Air and water quality, transport theory, modeling, and energy, or
  - **Area II - Hydrology and Water Resources** (p. 641): Watershed and aquifer management, flood prediction, data analysis, GIS, and hydrologic modeling, or
  - **Area III - Structural Engineering and Mechanics** (p. 641): Structural analysis, mechanics, design, dynamics, and matrix method, or
  - **Area IV - Urban Infrastructure, Reliability, and Management** (p. 642): Transportation systems, complex urban systems, system reliability, soil mechanics, decision theory, engineering economics, and project management.

- A minimum of 16 courses (40-41 credit hours, depending on course selection) from the General Math and Science courses.
- A minimum of 9 courses (24 credit hours) from the Core Requirements.

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Civil and Environmental Engineering’s innovative and challenging BSCE degree’s engineering curriculum is designed to provide significant flexibility to the student. Specific details and typical course layouts by semester can be found on the departmental website (http://ceve.rice.edu/).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the
department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/) Students and their academic advisors should identify and clearly document the courses to be taken.

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### Degree Requirements

#### General Math and Science Requirements

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<td>CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
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<td>MATRIX ANALYSIS</td>
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<td>or MATH 354</td>
<td>HONORS LINEAR ALGEBRA</td>
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<td>or MATH 355</td>
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<td>STAT 310 / ECON 307</td>
<td>PROBABILITY AND STATISTICS 3</td>
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**Footnotes and Additional Information**

1. **Note:** University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

2. Or an equivalent approved course

3. Students may substitute EEPS 110 with any departmental Earth, Environmental, and Planetary Sciences (EEPS) course offering.

4. Students may substitute STAT 310 with any departmental (STAT) course offering at the 300-level or above with the exception of STAT 305.

5. Select 1 from the following Areas of Specialization (see Areas of Specialization below):

   - Area I - Environmental Engineering
   - Area II - Hydrology and Water Resources
   - Area III - Structural Engineering and Mechanics
   - Area IV - Urban Infrastructure, Reliability and Management

6. Select electives to fulfill the remaining BSCE degree requirements (see below for suggested elective courses)

**Total Credit Hours Required for the Major in Civil Engineering**

- Additional Credit Hours to Complete Degree Requirements

**Footnotes and Additional Information**

* 4. Please Note: For students pursuing an area of specialization in Environmental Engineering (Area I) or Hydrology and Water Resources (Area II), CEVE 316 and CEVE 401 are required, and CEVE 471 and CEVE 472 are Urban Infrastructure, Reliability, and Management (Area IV) electives. For students pursuing an area of specialization in Structural Engineering and Mechanics (Area III) or Urban Infrastructure, Reliability, and Management (Area IV), CEVE 471 and CEVE 472 are required and CEVE 401 is an Environmental Engineering (Area I) elective.
Courses that introduce fundamentals of civil and environmental engineering primarily targeted at students with diverse science, engineering, and humanities backgrounds (CEVE 101, CEVE 211, CEVE 310, CEVE 311, CEVE 312)

See also the University Graduation Requirements footnote above denoted with an *.

**Areas of Specialization**

To fulfill the remaining BSCE degree requirements, students must complete a total of 10 courses (30 credit hours) from the four areas of specialization as follows:

- 8 courses (24 credit hours), consisting of a minimum of 2 courses (6 credit hours) from each of the four areas of specialization as breadth.
- 2 additional courses (6 credit hours) from one of the four areas of specialization for a total of 4 courses (12 credit hours, including breadth) in that specific area as an area of specialization.

**Area of Specialization: Area I - Environmental Engineering**

All students must select a minimum of 2 courses (6 credit hours) from Area I. Students pursuing the Area I - Environmental Engineering area of specialization must complete:

- 4 courses (12 credit hours) from Area I - Environmental Engineering
- 2 courses (6 credit hours) from Area II - Hydrology and Water Resources
- 2 courses (6 credit hours) from Area III - Structural Engineering and Mechanics
- 2 courses (6 credit hours) from Area IV - Urban Infrastructure, Reliability and Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 302 / ENGI 302</td>
<td>SUSTAINABLE DESIGN</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 307 / EEPS 307 / ENST 307</td>
<td>ENERGY AND THE ENVIRONMENT</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 308</td>
<td>INTRODUCTION TO AIR POLLUTION CONTROL</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 404</td>
<td>ATMOSPHERIC PARTICULATE MATTER</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 406 / ENST 406</td>
<td>INTRODUCTION TO ENVIRONMENTIAL LAW</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 411</td>
<td>ATMOSPHERIC CHEMISTRY AND CLIMATE</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 434</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 444</td>
<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
<td>6</td>
</tr>
</tbody>
</table>

Or any approved (Area I - Environmental Engineering) course from CEVE course offerings

Select 4 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 314 / BIOE 365 / GLHT 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
<td>12</td>
</tr>
<tr>
<td>CEVE 412</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 420</td>
<td>ENVIRONMENTAL REMEDIATION RESTORATION</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 518</td>
<td>ENVIRONMENTAL HYDROGEOLOGY</td>
<td>6</td>
</tr>
</tbody>
</table>

Or any approved (Area II - Hydrology or Water Resources) course from CEVE course offerings

Select 2 courses (6 credit hours) from the following:

Select 2 courses (6 credit hours) from the Area I - Environmental Engineering Area of Specialization

Select 2 courses (6 credit hours) from the Area III - Structural Engineering and Mechanics Area of Specialization

Select 2 courses (6 credit hours) from the Area IV - Urban Infrastructure, Reliability and Management Area of Specialization

Total Credit Hours 30

**Area of Specialization: Area II - Hydrology and Water Resources**

All students must select a minimum of 2 courses (6 credit hours) from Area II. Students pursuing the Area II - Hydrology and Water Resources area of specialization must complete:

- 4 courses (12 credit hours) from Area II - Hydrology and Water Resources
- 2 courses (6 credit hours) from Area I - Environmental Engineering
- 2 courses (6 credit hours) from Area III - Structural Engineering and Mechanics
- 2 courses (6 credit hours) from Area IV - Urban Infrastructure, Reliability and Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 325</td>
<td>STRUCTURAL ANALYSIS AND MODELING</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 400 / MECH 400</td>
<td>ADVANCED MECHANICS OF MATERIALS</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 427 / MECH 427</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 431 &amp; CEVE 432</td>
<td>DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credit Hours 30

**Area of Specialization: Area III - Structural Engineering and Mechanics**

All students must select a minimum of 2 courses (6 credit hours) from Area III. Students pursuing the Area III - Structural Engineering and Mechanics area of specialization must complete:

- 4 courses (12 credit hours) from Area III - Structural Engineering and Mechanics
- 2 courses (6 credit hours) from Area I - Environmental Engineering
- 2 courses (6 credit hours) from Area II - Hydrology and Water Resources
- 2 courses (6 credit hours) from Area IV - Urban Infrastructure, Reliability and Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 325</td>
<td>STRUCTURAL ANALYSIS AND MODELING</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 400 / MECH 400</td>
<td>ADVANCED MECHANICS OF MATERIALS</td>
<td>6</td>
</tr>
<tr>
<td>CEVE 427 / MECH 427</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credit Hours 30
Bachelor of Science in Civil Engineering (BSCE) Degree

CEVE 441  DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS

CEVE 476  STRUCTURAL DYNAMIC SYSTEMS ¹

CEVE 496  SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING

Or any approved (Area III Structural Engineering and Mechanics) course from CEVE/MECH course offerings

Select 2 courses (6 credit hours) from the Area I - Environmental Engineering Area of Specialization

Select 2 courses (6 credit hours) from the Area II - Hydrology and Water Resources Area of Specialization

Select 2 courses (6 credit hours) from the Area IV - Urban Infrastructure, Reliability and Management Area of Specialization

Total Credit Hours 30

Area of Specialization: Area IV - Urban Infrastructure, Reliability and Management
All students must select a minimum of 2 courses (6 credit hours) from Area IV. Students pursuing the Area IV - Urban Infrastructure, Reliability and Management area of specialization must complete:

• 4 courses (12 credit hours) from Area IV - Urban Infrastructure, Reliability and Management
• 2 courses (6 credit hours) from Area I - Environmental Engineering
• 2 courses (6 credit hours) from Area II - Hydrology and Water Resources
• 2 courses (6 credit hours) from Area III - Structural Engineering and Mechanics

Select 4 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 301</td>
<td>ENGINEERING ECONOMICS AND PROJECT MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>CEVE 313 / ENGI 313</td>
<td>UNCERTAINTY AND RISK IN URBAN INFRASTRUCTURES</td>
<td></td>
</tr>
<tr>
<td>CEVE 320 / ENGI 320</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td></td>
</tr>
<tr>
<td>CEVE 424</td>
<td>TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS ¹</td>
<td></td>
</tr>
<tr>
<td>CEVE 452</td>
<td>URBAN TRANSPORTATION SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>CEVE 460</td>
<td>BRIDGE ENGINEERING AND EXTREME EVENTS ¹</td>
<td></td>
</tr>
<tr>
<td>CEVE 492</td>
<td>MODELING AND ANALYSIS OF NETWORKED SYSTEMS ¹</td>
<td></td>
</tr>
</tbody>
</table>

Or any approved (Area IV - Urban Infrastructure, Reliability and Management) course from CEVE/MGMT/ECON/CAAM/STAT course offerings

Select 2 courses (6 credit hours) from the Area I - Environmental Engineering Area of Specialization

Select 2 courses (6 credit hours) from the Area II - Hydrology and Water Resources Area of Specialization

Select 2 courses (6 credit hours) from the Area III - Structural Engineering and Mechanics Area of Specialization

Total Credit Hours 30

Footnotes and Additional Information
¹  Offered alternative years

Suggested Electives for the BSCE Degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 101</td>
<td>FUNDAMENTALS OF CIVIL AND ENVIRONMENTAL ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 320 / ENGI 320</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 417 / MECH 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 424</td>
<td>TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 454 / BIOE 454 / MECH 454</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 499</td>
<td>SPECIAL PROBLEMS</td>
<td>1-12</td>
</tr>
<tr>
<td>CAAM 336</td>
<td>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 378</td>
<td>INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 453</td>
<td>NUMERICAL ANALYSIS I</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 471</td>
<td>LINEAR AND INTEGER PROGRAMMING</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>ORGANIC CHEMISTRY I &amp; CHEM 213 and ORGANIC CHEMISTRY DISCUSSION</td>
<td>3</td>
</tr>
<tr>
<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>ECON 445</td>
<td>MANAGERIAL ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 343</td>
<td>MODELING OF DYNAMIC SYSTEMS</td>
<td>4</td>
</tr>
<tr>
<td>MECH 412</td>
<td>VIBRATIONS</td>
<td>3</td>
</tr>
<tr>
<td>STAT 385</td>
<td>METHODS OF DATA ANALYSIS AND SYSTEM OPTIMIZATION</td>
<td>4</td>
</tr>
</tbody>
</table>

Policies for the BSCE Degree
Program Restrictions and Exclusions
Students pursuing the BSCE Degree should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the Bachelor of Science in Civil Engineering (BSCE) Degree may not additionally pursue the BA Degree with a Major in Civil and Environmental Engineering.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BSCE degree should be aware of the following departmental transfer credit guidelines:
• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Opportunities for the BSCE Degree

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honor, Award, and Scholarship Opportunities

• Distinction in Research and Creative Work: The Department of Civil and Environmental Engineering will recognize graduating seniors for outstanding creative contributions with the award of Distinction in Research and Creative Work. The Department recognizes this award as being a significant honor. As such, it will be awarded to no more than 20% of a graduating class (rounded up to next whole number). This award shall be given for significant contributions in research, design, and creative projects beyond class assignments (except CEVE 499). Generally, it is expected that the student recipients will have performed research/design for a minimum of two academic segments (one segment = one academic year or one summer) during their undergraduate career (either for credit or pay). It may be given for one outstanding piece of work for consistent meaningful contributions made over the course of an undergraduate career. All majors (BA and BS) are eligible and will be considered for this distinction in the spring prior to their graduation.

• Rice Global Forum: Rice Global Forum (RGF) is an engineering and construction industry funded center which is in its second decade of operation. It was founded by Ahmad Durrani, past chair of Civil and Environmental Engineering at Rice. RGF funds and facilitates interaction with the engineering and construction industry, particularly oil and gas related work. RGF funds $25,000 worth of scholarships every year. In addition, RGF also consistently sponsors Engineers Without Borders (EWB) and has donated to other student clubs as well in addition to holding an engineering design competition every year in February during National Engineers Week.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Civil and Environmental Engineering (MCEE) degree. For additional information, students should contact their undergraduate major advisor and the (MCEE) chair of the department graduate studies committee.

Student Organizations and Clubs

• American Society of Civil Engineers Student (ASCE): https://www.asce.org/membership/student/. ASCE seeks to promote civil and environmental engineering, expose students to real world engineering, and connect students to alumni and professionals. Throughout the year we invite speakers from the industry, visit plants and sites, and organize social events. The objectives of this Chapter are to encourage the development of a professional consciousness, to afford an opportunity for civil engineering students to become acquainted and to practice working together effectively, to promote a spirit of congeniality among them, and to provide friendly contact with the engineering profession. We also support the Concrete Canoe competition (see below) and the Seismic Design Competition of the Earthquake Engineering Research Institute (EERI).

• Chi Epsilon: https://www.chi-epsilon.org/xewebgeneral2/. Chi Epsilon is dedicated to maintaining and promoting the status of civil engineering as an ideal profession. Chi Epsilon was organized to recognize the characteristics of the individual civil engineering deemed to be fundamental to the successful pursuit of an engineering career, and to aid in the development of those characteristics in the civil engineering student.

• Engineers Without Borders (EWB): https://ewb.rice.edu/. EWB partners with developing communities worldwide to design engineering solutions that will improve their standards of living. It is an important component of the Civil and Environmental Engineering program. BA students with their flexible curriculum are encouraged to participate. This exciting endeavor allows undergraduates to have an experience in a developing country, where they are able to design and build a project to help society. Students have been attracted to the EWB program in large numbers and our local chapter is one of the most successful in the United States. Some CEVE courses are EWB-related, providing the opportunity to also obtain credit hours.

• Concrete Canoe: https://concretecanoe.rice.edu/. Rice Concrete Canoe is a student-run club that creates a functional concrete canoe to race and present at the yearly ASCE sponsored competition. Through the year, members gain engineering experience through the research, planning and constructing of a concrete canoe. By offerings members exposure to the engineering design process, small-group work, software such as Matlab and Adobe Illustrator (and possibly more starting this year), and laser cutters, Concrete Canoe
offers a unique experience to students regardless of whether or not they want to become engineers.

- **Society of Women Engineers**: [https://swe.rice.edu](https://swe.rice.edu).
  The Society of Women Engineers aims to empower women to pursue and achieve their full potential in science and engineering related fields. We provide opportunities in professional development, academic and post-graduate planning, community outreach, and social events.

### Additional Information

For additional information, please see the Civil and Environmental Engineering website: [https://ceve.rice.edu](https://ceve.rice.edu/)

### Doctor of Philosophy (PhD) Degree in the field of Civil Engineering

#### Program Learning Outcomes for the PhD Degree in the field of Civil Engineering

Upon completing the PhD degree in the field of Civil Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Acquire advanced knowledge of the principles of civil and environmental engineering and apply them to advanced technical problems.
3. Conduct an independent research program.
4. Demonstrate professional written and oral communication skills.

#### Requirements for the PhD Degree in the field of Civil Engineering

For general university requirements, please see [Doctoral Degrees](https://swe.rice.edu) (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](https://ceve.rice.edu/graduate-program/msphd-program/preliminary-phd-exam/) (p. 60). Students pursuing the PhD degree in the field of Civil Engineering must:

- Complete 90 credit hours at the 500-level or above of approved courses past the BS degree (60 credit hours past the MS degree) with high standing (see guidelines at: [https://ceve.rice.edu/](https://ceve.rice.edu/))
- Complete at least 6 core courses required by the department.
  - For students focusing on civil, structural engineering, and mechanics, coursework must include one course in each of the following areas: structural mechanics and FEM, structural dynamic systems, earthquake engineering, probabilistic mechanics, and applied mathematics. Comparable coursework completed previously may be substituted for these core courses. A minimum grade of B- (2.67 grade points) must be achieved for each of these core courses, as well as a minimum GPA of 3.00.
  - Spend at least four semesters in full-time study at Rice and successfully accomplish the following:
    - Pass a preliminary examination ([https://ceve.rice.edu/graduate-program/msphd-program/preliminary-phd-exam/](https://ceve.rice.edu/)) in civil engineering (see guidelines at: [https://ceve.rice.edu/](https://ceve.rice.edu/)).
    - Pass a qualifying examination on coursework, proposed research, and related topics.
    - Complete a thesis indicating an ability to conduct original and scholarly research.
- Pass a formal public oral examination on the thesis and related topics.

Course requirements are stipulated to prepare and train students for rigorous and high quality education, research, and practice. These courses, usually completed within the first two years of graduate school, are designed to train and test the student’s aptitude for higher level thinking, problem solving, and independent research. Core courses also contribute breadth beyond minimum competency as civil and environmental engineers. The students are expected to strive for breadth and depth in core course selection, by working with their advisor and preliminary examination committee, and ensure that minimum core competency expectations are met.

Civil engineering graduate students will be scheduled to take their preliminary examination no later than after two semesters of coursework at Rice. A student who enters in the spring semester needs to take the preliminary exam in the following spring semester along with other students. A student who passes the written and oral parts of the preliminary exam becomes eligible for taking the qualifying exam.

The qualifying examination is administered by the doctoral committee after students develop a research proposal to demonstrate their preparation for the proposed research and identify any areas requiring additional coursework or study. As part of the advanced degree training, we also may require students to assist the faculty in undergraduate courses and laboratory instructions.

#### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Civil Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CEVE 500</td>
<td>ADVANCED MECHANICS OF MATERIALS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 503</td>
<td>NONLINEAR FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 524</td>
<td>TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 527</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 531</td>
<td>DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 541</td>
<td>DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 560</td>
<td>BRIDGE ENGINEERING AND EXTREME EVENTS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 576</td>
<td>STRUCTURAL DYNAMIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 578</td>
<td>EARTHQUAKE ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 592</td>
<td>MODELING AND ANALYSIS OF NETWORKED SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 596</td>
<td>SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 678</td>
<td>APPLIED STOCHASTIC MECHANICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 6 courses from the following: 18
Policies for the PhD Degree in the field of Civil Engineering

Department of Civil and Environmental Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Civil and Environmental Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Civil_Environmental_Engineering_Graduate_Handbook.pdf

Admission

Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BS in Civil Engineering with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design.

Successful applicants typically have at least a 3.00 (B) grade point average in undergraduate work and high Graduate Record Examination (GRE) scores. For general university requirements, see Graduate Degrees (p. 57) and Admission to Graduate Study (p. 59).

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Civil Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Opportunities for the PhD Degree in the field of Civil Engineering

Fellowships and Opportunities

- NASA Internships: multiple opportunities are available for undergraduate and graduate students for spring and fall semesters, as well as year-long appointments.
- NRC Research Associateship Program: the National Academies of Sciences, Engineering, and Medicine offer paid postdoctoral, senior, and graduate fellowships.
- NASA Fellowships and other opportunities: NASA offers several internships, fellowships, and scholarships for both undergraduate and graduate students.
- NSF Graduate Research Fellowship Program (NSF-GRFP): provides fellowships to individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in science and engineering.
- Fulbright-Hays Doctoral Dissertation Research Abroad Program (DDRA): provides grants to fund individual doctoral students to conduct research in other countries in modern foreign languages and area studies for periods of 6 to 12 months.
- DOE Computational Science Graduate Fellowship: The Department of Energy Computational Science Graduate Fellowship (DOE CSGF) program provides outstanding benefits and opportunities to students pursuing doctoral degrees in fields of study that utilize high performance computing to solve complex problems in science and engineering.
- DOD National Defense Science and Engineering Graduate Fellowship (NDSEG): it is a highly competitive portable fellowship that is awarded to US citizens and nationals who intend to pursue a doctoral degree in one of fifteen supported disciplines.
- Pathways to Science: it is a project of the Institute for Broadening Participation. The organization places emphasis on connecting underrepresented groups with STEM programs, funding, mentoring, and resources. Fellowships for masters and doctoral students are available, as is funding for travel and summer institutes.

Student Clubs

- Civil and Environmental Department Graduate Student Association: The main purpose of the club is to 1) foster better professional and personal relationships among students and between students and faculty members 2) provide a forum for concerns, both professional and personal, about graduate student life and 3) foster professional growth through mentoring, recruitment, and affiliate/internship relationships.
- Earthquake Engineering Research Institute: http://eeri.rice.edu. The objective of this student chapter is to encourage, facilitate, and promote learning and interest among students in the field of earthquake engineering through interaction with professionals and experts and through interdisciplinary involvement.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Environmental Engineering

Program Learning Outcomes for the PhD Degree in the field of Environmental Engineering

Upon completing the PhD degree in the field of Environmental Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Acquire advanced knowledge of the principles of civil and environmental engineering and apply them to advanced technical problems.

...
3. Conduct an independent research program.
4. Demonstrate professional written and oral communication skills.

**Requirements for the PhD Degree in the field of Environmental Engineering**

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Environmental Engineering must:

- Complete 90 credit hours at the 500-level and above of approved courses past the BS degree (60 credit hours past the MS degree) with high standing (see guidelines on the department website [http://www.ceve.rice.edu/](http://www.ceve.rice.edu/)).
- Complete at least 6 core courses required by the department with a minimum GPA of 3.00 or higher and a minimum grade of B- (2.67 grade points) in each course.
- Spend at least four semesters in full time study at Rice and successfully accomplish the following:
  - Pass a preliminary examination ([https://ceve.rice.edu/graduate-program/msphd-program/preliminary-phd-exam/](https://ceve.rice.edu/graduate-program/msphd-program/preliminary-phd-exam/)) in environmental engineering (see guidelines on the department website [http://www.ceve.rice.edu/](http://www.ceve.rice.edu/)).
  - Pass a qualifying examination on coursework, proposed research, and related topics.
  - Complete a thesis indicating an ability to conduct original and scholarly research.
  - Pass a formal public oral examination on the thesis and related topics.

Course requirements are stipulated to prepare and train students for rigorous and high quality education, research, and practice. These courses, usually completed within the first two years of graduate school, are designed to train and test the student’s aptitude for higher level thinking, problem solving, and independent research. Core courses also contribute breadth beyond minimum competency as civil and environmental engineers. The students are expected to strive for breadth and depth in core course selection, by working with their advisor and preliminary examination committee, and ensure that minimum core competency expectations are met.

PhD students in the EES field will be scheduled to take their preliminary examination no later than after two semesters of coursework at Rice. A student who enters in the spring semester needs to take the preliminary exam in the following spring semester along with other students. A student who passes the written and oral parts of the preliminary exam becomes eligible for taking the qualifying exam.

The qualifying examination is administered by the doctoral committee after students develop a research proposal to demonstrate their preparation for the proposed research and identify any areas requiring additional coursework or study. As part of the advanced degree training, we also may require students to assist the faculty in undergraduate courses and laboratory instructions.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>CEVE 509</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
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<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
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<td>CEVE 535</td>
<td>PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL</td>
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<td>CEVE 544</td>
<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
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<td>CEVE 550</td>
<td>ENVIRONMENTAL ORGANIC CHEMISTRY</td>
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### Degree Requirements

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### Additional Coursework as Approved by the Department

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<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
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</tbody>
</table>

### Policies for the PhD Degree in the field of Environmental Engineering

#### Department of Civil and Environmental Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of Civil and Environmental Engineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Civil_Environmental_Engineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Civil_Environmental_Engineering_Graduate_Handbook.pdf)

#### Admission

Applicants pursuing graduate education in environmental engineering or hydrology should have a BS or BA in related areas of science and engineering and preparation in mathematics, science, and engineering or related courses. A BS degree in Engineering or a degree in natural science is preferred.

Successful applicants typically have at least a 3.00 (B) grade point average in undergraduate work and high Graduate Record Examination scores.
Fellowships and Opportunities

Field of Environmental Engineering

Opportunities for the PhD Degree in the field of Environmental Engineering

Fellowships and Opportunities

- NASA Internships: multiple opportunities are available for undergraduate and graduate students for spring and fall semesters, as well as year-long appointments.
- NRC Research Associateship Program: the National Academies of Sciences, Engineering, and Medicine offer paid postdoctoral, senior, and graduate fellowships.
- NASA Fellowships and other opportunities: NASA offers several internships, fellowships, and scholarships for both undergraduate and graduate students.
- NSF Graduate Research Fellowship Program (NSF-GRFP): provides fellowships to individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in science and engineering.
- Fulbright-Hays Doctoral Dissertation Research Abroad Program (DDRA): provides grants to fund individual doctoral students to conduct research in other countries in modern foreign languages and area studies for periods of 6 to 12 months.
- DOE Computational Science Graduate Fellowship: The Department of Energy Computational Science Graduate Fellowship (DOE CSGF) program provides outstanding benefits and opportunities to students pursuing doctoral degrees in fields of study that utilize high performance computing to solve complex problems in science and engineering.
- DOD National Defense Science and Engineering Graduate Fellowship (NDSEG): it is a highly competitive portable fellowship that is awarded to US citizens and nationals who intend to pursue a doctoral degree in one of fifteen supported disciplines.
- Pathways to Science: it is a project of the Institute for Broadening Participation. The organization places emphasis on connecting underrepresented groups with STEM programs, funding, mentoring, and resources. Fellowships for masters and doctoral students are available, as is funding for travel and summer institutes.

Student Clubs

- Civil and Environmental Department Graduate Student Association: The main purpose of the club is to 1) foster better professional and personal relationships among students and between students and faculty members 2) provide a forum for concerns, both professional and personal, about graduate student life and 3) foster professional growth through mentoring, recruitment, and affiliate/internship relationships.
- Earthquake Engineering Research Institute: http://eeri.rice.edu

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Master of Civil and Environmental Engineering (MCEE) Degree in the field of Civil Engineering

Program Learning Outcomes for the MCEE Degree in the field of Civil Engineering

Upon completing the MCEE degree in the field of Civil Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Demonstrate professional written and oral communication skills.

Requirements for the MCEE in the field of Civil Engineering

The MCEE degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MCEE degree in the field of Civil Engineering must complete:

- A minimum of 11 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 648) tab.
- A minimum of one graduate seminar (CEVE 601 or CEVE 602).
- A final project (CEVE 590).
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The Master of Civil and Environmental Engineering (MCEE) degree is a professional non-thesis master’s degree. Students who have a BS or BA degree in any field of engineering or related study may apply. Depending on their background, some students may need to fulfill prerequisites or take remedial engineering courses to earn the MCEE degree. For more information, see the department website (http://www.ceve.rice.edu/).

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<th>Code</th>
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<td>Total Credit Hours for the MCEE Degree in the field of Civil Engineering</td>
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### Degree Requirements

#### Core Requirements

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<th>Code</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Advanced Courses</td>
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</table>

Select 6 from the following:

- CEVE 500 / MECH 500 ADVANCED MECHANICS OF MATERIALS
- CEVE 503 / MECH 520 NONLINEAR FINITE ELEMENT ANALYSIS
- CEVE 527 / MECH 527 PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM
- CEVE 531 DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS
- CEVE 541 DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS
- CEVE 554 / B/OE 554 / MECH 554 COMPUTATIONAL FLUID MECHANICS
- CEVE 560 BRIDGE ENGINEERING AND EXTREME EVENTS
- CEVE 571 PRINCIPLES OF SOIL MECHANICS AND FOUNDATION ENGINEERING
- CEVE 576 / MECH 576 STRUCTURAL DYNAMIC SYSTEMS
- CEVE 577 EARTHQUAKE ENGINEERING
- CEVE 592 MODELING AND ANALYSIS OF NETWORKED SYSTEMS
- CEVE 596 SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING

#### Advanced Courses

- CEVE 678 / MECH 678 APPLIED STOCHASTIC MECHANICS
- CEVE 679 / MECH 679 APPLIED MONTE CARLO ANALYSIS

#### Seminar

Select 1 from the following:

- CEVE 601 SEMINAR
- CEVE 602 SEMINAR

#### Elective Requirements

**Directed Civil Engineering Electives**

Select 2 from the Core Requirements or from the following:

- CAAM 550 NUMERICAL ANALYSIS I
- CEVE 517 / MECH 517 FINITE ELEMENT ANALYSIS
- CEVE 555 / CAAM 536 NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
- MECH 502 VIBRATIONS
- MECH 665 ANALYSIS OF VIBRATIONS IN NONLINEAR SYSTEMS

**Professional Development Electives**

Select 1 from the following:

- ANTH 532 THE SOCIAL LIFE OF CLEAN ENERGY
- CEVE 506 INTRODUCTION TO ENVIRONMENTAL LAW
- CEVE 507 ENERGY AND THE ENVIRONMENT
- CEVE 528 / ENGI 528 ENGINEERING ECONOMICS
- EC 401 ENERGY ECONOMICS I
- ENGI 501 WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING
- ENGI 529 / CEVE 529 ETHICS AND ENGINEERING LEADERSHIP
- NSCI 511 SCIENCE POLICY, AND ETHICS
- NSCI 610 / ENGI 610 MANAGEMENT FOR SCIENCE AND ENGINEERING

**MCEE Final Project**

- CEVE 590 MCEE SPECIAL STUDY 1

Total Credit Hours: 30

### Footnotes and Additional Information

1. The professional masters final project is overseen by a Civil and Environmental Engineering department faculty member.

### Policies for the MCEE Degree in the field of Civil Engineering

#### Department of Civil and Environmental Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Civil and Environmental Engineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Civil_Environmental_Engineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Civil_Environmental_Engineering_Graduate_Handbook.pdf)
Admission

Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BS in Civil Engineering with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design.

Applicants pursuing graduate education in environmental engineering or hydrology should have a BS or BA in related areas of science and engineering and preparation in mathematics, science, and engineering or related courses. A BS degree in engineering or a degree in natural science is preferred.

Admission into a professional program is granted separately from admission into a research and thesis program. Professional degree programs terminate when the degree is awarded. Students who wish to continue graduate study after completing a professional program must apply for admission into a research program.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MCEE degree in the field of Civil Engineering or Environmental Engineering should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Request for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Opportunities for the MCEE Degree in the field of Civil Engineering

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Civil and Environmental Engineering (MCEE) degree. For additional information, students should contact their undergraduate major advisor and the (MCEE) chair of the department graduate studies committee.

George R. Brown School of Engineering Scholarships for Professional Master’s Degrees in Engineering

The George R. Brown School of Engineering Scholarships for Professional Master’s Degrees in Engineering were established by the Dean of the School of Engineering to encourage outstanding Rice undergraduate engineering students to pursue a professional master’s degree at Rice.

Rice Global Forum (RGF)

The Rice Global Forum (RGF) is a group of industry professionals plus Rice faculty who gather regularly to discuss topics that define their interests. They sponsor the Engineering Competition each year and give out scholarships that are derived from membership dues. The scholarships are geared toward professional master’s and terminal research master’s (MS) students.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Master of Civil and Environmental Engineering (MCEE) Degree in the field of Environmental Engineering

Program Learning Outcomes for the MCEE Degree in the field of Environmental Engineering

Upon completing the MCEE degree in the field of Environmental Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Demonstrate professional written and oral communication skills.

Requirements for the MCEE Degree in the field of Environmental Engineering

The MCEE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing
the MCEE degree in the field of Environmental Engineering must complete:

- A minimum of 11 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 651) tab.
- A minimum of one graduate seminar (CEVE 601 or CEVE 602).
- A final project (CEVE 590).
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

The Master of Civil and Environmental Engineering (MCEE) degree is a professional non-thesis master's degree. Students who have a BS or BA degree in any field of engineering or related study may apply. Depending on their background, some students may need to fulfill prerequisites or take remedial engineering courses to earn the MCEE degree. For more information, see the department website (http://www.ceve.rice.edu/).

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<td>CEVE 536</td>
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#### Elective Requirements

**Engineering Science and Technology**

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<td>CEVE 504</td>
<td>ATMOSPHERIC PARTICULATE MATTER</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 508</td>
<td>INTRODUCTION TO AIR POLLUTION CONTROL</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 510</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
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<td>CEVE 518</td>
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<td>CEVE 520</td>
<td>ENVIRONMENTAL REMEDIATION RESTORATION</td>
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<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
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<td>CEVE 592</td>
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<td>EEPS 584</td>
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<td>EEPS 632</td>
<td>QUANTITATIVE HYDROGEOLOGY</td>
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<tr>
<td>STAT 685</td>
<td>ENVIRONMENTAL STATISTICS AND DECISION MAKING</td>
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**Sustainable Resource Management**

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<td>BIOS 580</td>
<td>SUSTAINABLE DEVELOPMENT AND REPORTING</td>
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<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
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<td>ENERGY AND THE ENVIRONMENT</td>
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<td>CEVE 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
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<td>ENGI 529</td>
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<td>ECON 601</td>
<td>ENERGY ECONOMICS I</td>
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<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER'S STUDENTS IN ENGINEERING</td>
<td>3</td>
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<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
<td>3</td>
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<tr>
<td>NSCI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
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<tr>
<td>CEVE 590</td>
<td>MCEE SPECIAL STUDY</td>
<td>2</td>
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</table>

Total Credit Hours: 30
Footnotes and Additional Information

The professional masters final project is overseen by a Civil and Environmental Engineering department faculty member.

Policies for the MCEE Degree in the field of Environmental Engineering

Department of Civil and Environmental Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Civil and Environmental Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Civil_Environmental_Engineering_Graduate_Handbook.pdf

Admission

Applicants pursuing graduate education in structural engineering, structural mechanics, and geotechnical engineering should have a BS in Civil Engineering with a significant emphasis on structural engineering, but students with other undergraduate degrees may apply if they have adequate preparation in mathematics, mechanics, and structural analysis and design.

Applicants pursuing graduate education in environmental engineering or hydrology should have a BS or BA in related areas of science and engineering and preparation in mathematics, science, and engineering or related courses. A BS degree in engineering or a degree in natural science is preferred.

Admission into a professional program is granted separately from admission into a research and thesis program. Professional degree programs terminate when the degree is awarded. Students who wish to continue graduate study after completing a professional program must apply for admission into a research program.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MCEE degree in the field of Civil Engineering or Environmental Engineering should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Request for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Opportunities for the MCEE Degree in the field of Environmental Engineering

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate · Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Civil and Environmental Engineering (MCEE) degree. For additional information, students should contact their undergraduate major advisor and the (MCEE) chair of the department graduate studies committee.

George R. Brown School of Engineering Scholarships for Professional Master’s Degrees in Engineering

The George R. Brown School of Engineering Scholarships for Professional Master’s Degrees in Engineering were established by the Dean of the School of Engineering to encourage outstanding Rice undergraduate engineering students to pursue a professional master’s degree at Rice.

Rice Global Forum (RGF)

The Rice Global Forum (RGF) is a group of industry professionals plus Rice faculty who gather regularly to discuss topics that define their interests. They sponsor the Engineering Competition each year and give out scholarships that are derived from membership dues. The scholarships are geared toward professional master’s and terminal master’s (MS) students.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/
Master of Science (MS) Degree in the field of Civil Engineering

Program Learning Outcomes for the MS Degree in the field of Civil Engineering

Upon completing the MS degree in the field of Civil Engineering, students will be able to:

1. Demonstrate a solid foundation in civil and environmental engineering at the graduate level.
2. Acquire advanced knowledge of the principles of civil and environmental engineering and apply them to advanced technical problems.
3. Conduct an independent research program.
4. Demonstrate professional written and oral communication skills.

Requirements for the MS Degree in the field of Civil Engineering

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). Students pursuing the MS degree in the field of Civil Engineering must:

- Complete a minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.
- Complete a minimum of 24 credit hours at Rice University from approved graduate-level courses and 6 credit hours of thesis research.
  - Core courses contribute to breadth, depth, and minimum competency as civil and environmental engineers. For students focusing on civil, structural engineering and mechanics, coursework must include at least one course in each of the following areas: structural mechanics and FEM, structural dynamic systems, earthquake engineering, probabilistic mechanics, and applied mathematics. Comparable coursework completed previously may be substituted for these core courses. Students must obtain a minimum GPA of 3.00 with a minimum grade of B- (2.67 grade points) in each core course.
  - Select a thesis committee according to departmental requirements and conduct original research in consultation with the committee.
  - Present and defend in oral examination an approved research thesis.

Students take the oral exam only after the committee determines the thesis to be in a written format acceptable for public defense. Normally, students take two academic years and the intervening summer to complete the degree.

Students intending to extend their studies into the PhD degree program should note that the department does not grant an automatic (candidacy) MS degree to candidates who have not written a satisfactory master’s thesis.

Summary

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<td>Total Credit Hours Required for the MS Degree in the field of Civil Engineering</td>
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Policies for the MS Degree in the field of Civil Engineering

Department of Civil and Environmental Engineering Graduate Program Handbook

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Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Civil or Environmental Engineering should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

Additional Information

For additional information, please see the Civil and Environmental Engineering website: https://ceve.rice.edu/

Opportunities for the MS Degree in the field of Civil Engineering

Fellowships and Opportunities

- NASA Internships: multiple opportunities are available for undergraduate and graduate students for spring and fall semesters, as well as year-long appointments.
- NRC Research Associateship Program: the National Academies of Sciences, Engineering, and Medicine offer paid postdoctoral, senior, and graduate fellowships.
- NASA Fellowships and other opportunities: NASA offers several internships, fellowships, and scholarships for both undergraduate and graduate students.
- NSF Graduate Research Fellowship Program (NSF-GRFP): provides fellowships to individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in science and engineering.
- Fulbright-Hays Doctoral Dissertation Research Abroad Program (DDRA): provides grants to fund individual doctoral students to conduct research in other countries in modern foreign languages and area studies for periods of 6 to 12 months.
- DOE Computational Science Graduate Fellowship: The Department of Energy Computational Science Graduate Fellowship (DOE
A degree in the field of Environmental Engineering must:

- **DOD National Defense Science and Engineering Graduate Fellowship (NDSEG):** It is a highly competitive portable fellowship that is awarded to US citizens and nationals who intend to pursue a doctoral degree in one of fifteen supported disciplines.

- **Pathways to Science:** It is a project of the Institute for Broadening Participation. The organization places emphasis on connecting underrepresented groups with STEM programs, funding, mentoring, and resources. Fellowships for masters and doctoral students are available, as is funding for travel and summer institutes.

**Student Clubs**

- **Civil and Environmental Department Graduate Student Association:** The main purpose of the club is to 1) foster better professional and personal relationships among students and between students and faculty members 2) provide a forum for concerns, both professional and personal, about graduate student life and 3) foster professional growth through mentoring, recruitment, and affiliate/internship relationships.

- **Earthquake Engineering Research Institute:** [http://eeri.rice.edu](http://eeri.rice.edu). The objective of this student chapter is to encourage, facilitate, and promote learning and interest among students in the field of earthquake engineering through interaction with professionals and experts and through interdisciplinary involvement.

**Additional Information**

For additional information, please see the Civil and Environmental Engineering website: [https://ceve.rice.edu](https://ceve.rice.edu)

**Master of Science (MS) Degree in the field of Environmental Engineering**

**Program Learning Outcomes for the MS Degree in the field of Environmental Engineering**

Upon completing the MS degree in the field of Environmental Engineering, students will be able to:

1. Demonstrate a solid foundation in environmental engineering at the graduate level.
2. Apply principles of environmental engineering and related knowledge to advanced technical problems.
3. Conduct independent research.
4. Demonstrate professional written and oral communication skills.

**Requirements for the MS Degree in the field of Environmental Engineering**

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MS degree in the field of Environmental Engineering must:

- Complete a minimum of 30 total credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.
- Complete a minimum of 24 credit hours at Rice University from approved graduate-level courses and 6 credit hours of thesis research.
  - Core courses contribute to breadth, depth, and minimum competency. For students focusing on environmental engineering, coursework must include at least one course in each of the following areas: environmental chemistry, water treatment, hydrology, and air quality. Comparable coursework completed previously may be substituted for these core courses. Students must obtain a minimum GPA of 3.00 with a minimum grade of B- (2.67 grade points) in each core course.
  - Select a thesis committee according to departmental requirements and conduct original research in consultation with the committee.
  - Present and defend in oral examination an approved research thesis.

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Additional Information

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Opportunities for the MS Degree in the field of Environmental Engineering

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• NRC Research Associateship Program: the National Academies of Sciences, Engineering, and Medicine offer paid postdoctoral, senior, and graduate fellowships.
• NASA Fellowships and other opportunities: NASA offers several internships, fellowships, and scholarships for both undergraduate and graduate students.
• NSF Graduate Research Fellowship Program (NSF-GRFP): provides fellowships to individuals selected early in their graduate careers based on their demonstrated potential for significant achievements in science and engineering.
• Fulbright-Hays Doctoral Dissertation Research Abroad Program (DDRA): provides grants to fund individual doctoral students to conduct research in other countries in modern foreign languages and area studies for periods of 6 to 12 months.
• DOE Computational Science Graduate Fellowship: The Department of Energy Computational Science Graduate Fellowship (DOE CSGF) program provides outstanding benefits and opportunities to students pursuing doctoral degrees in fields of study that utilize high performance computing to solve complex problems in science and engineering.
• DOD National Defense Science and Engineering Graduate Fellowship (NDSEG): it is a highly competitive portable fellowship that is awarded to US citizens and nationals who intend to pursue a doctoral degree in one of fifteen supported disciplines.
• Pathways to Science: it is a project of the Institute for Broadening Participation. The organization places emphasis on connecting underrepresented groups with STEM programs, funding, mentoring, and resources. Fellowships for masters and doctoral students are available, as is funding for travel and summer institutes.

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• Earthquake Engineering Research Institute: http://eeri.rice.edu

Classical Civilizations

The minor in Classical Civilizations is part of the program in Classical Studies in the department of Modern and Classical Literatures and Cultures. This minor is an opportunity to pursue a well-defined course of study in ancient Greek and Roman literature and culture that requires no Greek or Latin.

Minor

• Minor in Classical Civilizations (p. 664)

Classical Civilizations does not currently offer an academic program at the graduate level.

Chair

Christian J. Emden

Program Advisor

Hilary S. Mackie

Professors

Scott McGill
Donald R. Morrison
Harvey E. Yunis

Associate Professor

Hilary S. Mackie

Assistant Professor

Sophie Crawford-Brown

Lecturer

Ted Somerville

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Classical Studies (CLAS)

CLAS 102 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: HART 101, MDEM 111. Mutually Exclusive: Cannot register for CLAS 102 if student has credit for HART 220.

CLAS 107 - GREEK CIVILIZATION AND ITS LEGACY
Short Title: GREEK CIVILIZATION & LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An examination of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. The influence of ancient Greece on Western culture will be a focus. Case studies in the later reception of classical Greek literature (e.g., tragedy), philosophy (e.g., Socrates), history (e.g., democracy), and art (e.g., The Parthenon) will be examined. Cross-list: HUMA 107.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 108 - ROMAN CIVILIZATION AND ITS LEGACY
Short Title: ROMAN CIVILIZATION &ITS LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will investigate central aspects of Roman civilization: politics, religion, law, oratory, private life, public entertainment, literature, and visual art and architecture. We will also examine the place of ancient Rome in the western imagination, and the influence of ancient Rome on later politics, literature, and art. Cross-list: HUMA 111.
Course URL: classicallegacy.rice.edu/ (http://classicallegacy.rice.edu/)

CLAS 124 - CLASSICAL ANTIQUITY IN CHILDREN'S LITERATURE
Short Title: ANTIQUITY IN CHILDREN'S LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will study children's literature, from the Victorian period to the present day, in which models from classical antiquity and/or the idea of classical antiquity itself are prominent, seeking to understand the meanings "classical antiquity" held and holds for their authors and readers, and the agendas they served and serve. Taught in English.

CLAS 207 - LOVE LIFE IN CLASSICAL ANTIQUITY
Short Title: LOVE LIFE IN ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Love, sex, marriage and eroticism were important aspects of ancient Greek and Roman culture as they are of our own, though they were sometimes conceived of very differently. In this course we will consider the evidence for various aspects of sexual relationships in poetry, art, inscriptions, philosophy, and more.

CLAS 208 - THE FALL OF ROME
Short Title: THE FALL OF ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course will consider the fall of Rome as an historical event and an historical topic. We will examine how, why, and even if the Roman empire fell in antiquity. We will also consider the historical narrative of Rome's fall, including in Gibbon's Decline and Fall of the Roman Empire.

CLAS 209 - CAMENAE TO CHRISTIANITY: A SURVEY OF LATIN POETRY
Short Title: A SURVEY OF LATIN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of Latin poetry from its origins to its late period. Readings are in English. The course provides a broad overview of Latin literary history through the close study of Roman poetry and of the culture in which it was produced. Authors include Catullus, Virgil, Horace, and Ovid.
CLAS 210 - HOMER AND VIRGIL AND THEIR RECEPTION
Short Title: HOMER AND VIRGIL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course reads Homer's ILIAD and ODYSSEY and Virgil's AENEID in translation. Topics include the nature of oral poetry, the history of the epic genre, Virgilian intertextuality, the cultural and political contexts in which the poems arose, and case studies in the poets’ reception.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 218 - CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY
Short Title: GREEK ART AND ARCHAEOLOGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art and archaeology of the ancient Greek world. Artistic media, such as sculpture and vase painting will be examined in a broad range of the material culture ancient Greeks created and used. Consideration of these materials within their cultural, social and religious contexts will be discussed. Cross-list: HART 216.

CLAS 219 - OLD ENGLISH: READINGS IN BEOWULF
Short Title: OLD ENGLISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will read selections from Beowulf in the original Old English, and discuss its literary and historical importance. No prior knowledge of Old English required.

CLAS 225 - AUGUSTUS AND THE 'GOLDEN AGE' OF ROME
Short Title: AUGUSTUS & 'GOLDEN AGE' ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of Augustan Rome through the literature, art, and architecture that revolutionized the eternal city under its first Emperor, both through his agency and in more subversive form. We will ask how writers and artists responded to this moment of transformation, and how text and material culture interacted to shape Roman Imperial culture.

CLAS 235 - CLASSICAL MYTHOLOGY: INTERPRETATION, ORIGINS, AND INFLUENCE
Short Title: CLASSICAL MYTHOLOGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will read and analyze some of the most influential Greek myths (including their parallels and permutations in other cultures). Employing insights from a variety of theoretical approaches to myth, we will identify typical story patterns, characters, and events, and the values, anxieties, and aspirations for which they stand.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CLAS 302 - GREEK TRAGEDY
Short Title: GREEK TRAGEDY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read 16 Greek tragedies by Aeschylus, Sophocles, and Euripides as well as contemporary criticism of tragedy by Aristophanes, Plato, and Aristotle. We will consider how ancient tragedies were staged, how they were received by their audiences, how they fit in the life of Athens, how they influenced later dramatic arts, and how they continue to stimulate thinking about the human situation.
CLAS 303 - SOCRATES  
**Short Title:** SOCRATES  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The course will seek to understand the life and thought of Socrates, arguably the most influential philosopher in history. Readings will focus on Plato's Socratic dialogues, among the world's masterpieces of prose literature, and Aristophanes' Clouds, in which the "sophist" Socrates is mercilessly mocked for his outlandish uselessness. We will read Plato's Apology of Socrates at both the beginning and the end of the course, considering the reasons that Socrates was tried, convicted, and executed by his fellow citizens, and what was the nature of his defense. Mutually exclusive with FWIS 149. Students cannot receive credit for both FWIS 149 and CLAS 303. Mutually Exclusive: Cannot register for CLAS 303 if student has credit for FWIS 149.

CLAS 309 - THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETERNAL CITY  
**Short Title:** THE DAWN OF ROME  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture the reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Cross-list: HART 309.

CLAS 316 - DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE  
**Short Title:** DEMOCRACY & POLITICAL THEORY  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: PLST 316.

CLAS 317 - THE SELF IN GREEK AND ROMAN THOUGHT  
**Short Title:** SELF IN GREEK&ROMAN THOUGHT  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course explores conceptions of the self from Homer to Augustine of Hippo, focusing especially on views of the mind or soul and its relation to the body, thought or reason and its relation to desire, human agency and responsibility, and the individual self in relation to others.

CLAS 319 - ANCIENTS VERSUS MODERNENS  
**Short Title:** ANCIENTS VERSUS MODERNENS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Ancients and moderns have participated in constant dialogue – sometimes friendly, sometimes hostile – that still shapes the complexities of our own approaches to the past. This seminar traces approximately two millennia of conflict and compromise between so-called “ancients” and “moderns” from ancient Greece and Rome to the French Revolution and beyond.

CLAS 321 - SPECIAL TOPICS IN ANCIENT ART  
**Short Title:** ROME: THE ETERNAL CITY  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will introduce you to the major monuments of Rome, Pompeii, and Herculaneum. We will focus not only on the history and functions of these monuments in antiquity but also on how their meaning and representation has changed and evolved in the post-classical world. Instructor Permission Required. Cross-list: HART 318. Repeatable for Credit.
CLAS 324 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Cross-list: HART 327.

CLAS 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 326, HART 326.

CLAS 336 - INTRO TO INDO-EUROPEAN
Short Title: INTRO TO INDO-EUROPEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will begin with a brief survey of the Indo-European languages, followed by a detailed reconstruction of Proto-Indo-European phonology, morphology, and syntax. The second half of the course will deal with Indo-European culture, laws, society and poetics, together with a consideration of advanced topics in the individual branches. Cross-list: LING 336.

CLAS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CLAS 482 - CAESAR'S PALACE: AUTHORITY AND MEANING IN THE ROMAN IMPERIAL RESIDENCE
Short Title: CAESAR'S PALACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Described as both a "Hall of Despotism" and a "Citadel of Majesty," the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperorship. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Cross-list: HART 482.

CLAS 492 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work. Instructor Permission Required. Repeatable for Credit.

CLAS 493 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to Classical Studies majors in their final year. Thesis, approximately 7,500-15,000 words (30-60 pages), on a topic of the student’s choice in consultation with a faculty member. CLAS 493 and CLAS 494 form a two semester sequence. Requirements for 493 include a detailed prospectus with annotated bibliography. Instructor Permission Required.
GREE 101 - ELEMENTARY GREEK I
Short Title: ELEMENTARY GREEK I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Reading-based introduction to ancient Greek. Readings include passages from classical and New Testament authors. Explanation and analysis of basic grammar, including comparison with English grammar. Besides translating Greek to English (and vice versa), we will consider the language and literature in their historical context, and practice reading ancient Greek aloud. Effective May 15, 2019, this course does not carry D1 credit.

GREE 102 - ELEMENTARY GREEK II
Short Title: ELEMENTARY GREEK II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of GREE 101. Effective May 15, 2019, this course does not carry D1 credit.

GREE 201 - INTERMEDIATE GREEK I: PROSE
Short Title: INTERMEDIATE GREEK I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of forms and syntax. Readings from Plato.

GREE 202 - INTERMEDIATE GREEK: EURIPIDES MEDEA/BIBLICAL KOINE
Short Title: INTERMEDIATE GREEK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Section 1 reads Euripides or Sophocles. Section 2 reads excerpts from New Testament, Septuagint, and Early Christian writers. Includes review of forms and syntax.

GREE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 301 - HOMERIC GREEK
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of CLAS 493. Open to Classical Studies majors in their final year. Thesis, approximately 7,500-15,000 words (30-60 pages), on a topic of the student's choice in consultation with a faculty member. Instructor Permission Required.

GREE 302 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to third and fourth year undergraduates. An opportunity to read the Iliad/Odyssey in the original Greek. Includes review of forms and syntax as well as discussion of Homeric diction, meter, poetics, and oral tradition. May be repeated (once) for credit.

GREE 305 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Greek prose for third or fourth year undergraduates. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 301, with additional texts. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 505. Mutually Exclusive: Cannot register for GREE 302 if student has credit for GREE 502. Repeatable for Credit.
GREE 306 - ADVANCED GREEK: POETRY
Short Title: ADVANCED GREEK: POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on Greek poetry, with an emphasis on fifth- and fourth-century authors. The course will emphasize poetic vocabulary and grammar, meter, and performance contexts. Texts change each semester. Repeatable for Credit.

GREE 307 - ADVANCED GREEK: PROSE
Short Title: ADVANCED GREEK: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on prose texts, with an emphasis on fifth- and fourth-century authors. The course will emphasize poetic vocabulary and grammar, meter, and performance contexts. Texts change each semester, repeatable for credit. Repeatable for Credit.

GREE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 492 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required. Repeatable for Credit.

GREE 502 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to graduate students. Read the Iliad/Odyssey in the original Greek. Review of forms and syntax. Discussion of Homeric dialect, meter, poetics, and oral tradition. Requirement beyond GREE 302: oral presentation analyzing diction and poetic formulas in a specific passage. Repeatable (once) for credit. Graduate/Undergraduate Equivalency: GREE 302. Mutually Exclusive: Cannot register for GREE 502 if student has credit for GREE 302. Repeatable for Credit.

GREE 503 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: DIRECTED READING GRAD STUDENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Repeatable for Credit.

GREE 504 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: GR STUDENTS DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

GREE 505 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO,ARISTOTLE,NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Greek prose for graduate students in related disciplines. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 501, with additional texts. Additional work required beyond GREE 305, in the form of an oral presentation analyzing the language and style of one or more text in terms of its historical, social, and generic context. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 305. Mutually Exclusive: Cannot register for GREE 505 if student has credit for GREE 305. Repeatable for Credit.
GREE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Latin (LATI)
LATI 101 - ELEMENTARY LATIN I
Short Title: ELEMENTARY LATIN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 101.

LATI 102 - ELEMENTARY LATIN II
Short Title: ELEMENTARY LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 101 or MDST 101
Description: Continuation of LATI 101 and MDST 101. Graduate students require permission of instructor. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 102.

LATI 104 - AP/OTH CREDIT IN ELEMENTARY LATIN
Short Title: AP/OTH CREDIT ELEMENTARY LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 201 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Readings in Virgil. Cross-list: MDEM 211.

LATI 202 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211
Description: Readings in Virgil. Cross-list: MDEM 212.

LATI 204 - AP/OTH CREDIT IN INTERMEDIATE LATIN
Short Title: AP/OTH CREDIT INTERM. LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
LATI 301 - CICERO AND SALLUST
Short Title: CICERO AND SALLUST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: The course will read selections from Cicero and Sallust on the Catilinarian Conspiracy. Close attention will be given to the authors’ style and to their rhetorical and historiographical methods. We will also examine the events of the conspiracy and the political culture of the late Roman Republic. Recommended Prerequisite(s): Four semesters of Latin or the equivalent.

LATI 302 - ADVANCED LATIN
Short Title: ADVANCED LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Propertius’ elegies with a view to understanding the poetics of Latin love elegy and the relationship of this genre to its social context. D1 credit.

LATI 303 - ADVANCED LATIN: PLAUTUS AND TERENCE
Short Title: ADV LATIN: PLAUTUS & TERENCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Plautus’ Pseudolus and Terence’s Adelphoe. We will consider the background of Greek comedy and the contemporary social situation in Rome.

LATI 304 - ADVANCED LATIN: ROMAN EPIC
Short Title: ADV. LATIN: ROMAN EPIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Latin epic poetry, from the Republic through late antiquity. Topics will include the nature of the epic genre, the development of Roman epic, the styles of individual epic poets, and the works’ political and cultural contexts.

LATI 305 - ADVANCED LATIN: HORACE
Short Title: ADVANCED LATIN: HORACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Horace.

LATI 306 - ADVANCED LATIN: OVID'S METAMORPHOSES
Short Title: OVID'S METAMORPHOSES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Ovid’s Metamorphoses. Repeatable for Credit.

LATI 307 - LATIN POETRY OF LATE ANTIQUITY
Short Title: LATIN POETRY OF LATE ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Latin poetry, ca. 300 CE - ca. 600 CE. Topics include the relationship of this poetry to its classical past, its identity as "late" literature, the historical contexts and purposes of the texts and the development of a Christian Latin poetic tradition.

LATI 308 - LUCRETIUS
Short Title: LUCRETIUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will study the great philosophical poem of the Roman Epicurean Lucretius, De Rerum Nature (On the Nature of Things). In addition to selections from the Latin, students will read the entire poem in English translation as well as scholarship on the poem from a variety of perspectives.
LATI 309 - RECOVERY, REBIRTH, REGENERATION: CLASSICS AND THE EUROPEAN RENAISSANCE
Short Title: CLASSICS/EUROPEAN RENAISSANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the Renaissance reception of classical culture; it offers a comparative study of ancient and early modern cultures and literatures. Readings are conducted in both Latin and English. Authors include Cicero, Lucretius, Ovid, Augustine, Petrarch, Shakespeare, Kepler, and Galileo. Recommended Prerequisite(s): LATI 202 or MDEM 212

LATI 312 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 313 - CICERO AND CATULLUS: LITERATURE AND SOCIETY IN THE ROMAN REPUBLIC
Short Title: CICERO AND CATULLUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 317 - READING IN LIVY
Short Title: READING IN LIVY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Selections from the Roman historian Livy. Close attention will be given to Livy's prose style and narrative techniques. We will also examine his historical method, the Augustan context of his work, and the information he provides as a source on Roman history. Repeatable for Credit.

LATI 318 - READING IN CICERO
Short Title: CICERO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course features readings in Cicero (1st c. BCE), the politician, orator, and philosopher of first-century BCE Rome. The single most influential writer in Latin, Cicero is also a primary source for the fall of the Roman Republic. Spring 2016 will focus on the speech Pro Caelio, addressed to a law course in defense of the Roman aristocrat Caelius Rufus, and one of Cicero's most entertaining speeches. Repeatable for Credit.

LATI 320 - SILVER LATIN PROSE: SENECA AND TACITUS
Short Title: SENECA AND TACITUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Latin culture during the Silver Age (AD 18-133) developed in unforeseen directions, which remain provocative and stimulating today. This course will focus on the two writers who developed new pathways in prose writing and new ideas about Rome, the moralist Seneca and the historian Tacitus. We will read one of Seneca's moral essays, De brevitate vitae, and book four of Tacitus' Annals.

LATI 350 - TRANSLATING LATIN LITERATURE: THEORY AND PRACTICE
Short Title: TRANSLATING LATIN LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of Virgil's great Roman epic. Areas of interest will include Virgil's poetic technique, the history of ancient epic, and Roman politics and society, particularly in the Augustan Age. Since different books of the Aeneid will be read in different semesters, the course is repeatable for credit. Repeatable for Credit.
LATI 491 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Repeatable for Credit.

LATI 492 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Repeatable for Credit.

LATI 504 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: GR STUDENTS DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

LATI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: Courses from various subjects may apply towards this program

Department Description and Code
• Modern and Classical Literatures and Cultures: MCLC

Undergraduate Minor Description and Code
• Minor in Classical Civilizations: CLCV

CIP Code and Description
1. CLCV Minor: CIP Code/Title: 16.1299 - Classics and Classical Languages, Literature, and Linguistics, Other

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Classical Civilizations

Program Learning Outcomes for the Minor in Classical Civilizations
Upon completing the minor in Classical Civilizations, students will be able to:
1. Understand texts, artifacts, institutions, events, personalities, and places that are integral to ancient Greek and Roman culture.
2. Situate those texts, artifacts, institutions, events, personalities, and places in their historical and cultural contexts.
3. Relate classical civilization to the world around them, and appreciate the profound influence classical civilization has on later Western civilization.

Requirements for the Minor in Classical Civilizations
Students pursuing the minor in Classical Civilizations must complete:
• A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
• A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 665) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.
Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Classical Civilizations</td>
<td>18</td>
</tr>
</tbody>
</table>

Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Core Requirements

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAS 107 / HUMA 107</td>
<td>GREEK CIVILIZATION AND ITS LEGACY</td>
<td>6</td>
</tr>
<tr>
<td>CLAS 108 / HUMA 111</td>
<td>ROMAN CIVILIZATION AND ITS LEGACY</td>
<td>12</td>
</tr>
<tr>
<td>CLAS 235</td>
<td>CLASSICAL MYTHOLOGY: INTERPRETATION, ORIGINS, AND INFLUENCE</td>
<td>6</td>
</tr>
<tr>
<td>CLAS 336 / LING 336</td>
<td>INTRO TO INDO-EUROPEAN</td>
<td>6</td>
</tr>
</tbody>
</table>

Elective Requirements

Select 4 elective courses from departmental course offerings in CLAS, GREE, or LATI at any level

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Total Credit Hours

18

Footnotes and Additional Information

1 A minimum of 3 courses (9 credit hours) must be taken at the 300-level or above.

Policies for the Minor in Classical Civilizations

Students pursuing the minor in Classical Civilizations should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

- Students pursuing the major in Classical Studies may not additionally declare the minor in Classical Civilizations.

- Students pursuing the minor in Classical Civilizations may not additionally declare the minor in Greek Language and Literature.

- Students pursuing the minor in Classical Civilizations may not additionally declare the minor in Latin Language and Literature.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Classical Civilizations should be aware of the following departmental transfer credit guidelines.

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.

- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

Opportunities for the Minor in Classical Civilizations

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practicas that may be relevant to this minor.
Classical Studies

Contact Information
Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
edmen@rice.edu

Classical Studies is a major offered by the Modern and Classical Literatures and Cultures (MCLC) Department. The Classical Studies program provides instruction in the Greek and Latin languages, in Greek and Roman literature (studied in the original and in translation), in the classical civilizations surveyed as a whole, and in particular themes, genres, and periods of classical culture and its influence through subsequent ages.

The Classical Studies program offers two specializations that satisfy the requirements for a BA. The Classical Languages specialization emphasizes Greek and Latin and reading classical texts in the original languages. The Classical Civilizations specialization allows for a broader set of approaches and does not include a language requirement. The department also offers minors in Classical Civilizations, Greek Language and Literature, and Latin Language and Literature.

Bachelor's Program
• Bachelor of Arts (BA) Degree with a Major in Classical Studies (p. 676)

Minors
• Minor in Classical Civilizations (p. 664)
• Minor in Greek Language and Literature (p. 1107)
• Minor in Latin Language and Literature (p. 1302)

Classical Studies does not currently offer an academic program at the graduate level.

Chair
Christian J. Emden

Program Advisor
Hilary S. Mackie

Professors
Scott McGill
Donald R. Morrison
Harvey E. Yunis

Associate Professor
Hilary S. Mackie

Assistant Professor
Sophie Crawford-Brown

Classical Studies (CLAS)

CLAS 102 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: HART 101, MDEM 111. Mutually Exclusive: Cannot register for CLAS 102 if student has credit for HART 220.

CLAS 107 - GREEK CIVILIZATION AND ITS LEGACY
Short Title: GREEK CIVILIZATION & LEGACY
Department: Modrn & Classicl Lit & Legacy
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An examination of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. The influence of ancient Greece on Western culture will be a focus. Case studies in the later reception of classical Greek literature (e.g., tragedy), philosophy (e.g., Socrates), history (e.g., democracy), and art (e.g., The Parthenon) will be examined. Cross-list: HUMA 107.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 108 - ROMAN CIVILIZATION AND ITS LEGACY
Short Title: ROMAN CIVILIZATION &ITS LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will investigate central aspects of Roman civilization: politics, religion, law, oratory, private life, public entertainment, literature, and visual art and architecture. We will also examine the place of ancient Rome in the western imagination, and the influence of ancient Rome on later politics, literature, and art. Cross-list: HUMA 111.
Course URL: classicallegacy.rice.edu/ (http://classicallegacy.rice.edu/)

Lecturer
Ted Somerville

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Distribution Group</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course URL</th>
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<tr>
<td>CLAS 124</td>
<td>CLASSICALANTIQUITYINCHILDREN'SLITERATURE</td>
<td>ANTIQUITYINCHELDS LIT</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://classicallegacy.rice.edu">classicallegacy.rice.edu</a></td>
</tr>
<tr>
<td>CLAS 207</td>
<td>LOVE LIFE IN CLASSICAL ANTIQUITY</td>
<td>LOVE LIFE IN ANTIQUITY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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</tr>
<tr>
<td>CLAS 208</td>
<td>THE FALL OF ROME</td>
<td>THE FALL OF ROME</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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</tr>
<tr>
<td>CLAS 209</td>
<td>CAMENAE TO CHRISTIANITY: A SURVEY OF LATIN POETRY</td>
<td>A SURVEY OF LATIN POETRY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>CLAS 210</td>
<td>HOMER AND VIRGIL AND THEIR RECEPTION</td>
<td>HOMER AND VIRGIL</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>CLAS 218</td>
<td>CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY</td>
<td>GREEK ART AND ARCHAEOLOGY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>CLAS 219</td>
<td>OLD ENGLISH: READINGS IN BEOWULF</td>
<td>OLD ENGLISH</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>CLAS 225</td>
<td>AUGUSTUS AND THE ‘GOLDEN AGE’ OF ROME</td>
<td>AUGUSTUS &amp; ‘GOLDEN AGE’ ROME</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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</table>

Readings are in English. The course provides a broad overview of Latin literary history through the close study of Roman poetry and of the culture in which it was produced. Authors include Catullus, Virgil, Horace, and Ovid.
CLAS 235 - CLASSICAL MYTHOLOGY: INTERPRETATION, ORIGINS, AND INFLUENCE
Short Title: CLASSICAL MYTHOLOGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will read and analyze some of the most influential Greek myths (including their parallels and permutations in other cultures). Employing insights from a variety of theoretical approaches to myth, we will identify typical story patterns, characters, and events, and the values, anxieties, and aspirations for which they stand.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CLAS 302 - GREEK TRAGEDY
Short Title: GREEK TRAGEDY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read 16 Greek tragedies by Aeschylus, Sophocles, and Euripides as well as contemporary criticism of tragedy by Aristophanes, Plato, and Aristotle. We will consider how ancient tragedies were staged, how they were received by their audiences, how they fit in the life of Athens, how they influenced later dramatic arts, and how they continue to stimulate thinking about the human situation.

CLAS 303 - SOCRATES
Short Title: SOCRATES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will seek to understand the life and thought of Socrates, arguably the most influential philosopher in history. Readings will focus on Plato's Socratic dialogues, among the world's masterpieces of prose literature, and Aristophanes' Clouds, in which the "sophist" Socrates is mercilessly mocked for his outlandish uselessness. We will read Plato's Apology of Socrates at both the beginning and the end of the course, considering the reasons that Socrates was tried, convicted, and executed by his fellow citizens, and what was the nature of his defense. Mutually exclusive with FWIS 149. Students cannot receive credit for both FWIS 149 and CLAS 303. Mutually Exclusive: Cannot register for CLAS 303 if student has credit for FWIS 149.

CLAS 309 - THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETERNAL CITY
Short Title: THE DAWN OF ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture the reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Cross-list: HART 309.

CLAS 316 - DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE
Short Title: DEMOCRACY & POLITICAL THEORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: PLST 316.
CLAS 317 - THE SELF IN GREEK AND ROMAN THOUGHT
Short Title: SELF IN GREEK & ROMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores conceptions of the self from Homer to Augustine of Hippo, focusing especially on views of the mind or soul and its relation to the body, thought or reason and its relation to desire, human agency and responsibility, and the individual self in relation to others.

CLAS 319 - ANCIENTS VERSUS MODERNS
Short Title: ANCIENTS VERSUS MODERNS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Ancients and moderns have participated in constant dialogue – sometimes friendly, sometimes hostile – that still shapes the complexities of our own approaches to the past. This seminar traces approximately two millennia of conflict and compromise between so-called "ancients" and "moderns" from ancient Greece and Rome to the French Revolution and beyond.

CLAS 321 - SPECIAL TOPICS IN ANCIENT ART
Short Title: ROME: THE ETERNAL CITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to the major monuments of Rome, Pompeii, and Herculaneum. We will focus not only on the history and functions of these monuments in antiquity but also on how their meaning and representation has changed and evolved in the post-classical world. Instructor Permission Required. Cross-list: HART 318. Repeatable for Credit.

CLAS 324 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Cross-list: HART 327.

CLAS 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 326, HART 326.

CLAS 336 - INTRO TO INDO-EUROPEAN
Short Title: INTRO TO INDO-EUROPEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will begin with a brief survey of the Indo-European languages, followed by a detailed reconstruction of Proto-Indo-European phonology, morphology, and syntax. The second half of the course will deal with Indo-European culture, laws, society and poetics, together with a consideration of advanced topics in the individual branches. Cross-list: LING 336.
CLAS 494 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of CLAS 493. Open to Classical Studies majors in their final year. Thesis, approximately 7,500-15,000 words (30-60 pages), on a topic of the student's choice in consultation with a faculty member. Instructor Permission Required.

Greek (GREE)
GREE 101 - ELEMENTARY GREEK I
Short Title: ELEMENTARY GREEK I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading-based introduction to ancient Greek. Readings include passages from classical and New Testament authors. Explanation and analysis of basic grammar, including comparison with English grammar. Besides translating Greek to English (and vice versa), we will consider the language and literature in their historical context, and practice reading ancient Greek aloud. Effective May 15, 2019, this course does not carry D1 credit.

GREE 201 - INTERMEDIATE GREEK I: PROSE
Short Title: INTERMEDIATE GREEK I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of forms and syntax. Readings from Plato.
GREE 202 - INTERMEDIATE GREEK: EURIPIDES MEDEA/BIBLICAL KOINE
Short Title: INTERMEDIATE GREEK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Section 1 reads Euripides or Sophocles. Section 2 reads excerpts from New Testament, Septuagint, and Early Christian writers. Includes review of forms and syntax.

GREE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 302 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Open to third and fourth year undergraduates. An opportunity to read the Iliad/Odyssey in the original Greek. Includes review of forms and syntax as well as discussion of Homeric dialect, meter, poetics, and oral tradition. May be repeated (once) for credit. Graduate/Undergraduate Equivalency: GREE 502. Mutually Exclusive: Cannot register for GREE 302 if student has credit for GREE 502. Repeatable for Credit.

GREE 305 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATOARISTOTLE,NEW TSTMT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Greek prose for third or fourth year undergraduates. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 301, with additional texts. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 505. Mutually Exclusive: Cannot register for GREE 305 if student has credit for GREE 505. Repeatable for Credit.

GREE 306 - ADVANCED GREEK: POETRY
Short Title: ADVANCED GREEK: POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on Greek poetic texts, with an emphasis on Attic tragedy. The course will emphasize poetic vocabulary and grammar, meter, and performance contexts. Texts change each semester. Repeatable for Credit.

GREE 307 - ADVANCED GREEK: PROSE
Short Title: ADVANCED GREEK: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on prose texts, with an emphasis on fifth- and fourth- century authors. The course will emphasize vocabulary, grammar, and historical contexts. Texts change each semester, repeatable for credit. Repeatable for Credit.

GREE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 492 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required. Repeatable for Credit.
GREE 502 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Open to graduate students. Read the Iliad/Odyssey in the
dialect, meter, poetics, and oral tradition. Requirement beyond GREE 302:
oral presentation analyzing diction and poetic formulas in a specific
passage. Repeatable (once) for credit. Graduate/Undergraduate
Equivalency: GREE 302. Mutually Exclusive: Cannot register for GREE 502
if student has credit for GREE 302. Repeatable for Credit.

GREE 503 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: DIRECTED READING GRAD STUDENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary.
Repeatable for Credit.

GREE 504 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: GR STUDENTS DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary.
Offered in the spring semester. Repeatable for Credit.

GREE 505 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO,ARISTOTLE,NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Greek prose for graduate students in related disciplines.
Choice of texts flexible depending on the needs and interests of those
enrolled. Includes review of forms and syntax. Continuation of GREE 501,
with additional texts. Additional work required beyond GREE 305, in the
form of an oral presentation analyzing the language and style of one or
more text in terms of its historical, social, and generic context. May be
repeated for credit. Graduate/Undergraduate Equivalency: GREE 305.
Mutually Exclusive: Cannot register for GREE 505 if student has credit for
GREE 305. Repeatable for Credit.

GREE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar,
Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level
students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact
department for current semester’s topic(s). Repeatable for Credit.

Latin (LATI)

LATI 101 - ELEMENTARY LATIN I
Short Title: ELEMENTARY LATIN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the fundamentals of Latin grammar with emphasis
on acquisition of reading skills. Effective May 15, 2019, this course does
not carry D1 credit. Cross-list: MDEM 101.

LATI 102 - ELEMENTARY LATIN II
Short Title: ELEMENTARY LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 101 or MDST 101
Description: Continuation of LATI 101 and MDST 101. Graduate students
require permission of instructor. Effective May 15, 2019, this course does
not carry D1 credit. Cross-list: MDEM 102.

LATI 104 - AP/OTH CREDIT IN ELEMENTARY LATIN
Short Title: AP/OTH CREDIT ELEMENTARY LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have
successfully completed approved examinations, such as Advanced
Placement exams. This credit counts toward the total credit hours
required for graduation.
LATI 201 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of grammar and readings in Latin prose. Cross-list: MDEM 211.

LATI 202 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211
Description: Readings in Virgil. Cross-list: MDEM 212.

LATI 204 - AP/OTH CREDIT IN INTERMEDIATE LATIN
Short Title: AP/OTH CREDIT INTERM. LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LATI 301 - CICERO AND SALLUST
Short Title: CICERO AND SALLUST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: The course will read selections from Cicero and Sallust on the Catilinarian Conspiracy. Close attention will be given to the authors’ style and to their rhetorical and historiographical methods. We will also examine the events of the conspiracy and the political culture of the late Roman Republic. Recommended Prerequisite(s): Four semesters of Latin or the equivalent.

LATI 302 - ADVANCED LATIN
Short Title: ADVANCED LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Propertius’ elegies with a view to understanding the poetics of Latin love elegy and the relationship of this genre to its social context. D1 credit.

LATI 303 - ADVANCED LATIN: PLAUTUS AND TERENCE
Short Title: ADV LATIN: PLAUTUS & TERENCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Plautus’ Pseudolus and Terence’s Adelphoe. We will consider the background of Greek comedy and the contemporary social situation in Rome.

LATI 304 - ADVANCED LATIN: ROMAN EPIC
Short Title: ADV. LATIN: ROMAN EPIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Latin epic poetry, from the Republic through late antiquity. Topics will include the nature of the epic genre, the development of Roman epic, the styles of individual epic poets, and the works’ political and cultural contexts.
LATI 305 - ADVANCED LATIN: HORACE
Short Title: ADVANCED LATIN: HORACE
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Horace.

LATI 306 - ADVANCED LATIN: OVID’S METAMORPHOSES
Short Title: OVID’S METAMORPHOSES
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Ovid’s Metamorphoses. Repeatable for Credit.

LATI 307 - LATIN POETRY OF LATE ANTIQUITY
Short Title: LATIN POETRY OF LATE ANTIQUITY
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Latin poetry, ca. 300 CE - ca. 600 CE. Topics include the relationship of this poetry to its classical past, its identity as "late" literature, the historical contexts and purposes of the texts and the development of a Christian Latin poetic tradition.

LATI 308 - LUCRETIUS
Short Title: LUCRETIUS
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: This course will study the great philosophical poem of the Roman Epicurean Lucretius, De Rerum Nature (On the Nature of Things). In addition to selections from the Latin, students will read the entire poem in English translation as well as scholarship on the poem from a variety of perspectives.

LATI 309 - RECOVERY, REBIRTH, REGENERATION: CLASSICS AND THE EUROPEAN RENAISSANCE
Short Title: CLASSICS/EUROPEAN RENAISSANCE
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the Renaissance reception of classical culture; it offers a comparative study of ancient and early modern cultures and literatures. Readings are conducted in both Latin and English. Authors include Cicero, Lucretius, Ovid, Augustine, Petrarch, Shakespeare, Kepler, and Galileo. Recommended Prerequisite(s): LATI 202 or MDEM 212

LATI 312 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 313 - CICERO AND CATULLUS: LITERATURE AND SOCIETY IN THE ROMAN REPUBLIC
Short Title: CICERO AND CATULLUS
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Cicero’s PRO CAELIO and several of Catullus’ longer poems as a vehicle for understanding politics and culture in the late Roman Republic.

LATI 316 - READINGS IN VIRGIL’S AENEID
Short Title: READINGS IN VIRGILS AENEID
Department: Modrn &CLASSIC Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of Virgil’s great Roman epic. Areas of interest will include Virgil’s poetic technique, the history of ancient epic, and Roman politics and society, particularly in the Augustan Age. Since different books of the Aeneid will be read in different semesters, the course is repeatable for credit. Repeatable for Credit.
LATI 317 - READINGS IN LIVY  
Short Title: READINGS IN LIVY  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Selections from the Roman historian Livy. Close attention will be given to Livy's prose style and narrative techniques. We will also examine his historical method, the Augustan context of his work, and the information he provides as a source on Roman history. Repeatable for Credit.

LATI 318 - READINGS IN CICERO  
Short Title: CICERO  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course features readings in Cicero (1st c. BCE), the politician, orator, and philosopher of first-century BCE Rome. The single most influential writer in Latin, Cicero is also a primary source for the fall of the Roman Republic. Spring 2016 will focus on the speech Pro Caelio, addressed to a law course in defense of the Roman aristocrat Caelius Rufus, and one of Cicero's most entertaining speeches. Repeatable for Credit.

LATI 320 - SILVER LATIN PROSE: SENECA AND TACITUS  
Short Title: SENECA AND TACITUS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Latin culture during the Silver Age (AD 18-133) developed in unforeseen directions, which remain provocative and stimulating today. This course will focus on the two writers who developed new pathways in prose writing and new ideas about Rome, the moralist Seneca and the historian Tacitus. We will read one of Seneca's moral essays, De brevitate vitae, and book four of Tacitus' Annals.

LATI 350 - TRANSLATING LATIN LITERATURE: THEORY AND PRACTICE  
Short Title: TRANSLATING LATIN LITERATURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A thorough examination of the art of translating Latin Literature. Students will survey ancient and modern theories of translation; study a range of translations of select Latin texts; and produce their own translations of prose and verse Latin originals. Taught in English.

LATI 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LATI 491 - DIRECTED READING  
Short Title: DIRECTED READING  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Repeatable for Credit.

LATI 492 - DIRECTED READING  
Short Title: DIRECTED READING  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Instructor Permission Required. Repeatable for Credit.

LATI 504 - DIRECTED READING FOR GRADUATE STUDENTS  
Short Title: GR STUDENTS DIRECTED READING  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

LATI 677 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.  
Course Level: Graduate  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code for Classical Studies: CLAS
• Course offerings/subject code for Greek: GREE
• Course offerings/subject code for Latin: LATI

Department Description and Code
• Modern and Classical Literatures and Cultures: MCLC

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Classical Studies: CLST

Undergraduate Minor Descriptions and Codes
• Minor in Classical Civilizations: CLCV
• Minor in Greek Language and Literature: GRLL
• Minor in Latin Language and Literature: LALL

CIP Code and Description
• CLST Major/Program: CIP Code/Title: 16.1200 - Classics and Classical Languages, Literatures, and Linguistics, General
• CLCV Minor: CIP Code/Title: 16.1299 - Classics and Classical Languages, Literatures, and Linguistics, Other
• GRLL Minor: CIP Code/Title: 16.1202 - Ancient/Classical Greek Language and Literature
• LALL Minor: CIP Code/Title: 16.1203 - Latin Language and Literature

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Classical Studies

Program Learning Outcomes for the BA Degree with a Major in Classical Studies

Upon completing the BA degree with a major in Classical Studies, students will be able to:

1. Understand texts, artifacts, institutions, events, personalities, and places that are integral to ancient Greek and Roman culture.
2. Analyze, interpret, and think critically about those texts, artifacts, institutions, events, personalities, and places.
3. Situate those texts, artifacts, institutions, events, personalities, and places in their historical and cultural contexts.
4. Relate classical civilization to the world around them, and appreciate the profound influence classical civilization had on later Western civilization.

Requirements for the BA Degree with a Major in Classical Studies

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Classical Studies must complete:

• A minimum of 10 courses (30 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 2 courses (6 credit hours) taken at the 300-level or above.
• The requirements for one area of specialization (see below for areas of specialization). The BA degree with a major in Classical Studies offers two areas of specialization:
  • Classical Civilizations (p. 677), or
  • Classical Languages (p. 677).

The Classical Studies major offers instruction in the Greek and Latin languages, in Greek and Roman literature (studied in the original and in translation), in the classical civilizations surveyed as a whole, and in particular themes, genres, and periods of classical culture and their influence through subsequent ages. The program caters to students who wish to prepare for graduate school in classics as well as to students interested in Greek and Roman culture for other reasons and wish to take a less specialized approach. The program provides maximum flexibility without sacrifice of focus. Students will be able to explore ancient Greece and Rome from a variety of different angles and with whatever emphasis best suits their individual needs and goals.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Classical Studies</td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Classical Studies</td>
<td>120</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from the following:</td>
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</tr>
<tr>
<td>CLAS 107 / HUMA 107</td>
<td>GREEK CIVILIZATION AND ITS LEGACY</td>
<td></td>
</tr>
<tr>
<td>CLAS 108 / HUMA 111</td>
<td>ROMAN CIVILIZATION AND ITS LEGACY</td>
<td></td>
</tr>
<tr>
<td>CLAS 235</td>
<td>CLASSICAL MYTHOLOGY: INTERPRETATION, ORIGINS, AND INFLUENCE</td>
<td></td>
</tr>
</tbody>
</table>
### Areas of Specialization

Students must complete the requirements as listed for one of the following areas of specialization as offered by the Classical Studies major. A total of 8 courses (24 credit hours) must be taken in the area of specialization.

#### Area of Specialization: Classical Civilizations

Students must complete a total of 8 courses (24 credit hours) as listed below to satisfy the requirements for the area of specialization in Classical Civilizations.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 8 courses from Classical Studies (CLAS), Greek (GREE), or Latin (LATI) course offerings</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credit Hours** 24

**Footnotes and Additional Information**

1. A minimum of 2 courses (6 credit hours) must be taken at the 300-level or above.

#### Area of Specialization: Classical Languages

Students must complete a total of 8 courses (24 credit hours) as listed below to satisfy the requirements for the area of specialization in Classical Languages.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 1 from the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Select 1 course from Greek (GREE) course offerings at the 200-level or above</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Select 1 course from Latin (LATI) course offerings at the 200-level or above</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours** 3

**Footnotes and Additional Information**

1. A minimum of 2 courses (6 credit hours) must be taken at the 300-level or above.

### Policies for the BA Degree with a Major in Classical Studies

#### Program Restrictions and Exclusions

Students pursuing the major in Classical Studies should be aware of the following program restrictions:

- Students pursuing the major in Classical Studies may not additionally declare the minor in Classical Civilizations.
- Students pursuing the major in Classical Studies may not additionally declare the minor in Greek Language and Literature.
- Students pursuing the major in Classical Studies may not additionally declare the minor in Latin Language and Literature.

#### Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit](p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the major in Classical Studies should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

#### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the [new course creation process](https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call ([https://registrar.rice.edu/facstaff/distribution_credit/](https://registrar.rice.edu/facstaff/distribution_credit/)) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history,
Researchers in the interdisciplinary field of Cognitive Sciences seek to understand such mental phenomena as perception, thought, memory, the acquisition and use of language, learning, concept formation, and consciousness. Some investigators focus on relations between brain structures and behavior, some work with computer simulation, some use experimental methodology, and others work at more abstract theoretical levels.

Bachelor's Program

- Bachelor of Arts (BA) Degree with a Major in Cognitive Sciences (p. 680)

Cognitive Sciences does not currently offer an academic program at the graduate level.

Directory

Simon J. Fischer-Baum

Professors

Michel Achard
Michael D. Byrne
Patricia DeLucia
Uriah Kriegel
Randi C. Martin
Frederick L. Oswald
Timothy Schroeder
Charles R. Stewart
Devika Subramanian
Marina Vannucci

Associate Professors

Robert Englebretson
Simon J. Fischer-Baum
Caleb Kemere
Suzanne E. Kemmer
Philip T. Kortum
Nancy A. Niedzielski

Assistant Professors

Bryan Denny
Stephanie Leal
Lan Li
Alexander Morgan

Professors Emeriti

Steven J. Cox
Richard E. Grandy
Don Herrick Johnson
Mark Kulstad
Sydney M. Lamb
David M. Lane
James R. Pomerantz
David J. Schneider
Stephen A. Tyler
James Young

Teaching Professor

David R. Caprette

Assistant Teaching Professor

Jonathan R. Flynn

Senior Lecturers

Özge Gürcanli
Carissa A. Zimmerman

Lecturers

John Greiner
Jonathan Manker
Bart Moore
Adjunct Faculty
Xaq Pitkow

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Cognitive Sciences (CSCI)

CSCI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CSCI 340 - METHODS OF COGNITIVE SCIENCE
Short Title: METHODS OF COGNITIVE SCIENCE
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cognitive science is a basic science of mental operations in humans, animals, and artificial systems. It is a highly interdisciplinary endeavor that draws on philosophy, psychology, biology, linguistics, and computer science, among other traditional disciplines. This course provides an integrated introduction to the primary empirical methods for studying the human mind. Students will learn how the scientific method is applied to study mental information representation, manipulation, and utilization in natural and artificial cognitive systems. It will teach students to understand and evaluate existing methodological approaches as well as recognize what is necessary to replicate results. Topics include the philosophical foundations of cognitive science, basic methods of cognitive psychology, neuroscience, linguistics, computational modeling, data analysis, and ethical responsibility when conducting cognitive research.

CSCI 390 - SUPERVISED RESEARCH IN COGNITIVE SCIENCES
Short Title: SUPERV RERSRCH COGNITIVE SCI
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised research on topics relevant to the cognitive sciences. Limited to majors in Cognitive Sciences. Instructor Permission Required. Repeatable for Credit.

CSCI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CSCI 481 - HONORS PROJECT
Short Title: HONORS PROJECT
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent directed research toward preparation of an undergraduate honors project or thesis. Instructor Permission Required. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: CSCI

Program Description and Code
- Cognitive Sciences: CSCI

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Cognitive Sciences: CSCI

Undergraduate Major Areas of Specialization Descriptions and Attribute Codes
- Area of Specialization in Computation: CSCS
- Area of Specialization in Linguistics: CSLN
- Area of Specialization in Neuroscience: CSNR
- Area of Specialization in Philosophy: CSPH
- Area of Specialization in Psychology: CSPS

Please Note: Areas of Specialization are department/program-specific and are not formally recognized academic credentials. Unlike Major Concentrations, Areas of Specialization do not appear on the student's official academic transcript, etc.

CIP Code and Description
- CSCI Major/Program: CIP Code/Title: 30.2501 - Cognitive Science
  * Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.
Bachelor of Arts (BA) Degree with a Major in Cognitive Sciences

Program Learning Outcomes for the BA Degree with a Major in Cognitive Sciences

Upon completing the BA degree with a major in Cognitive Sciences, students will be able to:

1. Understand cognitive science as an interdisciplinary field and demonstrate the ability to synthesize key knowledge, theories, methods, research, and other elements from many related disciplines and bring these interdisciplinary elements to bear on problems or questions in the cognitive sciences.

2. Demonstrate a breadth of knowledge of the key issues, questions, and perspectives at stake in the multiple disciplines that contribute to the study of the cognitive sciences.

3. Achieve a depth of knowledge in one core area of the cognitive sciences – linguistics, neuroscience, philosophy, or psychology – and develop a knowledge base in that discipline, as well as an understanding of the theories, methods, and research approaches in that discipline.

4. Demonstrate the advanced critical thinking skills necessary to evaluate multiple theories or methods from a variety of related disciplines and choose which to apply to a particular problem or question in the cognitive sciences, as well as the advanced critical thinking ability necessary to evaluate the validity of research results that purport to address the same problem or question, but with different results.

5. Demonstrate the ability to communicate original research or research by other scholars effectively and at a college level in written and oral formats.

Requirements for the BA Degree with a Major in Cognitive Sciences

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Cognitive Sciences must complete:

- A minimum of 15 courses (45-49 credit hours, depending on course selection) to satisfy major requirements.

- A minimum of 120 credit hours to satisfy degree requirements.

- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.

- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 684) tab.

- The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Cognitive Sciences, students must additionally identify and declare one of five areas of specialization, either in:
  - Computation (p. 682), or
  - Linguistics (p. 682), or
  - Neuroscience (p. 682), or
  - Philosophy (p. 683), or
  - Psychology (p. 683).

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Cognitive Sciences</td>
<td>45-49</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Cognitive Sciences</td>
<td>120</td>
</tr>
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### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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</tr>
<tr>
<td>CSCI 340</td>
<td>METHODS OF COGNITIVE SCIENCE</td>
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<tr>
<td></td>
<td>Computer Science Core Course</td>
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</tr>
<tr>
<td>Select 1 course from the following:</td>
<td>3-4</td>
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</tr>
<tr>
<td>CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
<td></td>
</tr>
<tr>
<td>COMP 130</td>
<td>ELEMENTS OF ALGORITHMS AND COMPUTATION</td>
<td></td>
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<tr>
<td>COMP 140</td>
<td>COMPUTATIONAL THINKING</td>
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<tr>
<td>COMP 160</td>
<td>INTRODUCTION TO GAME PROGRAMMING IN PYTHON</td>
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</tr>
<tr>
<td>PSYC 342</td>
<td>COMPUTER APPLICATIONS IN PSYCHOLOGY</td>
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<tr>
<td></td>
<td>Advanced Computing Core Course</td>
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</tr>
<tr>
<td>Select 1 course from the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>CAAM 415 / ELEC 488 / NEUR 415</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
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<tr>
<td>COMP 182</td>
<td>ALGORITHMIC THINKING</td>
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<tr>
<td>DSCI 303</td>
<td>MACHINE LEARNING FOR DATA SCIENCE</td>
<td></td>
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<tr>
<td>ELEC 478</td>
<td>INTRODUCTION TO MACHINE LEARNING</td>
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<tr>
<td>NEUR 382 / ELEC 382</td>
<td>INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>NEUR 383 / BIOE 380 / ELEC 380</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING</td>
<td></td>
</tr>
<tr>
<td>PHIL 357</td>
<td>INCOMPLETENESS, UNDECIDABILITY, AND COMPUTABILITY</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td></td>
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<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
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</tr>
<tr>
<td>PSYC 430</td>
<td>COMPUTATIONAL MODELING OF COGNITIVE PROCESSES</td>
<td></td>
</tr>
<tr>
<td>STAT 413</td>
<td>INTRODUCTION TO STATISTICAL MACHINE LEARNING</td>
<td></td>
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</table>

**Linguistics Core Course**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>LING 200</td>
<td>INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE</td>
</tr>
<tr>
<td>LING 306</td>
<td>LANGUAGE, THOUGHT, AND MIND</td>
</tr>
<tr>
<td>LING 315</td>
<td>INTRODUCTION TO SEMANTICS</td>
</tr>
<tr>
<td>PSYC 315</td>
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</table>

**Neuroscience Core Course**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
</tr>
<tr>
<td>NEUR 362</td>
<td>COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN</td>
</tr>
<tr>
<td>PSYC 362</td>
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</tr>
<tr>
<td>NEUR 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
</tr>
<tr>
<td>PSYC 380</td>
<td></td>
</tr>
<tr>
<td>NEUR 411</td>
<td>NEUROLINGUISTICS</td>
</tr>
<tr>
<td>LING 411</td>
<td></td>
</tr>
<tr>
<td>NEUR 415</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
</tr>
<tr>
<td>CAAM 415</td>
<td></td>
</tr>
<tr>
<td>ELEC 488</td>
<td></td>
</tr>
<tr>
<td>NEUR 416</td>
<td>NEURAL COMPUTATION</td>
</tr>
<tr>
<td>CAAM 416</td>
<td></td>
</tr>
<tr>
<td>ELEC 489</td>
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</table>

**Philosophy Core Course**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PHIL 130</td>
<td>THE SCIENCES OF THE MIND</td>
</tr>
<tr>
<td>PHIL 310</td>
<td>MATHEMATICAL LOGIC</td>
</tr>
<tr>
<td>PHIL 330</td>
<td>PHILOSOPHY OF MIND</td>
</tr>
</tbody>
</table>

**Psychology Core Course**

PSYC 203 | INTRODUCTION TO COGNITIVE PSYCHOLOGY

**Advanced Psychology Core Course**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PSYC 308</td>
<td>MEMORY</td>
</tr>
<tr>
<td>PSYC 309</td>
<td>PSYCHOLOGY OF LANGUAGE</td>
</tr>
<tr>
<td>LING 309</td>
<td></td>
</tr>
<tr>
<td>PSYC 351</td>
<td>PSYCHOLOGY OF PERCEPTION</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>REASONING, DECISION MAKING, PROBLEM SOLVING</td>
</tr>
</tbody>
</table>

**Statistics Core Course**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 339</td>
<td>STATISTICAL METHODS-PSYCHOLOGY</td>
</tr>
<tr>
<td>SOSC 302</td>
<td>QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES 1</td>
</tr>
<tr>
<td>STAT 280</td>
<td>ELEMENTARY APPLIED STATISTICS</td>
</tr>
<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
</tr>
<tr>
<td>STAT 310</td>
<td>PROBABILITY AND STATISTICS</td>
</tr>
<tr>
<td>ECON 307</td>
<td></td>
</tr>
<tr>
<td>STAT 315</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
</tr>
<tr>
<td>DSCI 301</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization**

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

- Computation
- Linguistics
- Neuroscience
- Philosophy
- Psychology

**Elective Requirements**

Select 2-3 elective courses from the other Areas of Specialization or from the following additional approved electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 390</td>
<td>SUPERVISED RESEARCH IN COGNITIVE SCIENCES</td>
</tr>
<tr>
<td>CSCI 481</td>
<td>HONORS PROJECT</td>
</tr>
<tr>
<td>ECON 210</td>
<td>BEHAVIORAL ECONOMICS</td>
</tr>
<tr>
<td>ENGI 120</td>
<td>INTRODUCTION TO ENGINEERING DESIGN</td>
</tr>
<tr>
<td>HIST 353</td>
<td>HISTORY OF SENSATION</td>
</tr>
</tbody>
</table>

**Total Credit Hours Required for the Major in Cognitive Sciences**

45-49

**Additional Credit Hours to Complete Degree Requirements**

40-44

**University Graduation Requirements (p. 29)**

31

**Total Credit Hours**

120

**Footnotes and Additional Information**

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 SOSC 302 requires concurrent enrollment of one of the following lab courses: POLI 102 (political science), PSYC 102 (psychology), or SOCI 102 (sociology). Cognitive Sciences majors are advised to choose PSYC 102 as the concurrent lab course.

2 Students must complete at least 3 courses (9 credit hours), and no more than 4 courses (12 credit hours) in one Area of Specialization. Students may not use the same course to fulfill both a Core Course requirement and an Area of Specialization requirement.

3 If the Cognitive Sciences major chooses 3 courses (9 credit hours minimum) to satisfy the Area of Specialization requirement, they must complete a remainder total of 3 courses (9 credit hours minimum) to fulfill the Elective requirement. If the Cognitive Sciences major chooses 4 courses (12 credit hours minimum) to satisfy the Area of Specialization requirement, they must complete a remainder total of 2 courses (6 credit hours minimum) to fulfill the Elective requirement. The courses that are eligible to fulfill the Electives requirement are the same as the courses required to fulfill the Areas of Specialization outside the student's chosen Area of Specialization (listed below), with additional approved elective courses also available (listed above). However, courses used to fulfill the Elective Requirements must come from outside the student's chosen Area of Specialization. For example, if the student's Area of Specialization is Psychology, all Elective courses must come from areas other than Psychology.
Areas of Specialization

Students must complete the requirements as listed for one of the following areas of specialization as offered by the Cognitive Sciences major. A total of 6 courses (minimum of 18-19 credit hours, depending on course selection) must be taken in the area of specialization and elective requirements. See footnote\(^3\) above.

**Area of Specialization: Computation**

To fulfill the remaining Cognitive Sciences major requirements, students pursuing the Computation area of specialization must complete:

- a minimum of 3 courses (9-12 credit hours, depending on course selection) from the Computation area of specialization
- 2 courses (6-7 credit hours, depending on course selection) from any area of specialization other than Computation (from Linguistics, Neuroscience, Philosophy, Psychology or from approved elective coursework listed above)
- 1 course (3-4 credit hours, depending on course selection) from any area of specialization (including Computation) or from approved elective coursework listed above

### Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 483</td>
<td>MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 357</td>
<td>INCOMPLETENESS, UNDECIDABILITY, AND COMPUTABILITY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 430</td>
<td>COMPUTATIONAL MODELING OF COGNITIVE PROCESSES</td>
<td>3</td>
</tr>
<tr>
<td>STAT 413</td>
<td>INTRODUCTION TO STATISTICAL MACHINE LEARNING</td>
<td>3</td>
</tr>
</tbody>
</table>

**Area of Specialization: Linguistics**

To fulfill the remaining Cognitive Sciences major requirements, students pursuing the Linguistics area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Linguistics area of specialization
- 2 courses (6-7 credit hours, depending on course selection) from any area of specialization other than Linguistics (from Computation, Neuroscience, Philosophy, Psychology, or from approved elective coursework listed above)
- 1 course (3-4 credit hours, depending on course selection) from any area of specialization (including Linguistics) or from approved elective coursework listed above

### Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 200 / ANTH 200</td>
<td>INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE</td>
<td>3</td>
</tr>
<tr>
<td>LING 300</td>
<td>LINGUISTIC ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>LING 301</td>
<td>PHONETICS</td>
<td>3</td>
</tr>
<tr>
<td>LING 306</td>
<td>LANGUAGE, THOUGHT, AND MIND</td>
<td>3</td>
</tr>
<tr>
<td>LING 309 / PSYC 309</td>
<td>PSYCHOLOGY OF LANGUAGE</td>
<td>3</td>
</tr>
<tr>
<td>LING 315 / PSYC 315</td>
<td>INTRODUCTION TO SEMANTICS</td>
<td>3</td>
</tr>
<tr>
<td>LING 320</td>
<td>ORIGINS AND EVOLUTION OF HUMAN LANGUAGE</td>
<td>3</td>
</tr>
<tr>
<td>LING 325 / PSYC 325</td>
<td>LANGUAGE ACQUISITION</td>
<td>3</td>
</tr>
<tr>
<td>LING 397</td>
<td>SPEECH AND HEARING SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>LING 400</td>
<td>LINGUISTIC ANALYSIS II</td>
<td>3</td>
</tr>
<tr>
<td>LING 401</td>
<td>ANALYSIS OF SOUND PATTERNS</td>
<td>3</td>
</tr>
<tr>
<td>LING 409</td>
<td>SPECIAL TOPICS(^1)</td>
<td>3</td>
</tr>
<tr>
<td>LING 411 / NEUR 411</td>
<td>NEUROLINGUISTICS</td>
<td>3</td>
</tr>
<tr>
<td>LING 419</td>
<td>MULTILINGUALISM</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

\(^1\) LING 409 only counts toward the Cognitive Sciences major when the topic is related to Cognitive Science. For questions regarding a specific instance of LING 409, consult a CSCI major advisor.

**Area of Specialization: Neuroscience\(^1\)**

To fulfill the remaining Cognitive Sciences major requirements, students pursuing the Neuroscience area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Neuroscience area of specialization

### Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 483</td>
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<td>3</td>
</tr>
<tr>
<td>PSYC 430</td>
<td>COMPUTATIONAL MODELING OF COGNITIVE PROCESSES</td>
<td>3</td>
</tr>
<tr>
<td>STAT 413</td>
<td>INTRODUCTION TO STATISTICAL MACHINE LEARNING</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\) LING 409 only counts toward the Cognitive Sciences major when the topic is related to Cognitive Science. For questions regarding a specific instance of LING 409, consult a CSCI major advisor.
• 2 courses (6-7 credit hours, depending on course selection) from any area of specialization outside Neuroscience (from Computation, Linguistics, Philosophy, or Psychology, or from approved elective coursework (listed above))

• 1 course (3-4 credit hours, depending on course selection) from any area of specialization (including Neuroscience) or from approved elective coursework (listed above)

To fulfill the remaining Cognitive Sciences major requirements, students pursuing the philosophy area of specialization must complete:

• 1 course (3-4 credit hours, depending on course selection) from any area of specialization (including Philosophy) or from approved elective coursework (listed above)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 442</td>
<td>MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 362 / PSYC 362</td>
<td>COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 380 / PSYC 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 382 / ELEC 382</td>
<td>INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 383 / BIOE 380 / ELEC 380</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 411 / LING 411</td>
<td>NEUROLINGUISTICS</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 415 / CAAM 415 / ELEC 488</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
<td>3</td>
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<tr>
<td>NEUR 416 / CAAM 416 / ELEC 489</td>
<td>NEURAL COMPUTATION</td>
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<tr>
<td>PSYC 366</td>
<td>METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE</td>
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<tr>
<td>PSYC 375</td>
<td>NEUropsychology of Language and Memory</td>
<td>3</td>
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<tr>
<td>PSYC 432</td>
<td>BRAIN AND BEHAVIOR</td>
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<tr>
<td>PSYC 487</td>
<td>FUNCTIONAL HUMAN NEUROANATOMy</td>
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Footnotes and Additional Information

1 Some of the neuroscience courses are taught by Baylor College of Medicine (BCM) faculty. Rice-BCM neuroscience course offerings change frequently. BCM courses not on the list above may be counted at the discretion of the steering committee. The most up-to-date listing of courses counting as additional courses is found at cogsci.rice.edu (http://cogsci.rice.edu).

Area of Specialization: Psychology

To fulfill the remaining Cognitive Sciences major requirements, students pursuing the Psychology area of specialization must complete:

• a minimum of 3 courses (9-10 credit hours, depending on course selection) from the Psychology area of specialization

• 2 courses (6 credit hours) from any area of specialization outside Psychology (from Computation, Linguistics, Neuroscience, or Philosophy, or from approved elective coursework (listed above))

• 1 course (3-4 credit hours, depending on course selection) from any area of specialization (including Psychology) or from approved elective coursework (listed above)

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>PSYC 308</td>
<td>MEMORY</td>
<td>3</td>
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<tr>
<td>PSYC 309 / LING 309</td>
<td>PSYCHOLOGY OF LANGUAGE</td>
<td>3</td>
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<tr>
<td>PSYC 310</td>
<td>PSYCHOLOGY OF AGING</td>
<td>3</td>
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<td>PSYC 321</td>
<td>DEVELOPMENTAL PSYCHOLOGY</td>
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<tr>
<td>PSYC 325 / LING 325</td>
<td>LANGUAGE ACQUISITION</td>
<td>3</td>
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<tr>
<td>PSYC 351</td>
<td>PSYCHOLOGY OF PERCEPTION</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 362 / NEUR 362</td>
<td>COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN</td>
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<td>PSYC 366</td>
<td>METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE</td>
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<tr>
<td>PSYC 370</td>
<td>INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS</td>
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<td>PSYC 375</td>
<td>NEUropsychology of Language and Memory</td>
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<td>PSYC 380 / NEUR 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
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<td>PSYC 409</td>
<td>METHODS IN HUMAN-COMPUTER INTERACTION</td>
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<tr>
<td>PSYC 411</td>
<td>HISTORY OF PSYCHOLOGY</td>
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</table>
the honors program are expected to conduct an independent research
GPA may apply for the cognitive sciences honors program. Students in
Students with a 3.50 major GPA in Cognitive Sciences and 3.30 overall
Honors Program in Cognitive Sciences
designations.
(See the Latin Honors,
please see
undergraduate's academic history at Rice. For information on university
The university recognizes academic excellence achieved over an
academic involvement of the colleges while introducing students to
interdisciplinary topics of particular interest.
Students who wish to teach a student-taught course must first take
COLL 300, a course on pedagogy that is taught by the Center for Teaching
Excellence. As a part of their participation in COLL 300, students then
propose College Courses during the semester before they are offered.
Once approved by the Center for Teaching Excellence, these 1-credit
student-taught College Courses are offered for academic credit on the
same basis as departmental courses. More information about student-
taught courses can be found here (https://cte.rice.edu/stc/).
No more than three hours of credit for student-taught College Courses
(COLL) may be counted toward graduation. This includes all courses
COLL 100-199 as well as COLL 200.
For additional information regarding College Courses, see the program's
website: https://cte.rice.edu/stc/.

Undergraduate Requirements
College Courses are taught and overseen by Residential Colleges. Many
of these are Student Taught Courses (STC). These courses can be found
at the 100-199 level in Rice's Course Catalog (https://courses.rice.edu).
Student-taught courses became part of the Rice curriculum in 2006.
These courses provide undergraduates a chance to teach fellow students
about subjects in which they consider themselves to be an expert. Since

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>PSYC 430</td>
<td>COMPUTATIONAL MODELING OF COGNITIVE PROCESSES</td>
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<tr>
<td>PSYC 432</td>
<td>BRAIN AND BEHAVIOR</td>
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<td>PSYC 441</td>
<td>HUMAN-COMPUTER INTERACTION</td>
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<tr>
<td>PSYC 461</td>
<td>REASONING, DECISION MAKING, PROBLEM SOLVING</td>
<td>3</td>
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<tr>
<td>PSYC 462</td>
<td>NON-TRADITIONAL INTERFACES</td>
<td>3</td>
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<tr>
<td>PSYC 463</td>
<td>MEDICAL HUMAN FACTORS</td>
<td>3</td>
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<td>PSYC 464</td>
<td>Usability Assessment</td>
<td>3</td>
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<tr>
<td>PSYC 470</td>
<td>ENGINEERING PSYCHOLOGY</td>
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<tr>
<td>PSYC 480</td>
<td>ADVANCED TOPICS</td>
<td>3</td>
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<tr>
<td>PSYC 487</td>
<td>FUNCTIONAL HUMAN NEUROANATOMY</td>
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Footnotes and Additional Information
1 PSYC 480 only counts toward the Cognitive Sciences major when
the topic is related to Cognitive Science. For questions regarding a
specific instance of PSYC 480, consult a CSCI major advisor.

Policies for the BA Degree with a Major in Cognitive Sciences
Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer
Credit (p. 37). Some departments and programs have additional
restrictions on transfer credit. The Office of Academic Advising
maintains the university’s official list of transfer credit advisors on their
website: https://oaa.rice.edu. Students are encouraged to meet with their
academic program’s transfer credit advisor when considering transfer
credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the major in Cognitive Sciences should be aware of the
following program-specific transfer credit guidelines:

• No more than 4 courses (12 credit hours) of transfer credit from U.S.
or international universities of similar standing as Rice may apply
towards the major.

• Requests for transfer credit will be considered by the program
director (and/or the program’s official transfer credit advisor) on an
individual case-by-case basis.

Additional Information
For additional information, please see the Cognitive Sciences
website: https://cogsci.rice.edu/.

Opportunities for the BA Degree with a Major in Cognitive Sciences
Academic Honors
The university recognizes academic excellence achieved over an
undergraduate’s academic history at Rice. For information on university
honors, please see Latin Honors (p. 51) (summa cum laude, magna cum
laude, and cum laude) and Distinction in Research and Creative Work
(p. 51). Some departments have department-specific Honors awards or
designations.

Honors Program in Cognitive Sciences
Students with a 3.50 major GPA in Cognitive Sciences and 3.30 overall
GPA may apply for the cognitive sciences honors program. Students in
the honors program are expected to conduct an independent research
project of either one or two semesters under the guidance of a member of
the cognitive sciences faculty. Students who wish to enter this program
should consult with prospective advisors during their junior year and
submit a proposal by the end of the semester preceding the initiation
of the project. Typically, this means submitting a proposal by the end
of the junior year and beginning the project during the fall of the senior
year. Proposal will be reviewed by both the supervisor and the program
director. Students who undertake a two-semester project will be allowed
to continue into the second semester only if their advisor judges that
sufficient progress has been made during the first semester. At the end
of a project, honors students are expected to submit a final paper to both
their advisor and the program director and make an oral presentation
to faculty and students. For more details, please contact the program
director.

Independent Research
Majors may undertake supervised independent research by enrolling in
CSCI 390 or the honors program. Students who wish to take CSCI 390
must complete a CSCI 390 contract and have it approved by their
supervisor and the program director prior to the end of the first week
of classes. All students taking CSCI 390 also must write a substantive
research paper, which is to be submitted to both their advisor and the
program director at the end of the semester, and presented in the Rice
Undergraduate Research Symposium as a poster. (Copies of the contract
form and instructions are available on the “forms” section of the cognitive
sciences website.)

Additional Information
For additional information, please see the Cognitive Sciences
website: https://cogsci.rice.edu/.

College Courses
One of the colleges’ important activities is their sponsorship of courses
and workshops open to all students. By expanding course offerings
outside the traditional departments, College Courses promote the
academic involvement of the colleges while introducing students to
interdisciplinary topics of particular interest.

Students who wish to teach a student-taught course must first take
COLL 300, a course on pedagogy that is taught by the Center for Teaching
Excellence. As a part of their participation in COLL 300, students then
propose College Courses during the semester before they are offered.
Once approved by the Center for Teaching Excellence, these 1-credit
student-taught College Courses are offered for academic credit on the
same basis as departmental courses. More information about student-
taught courses can be found here (https://cte.rice.edu/stc/).

No more than three hours of credit for student-taught College Courses
(COLL) may be counted toward graduation. This includes all courses
COLL 100-199 as well as COLL 200.

For additional information regarding College Courses, see the program's
website: https://cte.rice.edu/stc/.
then, hundreds of undergraduates have instructed their peers on a diverse set of topics. Student-taught courses allow undergraduates to teach and to take courses in non-traditional subjects, and to thereby supplement the Rice curriculum. These courses are labeled COLL (College Courses) and are offered for 1 credit hour on a satisfactory/unsatisfactory basis. A student may only count up to 3 hours of credit for student-taught courses towards graduation, including teaching practicum courses.

**Guidelines for Student Taught Courses**

Students are invited to propose student-taught courses to the Center for Teaching Excellence. Guidelines for student-taught courses are listed below:

1. The courses must be graded on a satisfactory/unsatisfactory scale—this is functionally equivalent to pass/fail, but does not count against a student's quota for pass/fail courses.
2. All student-taught courses are offered for 1 credit hour.
3. A student instructor cannot be paid a salary, but is awarded 1 credit hour. Colleges have the student instructor register in a teaching practicum that is overseen by their master. The faculty sponsor of the student taught courses would be responsible for the course including involvement in its planning, operations, and grading. The sponsor is expected to attend at least one class and meet with the student instructor.
4. A student may have a GPA of 2.50 or higher and be enrolled at Rice for at least 2 semesters before teaching a course. Students must be enrolled at Rice for at least 1 full semester before proposing a class.
5. A student may take as many student-taught courses as they like. Courses are listed on the transcript, but no more than 3 resulting credit hours can be applied towards the satisfaction of a student's graduation requirements.
6. Student-taught courses must have an enrollment cap of 19 or fewer.
7. Completing COLL 300 is required of all students who wish to teach an STC and have not already taught an STC.

For more information regarding Student Taught Courses, including the procedures for STC proposals, and evaluation criteria, please see the Center for Teaching Excellence [here](https://cte.rice.edu/stc/).

There are no College Courses (COLL) offered at the graduate-level (500-level or above).

**Director, Center for Teaching Excellence**

Robin Paige

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog [here](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)

To view the most recent semester's course schedule, please see Rice's Course Schedule [here](https://courses.rice.edu/admweb/ISWKSCAT.cat)

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**College Courses (COLL)**

**COLL 100 - CLEOPATRA: UNTANGLING THE MISCONCEPTIONS (BAKER)**

**Short Title:** CLEOPATRA  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Description:** How is history written, and by whom? This course will use the case study of Cleopatra to analysis how and why her narrative has been framed in a certain frame for the past 2,000 years.

**COLL 101 - MIND AND MATTER: SPORT PSYCHOLOGY AND PHYSIOLOGY IN FENCING AND OTHER SPORTS (BAKER)**

**Short Title:** SPORT PSYCHOLOGY IN FENCING  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Description:** Fencing may be perceived rather as a rare, inaccessible sport yet its basic fundamentals of swordplay is prevalently seen among us. Its root has extended into the modern day in various forms such as StarWars Lightsaber fighters, in which Darth Vader lunges, parries, and attacks the opponent with lightsaber. Also its athletic presence has been augmenting as an Olympic sport and large global championships as fencing has proved to be more than just sword fights with its complex technicality and mental strategies. While most sports do incorporate mental strategies into performance, fencing integrates these mental knowledge into performance simultaneously with body movements. How does this dual integration of psychological strategies and physical movements in fencing differentiate from other sports? In this course, students will go over fundamental principles of fencing, compare different types and rules of fencing, and discuss mental strategies along with the physical strategies observed in Olympic games that influence an individual’s performance. Students will also be able to try practical tactics and styles in fencing and have a chance to attend one of Rice Fencing Club practices if social distancing regulations ameliorate. Furthermore, students will research sports psychology and learn how psychological factors such as visualization, imagery, self-talk and others enhance athletic performance.

**COLL 102 - INTRO TO CRYPTO-A FUTURE OF BLOCKCHAIN AND CRYPTOCURRENCY (BAKER)**

**Short Title:** INTRO TO CRYPTO  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Description:** This course will cover the basics of blockchain, many of its applications (including cryptocurrency, non-fungible tokens, and more), and how students can adopt this revolutionary new technology into their daily lives.
COLL 103 - FROM STAGE TO SCREEN: THE GOOD AND THE BAD OF MOVIE MUSICALS (BROWN)
Short Title: FROM STAGE TO SCREEN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Even before the dawn of the COVID-19 pandemic and the complete shut-down of Broadway, live, quality theatre was rarely accessible, especially at an affordable price. Film adaptations of musicals, however, allow people to witness that theatre for a fraction of a Broadway ticket price, with one essential trade-off: the shift in storytelling medium requires changes to the source material that can lessen its quality dramatically. While some film adaptations are able to preserve, even enhance, the artistry of the original production, others handle the challenge much less gracefully. In "From Stage to Screen," students will watch and discuss as assortment of film adaptations of musicals, ranging from critical acclaim and film style, in order to answer the question: considering the many definitions of success, what factors influence the artistic success of a film adaptation of a musical? While there are no exams in the course, students demonstrate comprehension of course themes through periodic papers reacting to the films and a final synthsetical presentation.

COLL 104 - INTRODUCTION TO CONVERSATIONAL HINDI/URDU (JONES)
Short Title: INTRO TO HINDI/URDU
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In an increasingly connected world, speaking Hindi/Urdu opens you to communicate with over 500 million people. Although both languages are written differently, how do Hindi and Urdu intersect to form a conversational language? How does learning conversational Hindi/Urdu impact your relationship with South Asia? In Introduction to Conversational Hindi and Urdu, students will develop basic interactional competence in Hindi/Urdu to express themselves and understand others. Students will become familiar with common words and phrases and learn to converse familiar situations. This learning will be accompanied by sociocultural knowledge of South Asia by exposure to famous movies and songs, cultural events, and conversations with a native speaker. This course will focus on conversational Hindi/Urdu and will not involve learning scripts. No prior knowledge of Hindi/Urdu required.

COLL 105 - "TELLING TALES TOGETHER" COOPERATIVE STORYTELLING (JONES)
Short Title: TELLING TALES TOGETHER
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How does cooperative storytelling work in today's modern world? Students will learn how cooperative storytelling exists in the digital age and how they can participate in telling stories together.

COLL 106 - DISSECTING PHYSICS POP SCIENCE, FROM BLACK HOLES TO QUANTUM PHYSICS (MCMURTRY)
Short Title: DISSECTING PHYSICS POP SCIENCE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Popular science is the communication of scientific knowledge intended for a general audience. This genre of media is accessible to almost everyone and consequently evokes widespread interest in physical phenomena, from the mysterious environments of black holes to the paradoxical observations in quantum physics. However, the information conveyed is almost always qualitative. The oversaturation of textually descriptive information in pop-physics can set expectations that differ from the type of work actually being done. What is the role of qualitative and quantitative information in the strengths and weaknesses of pop-physics? We will assess the positive and negative implications of the inclusion and exemption of math in physics popular science, such as how math's prevalence and accessibility shapes its public image. We will also evaluate how well are we representing physics and educating the public through the omission of numbers. Here we probe the quantitative side of popular physics topics and use this understanding to concurrently reason whether or not the current norms for science communication should be modified.

COLL 107 - SUPER SMASH THEORY: SUBCULTURE AND ANALYSIS (MARTEL)
Short Title: SUPER SMASH THEORY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, novice and expert students alike will undergo an in-depth investigation of the implications and intricacies of Super Smash Bros., through the subsequent competitive scene that has developed around it.

COLL 108 - SURVIVOR: SOCIAL STRATEGIES IN FOCUS (WIESS)
Short Title: SURVIVOR: SOCIAL STRATEGIES
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students analyze the successful strategies used in the show "Survivor" and relevant scholarly papers on the psychological aspects of the topic. They then apply those strategies in practice by playing the game in the classroom.
COLL 109 - TALES FROM THE LAND OF THE RISING SUN (MCMURTRY)
Short Title: JAPANESE STORYTELLING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course uses food and cuisine as a method of understanding the history and culture of Houston and its immigrants. In analyzing cuisine and culture of Houston we seek to answer: How much does Houston’s food culture and cuisine accurately represent immigrants and the waves of immigration? This will achieved through multiple field trips into Houston’s restaurants complimented with in-class discussions.

COLL 110 - THE AMERICAN MICROBREWERY: A HISTORY AND A PRACTICUM (SID RICH)
Short Title: THE AMERICAN MICROBREWERY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Crocheting is developing into a modern form of self-expression that has relaxing benefits. In this course, we will explore the cultural position of crocheting and what it can teach us. Students will improve their ability to critically understand different texts and media through group discussion, short essays, and projects.

COLL 111 - AN INTRODUCTION TO THE STUDIES OF HAPPINESS & WELLBEING (JONES)
Short Title: THE HAPPINESS CLASS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course serves as an introduction to studies and practices of happiness and wellbeing from an interdisciplinary perspective. We will investigate anthropological, scientific, literary, and artistic approaches to various aspects of wellbeing, in addition to critically engaging with diverse practices associated with the maintenance and creation of happiness.

COLL 112 - DEFINING THE ANIME CULT CLASSIC (MCMURTRY)
Short Title: THE ANIME CULT CLASSIC
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: From the never-ending stream of new manga and anime to the new Godzilla movie released earlier this year, Japanese literature and media has shown an appeal that stretches far beyond its borders. While it may be easy to get caught up in the action of a well-choreographed fight scene or the beauty of a finely written paragraph, it is important to ask how Japanese literature and media influence conceptions of Japanese history and culture in the United States? In Japanese Storytelling, students will discuss the different ways that stories are told, from anime and movies to folktales and novels, and how they influence the way their culture is viewed. They will improve their ability to critically understand different texts and media through group discussion, short essays, and projects.

COLL 113 - NOT YOUR GRANDMA’S CROCHET CLASS (WIESS)
Short Title: NOT YOUR GRANDMA’S CROCHET
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Through a historical and sociological analysis students will think critically about the American Microbrewery as both a historical institution and modern phenomenon. To complement this and demonstrate their knowledge students will physically brew multiple beers during the semester. Due to the necessity of sampling, this course will be limited to ages 21+

COLL 114 - CREATIVITY: THINKING DIFFERENTLY (WILL RICE)
Short Title: CREATIVITY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: “Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.” – Albert Einstein Creativity is a skill that is often mistaken for an innate talent. Although often portrayed as something that you must be born with, many theories frame it as rather a particular ability that can be cultivated and developed.

COLL 115 - HOUSTON: FOOD, CITY, AND IMMIGRATION (MCMURTRY)
Short Title: HOUSTON FOOD AND IMMIGRATION
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course uses food and cuisine as a method of understanding the history and culture of Houston and its immigrants. In analyzing cuisine and culture of Houston we seek to answer: How much does Houston’s food culture and cuisine accurately represent immigrants and the waves of immigration? This will achieved through multiple field trips into Houston’s restaurants complimented with in-class discussions.
COLL 116 - CANTONESE LANGUAGE & CULTURE (BROWN)
Short Title: CANTONESE LANGUAGE & CULTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed for those who have no background in Cantonese OR for heritage speakers who wish to improve their Cantonese. We will focus on the speaking and listening aspects of the language. Students will also be introduced to the rich culture associated with the Cantonese language and hopefully leave with an interest to learn more on their own.

COLL 117 - KEEP ABREAST WITH YOUR CHEST: WHAT YOU DIDN'T KNOW ABOUT BREASTS AND BRAS (BROWN)
Short Title: KEEP ABREAST WITH YOUR CHEST
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Despite the attention breasts receive in media, most people know very little about the physiology and history of breasts, causing physical and emotional pain for billions of people. Students will study the physiology, commercialization, and social history of breasts from viewpoints of various cultures and time periods. No breasts are required!

COLL 118 - VEGAN TREATS AND SINFUL SWEETS (BAKER)
Short Title: VEGAN TREATS AND SINFUL SWEETS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Are there ways to practically integrate vegan desserts into our diets without breaking the bank and fundamentally changing the tastes that make them so irresistible to begin with? In this course, students will be given the tools to establish a firm foundation in vegan baking.

COLL 119 - KEEP ABREAST WITH YOUR CHEST: WHAT YOU DIDN'T KNOW ABOUT BREASTS AND BRAS (BROWN)
Short Title: KEEP ABREAST WITH YOUR CHEST
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What are the physiological effects of breasts and bras for women, men, and non-binary individuals? How have breasts been used in fashion, advertising, and entertainment? In this course, students will study the physiology, history, and cultural significance of breasts and bras from various perspectives.

COLL 120 - SYNTHEIC BIOLOGY FOR REAL WORLD APPLICATIONS (DUNCAN)
Short Title: SYNTHEIC BIOLOGY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Synthetic biology is a mixture of engineering and biology which emphasizes applications to the real world. Whether it be using artificial, small bacteria to clean water, genetically engineering crops to resist harsh climates, or even creating medicine through the help of microorganisms, all these actions are examples of synthetic biology being put to use. How can we use synthetic biology to engineer biological specimen for the sake of fixing real world problems that affect humanity? Students will tackle this question by analyzing real world problems and evaluating how/whether synthetic biology can be used to solve such problems. Students will use their understanding of synthetic biology to pick a problem they are passionate about and go on to develop and design a solution using synthetic biology. Solutions can range from innovative mechanisms of disease detection, water filtration, material/fuel creation, and more. No prior knowledge of biology is necessary and students of all majors are welcome. Students will learn cellular processes crucial to synthetic biology, genetic circuit design, the scope of synthetic biology applications, and synthetic biology project design. In class, students will learn through activities/discussion, assigned reading/homework, and a project design stage with guidance from people of numerous biological backgrounds.

COLL 121 - CONSPIRACY THEORIES: JUST FOR PARANOIACS...OR ARE THEY? (LOVETT)
Short Title: CONSPIRACY THEORIES
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Conspiracy theories have become a staple of modern American culture. In this course, students will look at various conspiracy theories and unsolved mysteries in an effort to understand the reason behind this and possible effects of this growth in popularity.

COLL 122 - THIS IS YOUR BRAIN ON DRUGS: HOW PSYCHOACTIVE SUBSTANCES AFFECT THE HUMAN BODY (MARTEL)
Short Title: THIS IS YOUR BRAIN ON DRUGS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will help students understand: What neurochemical responses do drugs elicit in the brain, and how do these pathways lead to their respective physiological effects? In addition, students will develop a basic understanding of the history, legality, classifications, and harmful effects of three drug classes - stimulants, depressants, and psychedelics - and the common substances within each.
COLL 123 - THE CULTURAL AND SOCIAL IMPACT OF K-POP (WIESS)
Short Title: K-POP AND SOCIETY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will examine the impact of Korean and Western culture on the K-Pop industry.

COLL 124 - RISE OF ESPORTS INFRASTRUCTURE/STATUS AND LEAGUE (DUNCAN)
Short Title: ESPORTS INFRASTRUCTURE/STATUS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Esports industry has quietly existed since the late 1990s. However, recently the wildly popular MOBA game known as League of Legends and its pro scene has brought the Esports industry to the forefront. With all the good and bad the game has done for the esports community, we must ask ourselves: To what extent has League of Legends accounted for the success of esports and the creation of a toxic subculture, and how will its role evolve? Students will be introduced to the mechanics of the game in order to adopt a player perspective during analysis of esports. Through class discussion, readings, and responses, they will trace the impact the game has had on the rise of esports infrastructure, viewership and the creation of toxic player interactions between themselves and towards the teams they support. After completing this course, students should walk away with a greater understanding of esports, an appreciation for how far esports has come, and, possibly, a desire to participate in the esports community as a positive influence.

COLL 126 - FASHION FURIOUS - FASHION AS SELF EXPRESSION AND INDUSTRY (BAKER)
Short Title: FASHION FURIOUS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will be introduced to the fundamental artistic elements of fashion as well as components of the fashion industry in order to make informed fashion decisions regarding their own style and their impact on the world around them.

COLL 132 - ORIGAMI SEKKEI: A MATHEMATICAL APPROACH TO THE ANCIENT ART OF PAPER FOLDING (JONES)
Short Title: MATHEMATICAL ORIGAMI DESIGN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The art of paper folding has existed for over fifteen centuries, yet an astonishing 98 percent of new origami designs have been developed within the past fifty years and with rapidly increasing complexity. This modern day origami renaissance has been closely connected to advances in science, technology, and computational mathematics combined with artistic intuition and creativity. How can mathematical methods be applied to develop awesome, creative origami with a purpose? The practice of origami sekkei, or technical origami design, overthrows the traditional freestyle folding process and instead turns to a carefully engineered theoretical model. Students will explore contributions from the pioneers of modern origami, ranging from the fantastically intricate work of NASA physicist Robert J. Lang to the elegant simplicity of origami grandmaster Kiyo Yoshizawa. The course will cover mathematical techniques such as base folding, grafting, circle packing, tree theory, and box pleating through hands-on, interactive exercises. Starting with the very basics, this course is designed to be approachable to beginners in all aspects but also offers topics that may be of additional interest for those in specialized fields of study. Overall, we hope to unfold the mysteries of origami and turn the page to reveal some of the most cutting-edge work in the field.

COLL 136 - FUNDAMENTALS OF DIGITAL DESIGN (MCMURTRY)
Short Title: DIGITAL DESIGN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In Fundamentals of Digital Design, students will learn the key principles of user experience and interface design (UX/UI), elements of mobile app interfaces, and the application of digital design for the technical world. Focusing heavily on interface design, this course will break down the elements of an interface and discuss color theory, typography, usability, and human factors, and leave students with a strong foundation in what makes good digital design.
technology’s growing guidance of our lives? and how can we adjust our behaviors to adapt to the inevitability of ultimate question we pose is: What does it mean to BE in the 21st century race, intersectionality, and the social construction of experience. The pertaining to materiality turn, phenomenology, power, gender, sexuality, these negative outcomes via the anonymity and lack of accountability justice takes in the “real world” versus online; echo chambers, politically life. A critical portion of the course will investigate the forms that social conduct our lives and the ramifications of the corporate control of social print and screens. This course will focus predominantly on 21st century self and embodied experience; focusing on visual technologies like does existing in these two planes make you? Hybrid Beings: Multiple mesh to influence the type of person you are? What kind of person compare to your time offline? How do these different experiences how to invest is a skill that everyone can make use of. In this class, you will learn the basics of investing and account management. We will cover what the stock market is, how to invest, what stocks to pick, how to hedge, and the importance of investing your money. Starting to prepare for YOUR financial future is a luxury that many people wished they started doing in their early 20s. Over time, you will be able to generate more money through passive income than through a traditional office job, and this will be illustrated by the power of compound interest. We will discuss your needs as an individual financially and come up with an effective plan to meet those needs. We will also discuss something many mathematicians and investors have long debated — does technical analysis work? What are its limits, and when can you use it? Why should and why should it not work? By the end of the class, you will have the tools required to manage your own portfolio effectively and plan for your future and retirement.

HYBRID BEINGS, MULTIPLE SELVES: THE CONSTRUCTION OF IDENTITY IN A DIGITAL AND MATERIAL AGE (BROWN)

This course is meant as an introduction to American Sign Language. No prior experience is needed nor expected. There will be a focus on learning both basic signs and how to construct sentences from language. What kind of person does the places of beer consumption reveal about our culture? In Houston Microbreweries, students will examine the history and culture of the microbrewery movement, developing a stronger appreciation for the breweries themselves and their social importance. Due to in-class tastings, this course is restricted to ages 21+.

AMERICAN SIGN LANGUAGE: COMMUNICATING NON-VERBALLY IN AN AUDITORY WORLD (WILL RICE)

COLL 137 - INVESTING, TRADING, AND PERSONAL FINANCE (WILL RICE)

Course Title: INVESTING AND TRADING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Have you ever thought of investing in the Financial Markets but aren’t sure how to get started? Do you think investing is for the old and wealthy? With the increasing precarity surrounding us, it is more important than ever to set yourself up for financial success. There is a common misconception in investing that you need a lot of money to get started. That is certainly not true anymore. All it takes is a plan. Learning how to invest is a skill that everyone can make use of. In this class, you will learn the basics of investing and account management. We will cover what the stock market is, how to invest, what stocks to pick, how to hedge, and the importance of investing your money. Starting to prepare for YOUR financial future is a luxury that many people wished they started doing in their early 20s. Over time, you will be able to generate more money through passive income than through a traditional office job, and this will be illustrated by the power of compound interest. We will discuss your needs as an individual financially and come up with an effective plan to meet those needs. We will also discuss something many mathematicians and investors have long debated — does technical analysis work? What are its limits, and when can you use it? Why should and why should it not work? By the end of the class, you will have the tools required to manage your own portfolio effectively and plan for your future and retirement.

COLL 139 - HYBRID BEINGS, MULTIPLE SELVES: THE CONSTRUCTION OF IDENTITY IN A DIGITAL AND MATERIAL AGE (BROWN)

Course Title: HYBRID BEINGS, MULTIPLE SELVES
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How much time do you spend online and how does that compare to your time offline? How do these different experiences mesh to influence the type of person you are? What kind of person does existing in these two planes make you? Hybrid Beings: Multiple SELVES investigates the impacts of technology on our conceptions of self and embodied experience; focusing on visual technologies like print and screens. This course will focus predominantly on 21st century technologies, particularly the impact of social media on the way we conduct our lives and the ramifications of the corporate control of social life. A critical portion of the course will investigate the forms that social justice takes in the “real world” versus online; echo chambers, politically charged “news” generated by extremist groups, and the facilitation of these negative outcomes via the anonymity and lack of accountability afforded by the internet. Through our meanderings we will discuss ideas pertaining to materiality turn, phenomenology, power, gender, sexuality, race, intersectionality, and the social construction of experience. The ultimate question we pose is: What does it mean to BE in the 21st century and how can we adjust our behaviors to adapt to the inevitability of technology’s growing guidance of our lives?

THE HISTORY AND PSYCHOLOGY OF MURDER (LOVETT)

Course Title: HISTORY & PSYCHOLOGY OF MURDER
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: From manslaughter to capital punishment, there are many types of homicide. The focus of this class will be on murder, commonly distinguished from other kinds of homicide by the words “unlawful” and “premeditated”. How can we define murder, and what factors go into the motivation and execution of a murder?

THE SPOKEN WORD: HOW PERFORMANCE POETRY BRINGS NARRATIVE POEMS TO LIFE (DUNCAN)

Course Title: THE SPOKEN WORD
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will take a critical look at the art of performance poetry and discuss its place in the realm of narrative poetry. Students will analyze poetry performances and will end the class by writing and performing original work.

HISTORY & PSYCHOLOGY OF MURDER

Course Title: THE SPOKEN WORD
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What do the places of beer consumption reveal about our culture? In Houston Microbreweries, students will examine the history and culture of the microbrewery movement, developing a stronger appreciation for the breweries themselves and their social importance. Due to in-class tastings, this course is restricted to ages 21+.

AMERICAN SIGN LANGUAGE: COMMUNICATING NON-VERBALLY IN AN AUDITORY WORLD

Course Title: AMERICAN SIGN LANGUAGE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is meant as an introduction to American Sign Language. No prior experience is needed nor expected. There will be a focus on learning both basic signs and how to construct sentences from that.
that’s definitively theirs.

Selections and be able to outline a story arc and craft powerful character
and obsession for a society in need of simple, straightforward mending.

our fascination with superheroes can tell us about our personal values

Professional or Visiting Undergraduate level students.

Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Students will explore the game theory and strategy behind
the competitive Pokémon scene, gaining insight on how to make
decisions in scenarios with limited information. At the core of this class
is the question “how do I decide what move to make?”, which involves
analyzing what information is known and unknown, imagining possible
obstacles and outcomes, and prioritizing appropriate goals. Students
will develop skills and strategy tools to answer this question through
the lens of Pokémon. The Pokémon games are turn-based strategy
games where players create a team from a wide selection of characters
and battle opponents with similarly constructed teams. Although
typically this opponent is a simple AI, in a competitive context, human
players battle each other. This increases the complexity of the game
significantly. This course will focus on the “core series” of Pokémon video
games for Nintendo handheld consoles, specifically the 8th and most
recent installment of the series, Sword & Shield. The course will cover
introductory mechanics and principles so that students with no prior
experience won’t be lost, and at the end of the semester we will have an
in-class tournament to apply skills gained.

COLL 146 - LAW IN FILM (MARTEL)

Short Title: LAW IN FILM

Department: College Courses

Grade Mode: Satisfactory/Unsatisfactory

Course Type: Seminar

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Lightning trials, outbursts in the courtroom, and gavels
slamming. Despite what movies might depict, these tropes are far
from the reality. Through watching legal movies, learn how film distorts
procedural and sociocultural aspects of the law.

COLL 147 - SUPERHEROES: MYTHOS & MORALITY (MARTEL)

Short Title: SUPERHEROES: MYTHOS & MORALITY

Department: College Courses

Grade Mode: Satisfactory/Unsatisfactory

Course Type: Seminar

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Fictional superheroes shape common ideals of justice,
responsibility, and moral good. This class will compare flat and dynamic
superhero character arcs, find intention behind each story, and glean if
our fascination with superheroes can tell us about our personal values
and obsession for a society in need of simple, straightforward mending.
Students will pick out aspects of various superhero mythoi from media
selections and be able to outline a story arc and craft powerful character
that’s definitively theirs.
COLL 162 - BACH TO THE FUTURE: AN OVERVIEW OF CLASSICAL MUSIC HISTORY (JONES)
Short Title: BACH TO THE FUTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: By studying music history, how would individuals become more familiar with classical music and its complexities? This course aims to show how listeners can gain a new appreciation for classical music through studying its history. Students will understand how political and social contexts influenced the composers' artistry and creations, and explore different genres of classical music, spanning from symphonies to operas.

COLL 163 - THE PHILOSOPHY OF BOJACK HORSEMAN (DUNCAN)
Short Title: PHILOSOPHY OF BOJACK HORSEMAN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Framed around the popular Netflix show Bojack Horseman, students will gain an introduction to ontology and deep understanding of existential philosophy. The focus will consistently be on two fundamental questions: “What is the meaning of life?” and consequently “If life has no inherent meaning, what do we do?”

COLL 164 - A TRIP TO THE NETHERLANDS - AN INTRODUCTION TO DUTCH CULTURE (BROWN)
Short Title: DUTCH CULTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In a tourist society where most vacation plans are made using TripAdvisor or comparable services it is hard to get a feel for a country while also doing things you like. In this class the students will answer the question: What does your perfect trip to the Netherlands looks like?

COLL 165 - SKATEBOARDING ON FILM (WIESS)
Short Title: SKATEBOARDING ON FILM
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Digital video cameras have heavily influenced the development of skateboarding as a sport since their introduction. Giving pros and amateurs alike a way to record and share their newest tricks, lines, and ideas, video recording has pushed skateboarding to be nearly as much art as sport. In this class, students will learn the basics of riding a skateboard and creating and editing your own videos. We will also make at least two class trips to a Houston skatepark to introduce students to Houston skate culture and provide additional filming opportunities. Ultimately students should be able to answer the following essential question: How might I express my individual artistic style in my films?

COLL 166 - INTRODUCTION TO THE SKIN WE LIVE IN (BAKER)
Short Title: INTRO TO SKIN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Skin problems aren't limited to acne; we sometimes get eczema, warts, and rashes. There's a sea of intriguing skin conditions just waiting to be understood and treated! This course will cover the integumentary system, ingredients in the skin care/dermatological industry, skin care habits, and skin diseases and treatments!

COLL 167 - INTRO TO IMAGINEERING: HOW TO THINK LIKE A DISNEY IMAGINEER (BROWN)
Short Title: INTRO TO IMAGINEERING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will delve into the history and design process of Imagineering to fully understand what it means to be an Imagineer. Students will learn "Mickey's Ten Commandments" for theme park design used throughout the theme park entertainment industry, observe previous and present projects created by WDI, and establish an understanding of how to think like an Imagineer. Students will also be challenged to apply the Imagineering thinking and design process from Blue Sky to "construction" in a semester-long project.
**COLL 176 - ADDRESSING STIGMAS AGAINST DISCUSSING MENTAL HEALTH AND MENTAL ILLNESS (WILL RICE)**

*Short Title:* LET'S TALK ABOUT MENTAL HEALTH  
*Department:* College Courses  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

*Description:* Mental Health is defined as a person's condition with regard to their psychological and emotional well-being. Mental illness is defined as health conditions involving changes in emotion, thinking or behavior (or a combination of these). Stigma towards mental health largely takes the shape of societal disapproval of those with mental illness or who desire to discuss mental health in their communities. In this course, we will cover common stigmas related to discussing mental health and approaching mental illness. We will also examine how we may have implicit bias against people with mental illness or even against discussing mental health in general and how we can work to address those biases. This course will also look at various coping strategies used by individuals struggling with mental health and introduce positive practices to discuss mental health.

**COLL 177 - INTRO TO DISABILITIES AND MENTAL DISORDERS (BAKER)**

*Short Title:* DISABILITIES AND DISORDERS  
*Department:* College Courses  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

*Description:* Explore various disabilities and mental disorders, with an emphasis on integration and acceptance.

**COLL 178 - BLOCKCHAIN BEYOND BITCOIN: HARNESSING DISRUPTIVE TECHNOLOGICAL POTENTIAL (DUNCAN)**

*Short Title:* BLOCKCHAIN BEYOND BITCOIN  
*Department:* College Courses  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

*Description:* How will blockchains empower positive and radical change in our increasingly globalized and data-driven society?

**COLL 180 - THE ANATOMY OF MEDICAL-DECISION MAKING (MCMURTRY)**

*Short Title:* MEDICAL-DECISION MAKING  
*Department:* College Courses  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Lecture  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

*Description:* Students will explore how medical professionals decide the best courses of action when faced with different ethical dilemmas. Through this course, students will be acclimated to ethical issues in medicine and how professionals make these seemingly impossible decisions.

**COLL 181 - PRINCIPLES & APPLICATIONS OF VISUAL DESIGN (MARTEL)**

*Short Title:* VISUAL DESIGN  
*Department:* College Courses  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

*Description:* In Principles & Applications of Visual Design, students will learn about different design elements, including layout, iconography, color, and typography, considering how each creates a positive, purposeful visual experience. Combining theory and practice, this course aims to increase students’ understanding of visual communication principles and awareness of the design that surrounds the world.

**COLL 182 - INCREASING HAPPINESS AND SELF-ACCEPTANCE THROUGH MINDFULNESS AND MEDITATION (WILL RICE)**

*Short Title:* MIND MATTERS  
*Department:* College Courses  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

*Description:* At a rigorous university like Rice, stress is rampant. We tend to work harder when stressed and develop a cycle of putting off “alone time” or “personal time”. This class is here to show you that setting aside just 5-10 quiet minutes a day for some mindful time can reap benefits that surprise even the instructors of this class every time new research comes out. But which methods can individuals practice to increase their happiness and self-acceptance? In this course, students will disconnect themselves from the outside world of technology, social media, and distractions for 1 hour a week, looking inwards to find the root causes of the uneasiness in oneself. Students will work on meditation, journaling, self-care, and other research-backed methods. They will learn to be stiller, observe their emotions more, and more easily identify the best actions to aid their mental health when faced with stressors. By the end of the course, they will have practiced a set of skills they can sustain long-term. Meditation and such topics often scare people, but there is absolutely no prior experience necessary for this course—we are excited to join you on this personal journey of yours, at your own pace!
COLL 183 - CULTURE OF TEA (LOVETT)
Short Title: CULTURE OF TEA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Tea can mean many different things to many people. Students will be exposed to different teas as they develop their own personal "culture of tea."

COLL 184 - THE ART OF TRASH CINEMA (DUNCAN)
Short Title: THE ART OF TRASH CINEMA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What is trash cinema? With this course, students will analyze the widespread fascination with and appreciation for "bad movies" through study of these films' evolution and diversification over time.

COLL 185 - THE CROSSROADS BETWEEN COGNITIVE NEUROSCIENCE AND THEATRE (BAKER)
Short Title: COG NEUROSCIENCE AND THEATRE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How does neuroscience influence theatrical practices, and how do theatrical practices influence and address topics within neuroscience? This course will examine the exciting interplay between these two fields of study.

COLL 186 - HAWAII: BEYOND THE BROCHURE (DUNCAN)
Short Title: HAWAII: BEYOND THE BROCHURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides a basic overview of Hawaiian history and culture. Students will learn to appreciate Hawaii beyond its superficial beauty by investigating topics such as mythology, western contact, statehood, food, and more.

COLL 187 - TEA AROUND THE WORLD: CULTURAL, HISTORICAL, AND PERSONAL PERSPECTIVES (MARTEL)
Short Title: TEA AROUND THE WORLD
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What can tea practices reveal about a culture? Students will explore tea practices around the world through tastings, readings, and discussions to discover the influence of tea on a culture and vice versa. Classes will involve an overview of the historical origins of tea as well as modern-day tea practices.

COLL 188 - THE COST OF CONSUMING: HOW OUR CHOICES AFFECT OUR FELLOW HUMANS AND THE ENVIRONMENT (BAKER)
Short Title: THE COST OF CONSUMING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is an introduction to ethical, conscious lifestyles through the lens of social and ethical issues and how individuals interact with them in their everyday, 21st-century lives. Assignments ask students to question what issues they care about and how what they buy affects what they support.

COLL 190 - AN ATMOSPHERE OF OPENING: DEEP LISTENING, PAULINE OLIVEROS, AND YOU (HANSZEN)
Short Title: DEEP LISTENING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Beset by political and personal turmoil, the composer Pauline Oliveros retreated inward in the late 1960's to develop listening techniques she called "Deep Listening" before returning to her public life as a composer. These techniques would become foundational to her musical life and the way she interacted with other people. What is it like to live with a listening practice that clears room for more than just our immediate goals? With no exams, this course will employ close readings of semi-improvisatory group exercises by Oliveros and solitary listening to explore the learned art of listening as both a social phenomenon and an individual journey, with an understanding of the many roles listening can play, a necessary pause before action, a blueprint for meaningful social interaction, a path toward healing.
COLL 191 - BEER: THE HISTORY OF THE WORLD IN A GLASS (BAKER)
Short Title: BEER: HIST OF WORLD IN A GLASS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Through an exploration of world history, students will work to understand how major historical themes have influenced the development of new beer types, and how beer has transformed from a food group and the basics of economies, to a beverage of leisure. Due to the necessity of sampling, this class will be limited to ages 21+.  

COLL 192 - GAME STRATEGIES OF POKER (LOVETT)
Short Title: GAME STRATEGIES OF POKER
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will learn everything from the basics of poker theory to the more complicated strategies and math which underlie the game. Our primary focus will be the variant no-limit Texas hold'em, the most popular form of poker.

COLL 194 - MUSIC AND SOCIETY (DUNCAN)
Short Title: MUSIC AND SOCIETY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the ethical and legal questions that pervade music as a growing art form and cultural force.

COLL 195 - MAKEUP 101: FOUNDATIONS OF CREATIVE EXPRESSION (LOVETT)
Short Title: MAKEUP 101
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will work together to answer the question: while the oversaturation of makeup products and style may present a daunting challenge to newcomers, how can makeup be used as a tool to enhance self-expression and promote creative artistry?

COLL 196 - DESIGNING YOUR LIFE: FINDING HAPPINESS, MEANING, AND SOCIAL IMPACT (MCMURTRY)
Short Title: DESIGNING YOUR LIFE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this class we will explore the psychological basis of happiness and meaning. We will consider what makes the "good life" through a combination of discussions, readings, happiness interventions, and activities.

COLL 197 - THE GOSPEL TRUTH, INVESTIGATING JESUS' CLAIM TO EXCLUSIVITY (LOVETT)
Short Title: THE GOSPEL TRUTH
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this class, we consider the historicity of the New Testament and examine additional primary and secondary sources to investigate the death and resurrection so pivotal in Jesus’ claim to exclusivity: “I am the way, and the truth, and the life. No one comes to the Father except through me”.

COLL 199 - ART CINEMA ISN'T BORING (JONES)
Short Title: ART CINEMA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What constitutes "art cinema" and what advantages does it offer as a form of artistic expression? Arthouse films get their name from the arthouse cinemas they play in, as opposed to blockbuster theaters but the key to an art film is that it is about the artistic vision of its director, as opposed to an entertaining formula. These types of films can sometimes be written off as pretentious or boring. However, they are an entirely unique visual and aural route to engage with ideas on human nature itself. A film like Parasite indicates the potential that they have to make mainstream splashes. Watching art cinema can and should be an entirely exciting experience. Throughout the semester, we will be looking at some of the most acclaimed arthouse films from various countries around the world, gaining an appreciation for their context in larger cinematic movements. Students will analyze the directorial choices in these films and explore if they are making any significant statements beyond the surface of the film. By the end of the course, we will all have heightened our appreciation of these movies as a tool for personal expression, and students will be motivated to further explore uncharted cinematic territory. Mutually Exclusive: Cannot register for COLL 199 if student has credit for UNIV 235.
COLL 200 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Student instructors gain mastery of their subject of interest by practical application in teaching a course. Students are supervised by the faculty sponsor as approved by the Dean of Undergraduates. Students must have taken COLL 300 in developing the course. Instructor Permission Required. Repeatable for Credit.

COLL 202 - COOKING WITH CHEF ROGER (DUNCAN)
Short Title: COOKING WITH CHEF ROGER
Department: College Courses
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Cooking with Chef Roger teaches the students the fundamentals of cooking and help them to cook healthy delicious meals. The class also gives the students a clear idea about shopping for fresh ingredients and how to host successful parties.

COLL 203 - CYBERCRIME (LOVETT)
Short Title: CYBERCRIME
Department: College Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will introduce students to the current issues in cybercrime. It will include topics such as auction fraud, hacking, and identity theft. Students will read and discuss the statutes and cases that govern each area. Each class will have a fact scenario that will be analyzed using Federal and State law.

COLL 205 - PRACTICAL APPROACH TO PERSONAL FINANCE (HANSZEN)
Short Title: PERSONAL FINANCE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Basic introduction to the framework for making informed personal financial decisions. Prior knowledge of accounting or finance is not required. The course will provide a practical approach to personal finance. Topics will include budgeting, tax issues, banking services, use of credit, housing selection and ownership, investments, insurance, retirement planning and legal documents.

COLL 212 - BLACK MEN WRITING ABOUT THEIR WORLD: DU BOIS, BALDWIN, AND THEIR HEIRS (WIESS)
Short Title: BLACK MEN WRITING
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For Black men, what good are essays? This course explores the writerly activism, historical imagination, and the consequence of some of the best known work of W.E.B. Du Bois, James Baldwin, and several of their 21st century heirs. Taking cues from the subjects of the course, students will also get ample practice using the essay as a way to describe, analyze, and affect the contemporary black male condition. Permission of Instructor required. Instructor Permission Required.

COLL 214 - MASS INCARCERATION AND ITS DISCONTENTS: RACE, REFORM AND THE LAW (WIESS)
Short Title: MASS INCARCERATION
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course about the origins of mass incarceration in the United States; about the consequences of the present carceral state; and about efforts to address injustices that have proceeded from the nation's relatively recent and nearly insatiable impetus to cage its poor, non-white population.

COLL 218 - TO SERVE: LIVING A LIFE OF PUBLIC AND CIVIC SERVICE (BAKER)
Short Title: PUBLIC AND CIVIC SERVICE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Young Americans today are drawn to service-just not to public service. When so many people shrink from (or are repelled by) "politics" and "politicians", there has never been a better time to seek and exert leadership at every level. "Real Leaders, Real People" will draw practical lessons from the lives of leaders who overcame obstacles of various kinds.
COLL 219 - BORDER WALL: STATUS AND SYMBOL OF AMERICAN BOUNDARIES (BAKER)
Short Title: BORDER WALL
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: President Trump swept to power on a promise to “Build a Wall” and to deport the undocumented, and these promises and their fulfillment have dominated media and political attention for several years. The border is in “crisis,” the United States in a “state of emergency.” Taught by a civil rights lawyer, this course surveys the real and imagined elements of this crisis: patterns of and responses to contemporary migration, border enforcement and the militarization of border communities, the promises and failures of immigration courts and immigrant detention, and the goals, costs and efficacy of a border wall.

COLL 220 - WILLIAM MARSH RICE & SLAVERY (DUNCAN)
Short Title: WILLIAM MARSH RICE & SLAVERY
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will meet every other week and will enable students to engage in original historical research about William Marsh Rice and his world, with a specific focus on slavery and its aftermath in Texas. The research will aid the work of the Task Force on Slavery, Segregation, and Racial Injustice.

COLL 221 - THE BLACK EXPERIENCE AT RICE UNIVERSITY (WIESS)
Short Title: BLACK EXPERIENCE AT RICE
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What does it mean, and what has it meant to be black at Rice? This seminar is focused on documenting and recovering the experience of black staff, students, and faculty at the university. The class is associated with the work of the Task Force on Slavery, Segregation, and Racial Injustice.

COLL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: College Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

COLL 299 - SCIENTIA: LECTURES IN SCIENCE AND CULTURE
Short Title: SCIENTIA SCIENCE & CULTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Annual lecture series, panel discussions and discussion talks on topics bridging science, culture and art. 4 lectures plus 2 discussion talks. Lectures are on specified dates, usually Tuesdays. Discussion talks scheduled at semester beginning. Topics vary year to year. Repeatable for Credit.

COLL 300 - PEDAGOGY FOR STUDENT INSTRUCTORS
Short Title: PEDAGOGY FOR STDNT INSTRUCTORS
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the first three weeks we will guide each student in the development of a proposal for a Student Taught Course. In the remaining four weeks we will learn and practice techniques of effective instruction.

Descriptions and Codes Legend
Note: Internally, the university uses the following descriptions, codes and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
Course offerings/subject code: COLL

Computational and Applied Mathematics

Contact Information
Computational and Applied Mathematics
https://www.caam.rice.edu/
2117 Duncan Hall
713-348-4805
Illya V. Hicks
Department Chair
ivhicks@rice.edu

The department of Computational and Applied Mathematics offers undergraduate majors in Computational and Applied Mathematics, and Operations Research. The coursework within the Computational and Applied Mathematics (CAAM) major provides foundations applicable to the many fields of engineering, physical sciences, life sciences, behavioral and social sciences, and computer science. CAAM majors receive training in foundational mathematics for newly developed algorithms in data science and training in all aspects of computation from algorithmic analysis to cost-accuracy performance. CAAM majors can plan a course of study consistent with their particular interests.
The coursework within the Operations Research (OPRE) major offers undergraduate students an education that emphasizes models for decision-making in complex systems, and tools for making the best possible decisions. The Operations Research major will provide students with both a deep set of analytical skills and contextual knowledge of important problem domains, such as healthcare and energy. Program graduates will have the knowledge and tools to help companies and governments make the best possible decisions in changing and uncertain environments.

The professional Master of Computational and Applied Mathematics (MCAAM) is an advanced professional degree program designed for students interested in a technical career path in industry or business. The PhD and MA program concentrates on research. Faculty research interests fall in the four general areas of numerical analysis and scientific computing; numerical methods for partial differential equations; operations research and optimization; and mathematical modeling in physical, biological, or behavioral sciences.

A further advanced interdisciplinary degree program in computational science and engineering (CSE) addresses the current need for sophisticated computation in both engineering and the sciences. For more information, see Computational Science and Engineering (p. 717).

A coordinated MBA/MCAAM degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Management.

**Bachelor's Programs**
- Bachelor of Arts (BA) Degree with a Major in Computational and Applied Mathematics (p. 710)
- Bachelor of Arts (BA) Degree with a Major in Operations Research (p. 1755)

**Minor**
- Minor in Computational and Applied Mathematics (p. 716)

**Master's Programs**
- Master of Computational and Applied Mathematics (MCAAM) Degree (p. 713)
- Master of Arts (MA) Degree in the field of Computational and Applied Mathematics*

**Doctoral Program**
- Doctor of Philosophy (PhD) Degree in the field of Computational and Applied Mathematics (p. 712)

**Coordinated Programs**
- Master of Computational and Applied Mathematics (MCAAM) Degree / Master of Business Administration (MBA) Degree (p. 714)
- Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

**Chair**
Illya V. Hicks

**Professors**
Maarten V. de Hoop

Matthias Heinkenschloss
Illya V. Hicks
Beatrice M. Riviére
Andrew J. Schaefer
Richard A. Tapia

**Assistant Professor**
Jesse Chan

**Professors Emeriti**
Robert E. Bixby
Steven J. Cox
Sam H. Davis, Jr.
John E. Dennis
Henry H. Rachford, Jr.
Danny C. Sorensen
William W. Symes
Chao-Cheng Wang
Yin Zhang

**Lecturers**
Anastasiya Protasov
Charles Puelz
Mohammad Sarraf Joshaghani

**Pfeiffer Postdoctoral Instructors**
Mario Bencomo
Tyler Perini

**Professor, Joint Appointment**
John Edward Akin

**Adjunct Professors**
Richard Carter
Amr El-Bakry
Roland Glowinski
Detlef Hohl
Hector Klie

**Adjunct Associate Professors**
Edward Castillo
C. David Fuller

**Adjunct Assistant Professors**
Sebastian Acosta
Randy Davila
David T. Fuentes
Paul Hand
Taewoo Lee
Craig Rusin

*Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p.action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
Computational & Applied Mathematics (CAAM)

CAAM 210 - INTRODUCTION TO ENGINEERING COMPUTATION
Short Title: INTRO TO ENG COMPUTATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Modeling, Simulation, and Visualization via MATLAB. Numerical methods: Newton's method in one and several dimensions. Gaussian elimination and optimization. Application to problems in science and engineering. Lectures are held Monday and Wednesdays. In a laboratory component held on Fridays, students work in small groups on computational projects led by a Rice Learning Assistant. Recommended Prerequisite(s): MATH 101.

CAAM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CAAM 334 - MATRIX ANALYSIS FOR DATA SCIENCE
Short Title: MATRIX ANALYSIS DATA SCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Solution of linear systems and linear least squares problems. Eigenvalue problem and singular value decomposition. Introduction to gradient based methods. Applications to data science. Recommended Prerequisite(s): (MATH 212 or MATH 222) AND (COMP 140 or CAAM 210) Mutually Exclusive: Cannot register for CAAM 334 if student has credit for CAAM 335.

CAAM 335 - MATRIX ANALYSIS
Short Title: MATRIX ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Equilibria and the solution of linear systems and linear least squares problems. Eigenvalue problem and its application to solve dynamical systems. Singular value decomposition and its application. Recommended Prerequisite(s): (MATH 212 or MATH 222) AND (COMP 140 or CAAM 210) Mutually Exclusive: Cannot register for CAAM 335 if student has credit for CAAM 334.

CAAM 336 - DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING
Short Title: DIFF EQUATIONS SCI & ENG
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Classical and numerical solution techniques for ordinary and partial differential equations. Fourier series and the finite element method for initial and boundary value problems arising in diffusion and wave propagation phenomena. Recommended Prerequisite(s): (MATH 212 or MATH 222) AND CAAM 210.

CAAM 378 - INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION
Short Title: INTRO TO O.R. AND OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formulation of mathematical models of complex decisions arising in management, economics, and engineering. Models using linear, nonlinear, stochastic and integer programming, as well as networks. Linear programming duality and its modeling implications. Overview of basic solution methods for these optimization models. Recommended Prerequisite(s): MATH 212 and (CAAM 335 OR MATH 211 OR MATH 355).
CAAM 382 - STOCHASTIC MODELS
Short Title: STOCHASTIC MODELS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

CAAM 416 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

CAAM 415 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

CAAM 423 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQNS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

CAAM 421 - LOGISTICS AND SUPPLY CHAIN MANAGEMENT
Short Title: LOG & SUPPLY CHAIN MANAGMENT
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

CAAM 435 - DYNAMICAL SYSTEMS
Short Title: DYNAMICAL SYSTEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including “what does a network compute?”, “how does it compute?”, and “why does it compute that way?” Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: ELEC 489, NEUR 416.
CAAM 436 - MODELING MATHEMATICAL PHYSICS
Short Title: MODELING MATHEMATICAL PHYSICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Derivation and properties of solutions of the partial differential equations of continuum physics. Basic concepts of continuum mechanics, ideal fluids, Navier-Stokes equations, linear elasticity, acoustics, basic principles of thermodynamics, Newtonian heat flow, porous flow, Maxwell's equations, electrical circuits. Graduate/Undergraduate Equivalency: CAAM 535. Recommended Prerequisite(s): CAAM 336. Mutually Exclusive: Cannot register for CAAM 436 if student has credit for CAAM 535.

CAAM 440 - APPLIED MATRIX ANALYSIS
Short Title: APPLIED MATRIX ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A second course in matrix analysis that presents advanced theoretical results alongside motivating applications. Topics include: properties of Hermitian, positive definite, nonnegative and stochastic matrices; Perron-Frobenius Theorem; spectral perturbation theory; singular value inequalities; generalized eigenvalue problems; functions of matrices; Lyapunov, Sylvester, and Riccati matrix equations. Applications include dynamical systems, control theory, and Markov chains.

CAAM 452 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. Cross-list: CEVE 455. Graduate/Undergraduate Equivalency: CAAM 536. Recommended Prerequisite(s): CAAM 336. Mutually Exclusive: Cannot register for CAAM 452 if student has credit for CAAM 536.

CAAM 453 - NUMERICAL ANALYSIS I
Short Title: NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CAAM 334 or CAAM 335) and CAAM 336

CAAM 454 - ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION
Short Title: SYST OF EQNS & UNCONST OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Iterative methods for linear systems of equations including Krylov subspace methods; Newton and Newton-like methods for nonlinear systems of equations; Gradient and Newton-like methods for unconstrained optimization and nonlinear least squares problems; techniques for improving the global convergence of these algorithms; linear programming duality and primal-dual interior-point methods. Graduate/Undergraduate Equivalency: CAAM 554. Recommended Prerequisite(s): CAAM 453. Mutually Exclusive: Cannot register for CAAM 454 if student has credit for CAAM 554.

CAAM 456 - OPTIMIZATION METHODS IN FINANCE
Short Title: OPT METHODS IN FINANCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 378
Description: Portfolio optimization and asset allocation models. Risk management and option pricing. Deterministic and stochastic optimization approaches, as well as linear and nonlinear approaches will be used to model decisions arising in finance. Graduate/Undergraduate Equivalency: INDE 567.
**CAAM 471 - LINEAR AND INTEGER PROGRAMMING**
Short Title: LINEAR AND INTEGER PROGRAMMING  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Linear and integer programming involve formulating and solving fundamental optimization models widely used in practice. This course introduces the basic theory, algorithms, and software of linear and integer programming. Topics studied in the linear programming part include polyhedron concepts, simplex methods, duality, sensitivity analysis and decomposition techniques. Building on linear programming, the second part of this course introduces modeling with integer variables and solution methodologies in integer programming including branch-and-bound and cutting-plane techniques. This course will provide a basis for further studies in convex and combinatorial optimization. Graduate/Undergraduate Equivalency: CAAM 571. Recommended Prerequisite(s): CAAM 335 and CAAM 378 Mutually Exclusive: Cannot register for CAAM 471 if student has credit for CAAM 571.

**CAAM 476 - LARGE-SCALE OPTIMIZATION**
Short Title: LARGE-SCALE OPTIMIZATION  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): CAAM 378 and COMP 215  
Description: Decomposition of large-scale linear, nonlinear and integer programs. Minkowski representation of polyhedral. Benders’ and Dantzig-Wolfe decomposition. Relaxations, including Lagrangian relaxation. Examples include multicommodity flow and stochastic linear programs. Design and testing of computational strategies for difficult optimization problems. Students will implement projects in Python and JMP.

**CAAM 477 - SPECIAL TOPICS**
Short Title: SPECIAL TOPICS  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**CAAM 480 - PEDAGOGY FOR CAAM 210 RICE LEARNING ASSISTANTS**
Short Title: PEDAGOGY FOR RLAs  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course is designed to support Rice Learning Assistants (RLAs) as they instruct their own lab sections of CAAM 210. Topics include analysis of computational science and engineering concepts, issues of problem-based learning (PBL), theories of learning, and fundamental teaching skills. Required for CAAM 210 RLAs. Instructor Permission Required. Repeatable for Credit.

**CAAM 485 - DISCRETE-EVENT SIMULATION**
Short Title: DISCRETE-EVENT SIMULATION  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): CAAM 382  

**CAAM 490 - UNDERGRADUATE RESEARCH PROJECTS**
Short Title: UNDERGRAD RESEARCH PROJECTS  
Department: Computational & Applied Math  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Research  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Semester-long undergraduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.

**CAAM 491 - UNDERGRADUATE RESEARCH PROJECTS**
Short Title: UNDERGRAD RESEARCH PROJECTS  
Department: Computational & Applied Math  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Research  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Semester-long undergraduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.
CAAM 495 - SENIOR DESIGN PROJECT I
Short Title: SENIOR DESIGN PROJECT I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students engage in team-oriented year-long design projects that utilize modeling, analysis, and scientific computing skills to solve a problem motivated by an application in engineering or the physical, biological, or social sciences. Participants attend regular seminars addressing research techniques and effective written and verbal presentation of mathematics.

CAAM 496 - SENIOR DESIGN PROJECT II
Short Title: SENIOR DESIGN PROJECT II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 495
Description: Continuation of CAAM 495. Seminars focus on the presentation of results from design groups and provide guidance on the composition of a substantial project report.

CAAM 497 - LOSING THE PRECIOUS FEW
Short Title: LOSING THE PRECIOUS FEW
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The class will read from Tapia's text: Losing the Precious Few: How America Fails to Educate Minorities in Science and Engineering and then discuss in class issues associated with the underrepresentation of Blacks and Hispanics in academic and national science and engineering activities. Topics will include racism, immigration, student admissions, faculty hiring, faculty promotion, the role of minority serving institutions, mistaking foreign minorities for the Precious Few, support issues and leadership.
Course URL: None (http://None)

CAAM 498 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover a selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: MATH 498, STAT 498. Graduate/Undergraduate Equivalency: CAAM 698. Mutually Exclusive: Cannot register for CAAM 498 if student has credit for CAAM 698. Repeatable for Credit.

CAAM 499 - COMPUTATIONAL AND APPLIED MATHEMATICS SEMINAR
Short Title: COMP & APPLIED MATH SEMINAR
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include eigenvalues, model reduction, combinatorial optimization, optimization algorithms, scientific computing, and numerical analysis. The topics may vary each semester. Graduate/Undergraduate Equivalency: CAAM 699. Repeatable for Credit.

CAAM 501 - ANALYSIS I
Short Title: ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Graduate
Description: Real numbers, completeness, sequences and convergence, compactness, continuity, the derivative, the Riemann integral, fundamental theorem of calculus. Vector spaces, dimension, linear maps, inner products and norms, derivatives in R^n, inverse function theorem, implicit function theorem, multiple integration, change of variable theorem. Instructor Permission Required. Recommended Prerequisite(s): CAAM 501 Mutually Exclusive: Cannot register for CAAM 501 if student has credit for CAAM 401.
CAAM 502 - ANALYSIS II
Short Title: ANALYSIS II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL
Short Title: NONLINEAR SYSTEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Vector spaces of functions, sequences and series, convergence. Continuity and differentiability of functions of several variables, the derivative as a linear map, the contraction mapping principle, fundamental theorems on differential equations, multivariable integration, Stoke's theorem and relatives. Instructor Permission Required. Recommended Prerequisite(s): CAAM 501. Mutually Exclusive: Cannot register for CAAM 502 if student has credit for CAAM 402.

CAAM 519 - COMPUTATIONAL SCIENCE I
Short Title: COMPUTATIONAL SCIENCE I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Scientific programming using high level languages, including C, Fortran, and C++. Emphasis on use of numerical libraries. Basic techniques of project planning, source management, documentation, program construction, I/O, visualization. Object-oriented design for numerical computing. Recommended Prerequisite(s): (CAAM 210 and CAAM 335) or CAAM 453. Mutually Exclusive: Cannot register for CAAM 519 if student has credit for CAAM 420.

CAAM 520 - COMPUTATIONAL SCIENCE II
Short Title: COMPUTATIONAL SCIENCE II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theory and application of the message passing interface for programming scientific computing applications. Introduction to the architecture and programming of multicore and massively parallel processors, including general purpose graphics processing units, Insight for designing efficient numerical algorithms to improve parallelization of memory access and utilization of non-uniform memory architectures. Application interfaces include OpenMP, MPI, CUDA, OpenCL, and parallel numerical algorithm libraries. Instructor Permission Required. Recommended Prerequisite(s): CAAM 519

CAAM 523 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQNS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 535 - MODELING MATHEMATICAL PHYSICS
Short Title: MODELING MATHEMATICAL PHYSICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course combines basic physical principles with vector calculus to derive many important partial differential equations governing motion of fluids and solids. Topics include stress, strain, idealized fluids, linear elasticity, acoustics, basics of thermodynamics, Navier-Stokes. Graduate/Undergraduate Equivalency: CAAM 436. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 535 if student has credit for CAAM 436.
CAAM 536 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. May receive credit for only one of the following courses: CAAM 452/CEVE 455/CAAM 536/CEVE 555. Cross-list: CEVE 555. Graduate/Undergraduate Equivalency: CAAM 452. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 536 if student has credit for CAAM 452.

CAAM 540 - APPLIED FUNCTIONAL ANALYSIS
Short Title: APPLIED FUNCTIONAL ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 402 or CAAM 502
Description: Hilbert spaces, Banach spaces, spectral theory, and weak topologies with applications to signal processing, control, and partial differential equations. Biennial; Offered in Odd Years. Recommended Prerequisite(s): CAAM 402 and MATH 322.

CAAM 542 - DISCONTINUOUS GALERKIN METHODS FOR SOLVING ENGINEERING PROBLEMS
Short Title: DISCONTINUOUS GALERKIN METHODS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will present the theory and implementation of discontinuous Galerkin methods for partial differential equations common in engineering applications. Two main classes of problems are covered: steady-state and time-dependent elliptic/parabolic and hyperbolic equations. These include (but are not limited to) the Poisson and heat equations, linear wave equations, and nonlinear conservation laws. Recommended Prerequisite(s): CAAM 453 or CAAM 553

CAAM 550 - NUMERICAL ANALYSIS I
Short Title: NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Construction and application of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, linear least squares problems, and eigenvalue problems via matrix factorizations; Newton and Newton-like methods for nonlinear systems of equations. Computer programming in MATLAB is required. Graduate/Undergraduate Equivalency: CAAM 453. Mutually Exclusive: Cannot register for CAAM 550 if student has credit for CAAM 453.

CAAM 551 - NUMERICAL LINEAR ALGEBRA
Short Title: NUMERICAL LINEAR ALGEBRA
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Direct methods for large, sparse linear systems; regularization of ill-conditioned least squares problems; backward error analysis of basic algorithms for linear equations and least squares, sensitivity and conditioning of linear systems and least square problems; condition estimation. Preconditioned iterative methods for linear systems (CG, GMRES, BiCGstab, QMR); multigrid methods. Matrix theory including spectral decompositions, Schur form, eigenvalue perturbation theory, and the geometry of subspaces. Eigenvalue algorithms, Sylvester and Lyapunov equations, the implicitly shifted QR algorithm, computation of the SVD, generalized eigenvalue problems. Introduction to large scale eigenvalue algorithms. Proficiency in MATLAB and acquaintance with one or more of C, F77, C++, F90 is required. Recommended Prerequisite(s): CAAM 453 or CAAM 553 or CAAM 550

CAAM 552 - FOUNDATIONS OF FINITE ELEMENT METHODS
Short Title: FINITE ELEMENT METHODS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses the theory and implementation of finite element methods. Topics include weak solutions of partial differential equations, Sobolev spaces, approximation theory, convergence and reliability of the numerical methods. Continuous and discontinuous finite element methods are considered.
CAAM 553 - ADVANCED NUMERICAL ANALYSIS I
Short Title: ADV NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 401 (may be taken concurrently) or CAAM 501 (may be taken concurrently)
Description: Construction and analysis of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, least squares problems, and eigenvalue problems via matrix factorizations; the singular value decomposition (SVD) and basic sensitivity analysis. Computer programming in MATLAB is required. This course covers fewer topics than CAAM 453 with greater theoretical depth. Prerequisite CAAM 501 may be taken concurrently with CAAM 553. Instructor Permission Required.

CAAM 554 - ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION
Short Title: SYST OF EQNS & UNCONST OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 335 and MATH 321.
Description: Introduction to the theory and numerical methods for the solution of elliptic partial differential equations (PDEs) and optimization problems governed by these PDEs. Topics include functional analysis, well-posedness of elliptic problems, optimality conditions for PDE constrained optimization problems and finite element discretizations.

CAAM 555 - ADVANCED NUMERICAL ANALYSIS II
Short Title: ADV NUMERICAL ANALYSIS II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 553
Description: Construction and analysis of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, least squares problems, and eigenvalue problems via matrix factorizations; the singular value decomposition (SVD) and basic sensitivity analysis. Computer programming in MATLAB is required. This course covers fewer topics than CAAM 453 with greater theoretical depth. Prerequisite CAAM 501 may be taken concurrently with CAAM 553. Instructor Permission Required.

CAAM 556 - CONVEX OPTIMIZATION
Short Title: CONVEX OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Convex optimization problems arise in communication, system theory, VLSI, CAD, finance, inventory, network optimization, computer vision, learning, statistics, etc., even though oftentimes convexity may be hidden and unrecognized. Recent advances in interior-point methodology have made it much easier to solve these problems and various solvers are now available. This course will introduce the basic theory and algorithms for convex optimization, as well as its many applications to computer science, engineering, management science and statistics. Biennial; Offered in Odd Years. Recommended Prerequisite(s): CAAM 335 and MATH 321.

CAAM 557 - SIGNAL RECOVERY: THEORY AND SIMULATION
Short Title: SIGNAL RECOVERY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces the theory and numerical algorithms for several fundamental signal recovery tasks. Topics include L1 minimization, sparse regression, compressed sensing, orthogonal matching pursuit, proximal operators, ADMM algorithms, Iterative Reweighted Least Squares. Nuclear norm minimization, matrix completion, robust Principal Component Analysis. Recommended Prerequisite(s): CAAM 378 or MATH 302 or STAT 310.
CAAM 568 - INDUSTRIAL AND APPLIED DATA SCIENCE AND CONTROL THEORY
Short Title: DATA SCIENCE & CONTROL THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course presents a pragmatic introduction to the foundational theory of data science and optimal control along with multiple practical applications. It includes modern (post-1990) aspects of data science driven by massively more data and computer power such as deep neural networks. Dynamical systems and optimal control methods are deeply impacted by these developments, and the course includes relevant sections on nonlinear control and reinforcement learning. It is supplemented by practical programming exercises to be completed every week by all students. Several industrial-strength applications from the energy sector are discussed in appropriate detail. Recommended Prerequisite(s): Equivalent of advanced course work in computer programming (e.g. COMP 321), calculus (e.g. MATH 212), statistics or probability theory (e.g. STAT 331), linear algebra (e.g. CAAM 334 or 335). Proficiency in MATLAB (course programming language) or Python (alternative to MATLAB available to course participants).

CAAM 570 - GRAPH THEORY
Short Title: GRAPH THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the structure and properties of graphs, together with a variety of applications. Includes paths, cycles, trees, connectivity, matchings, colorings, planarity, directed graphs, and algorithms. Some knowledge of linear algebra is recommended. Mutually Exclusive: Cannot register for CAAM 570 if student has credit for CAAM 470.

CAAM 571 - LINEAR AND INTEGER PROGRAMMING
Short Title: LINEAR AND INTEGER PROGRAMMING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the same lecture material as CAAM 471, but fosters greater theoretical sophistication through more challenging problem sets and exams. Graduate/Undergraduate Equivalency: CAAM 471. Mutually Exclusive: Cannot register for CAAM 571 if student has credit for CAAM 471.

CAAM 574 - COMBINATORIAL OPTIMIZATION
Short Title: COMBINATORIAL OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: General theory and approaches for solving combinatorial optimization problems are studied. Specific topics include basic polyhedral theory, minimum spanning trees, shortest paths, network flow, matching and matroids. The course also covers the traveling salesman problem. A student may not receive credit for both CAAM 474 and CAAM 574. Mutually Exclusive: Cannot register for CAAM 574 if student has credit for CAAM 474.

CAAM 581 - MATHEMATICAL PROBABILITY I
Short Title: MATHEMATICAL PROBABILITY I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 583 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
Short Title: INTRO RANDOM PROCESSES & APPL
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems, expansions of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: ELEC 533, STAT 583.

CAAM 585 - STOCHASTIC OPTIMIZATION
Short Title: STOCHASTIC OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Stochastic optimization models arise in many contexts. This course focuses on stochastic programs, including stochastic integer programs and multi-stage stochastic programs. It will emphasize the interplay between theory and computational approaches.
CAAM 590 - INDEPENDENT STUDY
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 591 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 592 - OPTIMIZATION WITH SIMULATION CONSTRAINTS
Short Title: OPTIMIZATION W/SIM CONSTRAINTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 600 - THESIS WRITING
Short Title: THESIS WRITING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assists the student in preparation of the CAAM MA/PhD thesis and in other writing projects. Structure of a scientific paper, effective approaches to technical writing, building literature review, results, and discussion sections, how to write a good abstract, oral presentation skills. Prerequisite: Advisor approval of topic and consent of the instructor(s). Instructor Permission Required. Repeatable for Credit.

CAAM 611 - THEORETICAL NEUROSCIENCE: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 588, NEUR 615. Graduate/Undergraduate Equivalency: CAAM 415. Mutually Exclusive: Cannot register for CAAM 615 if student has credit for CAAM 415.

CAAM 612 - THEORETICAL NEUROSCIENCE II: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 588, NEUR 615. Graduate/Undergraduate Equivalency: CAAM 415. Mutually Exclusive: Cannot register for CAAM 615 if student has credit for CAAM 415.

CAAM 615 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 588, NEUR 615. Graduate/Undergraduate Equivalency: CAAM 415. Mutually Exclusive: Cannot register for CAAM 615 if student has credit for CAAM 415.

CAAM 620 - TOPICS IN COMPUTATIONAL SCIENCE
Short Title: TOPICS IN COMPUTATIONAL SCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 640 - OPTIMIZATION WITH SIMULATION CONSTRAINTS
Short Title: OPTIMIZATION W/SIM CONSTRAINTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.

CAAM 641 - TOPICS IN INVERSE PROBLEMS
Short Title: TOPICS IN INVERSE PROBLEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 642 - TOPICS IN GEOMATHEMATICS
Short Title: TOPICS IN GEOMATHEMATICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 643 - TOPICS IN GEOMATHEMATICS
Short Title: TOPICS IN GEOMATHEMATICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Recommended Prerequisite(s): CAAM 335 and CAAM 336 Repeatable for Credit.
CAAM 651 - TOPICS IN NUMERICAL LINEAR ALGEBRA  
**Short Title:** TOPICS IN NUM LINEAR ALGEBRA  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Selected topics will vary depending on instructor and student interests. Derivation and analysis of Krylov and subspace iteration methods for large eigenvalue problems (Lanczos, Arnoldi, Jacobi-Davidson algorithms); preconditioning for linear systems and eigenvalue problems (incomplete LU, domain decomposition, multigrid); convergence analysis including potential theory and pseudospectra. Applications: regularization of discrete inverse problems; dimension reduction for large dynamical control systems; effects on non-normality on behavior of dynamical systems and iterative processes. Recommended Prerequisite(s): CAAM 551. Repeatable for Credit.

CAAM 652 - TOPICS IN NUMERICAL DIFFERENTIAL EQUATIONS  
**Short Title:** TOPICS IN NUM DIFF EQNS  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 654 - TOPICS IN OPTIMIZATION  
**Short Title:** TOPICS IN OPTIMIZATION  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 664 - TOPICS IN NONLINEAR PROGRAMMING  
**Short Title:** TOPICS NONLINEAR PROGRAMMING  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Content varies from year to year.

CAAM 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory, Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CAAM 698 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES  
**Short Title:** RESEARCH THEMES IN MATH. SCI.  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A seminar course that will cover a selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: MATH 698, STAT 698. Graduate/Undergraduate Equivalency: CAAM 498. Mutually Exclusive: Cannot register for CAAM 698 if student has credit for CAAM 498. Repeatable for Credit.

CAAM 699 - COMPUTATIONAL AND APPLIED MATHEMATICS SEMINAR  
**Short Title:** COMP & APPLIED MATH SEMINAR  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics, computational finance, simulation driven optimization, data simulation, and spectral optimization in rational mechanics. The topics may vary each semester. Instructor Permission Required. Graduate/Undergraduate Equivalency: CAAM 499. Repeatable for Credit.

CAAM 800 - RESEARCH AND THESIS  
**Short Title:** RESEARCH AND THESIS  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course is for CAAM MA or PhD students working on their thesis research. Repeatable for Credit.

**Description and Code Legend**

*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**

- Course offerings/subject code: CAAM

**Department Description and Code**

- Computational and Applied Mathematics: CAAM

**Undergraduate Degree Description and Code**

- Bachelor of Arts degree: BA

**Undergraduate Major Descriptions and Codes**

- Major in Computational and Applied Mathematics: CAAM
- Major in Operations Research: OPRE
Undergraduate Minor Description and Code

- Minor in Computational and Applied Mathematics: CAMT

Graduate Degree Descriptions and Codes

- Master of Arts degree: MA
- Master of Computational and Applied Mathematics degree: MCAAM
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code

- Degree Program in Computational and Applied Mathematics: CAAM

CIP Code and Description

- CAAM Major/Program: CIP Code/Title: 27.0304 - Computational and Applied Mathematics
- OPRE Major/Program: CIP Code/Title: 14.3701 - Operations Research
- CAMT Minor: CIP Code/Title: 27.0304 - Computational and Applied Mathematics

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Computational and Applied Mathematics

Program Learning Outcomes for the BA Degree with a Major in Computational and Applied Mathematics

Upon completing the BA degree with a major in Computational and Applied Mathematics, students will be able to:

1. Apply fundamental mathematics to perform critical analysis of an abstracted version of a real world problem and to build a model that captures the problem’s salient characteristics.
2. Design, implement, and debug a computer program to solve a computational problem.
3. Critically analyze a mathematical or computational problem, explore techniques to model and solve the problem, and use mathematical or computational methods to produce one or more solutions.
4. Interpret a model and its results and communicate the results effectively to non-experts both orally and in writing.

Requirements for the BA Degree with a Major in Computational and Applied Mathematics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Computational and Applied Mathematics must complete:

- A minimum of 17-18 courses (49-52 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (37 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>49-52</td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the BA Degree with a Major in Computational and Applied Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>120</td>
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</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Core Requirements

Introductory Courses

- CAAM 210 INTRODUCTION TO ENGINEERING COMPUTATION 3
- CAAM 335 MATRIX ANALYSIS 2 3
  or CAAM 334 MATRIX ANALYSIS FOR DATA SCIENCE 3
- MATH 101 SINGLE VARIABLE CALCULUS I 3
  or MATH 105 AP/OTH CREDIT IN CALCULUS I 3
- MATH 102 SINGLE VARIABLE CALCULUS II 3
  or MATH 106 AP/OTH CREDIT IN CALCULUS II 3

Intermediate Courses

- Select 1 from the following: 3-6
  - MATH 212 MULTIVARIABLE CALCULUS 3
  - MATH 221 HONORS CALCULUS III 3
    & MATH 222 and HONORS CALCULUS IV 3

Advanced Courses

- CAAM 336 DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING 3
- CAAM 378 INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION 3
- MATH 302 ELEMENTS OF ANALYSIS 5 3
  or MATH 321 INTRODUCTION TO ANALYSIS I 3
  or MATH 322 INTRODUCTION TO ANALYSIS II 3
  or MATH 331 HONORS ANALYSIS 3
- STAT 310 / ECON 307 PROBABILITY AND STATISTICS 3
  or STAT 418 PROBABILITY 3

Elective Requirements

- CAAM 453 NUMERICAL ANALYSIS I 3
- CAAM 454 ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION 3
  or CAAM 471 LINEAR AND INTEGER PROGRAMMING 3

Design Project

- CAAM 495 SENIOR DESIGN PROJECT I 2
- CAAM 496 SENIOR DESIGN PROJECT II 2

Elective Requirements
Select 2 elective courses at the 300-level or above 6
Select 2 elective courses at the 400-level or above 6
Total Credit Hours Required for the Major in Computational and Applied Mathematics 49-52
Additional Credit Hours to Complete Degree Requirements 37-40
University Graduation Requirements (p. 29) 31
Total Credit Hours 120

Footnotes and Additional Information

Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 The Introductory Courses requirement is typically fulfilled during the student's first two years.
2 Students may petition the Director of Undergraduate Studies to substitute MATH 354 for CAAM 335.
3 Students with prior experience with calculus may replace MATH 101 or MATH 105 with a 3-credit quantitative elective at the 200-level or above, as approved by a CAAM undergraduate advisor (this quantitative elective is in addition to the four electives required below). Entering students should enroll in the most advanced course commensurate with their background; advice is available from the CAAM department during Orientation Week.
4 The Intermediate Courses requirement is typically fulfilled by the end of the student's third year.
5 Students who plan to pursue graduate studies in Computational and Applied Mathematics should take MATH 302 and MATH 321.
6 The Advanced Courses requirement is typically completed by the end of the student's fourth year.
7 The Design Project requirement is typically fulfilled during the student's fourth year.
8 To fulfill the remaining Computational and Applied Mathematics major requirements, students must complete 4 additional courses (12 credit hours) at the 300-level or above. At least 2 elective courses (6 credit hours) must be from the departmental (CAAM) course offerings and may not include CAAM 480 or independent study courses (such as CAAM 490 or CAAM 491). Elective courses from other programs must be chosen from a list approved by the CAAM Undergraduate Committee. At least 2 elective courses (6 credit hours) must be at the 400-level or above. The elective courses completed must be taken for a minimum of 3 credit hours. Highly recommended electives may be found in the Highly Recommended Electives list (below).

Highly Recommended Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAAM 415</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 488</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEUR 415</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAAM 423</td>
<td>PARTIAL DIFFERENTIAL EQUATIONS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 423</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Policies for the BA Degree with a Major in Computational and Applied Mathematics

Program Restrictions and Exclusions

Students pursuing the BA degree with a major in Computational and Applied Mathematics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.
- Students pursuing the major in Computational and Applied Mathematics may not additionally declare the major in Operations Research.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Computational and Applied Mathematics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/.
Opportunities for the BA Degree with a Major in Computational and Applied Mathematics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computational and Applied Mathematics (MCAAM) degree. For additional information, students should contact their undergraduate major advisor and the MCAAM program director.

Additional Information

For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/.

Doctor of Philosophy (PhD) Degree in the field of Computational and Applied Mathematics

Program Learning Outcomes for the PhD Degree in the field of Computational and Applied Mathematics

Upon completing the PhD degree in the field of Computational and Applied Mathematics, students will be able to:

1. Demonstrate a solid foundation in graduate-level computational and applied mathematics, across multiple sub-fields.
2. Propose and conduct original research in the field of computational and applied mathematics.
3. Communicate computational and mathematical results and their consequences professionally and effectively in both written and oral formats.

Requirements for the PhD Degree in Computational and Applied Mathematics

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Computational and Applied Mathematics must:

• Complete a course of study approved by the department to establish a broad foundation in applied mathematics.
• Perform satisfactorily on qualifying examinations and reviews.
• Produce an original thesis acceptable to the department.
• Perform satisfactorily on a final public oral examination on the thesis.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Computational and Applied Mathematics</td>
<td>90</td>
</tr>
</tbody>
</table>

Policies for the PhD Degree in the field of Computational and Applied Mathematics

Department of Computational and Applied Mathematics Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computational and Applied Mathematics publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Computational_Applied_Mathematics_Graduate_Handbook.pdf

Admission

Admission to graduate study in computational and applied mathematics is open to qualified students holding bachelor’s or master’s degrees (or their equivalent) in engineering; mathematics; or the physical, biological, mathematical, or behavioral sciences. Department faculty evaluate the previous academic record and credentials of each applicant individually.
For general information and university requirements, see Graduate Degrees (p. 57) and Admission to Graduate Study (p. 59).

Applicants should be aware that it normally takes two years to obtain a master's degree and an additional two to four years for the doctoral degree.

Financial Assistance
Graduate fellowships, research assistantships, and graduate scholarships are available and are awarded on the basis of merit to qualified students. Current practice in the department is for most doctoral students in good academic standing to receive some financial aid.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Computational and Applied Mathematics should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/

Opportunities for the PhD Degree in the field of Computational and Applied Mathematics

Additional Information
For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/

Master of Computational and Applied Mathematics (MCAAM) Degree

Program Learning Outcomes for the MCAAM Degree

Upon completing the MCAAM degree, students will be able to:

1. Acquire broad, advanced knowledge in Computational and Applied Mathematics that is also deep within a major sub-discipline.
2. Demonstrate an ability to gain employment or advancement in a technical field related to Computational and Applied Mathematics.

Requirements for the MCAAM Degree

The MCAAM degree is a non-thesis master's degree. For general university requirements, see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MCAAM degree must complete:

• A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 714) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

This professional degree program emphasizes the applied aspects of mathematics, and requires satisfactory completion of at least 30 credit hours of graduate-level coursework approved by the department.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MCAAM Degree</td>
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</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAAM 519 COMPUTATIONAL SCIENCE I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAAM 550 NUMERICAL ANALYSIS I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAAM 554 ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAAM 571 LINEAR AND INTEGER PROGRAMMING</td>
<td></td>
</tr>
</tbody>
</table>

Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select at least 8 courses (24 credit hours) of departmental (CAAM) course offerings at the 500-level or above</td>
<td>24</td>
</tr>
</tbody>
</table>

Total Credit Hours

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
</tr>
</tbody>
</table>
Rice undergraduate students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies. In certain situations and with some terminal master's degree programs, Rice students have the option to pursue the Master of Computational and Applied Mathematics (MCAAM) degree. For additional information, students should contact their undergraduate major advisor and the MCAAM program director.

### Policies for the MCAAM Degree
#### Departmental Computational and Applied Mathematics Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computational and Applied Mathematics publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Computational_Appplied_Mathematics_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Computational_Appplied_Mathematics_Graduate_Handbook.pdf)

### Transfer Credit
For Rice University's policy regarding transfer credit, see [Transfer Credit](#) (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines
Students pursuing the MCAAM degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

### Additional Information
For additional information, please see the Computational and Applied Mathematics website: [https://www.caam.rice.edu/](https://www.caam.rice.edu/)

### Opportunities for the MCAAM Degree
#### Fifth-Year Master's Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware that there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found [here](#) (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computational and Applied Mathematics (MCAAM) degree. For additional information, students should contact their undergraduate major advisor and the MCAAM program director.

### Additional Information
For additional information, please see the Computational and Applied Mathematics website: [https://www.caam.rice.edu/](https://www.caam.rice.edu/)

### Master of Computational and Applied Mathematics (MCAAM) Degree / Master of Business Administration (MBA) Degree
#### Program Learning Outcomes for the MCAAM Degree
Upon completing the MCAAM degree, students will be able to:

1. Acquire broad, advanced knowledge in Computational and Applied Mathematics that is also deep within a major sub-discipline.
2. Demonstrate an ability to gain employment or advancement in a technical field related to Computational and Applied Mathematics.

#### Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

### Requirements for the MCAAM/MBA Coordinated Degrees Program
Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
Coordinated MBA/Master of Engineering degrees program must complete the Core Requirements of the MCAAM degree program (p. 713) and the Coordinated MCAAM Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCAAM Core Requirements</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Coordinated MCAAM Elective Requirements</td>
<td>-</td>
<td>24</td>
</tr>
</tbody>
</table>

For additional information on these degrees, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>-</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>-</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time MBA Core Requirements</td>
<td>-</td>
<td>25.5</td>
</tr>
<tr>
<td>Full-time MBA Work Experience Requirement</td>
<td>-</td>
<td>0.75</td>
</tr>
<tr>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>-</td>
<td>1.5</td>
</tr>
<tr>
<td>Full-time MBA Custom Core Courses</td>
<td>-</td>
<td>3-6</td>
</tr>
</tbody>
</table>

For additional information on these degrees, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>-</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>-</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

### Policies for the MCAAM/MBA Coordinated Degrees Program

#### Additional Information

For additional information on these two degrees:

1. Please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/

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### Footnotes and Additional Information

1. To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMP, MGMT, or MICO) course offerings at the 500-level or above are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Opportunities for the MCAAM/MBA Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Minor in Computational and Applied Mathematics

Program Learning Outcomes for the Minor in Computational and Applied Mathematics

Upon completing the minor in Computational and Applied Mathematics, students will be able to:

1. Use modern numerical methods to analyze and solve typical problems in linear systems.
2. Design and test a mathematical model, following a multi-stage process.

Requirements for the Minor in Computational and Applied Mathematics

Students pursuing the minor in Computational and Applied Mathematics must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Computational and Applied Mathematics</td>
<td>18</td>
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Minor Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 335</td>
<td>MATRIX ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>CAAM 336</td>
<td>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>or CAAM 378</td>
<td>INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION</td>
<td></td>
</tr>
</tbody>
</table>

Elective Requirements

Select 1 elective course from departmental (CAAM) course offerings at the 300-level or above
Select 2 elective courses from departmental (CAAM) course offerings at the 400-level or above

Total Credit Hours 18

Footnotes and Additional Information

1 To fulfill the remaining Computational and Applied Mathematics minor requirements, students must complete a total of 3 additional courses (9 credit hours) at the 300-level or above from Computational and Applied Mathematics (CAAM) departmental course offerings. The elective courses completed must be taken for a minimum of 3 credit hours each. At least 2 of these 3 elective courses (6 credit hours) must be completed at the 400-level or above.

Policies for the Minor in Computational and Applied Mathematics

Program Restrictions and Exclusions

Students pursuing the minor in Computational and Applied Mathematics should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.
- Students pursuing the minor in Computational and Applied Mathematics may not additionally declare the major in Operations Research.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Computational and Applied Mathematics should be aware of the following departmental transfer credit guidelines:
• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/

Opportunities for the Minor in Computational and Applied Mathematics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu/

Computational Science and Engineering

Contact Information
Computational Science and Engineering
https://engrprofmasters.rice.edu/programs (https://engrprofmasters.rice.edu/programs/)

Matthias Heinkenschloss
Program Director
heinken@rice.edu

The advanced multi-disciplinary degree program in Computational Science and Engineering addresses the current need for sophisticated skills in data and computation in both engineering and the sciences. Such skills require an understanding of tools, techniques, and algorithmic capabilities in a range of subjects including simulation, modeling, analytics, parallelization, visualization, networking, and programming. An awareness of a variety of new algorithms and analytic techniques is essential to maximizing the power of the new data and computational tools.

The MCSE degree is an interdisciplinary non-thesis degree, jointly offered by the departments of Computational and Applied Mathematics (CAAM) and Statistics (STAT), which includes core courses from Computational and Applied Mathematics, Statistics, Computer Science, and additional electives, and allows students to tailor their program of study to application areas with computational science and engineering (CSE) focus.

CSE is an exciting and evolving field that integrates computational and applied mathematics, statistics, computer science and disciplines of science and engineering to develop computational tools for computational and data intensive applications. The interdisciplinary nature of the program differentiates the MCSE degree from departmental programs. As a non-thesis degree program within the School of Engineering, it has been designed to provide training and expertise in computational science and engineering and in data engineering and analytics. The MCSE is intended for students interested in technical and managerial positions such as computational scientist, computational engineering, data engineering, and data analyst. The program offers students opportunities to specialize in areas such as scientific computing, high performance computing, data analytics, data engineering, data science, or machine learning.

Computational Science and Engineering does not currently offer an academic program at the undergraduate level.

Master’s Program
• Master of Computational Science and Engineering (MCSE) Degree (p. 718)

Director
Matthias Heinkenschloss, Computational and Applied Mathematics

Advisory Committee
John Dobelman, Statistics
Matthias Heinkenschloss, Computational and Applied Mathematics

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action= cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject codes: Courses from various subjects can be applied towards this program

Department (or Program) Description and Code
• MCSE students are admitted to one of the following two home departments:
  • Computational and Applied Mathematics: CAAM
  • Statistics: STAT

Graduate Degree Description and Code
• Master of Computational Science and Engineering degree: MCSE

Graduate Degree Program Description and Code
• Degree Program in Computational Science and Engineering: CSCE

CIP Code and Description 1
• CSCE Major/Program: CIP Code/Title: 11.0101 - Computer and Information Sciences, General

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Master of Computational Science and Engineering (MCSE) Degree

Program Learning Outcomes for the MCSE Degree

Upon completing the MCSE degree, students will be able to:

1. Acquire broad, advanced knowledge in modern computational techniques.
2. Possess skills to identify, formulate, and solve advance technical problems related to one of the focus areas.
3. Communicate technical ideas effectively.

Requirements for the MCSE Degree

The MCSE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MCSE degree must complete:

- A minimum of 30 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit, see the Policies (p. 719) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The Master in Computational Science and Engineering (MCSE) degree in the School of Engineering is a non-thesis degree program designed to provide training and expertise in computational science and engineering and in data engineering and analytics. The MCSE degree program is intended for students interested in technical and managerial positions such as computational scientist, computational engineering, data engineering, and data analyst. The program offers students opportunities to specialize in areas such as scientific computing, high-performance computing, data analytics, data engineering, data science, and machine learning.

The departments of Computational and Applied Mathematics (CAAM) and Statistics (STAT) jointly offer the MCSE degree program. When applying to the MCSE degree program, students must select CAAM or STAT as their desired home department. If admitted, MCSE students are admitted to a select cohort from the home department selected in their application.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>Total Credit Hours Required for the MCSE Degree</td>
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### Degree Requirements

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<th>Code</th>
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<th>Credit Hours</th>
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<tr>
<td></td>
<td>Core Requirements</td>
<td>9</td>
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<tr>
<td></td>
<td>Select 1 course from each of the following three groups:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computational and Applied Mathematics (CAAM)</td>
<td></td>
</tr>
<tr>
<td>CAAM 536</td>
<td>NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
<tr>
<td>CEVE 555</td>
<td>DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
<tr>
<td>CAAM 550</td>
<td>NUMERICAL ANALYSIS I</td>
<td>1</td>
</tr>
<tr>
<td>CAAM 551</td>
<td>NUMERICAL LINEAR ALGEBRA</td>
<td>1</td>
</tr>
<tr>
<td>CAAM 554</td>
<td>ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION</td>
<td>1</td>
</tr>
<tr>
<td>CAAM 571</td>
<td>LINEAR AND INTEGER PROGRAMMING</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Computer Science (COMP)</td>
<td></td>
</tr>
<tr>
<td>COMP 504</td>
<td>GRADUATE OBJECT-ORIENTED PROGRAMMING AND DESIGN</td>
<td></td>
</tr>
<tr>
<td>COMP 530</td>
<td>DATABASE SYSTEM IMPLEMENTATION</td>
<td></td>
</tr>
<tr>
<td>COMP 533</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>COMP 582</td>
<td>GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS</td>
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<tr>
<td>ELEC 512</td>
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<td></td>
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<td>STAT 502</td>
<td>NEURAL MACHINE LEARNING I</td>
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<tr>
<td>COMP 502</td>
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<td>ELEC 502</td>
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<td>STAT 518</td>
<td>PROBABILITY</td>
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<td>STAT 519</td>
<td>STATISTICAL INference</td>
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<tr>
<td>STAT 541</td>
<td>MULTIVARIATE ANALYSIS</td>
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<tr>
<td>STAT 602</td>
<td>NEURAL MACHINE LEARNING AND DATA MINING II</td>
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<tr>
<td>COMP 602</td>
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<tr>
<td>ELEC 602</td>
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<td></td>
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<tr>
<td>STAT 613</td>
<td>STATISTICAL MACHINE LEARNING I</td>
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<tr>
<td>STAT 615</td>
<td>REGRESSION AND LINEAR MODELS</td>
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<tr>
<td></td>
<td>Select 3 additional courses from the home department to which you have been admitted (CAAM or STAT)</td>
<td>9</td>
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<tr>
<td></td>
<td>Computational and Applied Mathematics (CAAM)</td>
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<tr>
<td>CAAM 519</td>
<td>COMPUTATIONAL SCIENCE I</td>
<td></td>
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<tr>
<td>CAAM 520</td>
<td>COMPUTATIONAL SCIENCE II</td>
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<td>CAAM 536</td>
<td>NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS</td>
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</tr>
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<td>CEVE 555</td>
<td>DIFFERENTIAL EQUATIONS</td>
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</tr>
<tr>
<td>CAAM 542</td>
<td>DISCONTINUOUS GALERNKIN METHODS FOR SOLVING ENGINEERING PROBLEMS</td>
<td></td>
</tr>
<tr>
<td>CAAM 550</td>
<td>NUMERICAL ANALYSIS I</td>
<td>1</td>
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<tr>
<td>CAAM 551</td>
<td>NUMERICAL LINEAR ALGEBRA</td>
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CAAM 554  ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION  
CAAM 564  NUMERICAL OPTIMIZATION  
CAAM 565  CONVEX OPTIMIZATION  
CAAM 571  LINEAR AND INTEGER PROGRAMMING  

Statistics (STAT)  
STAT 502 / COMP 502 / ELEC 502  NEURAL MACHINE LEARNING I  
STAT 518  PROBABILITY  
STAT 519  STATISTICAL INFERENCE  
STAT 541  MULTIVARIATE ANALYSIS  
STAT 602 / COMP 602 / ELEC 602  NEURAL MACHINE LEARNING AND DATA MINING II  
STAT 605  R FOR DATA SCIENCE  
STAT 613  STATISTICAL MACHINE LEARNING  
STAT 615  REGRESSION AND LINEAR MODELS  
STAT 616  ADVANCED STATISTICAL METHODS  
STAT 648  GRAPHICAL MODELS AND NETWORKS  

Elective Requirements  12  
Technical Electives  2  
Select 3 courses (minimum of 9 credit hours) with an MCSE advisor from coursework focused on Computational Science and Engineering, offered by the Wiess School of Natural Sciences or the George R. Brown School of Engineering.  

Communication, Leadership, Management, and Ethics  
Select a minimum of 1 course (minimum of 3 credit hours) from approved Communication, Leadership, Management, and Ethics coursework  

ENGI 501  WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING  
ENGI 510  TECHNICAL AND MANAGERIAL COMMUNICATIONS  
ENGI 515  LEADING TEAMS AND INNOVATION  
ENGI 528 / CEVE 528  ENGINEERING ECONOMICS  
ENGI 529 / CEVE 529  ETHICS AND ENGINEERING LEADERSHIP  
ENGI 542  PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS  
ENGI 555  ENGINEERING PERSUASION: HOW TO DRIVE DECISIONS AND CHANGE  
ENGI 610 / NSCI 610  ENGINEERING  
ENGI 614  LEARNING HOW TO INNOVATE?  
ENGI 615  LEADERSHIP COACHING FOR ENGINEERS  

Footnotes and Additional Information  
1  If this course is completed to fulfill the Core Requirement of three groups (CAAM, COMP, or STAT), it may not be used as a course to fulfill the Core Requirement of the home department (CAAM or STAT).  
2  Credit hours earned for engineering practicum, thesis, seminar, project-based courses, independent study courses, or similar variable credit hour courses may not be applied toward MCSE degree requirements.  

Policies for the MCSE Degree  

Departments of Computational and Applied Mathematics and Statistics Graduate Program Handbook  
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the departments of Computational and Applied Mathematics and Statistics, which jointly offer the MCSE degree program, publish graduate program handbooks, which can be found here:  

Application Information  
Students must have completed a BA or BS degree in an engineering or science discipline, with training in engineering mathematics, statistical foundations, and programming methodology to be admitted to the program.  
•  Fall semester admission application deadline —February 1  
•  To apply to the program go to MSCE application (https://mcsegradapps.rice.edu/)  
•  For additional information about the program contact mcse@rice.edu  
•  Enrollments and degrees awarded for degree programs in the Engineering School are available at: https://engineering.rice.edu/academics/enrollment-degrees-awarded/.

Transfer Credit  
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.  

Program Transfer Credit Guidelines  
Students pursuing the MCSE degree should be aware of the following program-specific transfer credit guidelines:  
•  No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.  
•  Requests for transfer credit will be considered by the program director on an individual case-by-case basis.  

Additional Information  
For additional information, please see the Computational Science and Engineering website: https://engrprofmasters.rice.edu/
Opportunities for the MCSE Degree
Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computational Science and Engineering (MCSE) degree. For additional information, students should contact their undergraduate major advisor and the MCSE program director.

Additional Information

For additional information, please see the Computational Science and Engineering website: https://engrprofmasters.rice.edu/

Computer Science

Contact Information

Computer Science
https://www.cs.rice.edu/
3122 Duncan Hall
713-348-4834

Christopher M. Jermaine
Department Chair
christopher.m.jermaine@rice.edu

Alan L. Cox
Undergraduate Committee Chair
alc@rice.edu

T. S. Eugene Ng
Graduate Committee Chair
eugeng@rice.edu

These computer science is concerned with the study of computers and computing, focusing on algorithms, programs and programming, and computational systems. The main goal of the discipline is to build a systematic body of knowledge, theories, and models that explain the properties of computational systems and to show how this body of knowledge can be used to produce solutions to real-world computational problems.

Computer science is the intellectual discipline underlying information technology, which is widely accepted now as the ascendant technology of the next century. Students in computer science at Rice benefit from the latest in equipment and ideas as well as the flexibility of the educational programs. The research interests of the faculty include algorithms and complexity, artificial intelligence and robotics, compilers, distributed and parallel computation, graphics and visualization, operating systems, and programming languages.

The department offers two undergraduate degrees: the Bachelor of Arts (BA) degree and the Bachelor of Science in Computer Science (BSCS) degree.

At the graduate level, the department offers a PhD degree as well as two master’s degrees: the professional Master of Computer Science (MCS) degree, the professional Master of Data Science (MDS) degree, and the research-oriented Master of Science (MS) degree.

- The MCS and MDS degrees are professional degrees for students intending to pursue a technical career. Both have an on-premise and a fully online option. Students are admitted directly into one or the other option and cannot switch between the two, but the resulting degree is the same.
- The MS degree is a research degree requiring a thesis in addition to coursework. The MS degree is primarily for students pursuing their PhD. Typically, students are not admitted directly into the MS program. Students wishing to pursue a terminal master's degree should apply to the MCS program.
- Students wishing to pursue a PhD should apply directly to the PhD program.

A coordinated MBA/MCS degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Bachelor's Programs

- Bachelor of Arts (BA) Degree with a Major in Computer Science (p. 751)
- Bachelor of Science in Computer Science (BSCS) Degree (p. 753)

Master's Programs

- Master of Computer Science (MCS) Degree (p. 756)
- Master of Computer Science (MCS) Degree, Online Program (p. 761)
- Master of Data Science (MDS) Degree (p. 768)
- Master of Data Science (MDS) Degree, Online Program (p. 771)
- Master of Science (MS) Degree in the field of Computer Science (p. 762)

Doctoral Program

- Doctor of Philosophy (PhD) Degree in the field of Computer Science (p. 755)
Coordinated Program

- Master of Computer Science (MCS) Degree / Master of Business Administration (MBA) Degree (p. 760)

Chair
Christopher M. Jermaine

Professors
Robert S. Cartwright, Jr.
Keith D. Cooper
Alan L. Cox
Ronald N. Goldman
Christopher M. Jermaine
David B. Johnson
Lydia Kavraki
John M. Mellor-Crummey
Luay K. Nakhleh
T. S. Eugene Ng
Krishna Palem
Scott Rixner
Devika Subramanian
Moshe Vardi
Dan Seth Wallach
Joe D. Warren

Associate Professors
Swarat Chaudhuri

Assistant Professors
Ang Chen
Nathan Dautenhahn
Anastasios Kyrillidis
Konstantinos Mamouras
Anshumali Shrivastava
Todd Treangen

Research Professor
Vivek Sarkar

Professors in the Practice
Scott E. Cutler

Lecturers
John Greiner
Mackale Joyner
Risa Myers
Stephen Wong

Professors, Joint Appointments
Richard G. Baraniuk
Joseph R. Cavallaro
Edward W. Knightly
Andrew J. Schaefer
Peter J. Varman

Associate Professors, Joint Appointment
Genevera I. Allen

Assistant Professors, Joint Appointments
Ankit Patel
Akane Sano

Adjunct Professors
Wah Chiu
Jack Dongarra
Steven J. Wallach

Adjunct Associate Professor
Ken Chen

Adjunct Assistant Professors
Julia Badger
Erez Lieberman-Aiden

Postdoctoral Research Associates
Dinler Antunes
Dipak Chaudhari
Didier Devaurs
Dror Fried
Juan Hernandez-Vega
Huw Ogilvie
Abdullah Al Redwan Newaz

Research Scientists and Programmers
Laksono Adhianto
Zoran Budimlic
Akihiro Hayashi
Mark Krentel
Mark Moll
Doug Moore
Vijay Murali
Dung "Zung" Nguyen
Scott K. Warren
Jia Zou

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
Computer Science (COMP)

COMP 100 - INTRODUCTION TO COMPUTING AND INFORMATION SYSTEMS
Short Title: INTRO COMPUTING & INFO SYS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.clear.rice.edu/comp100/ (http://www.clear.rice.edu/comp100/)

COMP 105 - AP/OTH CREDIT COMPUTER SCIENCE
Short Title: AP/OTH CREDIT COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to organizing, analyzing, and presenting information using databases and spreadsheets. No programming involved, and no computing background expected.
Course URL: www.owlnet.rice.edu/~comp100/ (http://www.owlnet.rice.edu/~comp100/)

COMP 130 - ELEMENTS OF ALGORITHMS AND COMPUTATION
Short Title: ELEMENTS OF ALGORITHMS & COMP
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to computation taught by solving real-world problems in architecture, statistics, linguistics, social networks, visual pattern recognition, and the simulation of complex systems in ecology. Technical topics include how to model computational artifacts operating in the world, how to design and implement algorithmic solutions in Python, and how to experimentally test and evaluate computational systems.

COMP 140 - COMPUTATIONAL THINKING
Short Title: COMPUTATIONAL THINKING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to computational problem solving designed to give an overview of computer science using real-world problems across a broad range of disciplines. Students learn how to think about these problems and how to structure effective solutions to them using computation. No programming knowledge is required or expected; students learn how to implement their solutions in Python. If you register for fully online section, you must have a webcam and you must take the exams in person. *Final exams will not be in person in Fall 2020.*
Course URL: www.clear.rice.edu/comp140 (http://www.clear.rice.edu/comp140/)

COMP 160 - INTRODUCTION TO GAME PROGRAMMING IN PYTHON
Short Title: INTRO TO GAME PROG IN PYTHON
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Students with a class of Junior or Senior may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class covers the basics of Python Programming with a focus on building simple games in a web-based environment. The class includes an introduction to event-driven programming and trains the students in the specifics of a Python GUI system designed to support creating to support creating applications that run in a web browser. This course is limited to first-year students only. Continuing Students may register with an approved Special Registration Form. Recommended Prerequisite(s): Java Experience.
Course URL: www.clear.rice.edu/comp160/ (http://www.clear.rice.edu/comp160/)

COMP 162 - INTRODUCTION TO GAME CONTENT CREATION
Short Title: INTRO TO GAME CONTENT CREATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Explore how modern game content is created, and how it interacts with the underlying technology. Beginning with an explanation of how games are developed and what role content plays in the process, the class will learn to use 3D Studio Max, Photoshop, and game-native scripting as they create working content for an established game project.
Course URL: www.owlnet.rice.edu/~comp162 (http://www.owlnet.rice.edu/~comp162/)
COMP 180 - PRINCIPLES OF COMPUTING
Short Title: PRINCIPLES OF COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): COMP 130 or COMP 140 or COMP 160
Description: This class is designed for non-majors interested in a broader understanding of Computer Science and focuses on intermediate-level programming in Python as well as the basics of discrete math. The class concludes with an introduction to the process of Algorithmic Thinking. Note that COMP 180 cannot be substituted for COMP 182 as a prerequisite for upper level CS classes. Instructor Permission Required.

COMP 182 - ALGORITHMIC THINKING
Short Title: ALGORITHMIC THINKING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): COMP 130 or COMP 140 or COMP 160
Description: Algorithms are the engines of a great majority of systems, natural and artificial alike. This course introduces algorithmic thinking as a discipline for reasoning about systems, taming their complexities, and elucidating their properties. Algorithmic techniques, along with their correctness and efficiency, will be taught through reasoning about systems of interactions, such as markets, that are ubiquitous in our highly connected world.

COMP 200 - ELEMENTS OF COMPUTER SCIENCE
Short Title: ELEMENTS OF COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Broad introduction to major topics in computer science. Includes algorithms, mathematical models of computation, machine organization and design, programming languages, communication, and artificial intelligence. This course is intended for majors outside of Science and Engineering.
Course URL: www.clear.rice.edu/comp200/ (http://www.clear.rice.edu/comp200/)

COMP 215 - INTRODUCTION TO PROGRAM DESIGN
Short Title: INTRODUCTION TO PROGRAM DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): COMP 182
Description: This course covers the principles of programming and program design. The course is organized around a number of individual programming assignments that fit together to complete a significant, real-world application. Each assignment emphasizes one or more of the basic principles of software design, including: encapsulation, abstraction, test-driven development, and functional and object-oriented programming. The Java programming language will be used. An introduction to the basics of the Java language itself (including Java syntax and semantics) will be provided.

COMP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

COMP 290 - COMPUTER SCIENCE PROJECTS
Short Title: COMPUTER SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Theoretical and experimental investigations under staff direction. Credit cannot be received for both COMP 290 and COMP 390. Instructor Permission Required. Equivalency: COMP 390. Mutually Exclusive: Cannot register for COMP 290 if student has credit for COMP 390. Repeatable for Credit.
COMP 300 - SOCIETY IN THE INFORMATION AGE
Short Title: SOCIETY IN THE INFORMATION AGE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will review the remarkable technology of the Information Age and examine its effects on the ways in which we live, work and think about the world around us. We will consider, for example, how the pervasive use of computers and networks is changing our ideas about property, privacy, authority, social relations, knowledge and identity. And we will discuss what further changes we might see as technology continues to advance.

COMP 301 - ETHICS AND ACCOUNTABILITY IN COMPUTER SCIENCE
Short Title: ETHICS & ACCOUNTABILITY IN CS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Computer Science. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Given their growing power in the twenty-first century, computer scientists have duties both to society and their own profession to wield that power wisely and responsibly. In this discussion-and reflection-oriented course students will apply fundamentals of moral philosophy and social responsibility to current issues in computer science.

COMP 310 - ADVANCED OBJECT-ORIENTED PROGRAMMING AND DESIGN
Short Title: ADV OBJECT-ORIENTED PROG
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 211 or COMP 215
Description: Discover how state-of-the-art object-orient programming and design techniques can create globe-spanning software systems that are both flexible and scalable. Learn how software design patterns are used in multiple programming paradigms. Explore highly decoupled systems with dynamically configurable behaviors. Highly recommended for anyone interested in building large systems and software engineering. Mutually Exclusive: Cannot register for COMP 310 if student has credit for COMP 504.
Course URL: www.clear.rice.edu/comp310 (http://www.clear.rice.edu/comp310/)

COMP 311 - FUNCTIONAL PROGRAMMING
Short Title: FUNCTIONAL PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 211 or COMP 215
Description: An introduction to concepts, principles, and approaches of functional programming. Functional programming is a style of programming where the key means of computation is the application of functions to arguments (which themselves might be functions). This style of programming has become increasingly popular in recent years because it offers important advantages in designing, maintaining, and reasoning about programs in many modern contexts such as web services, multicore programming, and cluster computing. Course work consists of a series of programming assignments in the Scala programming language and various library extensions such as Apache Spark. Graduate/Undergraduate Equivalency: COMP 544. Mutually Exclusive: Cannot register for COMP 311 if student has credit for COMP 544.
Course URL: wiki.rice.edu/confluence/display/PARPROG/COMP311 (http://wiki.rice.edu/confluence/display/PARPROG/COMP311/)

COMP 316 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES
Short Title: VIRT RECONSTR HISTORCL CITIES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ANTH 346, ARCH 310, HART 316.

COMP 321 - INTRODUCTION TO COMPUTER SYSTEMS
Short Title: INTRO TO COMPUTER SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220 and (COMP 211 or COMP 215)
Description: This course introduces computer systems from the programmer’s perspective. Topics include data representation, the compilation process, and system-level programming concepts such as interrupts and concurrency. Formerly COMP 221. Mutually Exclusive: Cannot register for COMP 321 if student has credit for COMP 221.
COMP 322 - PRINCIPLES OF PARALLEL PROGRAMMING
Short Title: DIGITAL LOGIC DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 220 or COMP 215
Description: Study of gates, flip-flops, combinational and sequential switching circuits, registers, logical and arithmetic operations, introduction to the Verilog hardware description language. Cross-list: ELEC 326.

COMP 326 - DIGITAL LOGIC DESIGN
Short Title: DIGITAL LOGIC DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220
Description: Study of gates, flip-flops, combinational and sequential switching circuits, registers, logical and arithmetic operations, introduction to the Verilog hardware description language. Cross-list: ELEC 326.

COMP 327 - INTRODUCTION TO COMPUTER SECURITY
Short Title: INTRO TO COMPUTER SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310 or COMP 314 or ELEC 322
Description: This elective course covers a wide variety of topics in computer security, including hands-on experience with breaking software and engineering software to be harder to break. For example, students will perform buffer overflow attacks and exploit web application vulnerabilities, while also learning how to defend against them. Grades will be based on a series of in-class projects. Graduate/Undergraduate Equivalency: COMP 427, COMP 541. Mutually Exclusive: Cannot register for COMP 327 if student has credit for COMP 427/COMP 541.

COMP 330 - TOOLS AND MODELS FOR DATA SCIENCE
Short Title: TOOLS & MODELS - DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 211 or MATH 221) and COMP 215
Description: This course is an introduction to modern data science. Data science is the study of how to extract actionable, non-trivial knowledge from data. The proposed course will focus both on the software tools used by practitioners of modern data science, as well as the mathematical and statistical models that are employed in conjunction with such software tools. On the tools side, we will cover the basics of relational database systems, as well as modern systems for distributed computing based on MapReduce. On the models side, the course will cover standard supervised and unsupervised models for data analysis and pattern discovery. Graduate/Undergraduate Equivalency: COMP 543. Mutually Exclusive: Cannot register for COMP 330 if student has credit for COMP 543.

COMP 340 - STATISTICAL MODELS AND ALGORITHMS FOR DATA SCIENCE
Short Title: STATISTICAL MODELS FOR DS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 140 and (MATH 212 or MATH 222)
Description: The course is an intermediate level course in data science for students at the sophomore level with some experience in programming and background in mathematics (calculus). The course teaches students to “do” data science in Python using six modules to illustrate fundamental data science operations, data cleaning, model exploration, model formulation, model visualization, model communication. Recommended Prerequisite(s): COMP 182.
COMP 347 - COMPUTATIONAL GENOMICS FOR MICROBIAL FORENSICS
Short Title: COMP MICROBIAL FORENSICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182 and (STAT 310 or ECON 307 or STAT 315 or DSCI 301)
Description: We will review, critique, and discuss computational methods and approaches for microbial forensics and infectious disease monitoring in the genomics era. The seminar will be divided into topic-specific sessions, focusing on emerging research trends and open challenges in the field. Graduate/Undergraduate Equivalency: COMP 547. Mutually Exclusive: Cannot register for COMP 347 if student has credit for COMP 547.

COMP 350 - COMPUTER GRAPHICS
Short Title: COMPUTER GRAPHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and (COMP 182 or COMP 280) and (MATH 211 or MATH 212 or MATH 221 or MATH 222) and (MATH 354 or MATH 355)
Description: 2D graphics techniques including fast line and curve drawing and polygon filling. 3D graphics problems including representation of solids, shading, and hidden surface elimination. Fractals, graphics standards. Graduate/Undergraduate Equivalency: COMP 560. Mutually Exclusive: Cannot register for COMP 360 if student has credit for COMP 560.
Course URL: www.owlnet.rice.edu/~comp360/ (http://www.owlnet.rice.edu/~comp360/)

COMP 361 - GEOMETRIC MODELING
Short Title: GEOMETRIC MODELING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and COMP 182 and COMP 215
Description: Exploration of curves and surfaces (e.g. parametric form, implicit form, and conversion between forms), the representation of solid (e.g., wireframes, octrees, boundary representations, and constructive solid geometry), and applications (e.g., graphics, motion planning, simulation, and finite element mesh generation. Graduate/Undergraduate Equivalency: COMP 561. Repeatable for Credit.

COMP 370 - PRACTICAL PROBLEM-SOLVING
Short Title: PRACTICAL PROBLEM-SOLVING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182
Description: We introduce algorithms, algorithmic techniques, and some discrete math with a decidedly practical bent. This will improve anyone's programming skills, but with specific application towards programming contests and programming-oriented job interviews. This also provides optional additional preparation for COMP 382. Features both individual and small-group exercises in a hands-on class.

COMP 382 - REASONING ABOUT ALGORITHMS
Short Title: REASONING ABOUT ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182
Description: Writing algorithms is fun, but how are you sure that the algorithm you wrote is flawless? Are there computing tasks for which it is impossible to produce an efficient algorithm, or, for that matter, any algorithm? To answer these questions, you have to learn to perform mathematical reasoning about algorithmic problems and solutions. COMP 382 is an introduction to such reasoning techniques. Topics covered would include elementary logic, analysis of the correctness and efficiency of algorithms, and formal computational models like finite automata and Turning machines. On the way, you are also going to learn some new algorithm design techniques.

COMP 390 - COMPUTER SCIENCE PROJECTS
Short Title: COMPUTER SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theoretical and experimental investigations under staff direction. Credit cannot be received for both COMP 290 and COMP 390. Instructor Permission Required. Equivalency: COMP 290. Mutually Exclusive: Cannot register for COMP 390 if student has credit for COMP 290. Repeatable for Credit.
COMP 402 - PRODUCTION PROGRAMMING
Short Title: PRODUCTION PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310 or COMP 411 or COMP 510 or COMP 511
Description: This course focuses on the principles and practices of test-driven software development, which have been popularized under the banner of "Extreme Programming." To provide students with practical experience, the course engages students in the development of open source production programs written in JAVA or C#. The DRJAVA programming courses was developed by students in this course. Some of the major topics covered in course lectures include design patterns for controlling concurrency and refactoring transformations to improve legacy code. Graduate/Undergraduate Equivalency: COMP 501. Mutually Exclusive: Cannot register for COMP 402 if student has credit for COMP 501.

COMP 403 - REASONING AND SOFTWARE
Short Title: REASONING ABOUT SOFTWARE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 382 and COMP 215) or COMP 482 or COMP 409 or COMP 509
Description: Our reliance on software of all forms is increasing by the day. As a result, it is more important than ever to ensure that programs function correctly and cannot be exploited by hostile adversaries. The field of formal methods takes on this challenge, developing algorithms and programming methodologies that can be used to formally reason about what happens when software executes on arbitrary inputs, often without actually executing the program. Such reasoning can be used, for example, to identify subtle bugs and vulnerabilities in programs, or to give mathematical proofs of program correctness. This is a hands-on introduction to the field of formal methods. In this class, you will learn the theoretical foundations of these systems; you will also implement a series of systems that can be used to reason about the correctness of C programs. Graduate/Undergraduate Equivalency: COMP 503. Mutually Exclusive: Cannot register for COMP 403 if student has credit for COMP 503.

COMP 405 - ADVANCED TOPICS IN OBJECT-ORIENTED DESIGN
Short Title: ADV TOP OBJECT/ORIENTED DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310
Description: A topics-driven exploration of cutting-edge object oriented design issues and concepts including mutable recursive data frameworks, design patterns for sorting, parsing and games, service-oriented architectures and cloud computing. Detailed knowledge and practice in abstract structure and behavioral representations, delegation model programming, design patterns and Java are required. Graduate/Undergraduate Equivalency: COMP 505. Mutually Exclusive: Cannot register for COMP 405 if student has credit for COMP 505.

COMP 408 - VERIFIED PROGRAMMING
Short Title: VERIFIED PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 211 or COMP 215) and (COMP 182 or COMP 280)
Description: The course will explore the mathematical underpinnings of reliable software. The students will learn how to use proof assistants to construct software along with a machine-checkable proof of its correctness. Basic concepts of logic, functional programming, static type systems and deductive verification will be covered. Graduate/Undergraduate Equivalency: COMP 548.

COMP 409 - ADVANCED LOGIC IN COMPUTER SCIENCE
Short Title: ADV LOGIC IN COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 211 or COMP 215) and (COMP 182 or COMP 280)
Description: Logic has been called "the calculus of computer science". The argument is that logic plays a fundamental role in computer science, similar to that played by calculus in the physical sciences and traditional engineering disciplines. Indeed, logic plays an important role in areas of Computer Science as disparate as artificial intelligence (automated reasoning), architecture (logic gates), software engineering (specification and verification), programming languages (semantics, logic programming), databases (relational algebra and SQL), algorithms (complexity and expressiveness), and theory of computation (general notions of computability). Graduate/Undergraduate Equivalency: COMP 509. Mutually Exclusive: Cannot register for COMP 409 if student has credit for COMP 509.
Course URL: www.cs.rice.edu/~vardi/comp409/ (http://www.cs.rice.edu/~vardi/comp409/)
COMP 410 - SOFTWARE ENGINEERING METHODOLOGY
Short Title: SOFTWARE ENGINEER METHODOLOGY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310 or COMP 314
Description: COMP 410 is a pure discovery-based learning course designed to give students real-life, hands-on training in a wide variety of software engineering issues that arise in creating large-scale, state-of-the-art software systems. The class forms a small software development "company" that works to deliver a product to a customer. The topics encountered include and are not limited to, dealing with new technologies (e.g. C#, .NET, distributed computing), advanced object-oriented programming and design, interacting with customers, problem specification and tasking, individual and group communications, human resource management, group leadership, testing, integration and documentation. Traditional development cycle methodologies will be compared to recent, "agile" techniques. Graduate/Undergraduate Equivalency: COMP 539. Mutually Exclusive: Cannot register for COMP 410 if student has credit for COMP 539.
Course URL: www.bandgap.cs.rice.edu/classes/comp410

COMP 411 - PRINCIPLES OF PROGRAMMING LANGUAGES
Short Title: PRINCIPLES OF PROG LANGUAGES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 211 or COMP 310
Description: The design, definition and abstract implementation of programming languages including methods for precisely specifying syntax and semantics. Graduate/Undergraduate Equivalency: COMP 511. Mutually Exclusive: Cannot register for COMP 411 if student has credit for COMP 511.

COMP 412 - COMPILER CONSTRUCTION FOR UNDERGRADUATE STUDENTS
Short Title: COMPILER CONSTRUCTION - UG
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 314 or ELEC 322 or COMP 310 or COMP 215) and (COMP 221 or COMP 321)
Description: Topics in the design of programming language translators, including parsing, run-time storage management, error recovery, code generation and optimization. Graduate/Undergraduate Equivalency: COMP 506. Recommended Prerequisite(s): COMP 412 or COMP 506. Mutually Exclusive: Cannot register for COMP 412 if student has credit for COMP 506.
Course URL: www.clear.rice.edu/comp412

COMP 413 - DISTRIBUTED PROGRAM CONSTRUCTION
Short Title: DISTRIB PROGRAM CONSTRUCTION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310
Description: This course focuses on modern principles for the construction of distributed programs, with an emphasis on design patterns, modern programming tools, and distributed object systems. The material will be applied in a substantial software design/construction project.

COMP 414 - OPTIMIZATION: ALGORITHMS, COMPLEXITY AND APPROXIMATIONS
Short Title: ALGORITHMS, COMPLEX. & APPROX
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The main focus of the course will be on smooth optimization techniques, with applications in machine learning and artificial intelligence. The course will introduce the basics of algorithms on continuous optimization, starting from the classical gradient descent algorithm in convex optimization, towards more sophisticated approaches in non-convex scenarios. The course will explore the fundamental theory, algorithms, complexity and approximations in nonlinear optimization. Graduate/Undergraduate Equivalency: COMP 514. Mutually Exclusive: Cannot register for COMP 414 if student has credit for COMP 514.

COMP 415 - REAL-WORLD SOFTWARE DEVELOPMENT
Short Title: REAL-WORLD SOFTWARE DEVELOPMNT
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 410
Description: This course focuses on modern principles for the construction of distributed programs, with an emphasis on design patterns, modern programming tools, and distributed object systems. The class will be contracted by an industrial customer to design build, and deliver a product. Negotiate to finalize specifications, updates, and delivery schedules. Encounter real-life issues such as team management, intellectual property, and vagueness and specification changes while developing a state-of-the-art software application.
Course URL: www.bandgap.cs.rice.edu/classes/comp415
COMP 416 - GENOME-SCALE ALGORITHMS AND DATA STRUCTURES
Short Title: GENOME-SCALE ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182
Description: Since the advent of Sanger Sequencing in 1977, computer scientists have been devising algorithms and software tools to interpret and analyze DNA sequences. The field of bioinformatics focuses on computational approaches to solving biological questions. This course will serve as an introduction to widely used algorithms in bioinformatics used for pattern searching, genome assembly, sequence alignment, and clustering of biological data. No prior knowledge of biology is assumed. The class involves several programming assignments. Graduate/Undergraduate Equivalency: COMP 519.

COMP 417 - ADVANCED OPERATING SYSTEMS AND SECURITY
Short Title: ADVANCED OPERATING SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 421 or ELEC 421
Description: In this seminar, we will investigate advanced topics in the design and implementation of operating systems, including: OS structure (including Web Browsers), concurrency and synchronization, memory management, file systems and storage, virtual machines, and information protection. We will explore both fundamental and hot topics through reading, discussing, and presenting key research findings. This course will also cover methods for critiquing, writing, and presenting research findings through a course long project. Graduate/Undergraduate Equivalency: COMP 517. Mutually Exclusive: Cannot register for COMP 417 if student has credit for COMP 517.

COMP 418 - IOT PROGRAMMING AND DATA ANALYSIS
Short Title: IOT PROGRAM. AND DATA ANALYSIS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321
Description: This course is an introduction to the Internet of Things (IoT). It will present the tools and techniques needed to develop complex IoT applications that encompass interaction with the physical world and data analysis across the IoT computing infrastructure. The topics range from programming microcontrollers (e.g., Arduino) and single-board computers (e.g., Raspberry Pi) to IoT automation and the efficient analysis of real-time IoT data. Graduate/Undergraduate Equivalency: COMP 518.

COMP 420 - INTRODUCTION TO DISTRIBUTED COMPUTER SYSTEMS
Short Title: INTRO TO DISTRIBUTED COMP SYS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 421 or ELEC 421
Description: Introduction to distributed computer systems. The course covers concepts, architecture, algorithms, protocols, and implementation, focusing on distribution, scale, robustness in the face of failure, and security. Graduate/Undergraduate Equivalency: COMP 532. Mutually Exclusive: Cannot register for COMP 420 if student has credit for COMP 532.
Course URL: www.clear.rice.edu/comp420 (http://www.clear.rice.edu/comp420/)

COMP 421 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Cross-list: ELEC 421. Graduate/Undergraduate Equivalency: COMP 521. Mutually Exclusive: Cannot register for COMP 421 if student has credit for COMP 521.
Course URL: www.clear.rice.edu/comp421/ (http://www.clear.rice.edu/comp421/)

COMP 422 - PARALLEL COMPUTING
Short Title: PARALLEL COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 221 or COMP 321
Description: COMP 422 is an undergraduate version of this course. COMP 422 students will have four programming assignments. COMP 534 students will have five. As part of their assignments, both COMP 422 and COMP 534 students will analyze the scalability and parallel efficiency of parallel programs they write. COMP 534 students will additionally use tools to qualify the root causes of scaling losses in their programs and document their findings. Graduate/Undergraduate Equivalency: COMP 534. Mutually Exclusive: Cannot register for COMP 422 if student has credit for COMP 534.
COMP 427 - INTRODUCTION TO COMPUTER SECURITY  
**Short Title:** INTRO TO COMPUTER SECURITY  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** COMP 310 and COMP 321  
**Description:** This elective course covers a wide variety of topics in computer security, including hands-on experience w/breaking software & engineering software to be harder to break. For example, students will perform buffer overflow attacks & exploit web application vulnerabilities, while also learning how to defend against them. Graduate/Undergraduate Equivalency: COMP 327, COMP 541. Mutually Exclusive: Cannot register for COMP 427 if student has credit for COMP 327/COMP 541.

COMP 429 - INTRODUCTION TO COMPUTER NETWORKS  
**Short Title:** INTRO TO COMPUTER NETWORKS  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** COMP 221 or COMP 321  
**Course URL:** [www.clear.rice.edu/comp429/](http://www.clear.rice.edu/comp429/)  

COMP 430 - INTRODUCTION TO DATABASE SYSTEMS  
**Short Title:** INTRO TO DATABASE SYSTEMS  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (COMP 211 or COMP 215) and (COMP 182 or COMP 280)  
**Description:** Introduction to relational and other database systems, SQL programming, Database application programming, and Database design. Graduate/Undergraduate Equivalency: COMP 533. Mutually Exclusive: Cannot register for COMP 430 if student has credit for COMP 533.

COMP 431 - WEB DEVELOPMENT  
**Short Title:** WEB DEVELOPMENT  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** In this project-based course, students create multi-user Web applications involving all aspects of application development from front-end and back-end programming to interfacing client-server communications technologies. Class time includes discussions of topics in Web development, structural frameworks, test driven development, and time for students to develop their Web applications. Graduate/Undergraduate Equivalency: COMP 531. Recommended Prerequisite(s): COMP 310 or COMP 321 Mutually Exclusive: Cannot register for COMP 431 if student has credit for COMP 531.
COMP 435 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION

Short Title: ELECTION SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321, MATH 212 and (ELEC 303 or STAT 310 or ECON 307 or STAT 312 or STAT 315 or DSCI 301) and (CAAM 334 or CAAM 335 or MATH 354 or MATH 355) and (COMP 382 or COMP 582) and COMP 310
Description: This course will consider how elections are conducted to enhance participation, accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be accurate and secure, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election. Cross-list: POLI 420, PSYC 420.

COMP 436 - SECURE AND CLOUD COMPUTING

Short Title: SECURE & CLOUD COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321
Description: What is “cloud computing?” How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today’s services run inside the cloud—a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today’s cloud systems. Cross-list: ELEC 410. Graduate/Undergraduate Equivalency: COMP 536. Mutually Exclusive: Cannot register for COMP 436 if student has credit for COMP 536.

COMP 440 - ARTIFICIAL INTELLIGENCE

Short Title: ARTIFICIAL INTELLIGENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321, MATH 212 and (ELEC 303 or STAT 310 or ECON 307 or STAT 312 or STAT 315 or DSCI 301) and (CAAM 334 or CAAM 335 or MATH 354 or MATH 355) and (COMP 382 or COMP 582) and COMP 310
Description: This is a foundational course in artificial intelligence, the discipline of designing intelligent agents. The course will cover the design and analysis of agents that do the right thing in the face of limited information and computational resources. The course revolves around two main questions: how agents decide what to do, and how they learn from experience. Tools from computer science, probability theory, and game theory will be used. Interesting examples of intelligent agents will be covered, including poker playing programs, bots for various games (e.g., WoW), DS1 – the spacecraft that performed an autonomous flyby of Comet Borrely in 2001, Stanley – the Stanford robot car that won the Darpa Grand Challenge, Google Maps and how it calculates driving directions, face and handwriting recognizers, Fedex package delivery planners, airline fare prediction sites, and fraud detectors in financial transactions. Cross-list: ELEC 440. Graduate/Undergraduate Equivalency: COMP 557. Mutually Exclusive: Cannot register for COMP 440 if student has credit for COMP 557.
Course URL: www.owlnet.rice.edu/~comp440 (http://www.owlnet.rice.edu/~comp440/)

COMP 441 - LARGE-SCALE MACHINE LEARNING

Short Title: LARGE-SCALE MACHINE LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 440 or ELEC 440
Description: Learning from large dataset is becoming a ubiquitous phenomena in all applications spanning robotics, medical decisions, internet, communication, biology, etc. Designed to give senior UG students a thorough grounding in the theory and algorithms needed for research and practical applications in machine learning for modern massive datasets. Topics draw from machine learning, classical statistics, algorithms and information theory. Graduate/Undergraduate Equivalency: COMP 542. Mutually Exclusive: Cannot register for COMP 441 if student has credit for COMP 542.
COMP 446 - MOBILE DEVICE APPLICATIONS
Short Title: MOBILE DEVICE APPLICATIONS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Connected mobile devices require updated programming models and design concepts to take advantage of their capabilities. We will explore applications primarily on the Apple iPhone and iPad but will also cover smart watches, Google Android and intelligent voice assistants like Amazon Echo and Google Home. We will briefly touch on the development of web services to support mobile applications. The course culminates with a large project taking up most of the second half of the semester. Although the curriculum centers around and teaches iOS and Xcode, final projects may be completed in any major mobile system including Android and Alexa, etc. Cross-list: ELEC 446. Recommended Prerequisite(s): COMP 310 or prior Object Oriented Programming experience highly recommended.

COMP 447 - INTRODUCTION TO COMPUTER VISION
Short Title: INTRO TO COMPUTER VISION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301 or ELEC 475 or COMP 314 or ELEC 322 or COMP 330
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Cross-list: ELEC 447. Graduate/Undergraduate Equivalency: COMP 546. Mutually Exclusive: Cannot register for COMP 447 if student has credit for COMP 345/COMP 546.

COMP 448 - CONCRETE MATHEMATICS
Short Title: CONCRETE MATHEMATICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182 or MATH 220 or MATH 221 or MATH 302 or MATH 354
Description: Concrete mathematics is a blend of continuous and discrete mathematics. Major topics include sums, recurrences, integer functions, elementary number theory, binomial coefficients, generating functions, discrete probability and asymptotic methods. Cross-list: MATH 448.

COMP 449 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: DSCI 435. Graduate/Undergraduate Equivalency: COMP 549. Mutually Exclusive: Cannot register for COMP 449 if student has credit for COMP 549. Repeatable for Credit.

COMP 450 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon sin life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today's robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: ELEC 450, MECH 450. Graduate/Undergraduate Equivalency: COMP 550. Mutually Exclusive: Cannot register for COMP 450 if student has credit for COMP 550.

COMP 451 - DESIGN AND ANALYSIS OF CYBER-PHYSICAL SYSTEMS
Short Title: DESIGN&ANALYSIS CYBER/PHYSCAL
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an introduction to cyber-physical systems, engineering artifacts in which computational components interact with and typically control physical components. Some common examples of cyber-physical systems include robots, Segways and lane-departure warning, LDW, systems in automobiles. Graduate/Undergraduate Equivalency: COMP 555. Mutually Exclusive: Cannot register for COMP 451 if student has credit for COMP 555.
COMP 460 - ADVANCED COMPUTER GAME CREATION
Short Title: ADV COMPUTER GRAPHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This project-based class involves teams of 2-4 CS and Visual Arts students designing and building computer games suitable for Xbox Live Arcade using C# and XNA. For CS students, Comp 160 or Comp 360 is recommended as a prerequisite. For Visual Arts students, previous experience in drawing using Photoshop is suggested. Instructor Permission Required. Cross-list: ARTS 460. Repeatable for Credit.
Course URL: www.owlnet.rice.edu/~comp460 (http://www.owlnet.rice.edu/~comp460/)

COMP 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics/requirements/credit hours may vary each semester. Contact Department for current semester’s topic(s). Repeatable for Credit.

COMP 480 - PROBABILISTIC ALGORITHMS AND DATA STRUCTURE
Short Title: PROBABLISTIC ALGORITHMS AND D
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will be ideal for someone wanting to build a strong foundation in the theory and practice of algorithms for processing Big-Data. We will discuss advanced data structures and algorithms going beyond deterministic setting and emphasize the role of randomness in getting significant, often exponential, improvements in computations and memory. Graduate/Undergraduate Equivalency: COMP 580. Recommended Prerequisite(s): COMP 382

COMP 481 - AUTOMATA, FORMAL LANGUAGES, AND COMPUTABILITY
Short Title: AUTOMATA/FORMAL LANG COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Finite automata, regular expressions, regular languages, pushdown automata, context-free languages, Turing machines, recursive languages, computability, and solvability. It is strongly recommended that students complete three semesters of Mathematics before enrolling in this course. Graduate/Undergraduate Equivalency: COMP 581. Mutually Exclusive: Cannot register for COMP 481 if student has credit for COMP 581.

COMP 487 - COMPUTATIONAL COMPLEXITY
Short Title: COMPUTATIONAL COMPLEXITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 485 or BIOE 485 or COMP 485
Description: In Computational Complexity we study the computational resources (time, space, communication, etc.) that are required to solve computational problems via various computational needs. Specifically, we are interested in classifying computational problems with classes of other problems that require similar amount of resources to solve. Graduate/Undergraduate Equivalency: COMP 587. Mutually Exclusive: Cannot register for COMP 487 if student has credit for COMP 587.
COMP 498 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 354 or MATH 355 or CAAM 335
Description: The course will provide the student with a mathematical introduction to many of the key ideas used in today's intelligent robot systems. The focus of the course is on the analysis and control of manipulators. The course will also give an overview of common approaches to building intelligent robot systems. Cross-list: ELEC 498, MECH 498. Graduate/Undergraduate Equivalency: COMP 598. Recommended Prerequisite(s): MECH 211 or CEVE 211 or MECH 310
Mutually Exclusive: Cannot register for COMP 498 if student has credit for COMP 598.
COMP 503 - REASONING AND SOFTWARE
Short Title: REASONING ABOUT SOFTWARE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 382 and COMP 215) or COMP 482 or COMP 409 or COMP 509
Description: Our reliance on software of all forms is increasing by the day. As a result, it is more important than ever to ensure that programs function correctly and cannot be exploited by hostile adversaries. The field of formal methods takes on this challenge, developing algorithms and programming methodologies that can be used to formally reason about what happens when software executes on arbitrary inputs, often without actually executing the program. Such reasoning can be used, for example, to identify subtle bugs and vulnerabilities in programs, or to give mathematical proofs of program correctness. This is a hands-on introduction to the field of formal methods. In this class, you will learn the theoretical foundations of these systems; you will also implement a series of systems that can be used to reason about the correctness of C programs. Graduate/Undergraduate Equivalency: COMP 403. mutually Exclusive: Cannot register for COMP 503 if student has credit for COMP 403.

COMP 504 - GRADUATE OBJECT-ORIENTED PROGRAMMING AND DESIGN
Short Title: GR OBJ-ORIENTED PROG & DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discover how state-of-the-art object-orient programming and design techniques can create globe-spanning software systems that are both flexible and scalable. Learn how software design patterns are used in multiple programming paradigms. Explore highly decoupled systems with dynamically configurable behaviors. Highly recommended for anyone interested in building large systems and software engineering. Basic proficiency in Java is required. Students may not receive credit for both COMP 310/510 and COMP 404/504. mutually Exclusive: Cannot register for COMP 504 if student has credit for COMP 310/COMP 404/COMP 510.

COMP 505 - ADVANCED TOPICS IN OBJECT-ORIENTED DESIGN
Short Title: ADV TOP OBJECT/orIENTED DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 404 or COMP 504 or COMP 310
Description: A topics-driven exploration of cutting-edge object oriented design issues and concepts including mutable reusable data frameworks, design patterns for sorting, parsing and games, service-oriented architectures and cloud computing. Detailed knowledge and practice in abstract structure and behavioral representations, delegation model programming, design patterns and Java are required. Graduate/Undergraduate Equivalency: COMP 405. mutually Exclusive: Cannot register for COMP 505 if student has credit for COMP 405.

COMP 506 - COMPILER CONSTRUCTION FOR GRADUATE STUDENTS
Short Title: COMPILER CONSTRUCTION - GR
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the design of programming language translators, including parsing, run-time storage management, error recovery, code generation and optimization. Graduate/Undergraduate Equivalency: COMP 412. mutually Exclusive: Cannot register for COMP 506 if student has credit for COMP 412.

COMP 507 - COMPUTER-AIDED PROGRAM DESIGN
Short Title: COMPUTER-AIDED PROGRAM DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 482 or ELEC 420) or COMP 481
Description: This course is a graduate-level introduction to computer-aided program design, a field that studies logical and algorithmic techniques for formally verifying programs, and mechanized derivation of programs that are correct by construction. Topics covered will include classical automated program verification in particular abstract interpretation and model checking - as well as recent developments in algorithmic program synthesis.

COMP 508 - DESIGN AND ANALYSIS OF SECURE EMBEDDED SYSTEMS FOR IoT ERA
Short Title: SECURE EMBEDDED SYS FOR IoT
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course emphasizes the security of small embedded devices that are central to the Internet of Things (IoT) Era. We discuss the practical security attacks, challenges, constraints, and opportunities that arise in the IoT domain. Covered topics include security engineering, real world attacks, practical and side channel attacks, and hands-on lab/projects. Cross-list: ELEC 511. Repeatable for Credit.
COMP 509 - ADVANCED LOGIC IN COMPUTER SCIENCE
Short Title: ADV LOGIC IN COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Logic has been called "the calculus of computer science". The argument is that logic plays a fundamental role in computer science, similar to that played by calculus in the physical sciences and traditional engineering disciplines. Indeed, logic plays an important role in areas of Computer Science as disparate as artificial intelligence (automated reasoning), architecture (logic gates), software engineering (specification and verification), programming languages (semantics, logic programming), databases (relational algebra and SQL), algorithms (complexity and expressiveness), and theory of computation (general notions of computability). Graduate/Undergraduate Equivalency: COMP 409. Mutually Exclusive: Cannot register for COMP 509 if student has credit for COMP 409.

COMP 511 - PRINCIPLES OF PROGRAMMING LANGUAGES
Short Title: PRINCIPLES OF PROG LANGUAGES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 211 or COMP 310
Description: The design, definition and abstract implementation of programming languages including methods for precisely specifying syntax and semantics. Graduate/Undergraduate Equivalency: COMP 411. Mutually Exclusive: Cannot register for COMP 511 if student has credit for COMP 411.

COMP 513 - COMPLEXITY IN MODERN SYSTEMS
Short Title: COMPLEXITY IN MODERN SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A modern computer is a system with enormous complexity in both software and hardware. The course presents the principles for managing such complexity using examples from modern computing systems. It covers emergent issues from system complexity such as energy efficiency, bug finding, and heterogeneous hardware. It also covers designing experiments and writing systems papers. The course consists of lectures, student presentation of classic papers, and a final project. Cross-list: ELEC 513.

COMP 514 - OPTIMIZATION: ALGORITHMS, COMPLEXITY, AND APPROXIMATIONS
Short Title: ALGORITHMS, COMPLEX. & APPROX
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The main focus of the course will be on smooth optimization techniques, with applications in machine learning and artificial intelligence. The course will introduce the basics of algorithms on continuous optimization, starting from the classical gradient descent algorithm in convex optimization, towards more sophisticated approaches in non-convex scenarios. The course will explore the fundamental theory, algorithms, complexity and approximations in nonlinear optimization. Graduate/Undergraduate Equivalency: COMP 414. Mutually Exclusive: Cannot register for COMP 514 if student has credit for COMP 414.

COMP 515 - ADVANCED COMPILATION FOR VECTOR PARALLEL PROCESSORS
Short Title: ADV COMPILATION VECTOR PARALEL
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 412
Description: Advanced compilation techniques for vector and parallel computer systems, including the analysis of program dependence, program transformations to enhance parallelism, compiler management of the memory hierarchy, interprocedural data flow analysis, and parallel debugging. Recommended Prerequisite(s): COMP 412.
COMP 516 - CLOUD COMPUTING PRACTICUM
Short Title: CLOUD COMPUTING PRACTICUM
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 413 or COMP 420 or (COMP 520 or ELEC 520)
Description: This is a project-based class that provides students with the opportunity to apply their knowledge of distributed computing principles to designed and develop a small, large distributed application that utilizes the public cloud. Students will learn about the basic services for computing, storage, and commination that are supported by the new generation of "public utilities" that provide the infrastructure for the public cloud, and how to utilize these services to engineer a robust, scalable application.

COMP 517 - ADVANCED OPERATING SYSTEMS AND SECURITY
Short Title: ADVANCED OPERATING SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this seminar, we will investigate advanced topics in the design and implementation of operating systems, including: OS structure (including Web Browsers), concurrency and synchronization, memory management, file systems and storage, virtual machines, and information protection. We will explore both fundamental and hot topics through reading, discussing, and presenting key research findings. This course will also cover methods for critiquing, writing, and presenting research findings through a course long project. Graduate/Undergraduate Equivalency: COMP 417. Mutually Exclusive: Cannot register for COMP 517 if student has credit for COMP 417.

COMP 518 - IOT PROGRAMMING AND DATA ANALYSIS
Short Title: IOT PROGRAM. AND DATA ANALYSIS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to the Internet of Things (IoT). It will present the tools and techniques needed to develop complex IoT applications that encompass interaction with the physical world and data analysis across the IoT computing infrastructure. The topics range from programming microcontrollers (e.g., Arduino) and single-board computers (e.g., Raspberry Pi) to IoT automation and the efficient analysis of real-time IoT data. Graduate/Undergraduate Equivalency: COMP 418.

COMP 519 - GENOME-SCALE ALGORITHMS AND DATA STRUCTURES
Short Title: GENOME-SCALE ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Since the advent of Sanger Sequencing in 1977, computer scientists have been devising algorithms and software tools to interpret and analyze DNA sequences. The field of bioinformatics focuses on computational approaches to solving biological questions. This course will serve as an introduction to widely used algorithms in bioinformatics used for pattern searching, genome assembly, sequence alignment, and clustering of biological data. No prior knowledge of biology is assumed. The class involves several programming assignments. Graduate/Undergraduate Equivalency: COMP 416.

COMP 520 - DISTRIBUTED SYSTEMS
Short Title: DISTRIBUTED SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Course URL: www.cs.rice.edu/~alc/comp520/ (http://www.cs.rice.edu/~alc/comp520/)

COMP 521 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 552. Graduate/Undergraduate Equivalency: COMP 421. Mutually Exclusive: Cannot register for COMP 521 if student has credit for COMP 421.
COMP 522 - MULTI-CORE COMPUTING
Short Title: MULTI-CORE COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 425
Description: Multi-core microprocessors are becoming the norm. The course will focus on emerging multi-core processor architectures and challenges to using them effectively. Topics include multi-core microprocessors, memory hierarchy, synchronization, programming systems, scheduling, and transactional memory.
Course URL: www.cs.rice.edu/~johnmc/comp522/ (http://www.cs.rice.edu/~johnmc/comp522/)

COMP 523 - INTRODUCTION TO MATHEMATICAL CRYPTOGRAPHY
Short Title: INTRO TO MATH CRYPTOGRAPHY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 182 or COMP 448 or MATH 448 or MATH 365
Description: This course introduces students to modern cryptographic techniques, focusing mainly on mathematical tools. The course covers topics such as Diffie-Hellman key exchange, the ElGamal public key crypto system, integer factorization and RSA, and elliptic curves and lattices in cryptography. Graduate/Undergraduate Equivalency: COMP 323. Mutually Exclusive: Cannot register for COMP 523 if student has credit for COMP 323/MATH 323.

COMP 524 - MOBILE AND WIRELESS NETWORKING
Short Title: MOBILE AND WIRELESS NETWORKING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: Study of network protocols for mobile and wireless networking, particularly at the media access control, network, and transport protocol layers. Focus is on the unique problems and challenges presented by the properties of wireless transmission and host or router mobility. Cross-list: ELEC 524. Recommended Prerequisite(s): COMP 421 or ELEC 421.

COMP 525 - VIRTUALIZATION AND CLOUD RESOURCE MANAGEMENT
Short Title: VIRTUAL & CLOUD RESOURCE MGMT
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ELEC 425 or COMP 425)

COMP 526 - HIGH PERFORMANCE COMPUTER ARCHITECTURE
Short Title: HIGH PERFORM COMPUTER ARCH
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of high performance computer systems, including shared-memory and message-passing multiprocessors and vector systems. Hardware and software techniques to tolerate and reduce memory and communication latency. Case studies and performance simulation of high-performance systems. Cross-list: ELEC 526. Recommended Prerequisite(s): ELEC 425 or COMP 425

COMP 527 - COMPUTER SYSTEMS SECURITY
Short Title: COMPUTER SYSTEMS SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will focus on computer security in real systems. We will cover theory and practice for the design of secure systems (formal modeling, hardware and compiler-enforced safety, software engineering processes, tamper-resistant and tamper-reactive hardware, firewalls, cryptography, and more). Recommended Prerequisite(s): (COMP 311 or COMP 412) and (COMP 421 or COMP 429).

COMP 528 - INTRODUCTION TO VIRTUALIZATION
Short Title: INTRODUCTION TO VIRTUALIZATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 421 or COMP 521
Description: System-level virtualization is an integral part of modern computer systems, spanning both hardware and software. This course will explore the various types of system-level virtualization and the hardware and software mechanisms that support them. The course will explore the interplay among hypervisors, operating systems, processors, memory, and I/O devices in modern virtualized systems.
COMP 529 - ADVANCED COMPUTER NETWORKS
Short Title: ADVANCED COMPUTER NETWORKS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: This course explores advanced solutions in computer networks that are driven by the need to go beyond the best-effort capabilities of the Internet. Topics include network fault tolerance, traffic engineering, scalable data center network architectures, network support for big data processing, network support for cloud computing, extensible network control via software defined networking, denial-of-service-attack defense mechanisms. Readings from original research papers. Also include design project and oral presentation components. This course assumes students already have a good understanding of the best-effort Internet. Cross-list: ELEC 529, Repeatable for Credit.
Course URL: www.clear.rice.edu/comp529/ (http://www.clear.rice.edu/comp529/)

COMP 530 - DATABASE SYSTEM IMPLEMENTATION
Short Title: DATABASE SYSTEM IMPLEMENTATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 321 and COMP 430
Description: This course covers database management system architecture, query processing and optimization, transaction processing, concurrent control and recover, storage, indexing structures and related topics. Students will build a database system from the ground up. Graduate students who have not had an introductory database course should enroll for 4 credits: all others should enroll for 3 credits.

COMP 531 - WEB DEVELOPMENT AND DESIGN
Short Title: WEB DEVELOPMENT AND DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This project-based course explores Web application creation and design. Students are involved in the development of front-end and back-end systems while interfacing client-server communications technologies. Students will evaluate Web structural frameworks, Web development technologies, apply test driven development, and create multi-user Web applications. Graduate/Undergraduate Equivalency: COMP 431. Recommended Prerequisite(s): COMP 310 or COMP 321
Mutually Exclusive: Cannot register for COMP 531 if student has credit for COMP 431.

COMP 532 - INTRODUCTION TO DISTRIBUTED COMPUTER SYSTEMS
Short Title: INTRO TO DISTRIBUTED COMP SYS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 421 or COMP 521
Description: Introduction to distributed computer systems. The course covers concepts, architecture, algorithms, protocols, and implementation, focusing on distribution, scale, robustness in the face of failure, and security. Additional coursework required beyond the UG course requirements. Graduate/Undergraduate Equivalency: COMP 420. Mutually Exclusive: Cannot register for COMP 532 if student has credit for COMP 420.
Course URL: www.clear.rice.edu/comp420 (http://www.clear.rice.edu/comp420/)

COMP 533 - INTRODUCTION TO DATABASE SYSTEMS
Short Title: INTRO TO DATABASE SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: COMP 504
Description: Introduction to relational and other database systems, SQL programming, Database application programming, and Database design. This course is designed for students without prior database experience. Graduate/Undergraduate Equivalency: COMP 430. Mutually Exclusive: Cannot register for COMP 533 if student has credit for COMP 430.

COMP 534 - PARALLEL COMPUTING
Short Title: PARALLEL COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321)
Description: COMP 422 is an undergraduate version of this course. COMP 422 students will have four programming assignments. COMP 534 students will have five. As part of their assignments, both COMP 422 and COMP 534 students will analyze the scalability and parallel efficiency of parallel programs they write. COMP 534 students will additionally use tools to qualify the root causes of scaling losses in their programs and document their findings. Graduate/Undergraduate Equivalency: COMP 422. Mutually Exclusive: Cannot register for COMP 534 if student has credit for COMP 422.
COMP 535 - APPROXIMATE COMPUTING SYSTEM FOR BIG DATA, SUPERCOMPUTING AND EMBEDDED SYSTEMS
Short Title: APPROX COMP SYS FOR BIG DATA
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey this radical concept of approximate (or inexact) computing with the goal of understanding both of the challenges and opportunities at all layers of the computing system ranging over programming languages, compilers and run-time, and architecture.

COMP 536 - SECURE AND CLOUD COMPUTING
Short Title: SECURE & CLOUD COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is "cloud computing?" How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today's services run inside the cloud – a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today's cloud systems. Cross-list: ELEC 510. Graduate/Undergraduate Equivalency: COMP 436. Mutually Exclusive: Cannot register for COMP 536 if student has credit for COMP 436.

COMP 538 - SECURITY OF HW EMBEDDED SYSTEMS
Short Title: EMBEDDED HW SYSTEMS SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course covers wide range of topics pertaining to security of Hardware Embedded system, including cryptographic processors, secure memory access, hardware IT protection by monitoring and watermarking FPGA security, physical and side-charmed attacks, Trojan horses. Cross-list: ELEC 528. Repeatable for Credit.

COMP 539 - SOFTWARE ENGINEERING METHODOLOGY
Short Title: SOFTWARE ENGINEER METHODOLOGY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 404 or COMP 504
Description: COMP 539 is a pure discovery-based learning course designed to give students real-life, hands-on training in a wide variety of software engineering issues that arise in creating large-scale, state-of-the-art software systems. The class forms a small software development "company" that works to deliver a product to a customer. The topics encountered include and are not limited to, dealing with new technologies (e.g. C#, .NET, distributed computing), advanced object-oriented programming and design, interacting with customers, problem specification and testing, individual and group communications, human resource management, group leadership, testing, integration and documentation. Traditional development cycle methodologies will be compared to recent, "agile" techniques. Graduate/Undergraduate Equivalency: COMP 410. Recommended Prerequisite(s): COMP 505
Mutually Exclusive: Cannot register for COMP 539 if student has credit for COMP 410.
Course URL: www.bandgap.cs.rice.edu/classes/comp410 (http://www.bandgap.cs.rice.edu/classes/comp410/)
COMP 542 - LARGE-SCALE MACHINE LEARNING
Short Title: LARGE-SCALE MACHINE LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Learning from large dataset is becoming a ubiquitous phenomena in all applications spanning robotics, medical decisions, internet, communication, biology, etc. Designed to give senior UG students a thorough grounding in the theory and algorithms needed for research and practical applications in machine learning for modern massive datasets. Topics draw from machine learning, classical statistics, algorithms and information theory. Graduate/Undergraduate Equivalency: COMP 441. Mutually Exclusive: Cannot register for COMP 542 if student has credit for COMP 441.

COMP 543 - GRADUATE TOOLS AND MODELS - DATA SCIENCE
Short Title: GR TOOLS & MODELS - DATA SCI
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to modern data science. Data science is the study of how to extract actionable, non-trivial knowledge from data. The course will focus on the software tools used by practitioners of modern data science, the mathematical and statistical models that are employed in conjunction with such software tools and the applications of these tools and systems to different problems and domains. On the tools side, we will cover the basics of relational database systems, as well as modern systems for manipulating large data sets such as Hadoop MapReduce, Apache Spark, and Google’s TensorFlow. On the model side, the course will cover standard supervised and unsupervised models for data analysis and pattern discovery. Mathematical sophistication (calculus, statistics) and programming skills that would be acquired in an undergraduate computer science program are expected. Most programming will be in Python and SQL. (SQL is covered in the course) with some Java. Instructor Permission Required. Graduate/Undergraduate Equivalency: COMP 330. Mutually Exclusive: Cannot register for COMP 543 if student has credit for COMP 330.

COMP 544 - FUNCTIONAL PROGRAMMING
Short Title: FUNCTIONAL PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to concepts, principles, and approaches of functional programming. Functional programming is a style of programming where the key means of computation is the application of functions to arguments (which themselves might be functions). This style of programming has become increasingly popular in recent years because it offers important advantages in designing, maintaining, and reasoning about programs in many modern contexts such as web services, multicore programming, and cluster computing. Course work consists of a series of programming assignments in the Scala programming language and various library extensions such as Apache Spark. Graduate/Undergraduate Equivalency: COMP 311. Mutually Exclusive: Cannot register for COMP 544 if student has credit for COMP 311.

COMP 545 - ADVANCED TOPICS IN OPTIMIZATION: FROM SIMPLE TO COMPLEX ML SYSTEMS
Short Title: ADV TOPICS IN OPTIMIZATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: COMP 545 is a graduate-level course on optimization techniques and algorithms, as these are used in modern ML/AI/SP tasks. During this course, we will learn and study the above topics (both in depth and breadth). The course i) will focus on different objective classes (convex vs. non-convex objectives, with constraints or not, etc.), ii) will cover different optimization strategies within each class, iii) will study algorithmic choices based on computational resources (e.g., use of low-dimensional structures (when/why), asynchronous vs. synchronous algorithms, distributed algorithms, etc.) and iv) will study schemes that handle some specific, but well-spread optimization constraints (sparsity, low-rankness). The main objective of the course is to highlight optimization as a vital part of contemporary research in ML/AI/SP, and draw the attention of students to open-questions in related topics. In particular, the aim for students is to i) learn how to distinguish differences in research papers of related fields, ii) understand the connection between them and how researchers advance each area, and iii) be able to consider possible extensions of these works, as part of the final (open-ended) project of the course. Repeatable for Credit.
COMP 408 - Undergraduate Equivalency: COMP 408. type systems and deductive verification will be covered. Graduate/Corset correctness. Basic concepts of logic, functional programming, static to construct software along with a machine-checkable proof of its reliable software. The students will learn how to use proof assistants
Description: The course will explore the mathematical underpinnings of reliable software. The students will learn how to use proof assistants to construct software along with a machine-checkable proof of its correctness. Basic concepts of logic, functional programming, static type systems and deductive verification will be covered. Graduate/Undergraduate Equivalency: COMP 408.

COMP 547 - COMPUTATIONAL GENOMICS FOR MICROBIAL FORENSICS Short Title: COMP MICROBIAL FORENSICS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will review, critique, and discuss computational methods and approaches for microbial forensics and infectious disease monitoring in the genomics era. The seminar will be divided into topic-specific sessions, focusing on emerging research trends and open challenges in the field. Graduate/Undergraduate Equivalency: COMP 347. Mutually Exclusive: Cannot register for COMP 547 if student has credit for COMP 345/COMP 447.

COMP 548 - VERIFIED PROGRAMMING Short Title: VERIFIED PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 546. Graduate/Undergraduate Equivalency: COMP 447. Mutually Exclusive: Cannot register for COMP 546 if student has credit for COMP 345/COMP 447.

COMP 549 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS Short Title: DATA SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: DSCI 535. Graduate/Undergraduate Equivalency: COMP 449. Mutually Exclusive: Cannot register for COMP 549 if student has credit for COMP 449. Repeatable for Credit.

COMP 550 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon sin life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today's robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: ELEC 550, MECH 550. Graduate/Undergraduate Equivalency: COMP 450. Mutually Exclusive: Cannot register for COMP 550 if student has credit for COMP 450.

COMP 553 - BIG DATA MANAGEMENT FOR DATA SCIENCE
Short Title: BIG DATA MGMT FOR DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MDS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 614 and COMP 680
Description: This course is an introduction to "big" data, including storage, processing, and machine learning. It covers software tools (including an introduction to database programming using SQL), algorithms, and mathematical models used to prepare and extract knowledge from large datasets. Course material will cover different application problems and domains.
COMP 544 - COMPUTER SYSTEMS ARCHITECTURE
Short Title: COMPUTER SYSTEMS ARCHITECTURE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evolution of key architecture concepts found in advanced uniprocessor systems. Fundamental and advanced pipelining techniques and associated issues for improving processor performance. Illustrated with RISC processors such as the ARM processor. Examine several metrics for processor performance, such as Amdahl's law. Key concepts of data and program memory systems found in modern systems with memory hierarchies and caches. Perform experiments in cache performance analysis. Influence of technology trends, such as Moore's law, on processor implementation Approaches for exploiting instruction level parallelism, such as VLIW. Introduction to parallel and multicore architectures. Introduction to processor architectures targeted for imbedded applications. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 544. Graduate/Undergraduate Equivalency: COMP 425. Mutually Exclusive: Cannot register for COMP 544 if student has credit for COMP 425.

COMP 555 - DESIGN AND ANALYSIS OF CYBER-PHYSICAL SYSTEMS
Short Title: DESIGN&ANALYSIS CYBER/PHYSICAL
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to cyber-physical systems, engineering artifacts in which computational components interact with and typically control physical components. Some common examples of cyber-physical systems include robots, Segways and lane-departure warning, LDW, systems in automobiles. Graduate/Undergraduate Equivalency: COMP 451. Mutually Exclusive: Cannot register for COMP 555 if student has credit for COMP 451.

COMP 556 - INTRODUCTION TO COMPUTER NETWORKS
Short Title: INTRO TO COMPUTER NETWORKS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 221 or COMP 321

COMP 557 - ARTIFICIAL INTELLIGENCE
Short Title: ARTIFICIAL INTELLIGENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 310 and (STAT 301 or ECON 307 or ECON 382 or STAT 312 or STAT 331 or ELEC 331 or ELEC 303) and (MATH 354 or MATH 355 or CAAM 335)
Description: This is a foundational course in artificial intelligence, the discipline of designing intelligent agents. The course will cover the design and analysis of agents that do the right thing in the face of limited information and computational resources. The course revolves around two main questions: how agents decide what to do, and how they learn from experience. Tools from computer science, probability theory, and game theory will be used. Interesting examples of intelligent agents will be covered, including poker playing programs, bots for various games (e.g. WoW), DS1 -- the spacecraft that performed an autonomous flyby of Comet Borrely in 2001, Stanley -- the Stanford robot car that won the Darpa Grand Challenge, Google Maps and how it calculates driving directions, face and handwriting recognizers, FedEx package delivery planners, airline fare prediction sites, and fraud detectors in financial transactions. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 557. Graduate/Undergraduate Equivalency: COMP 440. Mutually Exclusive: Cannot register for COMP 557 if student has credit for COMP 440.

Course URL: www.ownet.rice.edu/~comp440 (http://www.ownet.rice.edu/~comp440/)

COMP 560 - COMPUTER GRAPHICS AND GEOMETRIC MODELING
Short Title: COMPUTER GRAPHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of core topics in Computer Graphics and Geometric Modeling, including fractals, ray tracing, hidden surface Algorithmic, Bezier, B-spline, blossoming techniques and subdivision procedures. Graduate/Undergraduate Equivalency: COMP 360. Mutually Exclusive: Cannot register for COMP 560 if student has credit for COMP 360.

COMP 561 - GEOMETRIC MODELING
Short Title: GEOMETRIC MODELING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploration of curves and surfaces (e.g. parametric form, implicit form, and conversion between forms), the representation of solid (e.g., wireframes, octrees, boundary representations, and constructive solid geometry), and applications (e.g., graphics, motion planning, simulation, and finite element mesh generation. Graduate/Undergraduate Equivalency: COMP 361. Repeatable for Credit.
COMP 565 - COMPUTATIONAL HUMAN-ROBOT INTERACTION  
**Short Title:** COMPUTATIONAL HRI  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Prerequisite(s):** COMP 440 or COMP 450 or COMP 540 or STAT 525 or MECH 498  
**Description:** The course provides an introduction to the budding field of human-robot interaction (HRI), with emphasis on its computational aspects. The course will cover models and algorithms for learning robot policies from human expertise, modeling human behavior using observational data, and enhancing human-robot coordination. Through problems grounded in HRI, students will also learn about general AI techniques for imitation learning (e.g., inverse reinforcement learning) and sequential decision-making under uncertainty (namely, partially observable MDPs).

COMP 571 - BIOINFORMATICS: SEQUENCE ANALYSIS  
**Short Title:** BIOINFORMATICS: SEQUENCE  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Prerequisite(s):** COMP 440 or COMP 450 or COMP 540 or STAT 525 or MECH 498  
**Description:** Pairwise and multiple sequence alignment, Markov chains and HMMs, Phylogenetic reconstruction, Haplotype inference, Computational models of RNA structure, Gene finding, Genome rearrangements, and comparative genomics.  
**Course URL:** www.cs.rice.edu/~nakhleh/COMP571/ (http://www.cs.rice.edu/~nakhleh/COMP571/)  

COMP 572 - BIOINFORMATICS: NETWORK ANALYSIS  
**Short Title:** BIOINFORMATICS: NETWORKS  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Description:** This course covers computational aspects of biological network analysis, a major theme in the area of systems biology. The course discusses protein-protein interaction, signaling, metabolic, and functional networks, and covers issues related to constructing, analyzing various types of networks, as well as how they can be used for downstream applications. Cross-list: BIOE 564.

COMP 573 - PROFESSIONAL DEVELOPMENT FOR BIOMEDICAL INFORMATICS  
**Short Title:** BIOMEDICAL INFORMATICS  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Description:** This seminar introduces pre- and postdoctoral students in biomedical informatics to topics relevant to professional development in the discipline, which is no longer concentrated in labs as it was in its early days, but is now important in hospitals, outpatient clinics, companies and even the community. In these settings, researchers and practitioners are likely to encounter not only difficult technical challenges, but vexing problems of organizational change and development as well. We will consider some of these challenges, drawing on the insights of experts in psychology, organizational change, management and communications along with industry representatives and entrepreneurs. The seminar mixes lectures and readings with group and individual exercises. Instructor Permission Required. Repeatable for Credit.

COMP 576 - A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING  
**Short Title:** INTRODUCTION TO DEEP LEARNING  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Description:** Deep Machine Learning has recently made many advances in difficult perceptual tasks, including object and phoneme recognition, and natural language processing. However, the field has a steep learning curve, both conceptually and practically. The point of this course is to engage students by jumping into the deep end, and building their own architectures and algorithms. Cross-list: ELEC 576.

COMP 580 - PROBABILISTIC ALGORITHMS AND DATA STRUCTURE  
**Short Title:** PROBABILISTIC ALGORITHMS AND D  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Description:** This course will be ideal for someone wanting to build a strong foundation in the theory and practice of algorithms for processing Big-Data. We will discuss advanced data structures and algorithms going beyond deterministic setting and emphasize the role of randomness in getting significant, often exponential, improvements in computations and memory. Graduate/Undergraduate Equivalency: COMP 480.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 581</td>
<td>AUTOMATA, FORMAL LANGUAGES, AND COMPUTABILITY</td>
<td>AUTOMATA/FORMAL LANG/COMPUTING</td>
<td>Computer Science</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Finite automata, regular expressions, regular languages, pushdown automata, context-free languages, Turing machines, recursive languages, computability, and solvability. It is strongly recommended that students complete three semesters of Mathematics before enrolling in this course. Graduate/Undergraduate Equivalency: COMP 481. Mutually Exclusive: Cannot register for COMP 581 if student has credit for COMP 481.</td>
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<tr>
<td>COMP 582</td>
<td>GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS</td>
<td>GR DESGN ANALY OF ALGORITHMS</td>
<td>Computer Science</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Methods for designing and analyzing computer algorithms and data structures. The focus of this course will be on the theoretical and mathematical aspects of algorithms and data structures. Cross-list: ELEC 512.</td>
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<tr>
<td>COMP 587</td>
<td>COMPUTATIONAL COMPLEXITY</td>
<td>COMPUTATIONAL COMPLEXITY</td>
<td>Computer Science</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>In Computational Complexity we study the computational resources (time, space, communication, etc.) that are required to solve computational problems via various computational needs. Specifically, we are interested in classifying computational problems with classes of other problems that require similar amount of resources to solve. Graduate/Undergraduate Equivalency: COMP 487. Mutually Exclusive: Cannot register for COMP 587 if student has credit for COMP 487.</td>
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<tr>
<td>COMP 590</td>
<td>COMPUTER SCIENCE PROJECTS</td>
<td>COMPUTER SCIENCE PROJECTS</td>
<td>Computer Science</td>
<td>Standard Letter</td>
<td>Research</td>
<td>1-4</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Advanced theoretical and experimental investigations under staff direction. The student must have a full-time internship to receive 4 credits for this course. Instructor Permission Required. Repeatable for Credit.</td>
</tr>
<tr>
<td>COMP 591</td>
<td>GRADUATE COMPUTER SCIENCE TEACHING</td>
<td>GRAD COMPUTER SCIENCE TEACHING</td>
<td>Computer Science</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Independent Study</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>A combination of in-service teaching and a seminar. Instructor Permission Required. Repeatable for Credit.</td>
</tr>
<tr>
<td>COMP 598</td>
<td>INTRODUCTION TO ROBOTICS</td>
<td>INTRODUCTION TO ROBOTICS</td>
<td>Computer Science</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Additional work requied for Graduate course. Cross-list: ELEC 598, MECH 598. Graduate/Undergraduate Equivalency: COMP 498. Mutually Exclusive: Cannot register for COMP 598 if student has credit for COMP 498.</td>
</tr>
<tr>
<td>COMP 600</td>
<td>GRADUATE SEMINAR IN COMPUTER SCIENCE</td>
<td>GRADUATE SEMINAR</td>
<td>Computer Science</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Seminar</td>
<td>1</td>
<td>Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy or Master of Science degrees.</td>
<td>Graduate</td>
<td>The seminar course meets weekly to discuss current research results by graduate students in the Computer Science Department. Senior Ph.D. Students are expected to present their research results. This course is open ONLY to MS and Ph.D. Students. MCS students may NOT take this course for credit without the consent of the instructor. Repeatable for Credit.</td>
</tr>
</tbody>
</table>

Course URL: [www.clear.rice.edu/comp600/](http://www.clear.rice.edu/comp600/)
COMP 601 - WRITING AND EDITING CONFERENCE PAPERS  
Short Title: WRITING & EDITING CONF PAPERS  
Department: Computer Science  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This is a seminar on technical writing and preparing publications for peer review. The focus is on conference papers, around 6-10 pages in length. The main topics are: 1) The structure of a conference publication, with guest lectures from the faculty. 2) Good daily writing habits with a group accountability system. 3) Editing techniques and the development a departmental "writing community" with interactive editing sessions. This course will cover a few topics from ENGI 600, but the main focus will be on short computer science conference documents and interactive peer editing. ENGI 600 is still the correct course to take for writing in general, thesis preparation, or journal publications. This course will complement COMP 600, and to develop the same community for writing as this class does for presentations. Repeatable for Credit.  
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

COMP 602 - NEURAL MACHINE LEARNING AND DATA MINING II  
Short Title: NEURAL MACHINE LEARNING II  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): ELEC 502 or COMP 502 or STAT 502  
Description: Advanced topics in ANN theories, with a focus on learning high-dimensional complex manifolds with neural maps (Self-Organizing Maps, Learning Vector Quantizers and variants). Application to data mining, clustering, classification, dimension reduction, sparse representation. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: ELEC 602, STAT 602. Repeatable for Credit.  
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

COMP 607 - AUTOMATED PROGRAM VERIFICATION  
Short Title: AUTOMATED PROGRAM VERIFICATION  
Department: Computer Science  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Methods, tools and theories for the computer-aided verification of concurrent systems. Repeatable for Credit.  
Course URL: www.cs.rice.edu/~vardi/comp607/ (http://www.cs.rice.edu/~vardi/comp607/)

COMP 610 - SOFTWARE CONSTRUCTION  
Short Title: SOFTWARE CONSTRUCTION  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the OMCS program.  
Course Level: Graduate  
Prerequisite(s): COMP 613  
Description: This course focuses on modern principles for the construction of large-scale programs, with an emphasis on design patterns, modern programming tools, and team management. The material will be applied in a substantial software design/construction project. The course has a significant oral and written communication component where students will be required to document and present their software design.  

COMP 611 - TOPICS IN PROGRAMMING LANGUAGES AND FORMAL METHODS  
Short Title: PROGRAMMING & FORMAL METHODS  
Department: Computer Science  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will cover a selection of topics from the areas of programming languages and formal methods. all students will read classical and recent papers on the selected topics and give presentations on them. A student may elect to perform a semester-long project on a topics related to the content of the course and write a short report on their findings. Repeatable for Credit.  

COMP 613 - PROGRAMMING LANGUAGES AND DESIGN  
Short Title: PROGRAMMING LANGUAGES  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course covers important concepts of programming languages that are critical to understanding and constructing software artifacts. These concepts will be studied in the context of multiple programming paradigms, including functional and object-oriented programming. By using different paradigms, you will learn to think more deeply than in terms of a single approach or the syntax of one language. This course aims to provide a framework for understanding how to use language constructs effectively and how to design correct and elegant programs in any language.
SECTION 4
COMP 614 - COMPUTER PROGRAMMING FOR DATA SCIENCE
Short Title: PROGRAMMING FOR DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MDS, OMCS or OMDS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to computer programming designed to give an overview of programming and algorithmic topics commonly seen in Data Science, such as creating and manipulating data structures, graphs, dynamic programming, sorting and heuristic search algorithms. Students learn how to think about these problems and how to structure effective solutions to them using Python. No prior programming knowledge is required or expected.

COMP 620 - GRADUATE SEMINAR IN COMPUTER SYSTEMS
Short Title: GRAD SEMINAR COMP SYSTEMS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies at discretion of instructor. Repeatable for Credit.

COMP 621 - SYSTEMS SOFTWARE
Short Title: SYSTEMS SOFTWARE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMCS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 613
Description: Modern computer systems are designed and implemented in a layered fashion, wherein each layer builds upon those beneath it, providing abstractions for processing, memory, and I/O that are progressively more abstracted from the hardware and easier to use than those of the underlying layers. While this layered architecture has made building systems easier, it has also made understanding their behavior and performance more difficult. Every layer from the managed run-time environments used by modern programming languages to the hypervisor play a role in processor scheduling, memory management, and I/O, making it oftentimes difficult to pinpoint which layer of the system is interacting poorly with a program. This class will teach students about the fundamental characteristics of the abstractions for processing, memory, and I/O at each layer of a modern computer system, so that they might understand the functionality provided by each layer, and instruct them on the use of modern debugging, profiling, and tracing tools, so that they are equipped to characterize the behavior and performance of their programs.

COMP 622 - ETHICS AND ACCOUNTABILITY IN DATA SCIENCE
Short Title: DATA & INFORMATION ETHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to Graduate level students. Enrollment limited to students in a Master of Computer Science or Master of Data Science degrees.
Course Level: Graduate
Description: Given their growing power in the twenty-first century, data scientists have duties both to society and their own profession to wield that power wisely and responsibly. In this discussion-and reflection-oriented course students will apply fundamentals of moral philosophy and social responsibility to current issues in data science.

COMP 625 - COMPUTER ARCHITECTURE
Short Title: COMPUTER ARCHITECTURE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMCS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: It has become increasingly important to understand the underlying properties of modern computer architectures. System organization, including memory hierarchies, parallel processor organization, and interconnection networks can have a large impact on the performance of software systems. This course aims to provide a foundational understanding of key computer architecture concepts and their impact on performance.

COMP 628 - CYBERSECURITY
Short Title: CYBERSECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This introductory cybersecurity course includes topics relevant to core components of cybersecurity technologies, processes, and practices designed to protect networks, computers, and data from attack, damage, and unauthorized access. Specifically how to identify, protect, detect, respond, and recover. Topics include threat landscape, cryptography, malware, network security, and cloud security.
COMP 630 - DATABASES
Short Title: DATABASES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to relational and other (NoSQL) database systems, SQL programming, and database design. This course will teach students how to understand trade-offs in database design, to create well-designed databases, and to develop proficiency in effectively managing data in a database. The course is focused on developing skills as a database designer and power-user. It also includes discussions of database implementation details to enable students to understand underlying system functionality and how that impacts decisions a database designer makes.

COMP 640 - GRADUATE SEMINAR IN MACHINE LEARNING
Short Title: GR SEM IN MACHINE LEARNING
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A reading course covering the latest developments in statistical machine learning and pattern recognition. Recommended Prerequisite(s): COMP 440. Repeatable for Credit.

COMP 641 - GRADUATE SEMINAR ON INTERACTIVE MACHINE LEARNING
Short Title: INTERACTIVE MACH LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many applications of machine learning involve humans in the loop (e.g., the programmer implementing the algorithm, the domain expert specifying the features/labels, or the end user making decisions using the learned model). This course is a discussion-based seminar focusing on the design, analysis, and evaluation of machine learning techniques with explicit emphasis on the human(s) in the loop. Topics include reinforcement learning with human teachers, active learning, interpretability, learning beyond labels, and human-in-the-loop Bayesian inference. Recommended Prerequisite(s): COMP 382 and STAT 315/DSCI 301 and CAAM 335 Repeatable for Credit.

COMP 642 - MACHINE LEARNING
Short Title: MACHINE LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 682
Description: Machine learning is the process of automatically inferring a function from a set of data. In essence, machine learning techniques seek to automate the inductive learning process that humans do so well. Furthermore, the availability of large training sets combined with significant computing power has made machine learning an extremely important body of knowledge across a large range of application domains. A small sample of some of the application domains include robotics, medicine, speech/facial recognition, and driving autonomous vehicles. This course will focus on providing a foundational understanding of modern algorithms in machine learning, focusing on practical applications.

COMP 643 - BIG DATA
Short Title: BIG DATA
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMCS program.
Course Level: Graduate
Prerequisite(s): COMP 630
Description: This course is an introduction to modern data science. Data science is the study of how to extract actionable, non-trivial knowledge from data. The course will focus on software tools used by practitioners of modern data science, the mathematical and statistical models that are employed in conjunction with such software tools and the applications of these tools and systems to different problems and domains. In particular, this class explores the use of these tools and models in the analysis of “big” data, that is datasets that are too large to be analyzed on a typical personal computer.

COMP 644 - DATA PRIVACY & SECURITY
Short Title: DATA PRIVACY & SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover types of threats in data and computer systems. This includes foundational computer security material such as encryption, public-private key systems. In addition, foundations of data privacy and security, including models of disclosure, k-anonymity, and differential privacy, will be covered.
COMP 645 - ADVANCED TOPICS IN DISTRIBUTED SYSTEMS
Short Title: ADV TOPICS IN DISTRIBUTED SYST
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will learn about and discuss recent advances in various areas in computer systems, including topics on security, distributed systems, networking, operating systems, and databases. The seminar will be divided into several sections, with each section focusing on one research trend. In each class, students will read one classic paper on the topic, and present two recent papers that describe the state of the art. Students can also team up and do a semester-long research project on any relevant topics. All students will need to make a final presentation at the end of the class on a potential project idea; for students that choose to do a semester-long project, they will also submit a six-page report on their project, in addition to giving a final presentation. Instructor Permission Required. Cross-list: ELEC 692. Repeatable for Credit.

COMP 650 - PHYSICAL COMPUTING
Short Title: PHYSICAL COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods, tools and theories for reasoning about problems with physical constraints. The student may elect to perform a project to receive more than 1 credit hour. Instructor Permission Required. Repeatable for Credit.

COMP 655 - ADVANCED TOPICS IN ROBOTIC MANIPULATION;
Short Title: ROBOTIC MANIPULATION
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a survey of autonomous robotic manipulation systems. In particular, we are interested in the most influential recent research, as well as the necessary fundamental concepts that have paved the roads. By reading relevant papers from top journals and conferences, we will discuss problems including grasping, motion planning, prehensile and non-prehensile manipulation, affordance and task modeling, hand design, and perception. Centered around the recent rapid development of various sensor technology, we will try to bridge the gaps between sensing modalities to each of the major problems in manipulation, with an emphasis on understanding how sensing modalities interact with other components in the system. Upon the completion of this course, students should have gained a comprehensive understanding of robotic manipulation as a research field, and should be able to define, formulate and analyze relevant scientific problems on a research level. Repeatable for Credit.

COMP 665 - DATA VISUALIZATION
Short Title: DATA VISUALIZATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Data is being generated by humans and algorithms at an astounding rate. Having the ability to analyze and interpret this data visually is a key technique for coping with this explosion. This class will cover the basic ways that various types of data can be visualized and what properties distinguish useful visualizations from not so useful ones. The class will use Python as both the primary tool for processing the data as well creating visualizations of this data. To enhance the students’ depth of knowledge, the class will also cover some of the geometric algorithms used to create advanced visualizations.

COMP 670 - GRADUATE SEMINAR ON COMPUTATIONAL BIOLOGY
Short Title: GR SEM ON COMP BIOLOGY
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar covering recent advances in computational methods and tools in biomedical research. Repeatable for Credit.

COMP 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
COMP 680 - STATISTICS FOR COMPUTING AND DATA SCIENCE
Short Title: STATS COMPUTING DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment limited to students in the MDS, OMCS or OMDS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Probability and statistics are essential tools in computer science and data science. They are at the heart of areas such as efficiency analysis of algorithms and randomized algorithms and central to fields like bioinformatics, social informatics, and, of course, machine learning. Furthermore, probability and statistics are essential for data science, as they are the foundation for quantifying uncertainty and assessing support for hypotheses and derived models. This course covers topics in probability and statistics, including probability and random variables, basic stochastic processes, basic descriptive statistics, and various methods for statistical inference and measuring support.

COMP 682 - PRINCIPLES OF ALGORITHMS AND SOFTWARE AREA
Short Title: ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Algorithms are the recipes that underlie all computations executed by a computer. Designing new algorithms, proving their correctness, and analyzing their computational requirements are three foundational tasks in all areas of computer science. This course covers all these three aspects of algorithms. Topics covered include growth of functions, asymptotic notation and analysis, graphs and their properties, graph exploration, graph algorithms, greedy algorithms, divide-and-conquer algorithms, dynamic programming, NP-Completeness, and heuristic search algorithms.

COMP 690 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Computer Science
Grade Mode: Satisfactory/ Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

COMP 693 - ADVANCED TOPICS-COMPUTER SYSTEMS
Short Title: ADV TOPICS - COMPUTER SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art embedded and digital signal processing systems, with emphasis on both hardware architectures as well as software tools, programming models, and compilers. The seminar focuses on state of the art academic and commercial offerings in these areas. Cross-list: ELEC 693. Repeatable for Credit.

COMP 694 - HOW TO BE A CHIEF TECHNOLOGY OFFICER
Short Title: HOW TO BE A CTO
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the component and standards trends that are the basis of personal computers and digital appliances with the aim of predicting technologies, solutions, and new products five years into the future. Examples of these technologies are dual Core processors, iPods and their evolution, mobile wireless data devices, and even Google vs. Microsoft. Students will each pick a topic important to the digital lifestyle and through a series of one-on-one sessions develop a depth of understanding that is presented to the class. Formerly "Future Personal Computing Technologies." Cross-list: ELEC 694.
Course URL: www.ece.rice.edu/Courses/694.html (http://www.ece.rice.edu/Courses/694.html/)

COMP 696 - RTG CROSS-TRAINING IN DATA SCIENCE
Short Title: RTG CROSS-TRAINING IN DATA SCI
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Computer Science or Statistics. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar course to introduce students to topics in Data Science at the interface between Statistics and Computer Science. Students participate in the process of preparing, delivering and critiquing talks. Topics change each semester. Instructor Permission Required. Cross-list: STAT 696. Graduate/Undergraduate Equivalency. COMP 496. Mutually Exclusive: Cannot register for COMP 696 if student has credit for COMP 496. Repeatable for Credit.

COMP 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Computer Science
Grade Mode: Satisfactory/ Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: COMP

Department Description and Code
• Computer Science: COMP

Undergraduate Degree Descriptions and Codes
• Bachelor of Arts degree: BA
• Bachelor of Science in Computer Science degree: BSCS

Undergraduate Major Description and Code
• Major in Computer Science (for both the BA and BSCS degrees): COMP

Graduate Degree Descriptions and Codes
• Master of Computer Science degree: MCS
• Master of Data Science degree: MDS
• Master of Science degree: MS
• Doctor of Philosophy degree: PhD

Graduate Degree Program Descriptions and Codes
• Degree Program in Computer Science: COMP
• Degree Program in Data Science: DATA

Graduate Degree Program Option Descriptions and Codes*
• Degree Program Option - Online (MCS degree only): OMCS
• Degree Program Option - Online (MDS degree only): OMDS

CIP Code and Description 1
• COMP Major/Program: CIP Code/Title: 11.0101 - Computer and Information Sciences, General
• DATA Major/Program: CIP Code/Title: 27.0601 - Applied Statistics, General

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Computer Science

Program Learning Outcomes for the BA Degree with a Major in Computer Science

Upon completing the BA degree with a major in Computer Science, students will be able to:

1. Be knowledgeable about algorithms and their use. Students will analyze new problems, choose appropriate algorithms for their solutions, and develop analytical skills in the manipulation of algorithms.
2. Demonstrate the ability to design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
3. Be knowledgeable about programming languages and their use. Students will demonstrate an understanding of distinguishing and mapping two different programming languages.

Requirements for the BA Degree with a Major in Computer Science

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Computer Science must complete:

• A minimum of 17 courses (61-62 credit hours, depending on course selection) to satisfy the major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 10 courses (36 credit hours) taken at the 300-level or above.

The undergraduate program in computer science has been designed to accommodate a wide range of student interests. The program is sufficiently flexible for a student to customize it to a student’s interests. A student can develop a broad educational program that couples computer science education with a variety of other fields in engineering, natural sciences, the humanities, or social sciences. Alternatively, a program might be designed for a student preparing for graduate study in computer science or for a career in computing and information technology.

The undergraduate program consists of required math and science courses; computer science core courses, including introductory courses and upper-level courses ensuring knowledge in a broad range of areas; and computer science electives, which give students the freedom to explore specific interests.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/afacstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Computer Science</td>
<td>61-62</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Computer Science</td>
<td>120</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math and Science Courses: 1</td>
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<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>Course</td>
<td>Credit Hours</td>
<td></td>
</tr>
<tr>
<td>------------</td>
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<td></td>
</tr>
<tr>
<td>MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 course from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
<td></td>
</tr>
<tr>
<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
<td></td>
</tr>
<tr>
<td>MATH 221</td>
<td>HONORS CALCULUS III</td>
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<tr>
<td>MATH 222</td>
<td>HONORS CALCULUS IV</td>
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<tr>
<td>ELEC 303</td>
<td>RANDOM SIGNALS IN ELECTRICAL ENGINEERING SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>STAT 310 /</td>
<td>PROBABILITY AND STATISTICS</td>
<td></td>
</tr>
<tr>
<td>or ECON 307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 312</td>
<td>PROBABILITY &amp; STATISTICS FOR ENGINEERS</td>
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<tr>
<td>STAT 315 /</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
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<tr>
<td>or DSCI 301</td>
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<tr>
<td>CAAM 334</td>
<td>MATRIX ANALYSIS FOR DATA SCIENCE</td>
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<td>COMP 130</td>
<td>ELEMENTS OF ALGORITHMS AND COMPUTATION</td>
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<td>INTRODUCTION TO PROGRAM DESIGN</td>
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<td>FUNDAMENTALS OF COMPUTER ENGINEERING</td>
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<td>COMP 310</td>
<td>ADVANCED OBJECT-Oriented PROGRAMMING AND DESIGN</td>
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<td>COMP 321</td>
<td>INTRODUCTION TO COMPUTER SYSTEMS</td>
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<tr>
<td>COMP 322 /</td>
<td>PRINCIPLES OF PARALLEL</td>
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<td>or ELEC 323</td>
<td>PROGRAMMING</td>
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<td>REASONING ABOUT ALGORITHMS</td>
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<td>COMP 411</td>
<td>PRINCIPLES OF PROGRAMMING LANGUAGES</td>
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<tr>
<td>or COMP 412</td>
<td>COMPILER CONSTRUCTION FOR UNDERGRADUATE STUDENTS</td>
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<td>COMP 421 /</td>
<td>OPERATING SYSTEMS AND CONCURRENT PROGRAMMING</td>
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<tr>
<td>or ELEC 421</td>
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</table>

### Elective Requirements
Select 2 courses from departmental (COMP) course offerings (a minimum of 3 credit hours each) at the 300-level or above 2

### Total Credit Hours Required for the Major in Computer Science
61-62

### Additional Credit Hours to Complete Degree Requirements
27-28

### University Graduation Requirements (p. 29)
31

### Total Credit Hours
120

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#### Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Typically, the Math and Science courses are taken during the freshman and sophomore years.

2 At most 1 of these 2 courses may be an independent study project (COMP 390, COMP 490, or COMP 491). Students may take courses at the 500-level, however, departmental approval is required to use a course at the 600-level (or above) as an elective.

### Policies for the BA Degree with a Major in Computer Science

#### Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Computer Science should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Computer Science may not additionally pursue the Bachelor of Science in Computer Science (BSCS) Degree.

#### Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines
Students pursuing the major in Computer Science should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

#### Additional Information
For additional information, please see the Computer Science website: [https://www.cs.rice.edu/](https://www.cs.rice.edu/).

### Opportunities for the BA Degree with a Major in Computer Science

#### Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computer Science (MCS) degree. For additional information, students should contact their undergraduate major advisor and the MCS program director.

Additional Information

For additional information, please see the Computer Science website: https://www.cs.rice.edu/.

Bachelor of Science in Computer Science (BSCS) Degree

Program Learning Outcomes for the BSCS Degree

Upon completing the BSCS degree, students will be able to:

1. Be knowledgeable about algorithms and their use. Students will analyze new problems, choose appropriate algorithms for their solutions, and develop analytical skills in the manipulation of algorithms.
2. Demonstrate the ability to design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
3. Be knowledgeable about programming languages and their use. Students will demonstrate an understanding of distinguishing and mapping two different programming languages.
4. Demonstrate a deep knowledge in a subarea of Computer Science. Students will be able to explain issues in the selected subarea and demonstrate a depth of knowledge.
5. Communicate effectively to a client and user.

Requirements for the BSCS Degree

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BSCS degree must complete:

- A minimum of 23-25 courses (84-85 credit hours), depending on course selection, to satisfy the major requirements.
- A minimum of 128-129 credit hours, depending on course selection, to satisfy degree requirements.
- A minimum of 14 courses (51 credit hours) taken at the 300-level or above.

The BSCS degree is designed for students who are interested in an in-depth study of computer science to prepare themselves for a professional career in the computing industry.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degroworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the BSCS Degree</td>
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Degree Requirements

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<td>Core Requirements</td>
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<td></td>
<td>Math and Science Courses ¹</td>
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</tr>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
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<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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<tr>
<td>Select 1 course from the following:</td>
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<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
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<tr>
<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
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<tr>
<td>MATH 221</td>
<td>HONORS CALCULUS III</td>
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<tr>
<td>MATH 222</td>
<td>HONORS CALCULUS IV</td>
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<tr>
<td>Select 1 course from the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>ELEC 303</td>
<td>RANDOM SIGNALS IN ELECTRICAL ENGINEERING SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>STAT 310 / ECON 307</td>
<td>PROBABILITY AND STATISTICS</td>
<td></td>
</tr>
<tr>
<td>STAT 312</td>
<td>PROBABILITY &amp; STATISTICS FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>STAT 315 / DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>Select 1 course from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CAAM 334</td>
<td>MATRIX ANALYSIS FOR DATA SCIENCE</td>
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</tr>
</tbody>
</table>

¹ Students pursuing the BSCS degree must complete at least 14 courses (51 credit hours) taken at the 300-level or above.
**Bachelor of Science in Computer Science (BSCS) Degree**

**CAAM 335**  
**MATH 354**  
**MATH 355**  
**LINEAR ALGEBRA**

**Select 1 from the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>MECHANICS (WITH LAB)</td>
</tr>
<tr>
<td>&amp; PHYS 103</td>
<td>MECHANICS DISCUSSION</td>
</tr>
<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
</tr>
<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
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</table>

**Select 1 from the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
</tr>
<tr>
<td>&amp; PHYS 104</td>
<td>ELECTRICITY AND MAGNETISM DISCUSSION</td>
</tr>
<tr>
<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
</tr>
<tr>
<td>PHYS 126</td>
<td>GENERAL PHYSICS II (WITH LAB)</td>
</tr>
</tbody>
</table>

**Computer Science Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>COMP 130</td>
<td>ELEMENTS OF ALGORITHMS AND COMPUTATION</td>
</tr>
<tr>
<td>COMP 140</td>
<td>COMPUTATIONAL THINKING</td>
</tr>
<tr>
<td>COMP 160</td>
<td>INTRODUCTION TO GAME PROGRAMMING IN PYTHON</td>
</tr>
<tr>
<td>COMP 182</td>
<td>ALGORITHMIC THINKING</td>
</tr>
<tr>
<td>COMP 215</td>
<td>INTRODUCTION TO PROGRAM DESIGN</td>
</tr>
<tr>
<td>ELEC 220</td>
<td>FUNDAMENTALS OF COMPUTER ENGINEERING</td>
</tr>
<tr>
<td>COMP 310</td>
<td>ADVANCED OBJECT - ORIENTED PROGRAMMING AND DESIGN</td>
</tr>
<tr>
<td>COMP 321</td>
<td>INTRODUCTION TO COMPUTER SYSTEMS</td>
</tr>
<tr>
<td>COMP 322 / 323</td>
<td>PRINCIPLES OF PARALLEL PROGRAMMING</td>
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<td>ELEC 323</td>
<td>PRINCIPLES OF PARALLEL PROGRAMMING</td>
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<td>COMP 382</td>
<td>REASONING ABOUT ALGORITHMS</td>
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<tr>
<td>COMP 411</td>
<td>PRINCIPLES OF PROGRAMMING LANGUAGES</td>
</tr>
<tr>
<td>or COMP 412</td>
<td>COMPILER CONSTRUCTION FOR UNDERGRADUATE STUDENTS</td>
</tr>
<tr>
<td>COMP 421 / 423</td>
<td>OPERATING SYSTEMS AND CONCURRENT PROGRAMMING</td>
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</table>

**Elective Requirements**

Select 2 courses from departmental (COMP) course offerings (a minimum of 3 credit hours each) at the 300-level or above.

**Capstone Requirement**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>COMP 410</td>
<td>SOFTWARE ENGINEERING METHODOLOGY</td>
</tr>
<tr>
<td>COMP 413</td>
<td>DISTRIBUTED PROGRAM CONSTRUCTION</td>
</tr>
<tr>
<td>COMP 460 / ARTS 460</td>
<td>ADVANCED COMPUTER GAME CREATION</td>
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</table>

**Capstone**

In consultation with a major advisor, select additional coursework at the 300-level or above to total a minimum of 11 credit hours.

**Total Credit Hours Required for the Major in Computer Science**

84-85

**Additional Credit Hours to Complete Degree Requirements**

13

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**University Graduation Requirements (p. 29)**

Total Credit Hours  
128-129

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**Footnotes and Additional Information**

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

**Additional Credit Hours to Complete Degree Requirements** include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Typically, the Math and Science courses are taken during the freshman and sophomore years.

2 At most 1 of these courses may be an independent study project (COMP 390, COMP 490, or COMP 491). Departmental approval is required to use a 600-level course as an elective.

3 The capstone sequence represents a coherent set of courses in a computer science specialization chosen by the student. Departmental approval is required for suggested specializations. Including the design component, the capstone requires a minimum of 15 credit hours.

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**Policies for the BSCS Degree**

**Program Restrictions and Exclusions**

Students pursuing the BSCS Degree should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the Bachelor of Science in Computer Science (BSCS) Degree may not additionally pursue the BA Degree with a Major in Computer Science.

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**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

---

**Departmental Transfer Credit Guidelines**

Students pursuing the BSCS degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

---

**Additional Information**

For additional information, please see the Computer Science website: https://www.cs.rice.edu/

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**Opportunities for the BSCS Degree**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum
laude, and *cum laude*) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Fifth-Year Master's Degree Option for Rice Undergraduate Students**

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computer Science (MCS) degree. For additional information, students should contact their undergraduate major advisor and the master's degree program director.

**Additional Information**

For additional information, please see the Computer Science website: https://www.cs.rice.edu/

**Doctor of Philosophy (PhD) Degree in the field of Computer Science**

**Program Learning Outcomes for the MS and PhD Degrees in the field of Computer Science**

Upon completing the MS and PhD degrees in the field of Computer Science, students will be able to:

1. Acquire a solid foundation in Computer Science at graduate level. Students will demonstrate a graduate-level understanding of material across a variety of sub-disciplines, be able to synthesize problem solutions by combining knowledge from different sources, and demonstrate a deep knowledge of sub-area in which they will pursue their thesis.
2. Conduct an independent research program. Students will identify and pose a research problem, place that problem in context within the field's established literature, and conduct an independent investigation that leads to credible scientific results.
3. Demonstrate professional skills in both oral and written communication. Students will write well-organized, coherent technical prose, deliver a professional presentation on par with a solid conference presentation, demonstrate the ability to describe scientific issues and techniques in writing and in presentation, and be able to answer unanticipated technical questions in a public setting.

**Requirements for the MS and PhD Degrees in the field of Computer Science**

**MS Degree Program**

The MS degree is a thesis master's degree. For general university requirements, please see Thesis Master’s Degrees (p. 60). Students pursuing the MS degree must:

- Meet departmental course requirements as described in the Computer Science Department’s graduate student handbook available at: https://www.cs.rice.edu/academics/graduate-programs/ms-degree/ms-degree.php.
- Complete a COMP 590 project by the end of the third semester.
- Pass a qualifying examination in an area of specialization within seven semesters after entering the PhD program.
- Conduct original research, submit an acceptable PhD thesis proposal, and successfully defend the thesis proposal.
- Submit an acceptable PhD thesis that reports research results and pass a final oral defense.

The PhD degree is for students planning to pursue a career in computer science research and education. The doctoral program normally requires four to six years of study.

**PhD Degree Program**

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Computer Science must:

- Meet departmental course requirements as described in the Computer Science Department’s graduate student handbook available at: https://www.cs.rice.edu/academics/graduate-programs/phd-program/phd-program/.
- Complete a COMP 590 project by the end of the third semester.
- Pass a qualifying examination in an area of specialization within seven semesters after entering the PhD program.
- Conduct original research, submit an acceptable PhD thesis proposal, and successfully defend the thesis proposal.
- Submit an acceptable PhD thesis that reports research results and pass a final oral defense.

The PhD degree is for students planning to pursue a career in computer science research and education. The doctoral program normally requires four to six years of study.

**Requirements for the PhD Degree in the field of Computer Science**

**Summary**

<table>
<thead>
<tr>
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</table>
Policies for the PhD Degree in the field of Computer Science

Department of Computer Science Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computer Science publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Computer_Science_Graduate_Handbook.pdf

Financial Assistance

Fellowships and research assistantships are available to students in the PhD program. Both provide a monthly stipend for the academic year and cover all tuition expenses. More substantial monthly stipends may be available during the summer for students working on departmental research projects. In all cases, continued support is contingent on satisfactory progress in the program. PhD students also are expected to assist in the teaching and administration of undergraduate and graduate courses.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Computer Science should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs (https://www.cs.rice.edu/academics/graduate-programs/) or contact the department at gradapp@rice.edu.

Opportunities for the PhD Degree in the field of Computer Science

Additional Information

For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs (https://www.cs.rice.edu/academics/graduate-programs/) or contact the department at gradapp@rice.edu.

Master of Computer Science (MCS) Degree

Program Learning Outcomes for the MCS Degree

Upon completing the MCS degree, students will be able to:

1. Solve advanced Computer Science problems. Students will acquire and apply a graduate-level understanding of material in sub-areas of Computer Science.

2. Design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.

3. Communicate effectively to a client and user.

Requirements for the MCS Degree

The MCS degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MCS degree must complete:

• A minimum of 30 credit hours to satisfy degree requirements.

• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).

• A minimum of 24 graduate semester credit hours must be taken at Rice University.

• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).

• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.

• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 759) tab.

• The requirements for one area of specialization (see below for areas of specialization). The MCS degree program offers twelve areas of specialization:

  • AI and Robotics (p. 757), or
  • Architecture (p. 758), or
  • Compilers (p. 758), or
  • Computer Vision (p. 758), or
  • Data Science (p. 758), or
  • Database (p. 758), or
  • Networking (p. 758), or
  • Optimization (p. 758), or
  • Parallel Computing (p. 758), or
  • PL Theory and Logic (p. 758), or
  • Software Engineering (p. 758), or
  • Systems and Security (p. 759).\textsuperscript{1}

• A 10 week-6 month internship. Students are responsible for obtaining and selecting an internship that best aligns with their career goals.

• A minimum overall GPA of 2.67 or higher in all Rice coursework.

• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The MCS degree is a terminal degree for students intending to pursue a technical career in the computer industry. MCS degree areas of specialization include artificial intelligence and robotics, computer vision, data science, databases, operating systems and security, computer networks, computer architecture, parallel computing, compiler construction, programming languages, and software engineering. The MCS degree program normally requires three semesters of study.

Students in the MCS degree program are expected to pay full tuition and all fees. No financial aid is available from the university or the department for MCS students.
The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MCS Degree</td>
<td>30</td>
</tr>
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</table>

### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

#### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

- **Databases**
  - Select 1 course from the following: 3-4
    1. COMP 530 DATABASE SYSTEM IMPLEMENTATION
    2. COMP 533 INTRODUCTION TO DATABASE SYSTEMS
    3. COMP 543 GRADUATE TOOLS AND MODELS - DATA SCIENCE
    4. COMP 553 BIG DATA MANAGEMENT FOR DATA SCIENCE

- **Theory**
  - Select 1 course from the following: 3-4
    1. COMP 580 PROBABILITY AND DATA STRUCTURE
    2. COMP 582 / ELEC 512 GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS
    3. COMP 682 PRINCIPLES OF ALGORITHMS AND SOFTWARE AREA

#### Area of Specialization

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

- Select 1 from the following Areas of Specialization (see Areas of Specialization below): 6-8
  1. AI and Robotics
  2. Architecture
  3. Compilers
  4. Computer Vision
  5. Data Science
  6. Database
  7. Networking
  8. Optimization
  9. Parallel Computing
  10. PL Theory and Logic
  11. Software Engineering
  12. Systems and Security

#### Design Project

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

- Select 1 course from the following: 3-4
  1. COMP 504 GRADUATE OBJECT-ORIENTED PROGRAMMING AND DESIGN
  2. COMP 539 SOFTWARE ENGINEERING METHODOLOGY

### Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Select an additional 10-15 credit hours from departmental (COMP) course offerings at the 500-level or above to reach 30 total credit hours.

### Footnotes and Additional Information

1. These specializations are representative, but not comprehensive. Students may design their own specialization with approval by the MCS advisor.

2. Students demonstrating that they have passed one or more courses of comparable depth to a course listed for a core requirement area may petition to use one or more of those courses to waive requirements for that core requirement area.

3. MCS advisor approval is required to use COMP 590 Computer Science Projects to satisfy the MCS design project requirement. To be eligible to satisfy the MCS design project requirement, the proposed COMP 590 project must include a significant programming design and implementation effort.

4. Students are required to complete an approved 3-6 month internship. Students are responsible for obtaining an selecting an internship that best aligns with their career goals.

5. Elective coursework must be approved professional development coursework (see below) and/or 500-level or above departmental (COMP) course offerings other than independent study projects (e.g. COMP 590). At most, 3 credit hours total, of 1-credit-hour and 2-credit-hour courses, may be applied toward MCS degree requirements. Up to 6 credit hours of professional development courses may be applied toward MCS degree requirements. See below for a list of approved professional development courses. Credit hours earned for ENGI 530 Engineering Practicum may not be applied toward MCS degree requirements.

### Areas of Specialization

Students must complete a tightly coupled two-course area of specialization (6-8 credit hours). Approved specialization areas appear below. Student-designed specialization areas are permitted if approved by the student’s MCS advisor. Custom specialization areas may include coursework from departments other than Computer Science (COMP) and may include one independent study project (e.g. COMP 590).

#### Area of Specialization: AI and Robotics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Select 2 courses from the following: 6-8

- COMP 502 / ELEC 502 / STAT 502 NEURAL MACHINE LEARNING I
- COMP 540 STATISTICAL MACHINE LEARNING
- COMP 542 LARGE-SCALE MACHINE LEARNING
- COMP 550 / ELEC 550 / MECH 550 ALGORITHMIC ROBOTICS
- COMP 557 / ELEC 557 ARTIFICIAL INTELLIGENCE
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 602</td>
<td>NEURAL MACHINE LEARNING AND DATA MINING II</td>
<td>6-8</td>
</tr>
<tr>
<td>COMP 530</td>
<td>DATABASE SYSTEM IMPLEMENTATION</td>
<td>3-4</td>
</tr>
<tr>
<td>COMP 533</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td>6-7</td>
</tr>
</tbody>
</table>

**Area of Specialization: Database**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 524</td>
<td>MOBILE AND WIRELESS NETWORKING</td>
</tr>
<tr>
<td>COMP 529</td>
<td>ADVANCED COMPUTER NETWORKS</td>
</tr>
<tr>
<td>COMP 556</td>
<td>INTRODUCTION TO COMPUTER NETWORKS</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Networking**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAAM 560</td>
<td>OPTIMIZATION THEORY</td>
</tr>
<tr>
<td>CAAM 564</td>
<td>NUMERICAL OPTIMIZATION</td>
</tr>
<tr>
<td>CAAM 565</td>
<td>CONVEX OPTIMIZATION</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Optimization**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 501</td>
<td>PRODUCTION PROGRAMMING</td>
</tr>
<tr>
<td>COMP 509</td>
<td>ADVANCED LOGIC IN COMPUTER SCIENCE</td>
</tr>
<tr>
<td>COMP 511</td>
<td>PRINCIPLES OF PROGRAMMING LANGUAGES</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Software Engineering**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 526</td>
<td>HIGH PERFORMANCE COMPUTER ARCHITECTURE</td>
</tr>
<tr>
<td>COMP 535</td>
<td>APPROXIMATE COMPUTING SYSTEM FOR BIG DATA, SUPERCOMPUTING AND EMBEDDED SYSTEMS</td>
</tr>
<tr>
<td>COMP 554</td>
<td>COMPUTER SYSTEMS ARCHITECTURE</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Architecture**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 526</td>
<td>HIGH PERFORMANCE COMPUTER ARCHITECTURE</td>
</tr>
<tr>
<td>COMP 554</td>
<td>COMPUTER SYSTEMS ARCHITECTURE</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Compilers**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 506</td>
<td>COMPILER CONSTRUCTION FOR GRADUATE STUDENTS</td>
</tr>
<tr>
<td>COMP 512</td>
<td>ADVANCED COMPILER CONSTRUCTION</td>
</tr>
<tr>
<td>COMP 515</td>
<td>ADVANCED COMPILATION FOR VECTOR PARALLEL PROCESSORS</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Computer Vision**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 546</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
</tr>
<tr>
<td>ELEC 546</td>
<td></td>
</tr>
<tr>
<td>COMP 560</td>
<td>COMPUTER GRAPHICS AND GEOMETRIC MODELING</td>
</tr>
<tr>
<td>ELEC 549</td>
<td>COMPUTATIONAL PHOTOGRAPHY</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Data Science**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 502</td>
<td>NEURAL MACHINE LEARNING I</td>
</tr>
<tr>
<td>ELEC 502</td>
<td></td>
</tr>
<tr>
<td>STAT 502</td>
<td></td>
</tr>
<tr>
<td>COMP 530</td>
<td>DATABASE SYSTEM IMPLEMENTATION</td>
</tr>
<tr>
<td>COMP 533</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
</tr>
<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
</tr>
<tr>
<td>COMP 542</td>
<td>LARGE-SCALE MACHINE LEARNING</td>
</tr>
<tr>
<td>COMP 576</td>
<td>A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING</td>
</tr>
<tr>
<td>ELEC 576</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Database**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 524</td>
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</tr>
<tr>
<td>ELEC 524</td>
<td></td>
</tr>
<tr>
<td>COMP 529</td>
<td>ADVANCED COMPUTER NETWORKS</td>
</tr>
<tr>
<td>ELEC 529</td>
<td></td>
</tr>
<tr>
<td>COMP 556</td>
<td>INTRODUCTION TO COMPUTER NETWORKS</td>
</tr>
<tr>
<td>ELEC 556</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Networking**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAAM 560</td>
<td>OPTIMIZATION THEORY</td>
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<td>CAAM 564</td>
<td>NUMERICAL OPTIMIZATION</td>
</tr>
<tr>
<td>CAAM 565</td>
<td>CONVEX OPTIMIZATION</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Optimization**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 515</td>
<td>ADVANCED COMPILATION FOR VECTOR PARALLEL PROCESSORS</td>
</tr>
<tr>
<td>COMP 522</td>
<td>MULTI-CORE COMPUTING</td>
</tr>
<tr>
<td>COMP 534</td>
<td>PARALLEL COMPUTING</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Parallel Computing**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>COMP 507</td>
<td>COMPUTER-AIDED PROGRAM DESIGN</td>
</tr>
<tr>
<td>COMP 509</td>
<td>ADVANCED LOGIC IN COMPUTER SCIENCE</td>
</tr>
<tr>
<td>COMP 511</td>
<td>PRINCIPLES OF PROGRAMMING LANGUAGES</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: PL Theory and Logic**

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>COMP 501</td>
<td>PRODUCTION PROGRAMMING</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Specialization: Software Engineering**
As an additional resource for students, the department of Computer Science Graduate Program

Policies for the MCS Degree
Department of Computer Science Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computer Science publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Computer_Science_Graduate_Handbook.pdf

Financial Aid
No financial aid is available from Rice University or the Computer Science Department for students in the MCS degree program.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the MCS degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of credit from another U.S. or international universities of similar standing as Rice may apply towards the degree. Transferred courses must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
- Request for transfer credit will be considered by the Computer Science Graduate Committee Chair, and the instructor of the equivalent Rice course.

Additional Information
For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs (https://www.cs.rice.edu/academics/graduate-programs/) or contact the department at gradapp@rice.edu.

Opportunities for the MCS Degree
Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).
Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computer Science (MCS) degree. For additional information, students should contact their undergraduate major advisor and the MCS program director.

Additional Information
For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs (https://www.cs.rice.edu/academics/graduate-programs/) or contact the department at gradapp@rice.edu.

Master of Computer Science (MCS) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MCS Degree
Upon completing the MCS degree, students will be able to:

1. Solve advanced Computer Science problems. Students will acquire and apply a graduate-level understanding of material in sub-areas of Computer Science.
2. Design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
3. Communicate effectively to a client and user.

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MCS/MBA Coordinated Degrees Program
Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 45 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MCS Degree Requirements

Students in the coordinated MBA/MCS degrees program must complete the Core Requirements, Area of Specialization, and Design Project of the MCS degree program (p. 756) and Coordinated MCS Elective Requirements below.
Opportunities for the MCS/MBA Coordinated Degrees Program

Additional Information
For additional information on these two degrees:

1. Please see the Computer Science website: https://www.cs.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Computer Science (MCS) Degree, Online Program

Program Learning Outcomes for the MCS Degree

Upon completing the MCS degree, students will be able to:

1. Solve advanced Computer Science problems. Students will acquire and apply a graduate-level understanding of material in sub-areas of Computer Science.
2. Design and implement complex software systems. Students will demonstrate skill in their design and implementation and function effectively in teams.
3. Communicate effectively to a client and user.

Requirements for the MCS Degree, Online Program

The MCS degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MCS degree must complete:

- A minimum of 30 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 762) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students in the MCS degree program are expected to pay full tuition and all fees. No financial aid is available from the university or the department for MCS students. The MCS degree is a terminal degree for students intending to pursue a career in the computer industry.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into
Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MCS Degree, Online Program</td>
<td>30</td>
</tr>
</tbody>
</table>

### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>30</td>
</tr>
</tbody>
</table>

#### Core Requirements

**Computer Systems**

- COMP 621 SYSTEMS SOFTWARE 3
- COMP 628 CYBERSECURITY 3

**Data**

- COMP 630 DATABASES 3
- COMP 642 MACHINE LEARNING 3
- COMP 643 BIG DATA 3
- COMP 665 DATA VISUALIZATION 3

**Principles of Algorithms and Software**

- COMP 610 SOFTWARE CONSTRUCTION 3
- COMP 613 PROGRAMMING LANGUAGES AND DESIGN 3
- COMP 682 PRINCIPLES OF ALGORITHMS AND SOFTWARE AREA 3

### Footnotes and Additional Information

1. COMP 630 Databases, COMP 613 Programming Languages and Design, COMP 680 Statistics for Computing and Data Science, and COMP 682 Principles of Algorithms and Software Area are prerequisites to other required courses and must be taken first.

### Policies for the MCS Degree, Online Program

**Department of Computer Science Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computer Science publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Computer_Science_Graduate_Handbook.pdf

**Admission**

The GRE test is highly recommended for all applicants, however it may be waived, upon discretion of the department’s Admission Committee, if an applicant has relevant industrial experience.

### Financial Aid

No financial aid is available from Rice University or the Computer Science Department for students in the MCS degree program.

### Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines

Students pursuing the MCS degree should be aware of the following departmental transfer credit guidelines:

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- Request for transfer credit will be considered by the Computer Science Graduate Committee Chair, and the instructor of the equivalent Rice course.

### Additional Information

For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs or contact the department at gradapp@rice.edu.

See the Computer Science website: https://csweb.rice.edu/academics/graduate-programs/online-mcs/ for additional information relevant to the MCS Degree, Online Program.

### Opportunities for the MCS Degree, Online Program

**Additional Information**

For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs or contact the department at gradapp@rice.edu.

See the Computer Science website: https://csweb.rice.edu/academics/graduate-programs/online-mcs/ for additional information relevant to the MCS Degree, Online Program.

### Master of Science (MS) Degree in the field of Computer Science

**Program Learning Outcomes for the MS Degree in the field of Computer Science**

Upon completing the MS degree in the field of Computer Science, students will be able to:

1. Acquire a solid foundation in Computer Science at the graduate level.
2. Conduct an independent research program.
3. Demonstrate professional skills in both oral and written communication.

Requirements for the MS Degree in the field of Computer Science

The MS degree is a thesis master's degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MS degree in the field of Computer Science must complete:

- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MS Degree in the field of Computer Science</td>
<td>30</td>
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</tbody>
</table>

The MS degree is a research degree requiring a thesis in addition to coursework. Students enrolled in the PhD program must meet additional requirements before they receive the MS degree. See the PhD program section for further information.

Policies for the MS Degree in the field of Computer Science

Department of Computer Science Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computer Science publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Computer_Science_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Computer_Science_Graduate_Handbook.pdf)

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Computer Science should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Graduate Programs website at [https://www.cs.rice.edu/academics/graduate-programs](https://www.cs.rice.edu/academics/graduate-programs) or contact the department at gradapp@rice.edu.

Opportunities for the MS Degree in the field of Computer Science

Additional Information

For additional information, please see the Graduate Programs website at [https://www.cs.rice.edu/academics/graduate-programs](https://www.cs.rice.edu/academics/graduate-programs) or contact the department at gradapp@rice.edu.

Critical and Cultural Theory

Contact Information

Critical and Cultural Theory
[https://3ct.rice.edu/](https://3ct.rice.edu/)
116 Humanities Building
713-348-4810
Cary E. Wolfe
Director
cewolfe@rice.edu

The Center for Critical and Cultural Theory (3CT) was founded to promote intellectual synergy and community among Rice faculty and graduate students whose work is informed by a deep and sustained engagement with critical and cultural theory and their ongoing development and permutations. Though housed in the School of Humanities, and drawing primarily on faculty and students from the Humanities, Social Sciences, and Architecture, 3CT welcomes and encourages faculty and students in any field whose work is framed by an intensive engagement with critical and cultural theory and its methodological innovations.

The program's primary pedagogical aim is to help equip students to engage ambitious and synthetic research projects of social and cultural significance in a wide range of areas such as new media studies, race and ethnicity studies, science and technology studies, ecocriticism and environmental humanities, animal studies, medical humanities, transnationalism, art and architecture, psychoanalysis, and political and social theory - just to name a few of the more established pursuits in which a strong theoretical background is indispensable. 3CT is therefore committed to the view that rigorous theoretical training enables empowering reflection upon the dominant forms of disciplinary norms, practices, and protocols and their historically and socially constituted nature. 3CT aims to strengthen and enrich how its participants understand and relate to their “home” disciplines.

The Center for Critical and Cultural Theory does not currently offer an academic program at the undergraduate level.

Certificate

- Certificate in Critical and Cultural Theory (p. 764)

Director

Cary E. Wolfe

Professors

Elias K. Bongmba
Dominic C. Boyer
Joseph A. Campana Jr.
Certificate in Critical and Cultural Theory

Program Learning Outcomes for the Certificate in Critical and Cultural Theory

Upon completing the certificate in Critical and Cultural Theory, students will be able to:

1. Demonstrate knowledge of a range of approaches in contemporary critical and cultural theory.
2. Articulate the relationship between concepts and methodologies drawn from critical and cultural theory and the current state of the specific discipline(s) in which they work.
3. Incorporate concepts and methodologies from critical and cultural theory into their own intellectual and academic practice in forms such as oral and written exchange, conference papers, academic publications, and thesis research and writing.

Requirements for the Certificate in Critical and Cultural Theory

The certificate in Critical and Cultural Theory is a graduate certificate. For general university requirements, please see Graduate Certificates (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the certificate in Critical and Cultural Theory must complete:

- A minimum of 4 courses (12 credit hours) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- A minimum of 1 course (3 credit hours) outside of the student's home department.
- A minimum of 1 3CT Annual Colloquium.
- All course requirements met with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the Policies (p. 765) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.
Summary

Total Credit Hours Required for the Certificate in Critical and Cultural Theory: 12

Certificate Requirements

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<tr>
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<tr>
<td>ANTH 507</td>
<td>ANTHROPOLOGICAL DIRECTIONS FROM SECOND WORLD WAR TO PRESENT</td>
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<td>ANTH 508</td>
<td>THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION</td>
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<td>ANTH 548</td>
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<td>ANTH 549</td>
<td>THE ANTHROPOLOGY OF ETHICS</td>
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<td>ANTH 554 / SWGS 554</td>
<td>ILLNESS, DISABILITY, AND THE GENDERED BODY</td>
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<td>ANTH 615</td>
<td>THEORIES OF MODERNITY/ POSTMODERNITY</td>
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<td>ANTH 616</td>
<td>CLASSICAL SOCIAL THEORY</td>
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<td>ANTH 617</td>
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<tr>
<td>ARCH 612 / HART 612</td>
<td>ADVANCED SEMINAR IN ARCHITECTURE</td>
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<td>ARCH 631</td>
<td>URBANISM I: THE CITY THEORETICALLY CONSIDERED</td>
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<td>ARCH 633</td>
<td>THE CULLINAN SEMINAR</td>
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<td>PRESENT FUTURE SEMINAR</td>
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<td>LITERATURE AND VISUAL ART</td>
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<td>ENGL 527</td>
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<td>ENGL 577</td>
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<td>CULTURAL STUDIES: CONTEMPORARY</td>
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<td>ENGL 591</td>
<td>STUDIES IN LITERATURE AND OTHER DISCIPLINES</td>
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<td>STUDIES IN MODERNISM</td>
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<td>ENGL 594 / HART 594</td>
<td>STUDIES IN CONTEMPORARY LITERATURE AND CULTURE</td>
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<td>STUDIES IN MAJOR AMERICAN AUTHORS</td>
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<td>HART 504</td>
<td>INDEPENDENT STUDY</td>
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<td>HART 566</td>
<td>LATIN AMERICAN BODIES: ON MODERNISM</td>
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<td>HART 568</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
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<td>HART 590</td>
<td>METHODS OF ART HISTORY</td>
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<td>RELI 588</td>
<td>THE HISTORY OF RELIGIONS SCHOOL</td>
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</table>

Footnotes and Additional Information

1 Required core courses for other graduate degree or certificate programs may not count toward the minimum of 4 courses requirement. However, elective courses used to fulfill requirements for other graduate degree or certificate programs at Rice may count toward this requirement. The Center recommends that students interested in applying for the certificate seek approval for courses as they are taken. Students may petition the Center for approval of courses not listed above.

2 The 3CT Annual Colloquium consists of two modules: a lecture and seminar given by a visiting scholar in the Spring semester and a second lecture/seminar module in the Fall semester. Students need not complete the modules in consecutive semesters, but must complete two modules within three years from the date of acceptance into the program.

Policies for the Certificate in Critical and Cultural Theory

Application Procedures

1. Status: The Certificate in Critical and Cultural Theory (CCT) program is open only to students already enrolled and in good academic standing in a Rice graduate-level degree-granting program.

2. Application: Students must apply for admission to the Certificate program by the end of the registration period for Fall semester each year. The application should consist of a vita, a 2-3 page single-spaced description of the student's research interests, of the primary theoretical commitments that frame those interests, and how the research intervenes in the current state of critical and cultural theory. A brief (one or two paragraph) letter of endorsement from the faculty member directing the student’s research is also required. Only students in good academic standing in their home departments may apply. Students will be informed promptly early in the Fall semester each year of their acceptance, and students not accepted may reapply once to the Certificate program.

Program Restrictions and Exclusions

Students pursuing the certificate in Critical and Cultural Theory should be aware of the following program restriction:

- Graduate students may declare their intent to pursue a university certificate only after they have first been admitted into a graduate-level Rice degree-granting program.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the certificate in Critical and Cultural Theory should be aware of the following program-specific transfer credit guidelines:
• Transfer credit coursework cannot be applied or used to meet any of the program's course requirements.

Additional Information
For additional information, please see the Center for Critical and Cultural Theory website: https://3ct.rice.edu/

Opportunities for the Certificate in Critical and Cultural Theory
Additional Information
For additional information, please see the Center for Critical and Cultural Theory website: https://3ct.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Data Science

Contact Information

Data Science
https://datascience.rice.edu

Christopher M. Jermaine
Program Director
christopher.m.jermaine@rice.edu

Rudy Guerra
Minor Advisor
rguerra@rice.edu

Data science is the science of extracting actionable knowledge from large and complex data repositories, where "complex" may refer to the modality of the data (images, time series, text, as well as traditional tabular data) or other facets of the data in question (data can be complex because they are geographically distributed, or characterized by the ubiquity of missing or inaccurate values). As such, data science is an interdisciplinary field of study, encompassing sub-areas of computer science, statistics, electrical engineering, and applied mathematics. Furthermore, data science has quickly become a critical enabling capability in many different fields—science, healthcare, energy, manufacturing, and many others. In all of these fields, the amount of data that can be usefully collected is growing exponentially. The next breakthroughs in these fields are likely to come from those who can best analyze the large amounts of data they are able to collect and convert that analysis into actionable insights.

At the undergraduate-level, the minor in Data Science is an interdisciplinary program administered by the George R. Brown School of Engineering.

At the graduate level, the Master of Data Science (MDS) degree is a professional degree administered by the Computer Science department for students intending to pursue a technical career. There is an on-premise and a fully online option. Students are admitted directly into one or the other option and cannot switch between the two, but the resulting degree is the same.

Minor
• Minor in Data Science (p. 773)

Master's Programs
• Master of Data Science (MDS) Degree (p. 768)
• Master of Data Science (MDS) Degree, Online Program (p. 771)

Program Director
Christopher M. Jermaine, Computer Science

Minor Advisors
Arko Barman, Electrical and Computer Engineering, and Data to Knowledge Lab
Su Chen, Data to Knowledge Lab
Rudy Guerra, Statistics
Christopher M. Jermaine, Computer Science
Frederick L. Oswald, Psychological Sciences
Elizabeth Petrick, History

Steering Committee
David Alexander, Physics and Astronomy
Rudy Guerra, Statistics
Matthews Heinenschloss, Computational and Applied Mathematics
Christopher M. Jermaine, Computer Science
Luay K. Nakhleh, Computer Science, Biochemistry and Cell Biology
Barbara Ostdiek, Finance and Statistics
Kirsten Ostherr, English
Frederick L. Oswald, Psychological Sciences
Renata Ramos, Bioengineering
Devika Subramanian, Computer Science, Electrical and Computer Engineering
Marina Vannucci, Statistics
Ashok Veeraraghavan, Electrical and Computer Engineering
Jennifer Wilson, Program in Writing and Communication

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

DSCI 101 - INTRODUCTION TO DATA SCIENCE
Short Title: INTRO TO DATA SCIENCE
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students learn the fundamentals of data science and Python programming while working on teams to solve real data science challenges, design a data science pipeline, and derive and communicate valuable insights from data. This is a non-calculus based course with no prior background in statistics or programming required.
DSCI 301 - PROBABILITY AND STATISTICS FOR DATA SCIENCE  
**Short Title:** STATISTICS FOR DATA SCIENCE  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MATH 102 or MATH 106 or MATH 112  
**Description:** An introduction to mathematical statistics and computation for applications to data science. Topics include probability, random variables expectation, sampling distributions, estimation, confidence intervals, hypothesis testing and regression. A weekly lab will cover the statistical package, R, and data projects. Cross-list: STAT 315.  
**Recommended Prerequisite(s):** MATH 212. Mutually Exclusive: Cannot register for DSCI 301 if student has credit for BUSI 395.

DSCI 302 - INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS  
**Short Title:** DATA SCIENCE TOOLS AND MODELS  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a minor in Data Science. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** COMP 140  
**Description:** This course introduces key concepts in data management, preparation, and modeling and provides students with hands-on experience in performing these tasks using modern tools, including relational databases and Spark. Models covered include linear and logistic regression and gradient descent. For registration purposes, COMP 140 is a required prerequisite for this course. With instructor permission, students that have taken CAAM 210 (or another applicable course) may be allowed to special register for this course. Students seeking this instructor permission (to waive or substitute the COMP 140 prerequisite requirement) are expected to know the Python programming language, and may be required to demonstrate proficiency. Priority for this course is given to students enrolled in the data science minor. Other students may be permitted to enroll at the discretion of the instructor.

DSCI 303 - MACHINE LEARNING FOR DATA SCIENCE  
**Short Title:** MACHINE LEARNING FOR DS  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (DSCI 301 or STAT 315 or STAT 310) and (DSCI 302 or COMP 330)  
**Description:** This course is an introduction to concepts, methods, best practices, and theoretical foundations of machine learning. Topics covered include regression, classification, kernels, dimensionality reduction, clustering, decision trees, ensemble learning, regularization, learning theory, and neural networks. Recommended Prerequisite(s): CAAM 334 or CAAM 335 or MATH 355 Mutually Exclusive: Cannot register for DSCI 303 if student has credit for ELEC 478/ELEC 578.

DSCI 304 - INTRODUCTION TO EFFECTIVE DATA VISUALIZATION  
**Short Title:** DATA VISUALIZATION  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (DSCI 301 or ECON 307 or STAT 310 or STAT 315) and (DSCI 302 (may be taken concurrently) or COMP 330 (may be taken concurrently))  
**Description:** This course teaches fundamental data visualization skills to undergraduate students in the Data Science minor. Students will learn how to create data visualizations in Python or R, how to design effective visualizations that account for visual perception, and how to explain and present data to technical and non-technical audiences.

DSCI 305 - DATA, ETHICS, AND SOCIETY  
**Short Title:** DATA, ETHICS, AND SOCIETY  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An examination of the ethical implications and societal impacts of choices made by data science professionals. The course will provide practical guidance on evaluating ethical concerns, identifying the potential for harm, and applying best practices to protect privacy, design responsible algorithms, and increase the societal benefit of data science research.

DSCI 400 - DATA SCIENCE AND MACHINE LEARNING SELF-GUIDED CAPSTONE LABORATORY  
**Short Title:** DATA SCIENCE CAPSTONE LAB  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (DSCI 301 or STAT 315 or STAT 310 or ECON 307) and (DSCI 302 or COMP 330 and (DSCI 303 or STAT 413 or COMP 450) and DSCI 304  
**Description:** In this project-based course, student teams will choose, define, and execute semester-long data-science and machine-learning research projects. These projects may be selected from a variety of disciplines and industries, where freedom is given in defining the projects. The course is about learning best practices in data science and machine learning while finding a suitable curiosity-driven project to build these methods and systems around.
DSCI 415 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Professional level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 405 or COMP 140 or CAAM 210
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Graduate/Undergraduate Equivalency: DSCI 515. Mutually Exclusive: Cannot register for DSCI 415 if student has credit for DSCI 515. Repeatable for Credit.

DSCI 435 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 405 or COMP 140 or CAAM 210
Description: Students in this course will advise clients at Rice and beyond in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Graduate/Undergraduate Equivalency: DSCI 515. Mutually Exclusive: Cannot register for DSCI 415 if student has credit for DSCI 515. Repeatable for Credit.

DSCI 515 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in this course will advise clients from across this Rice community in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Graduate/Undergraduate Equivalency: DSCI 415. Mutually Exclusive: Cannot register for DSCI 515 if student has credit for DSCI 415. Repeatable for Credit.

DSCI 535 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: COMP 549. Graduate/Undergraduate Equivalency: DSCI 435. Repeatable for Credit.

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**Description and Code Legend**

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**
- Course offerings/subject code: DSCI

**Program Description and Code**
- Data Science: DSCI

**Undergraduate Minor Description and Code**
- Minor in Data Science: DSCI

**Graduate Degree Description and Code**
- Master of Data Science degree: MDS

**Graduate Degree Program Description and Code**
- Degree Program in Data Science: DATA

**Graduate Degree Program Option Description and Code**
- Degree Program Option - Online (MDS degree only): OMDS

**CIP Code and Description**
- DATA Major/Program: CIP Code/Title: 27.0601 - Applied Statistics, General
- DSCI Minor: CIP Code/Title: 27.0304 - Computational and Applied Mathematics

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/ (https://nces.ed.gov/ipeds/cipcode/)

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**Master of Data Science (MDS) Degree Program Learning Outcomes for the MDS Degree**

Upon completing the MDS degree, students will be able to:

1. Develop a graduate-level understanding of the computational and statistical foundations of Data Science.
2. Through in-depth study, obtain mastery of either one of the core methods of Data Science or one application area of Data Science.
3. Apply Data Science techniques to solve difficult, real world problems, beginning with raw and dirty data, and ending with actionable insights that are effectively communicated to a lay client.

**Requirements for the MDS Degree**

The MDS degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MDS degree must complete:
• A minimum of 10-13 courses (31-32 credit hours), depending on course selection, to satisfy degree requirements.

• A minimum of 31 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).

• A minimum of 24 graduate semester credit hours credit hours must be taken at Rice University.

• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).

• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.

• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.

• The requirements for one area of specialization (see below for areas of specialization). The MDS degree program offers four areas of specialization:

  • Business Analytics  
  • Image Processing  
  • Machine Learning  
  • Breadth

  (The Master of Data Science (MDS) breadth is an area of specialization comprised of electives from the other areas of specialization.)

• A minimum overall GPA of 2.67 or higher in all Rice coursework.

• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<td></td>
<td>Total Credit Hours Required for the MDS Degree</td>
<td>31-32</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>31-32</td>
</tr>
</tbody>
</table>

Core Requirements 1

Big Data

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 543</td>
<td>GRADUATE TOOLS AND MODELS - DATA SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>COMP 553</td>
<td>BIG DATA MANAGEMENT FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>COMP 643</td>
<td>BIG DATA</td>
<td></td>
</tr>
</tbody>
</table>

Data Visualization

COMP 665 DATA VISUALIZATION 3

Machine Learning

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
<td>3-4</td>
</tr>
<tr>
<td>COMP 642</td>
<td>MACHINE LEARNING</td>
<td></td>
</tr>
<tr>
<td>ELEC 578</td>
<td>INTRODUCTION TO MACHINE LEARNING</td>
<td></td>
</tr>
</tbody>
</table>

Programming

COMP 614 COMPUTER PROGRAMMING FOR DATA SCIENCE 3

Statistics

COMP 680 STATISTICS FOR COMPUTING AND DATA SCIENCE 3

Elective Requirements 1

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 622</td>
<td>ETHICS AND ACCOUNTABILITY IN DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>COMP 628</td>
<td>CYBERSECURITY</td>
<td></td>
</tr>
<tr>
<td>COMP 644</td>
<td>DATA PRIVACY &amp; SECURITY</td>
<td></td>
</tr>
</tbody>
</table>

Area of Specialization 1

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

  • Business Analytics
  • Image Processing
  • Machine Learning
  • Breadth

Capstone 1

DSCI 535 APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS 4

Total Credit Hours 31-32

Footnotes and Additional Information 1

Students in either program (online or on-campus) will be allowed to take up to 9 credit hours in the other modality (on-campus or online) with permission from the program advisors.

Areas of Specialization

Students must complete a minimum of 3 courses (minimum of 9 credit hours) from one Area of Specialization.

Area of Specialization: Business Analytics

Select all of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 711</td>
<td>FOUNDATIONS OF MARKETING</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 712</td>
<td>DATA-DRIVEN MARKETING</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 721</td>
<td>FOUNDATIONS OF FINANCE</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 722</td>
<td>DATA-DRIVEN FINANCE</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 731</td>
<td>FOUNDATIONS OF OPERATIONS MANAGEMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 732</td>
<td>DATA-DRIVEN OPERATIONS</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Area of Specialization: Image Processing

Select all of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 546 / COMP 546</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
<td>3</td>
</tr>
</tbody>
</table>
ELEC 549  COMPUTATIONAL PHOTOGRAPHY  3
ELEC 585 / BIOE 591  FUNDAMENTALS OF MEDICAL IMAGING I  3

Total Credit Hours  9

Area of Specialization: Machine Learning

Select a minimum of 3 courses (minimum of 9 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 514</td>
<td>OPTIMIZATION: ALGORITHMS, COMPLEXITY, AND APPROXIMATIONS</td>
<td>9</td>
</tr>
<tr>
<td>COMP 573</td>
<td>PROFESSIONAL DEVELOPMENT FOR BIOMEDICAL INFORMATICS</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 575</td>
<td>LEARNING FROM SENSOR DATA</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 576 / COMP 576</td>
<td>A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING</td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credit Hours  9

Area of Specialization: Breadth

Select a minimum of 3 courses (minimum of 9 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BUSI 711</td>
<td>FOUNDATIONS OF MARKETING</td>
<td>9</td>
</tr>
<tr>
<td>BUSI 712</td>
<td>DATA-DRIVEN MARKETING</td>
<td>9</td>
</tr>
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<td>BUSI 721</td>
<td>FOUNDATIONS OF FINANCE</td>
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<td>BUSI 722</td>
<td>DATA-DRIVEN FINANCE</td>
<td>9</td>
</tr>
<tr>
<td>BUSI 731</td>
<td>FOUNDATIONS OF OPERATIONS MANAGEMENT</td>
<td>9</td>
</tr>
<tr>
<td>BUSI 732</td>
<td>DATA-DRIVEN OPERATIONS</td>
<td>9</td>
</tr>
<tr>
<td>COMP 514</td>
<td>OPTIMIZATION: ALGORITHMS, COMPLEXITY, AND APPROXIMATIONS</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 515</td>
<td>MACHINE LEARNING FOR RESOURCE-CONSTRAINED PLATFORMS</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 546 / COMP 546</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 549</td>
<td>COMPUTATIONAL PHOTOGRAPHY</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 573</td>
<td>NETWORK SCIENCE AND ANALYTICS</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 575</td>
<td>LEARNING FROM SENSOR DATA</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 576 / COMP 576</td>
<td>A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 585 / BIOE 591</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING I</td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credit Hours  9

Policies for the MDS Degree

Department of Computer Science Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Computer Science publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Computer_Science_Graduate_Handbook.pdf

Financial Aid

No financial aid is available from Rice University or the Computer Science Department for students in the MDS degree program.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MDS degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of credit from another U.S. or international universities of similar standing as Rice may apply towards the degree. Transferred courses must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
- Request for transfer credit will be considered by the Computer Science Graduate Committee Chair, and the instructor of the equivalent Rice course.

Additional Information

For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs or contact the department at gradapp@rice.edu.

Opportunities for the MDS Degree

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate • Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Data Science
(MDS) degree. For additional information, students should contact their undergraduate major advisor and the MDS program director.

Additional Information
For additional information, please see the Graduate Programs website at https://www.cs.rice.edu/academics/graduate-programs (https://www.cs.rice.edu/academics/graduate-programs/) or contact the department at gradapp@rice.edu.

Master of Data Science (MDS) Degree, Online Program

Program Learning Outcomes for the MDS Degree
Upon completing the MDS degree, students will be able to:

1. Develop a graduate-level understanding of the computational and statistical foundations of Data Science.
2. Through in-depth study, obtain mastery of either one of the core methods of Data Science or one application area of Data Science.
3. Apply Data Science techniques to solve difficult, real world problems, beginning with raw and dirty data, and ending with actionable insights that are effectively communicated to a lay client.

Requirements for the MDS Degree, Online Program
The MDS degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MDS degree must complete:

- A minimum of 10-13 courses (31-32 credit hours), depending on course selection, to satisfy degree requirements.
- A minimum of 31 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- The requirements for one area of specialization (see below for areas of specialization). The MDS degree program offers four areas of specialization:
  - Business Analytics (p. 772), or
  - Image Processing (p. 772), or
  - Machine Learning (p. 772), or
  - Breadth (p. 772). (The Master of Data Science (MDS) breadth is an area of specialization comprised of electives from the other areas of specialization.)
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.
- The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MDS Degree</td>
<td>31-32</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements (^1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Big Data</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course from the following:</td>
<td>3</td>
</tr>
<tr>
<td>COMP 543</td>
<td>GRADUATE TOOLS AND MODELS - DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>COMP 553</td>
<td>BIG DATA MANAGEMENT FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>COMP 643</td>
<td>BIG DATA</td>
<td></td>
</tr>
<tr>
<td>Data Visualization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 665</td>
<td>DATA VISUALIZATION</td>
<td>3</td>
</tr>
<tr>
<td>Machine Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
<td>3-4</td>
</tr>
<tr>
<td>COMP 642</td>
<td>MACHINE LEARNING</td>
<td></td>
</tr>
<tr>
<td>ELEC 578</td>
<td>INTRODUCTION TO MACHINE LEARNING</td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 614</td>
<td>COMPUTER PROGRAMMING FOR DATA SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 680</td>
<td>STATISTICS FOR COMPUTING AND DATA SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>Elective Requirements (^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 course from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMP 622</td>
<td>ETHICS AND ACCOUNTABILITY IN DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>COMP 628</td>
<td>CYBERSECURITY</td>
<td></td>
</tr>
<tr>
<td>COMP 644</td>
<td>DATA PRIVACY &amp; SECURITY</td>
<td></td>
</tr>
<tr>
<td>Area of Specialization (^1)</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Select 1 from the following Areas of Specialization (see Areas of Specialization below):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Analytics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image Processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine Learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breadth</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
Capstone ¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSCI 535</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credit Hours 31-32

Footnotes and Additional Information ¹ Students in either program (online or on-campus) will be allowed to take up to 9 credit hours in the other modality (on-campus or online) with permission from the program advisors.

Areas of Specialization

Students must complete a minimum of 3 courses (minimum of 9 credit hours) from one Area of Specialization.

Area of Specialization: Business Analytics

Select all of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 711</td>
<td>FOUNDATIONS OF MARKETING</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 712</td>
<td>DATA-DRIVEN MARKETING</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 721</td>
<td>FOUNDATIONS OF FINANCE</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 722</td>
<td>DATA-DRIVEN FINANCE</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 731</td>
<td>FOUNDATIONS OF OPERATIONS MANAGEMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>BUSI 732</td>
<td>DATA-DRIVEN OPERATIONS</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Area of Specialization: Image Processing

Select all of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 546 / COMP 546</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 549</td>
<td>COMPUTATIONAL PHOTOGRAPHY</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 585 / BIOE 591</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Area of Specialization: Machine Learning

Select a minimum of 3 courses (minimum of 9 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 514</td>
<td>OPTIMIZATION: ALGORITHMS, COMPLEXITY, AND APPROXIMATIONS</td>
<td></td>
</tr>
<tr>
<td>COMP 573</td>
<td>PROFESSIONAL DEVELOPMENT FOR BIOMEDICAL INFORMATICS</td>
<td></td>
</tr>
<tr>
<td>ELEC 575</td>
<td>LEARNING FROM SENSOR DATA</td>
<td></td>
</tr>
<tr>
<td>ELEC 576 / COMP 576</td>
<td>A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Area of Specialization: Breadth

Select a minimum of 3 courses (minimum of 9 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

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Opportunities for the MDS Degree, Online Program

Additional Information
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Minor in Data Science

Program Learning Outcomes for the Minor in Data Science

Upon completing the minor in Data Science, students will be able to:

1. Formulate questions in a domain that can be answered with data.
2. Use tools and algorithms from statistics, applied mathematics, and computer science for analyses.
3. Visualize, interpret, and explain results cogently, accurately, and persuasively.
4. Understand the underlying social, political, and ethical contexts that are importantly and inevitably tied to data-driven decision-making.

Requirements for the Minor in Data Science

Students pursuing the minor in Data Science must complete:

- A minimum of 9 courses (27-31 credit hours, depending on course selection) to satisfy minor requirements.
- A minimum of 6 courses (18-21 credit hours, depending on course selection) taken at the 300-level or above.
- 3 courses (9-10 credit hours, depending on course selection) to satisfy Prerequisites.
- 5 courses (15-17 credit hours, depending on course selection) to satisfy the Core Requirements.
- A capstone project (3-4 credit hours, depending on course selection).

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Data Science</td>
<td>27-31</td>
</tr>
</tbody>
</table>
• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the minor in Data Science should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Data Science website: https://datascience.rice.edu/

Opportunities for the Minor in Data Science
Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Data Science website: https://datascience.rice.edu/

Dual Credit Teacher Credentialing
Contact Information
Liberal Studies
https://glasscock.rice.edu/departments/graduate-liberal-studies (https://glasscock.rice.edu/departments/graduate-liberal-studies/)
Anderson-Clarke Center
713-348-4767
Robert G. Bruce
Dean
rgbruce@rice.edu

The Glasscock School of Continuing Studies offers a Certificate in Dual Credit Teacher Credentialing through coordinated coursework from the Graduate Liberal Studies Program. Certified K12 teachers can provide students with first-hand exposure to college-level instruction, make a 2- or 4-year degree more affordable for their students, increase their own earning potential, and fill their district’s need for credentialed, dual credit teachers.

Texas high school students are able to participate in dual credit coursework, helping them earn college credit, or even an associate’s degree, before they step foot on a post-secondary campus. High school dual credit courses are designed to challenge students with rigorous, college-level curriculum, and provide them with a jumpstart on their futures—all public colleges and universities in Texas are required by the state legislature to accept dual credit. Teachers that possess the appropriate credentials to teach dual credit courses in their content areas are in high demand and have the potential to maximize their earning power while providing college access and increasing college affordability for their students.

This graduate certificate opportunity is designed for the practicing secondary teacher in English or in History. Classes are offered every semester – fall, spring, and summer – and all courses are offered in the evenings to accommodate working professionals.

There are two paths available for certified teachers:

1. Created for teachers who hold a master’s degree (in any subject) but lack the required 18 graduate content hours, this (standalone) Graduate Certificate option helps teachers with a master’s degree efficiently meet the requirements to teach high school dual credit courses in English or in History.
2. Teachers who need a master’s degree can complete their credentialing requirements to teach dual credit and earn this Graduate Certificate concurrently with the Master of Liberal Studies (MLS) degree. The MLS plan of study will allow you to earn the master’s degree while specializing in the English or History content you wish to teach. Visit the MLS website for admission and degree requirements.

Dual Credit Teacher Credentialing does not currently offer an academic program at the undergraduate level.

Certificates
• Certificate in Dual Credit Teacher Credentialing: English (p. 790)
• Certificate in Dual Credit Teacher Credentialing: History (p. 791)

Dean
Robert G. Bruce

Senior Associate Dean
Jennifer Gigliotti-Labay

Director
Rebecca Sharp

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)
Liberal Studies Core/Capstone (MLSC)

MLSC 500 - INTRODUCTION TO GRADUATE LIBERAL STUDIES
Short Title: INTRO TO GRAD LIBERAL STUDIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to equip new students with the disciplinary environment of the Master of Liberal Studies program and learn the expectations of graduate-level reading, writing, research and critical analysis. Required for all new students. Department Permission Required.

MLSC 501 - THE SHAPING OF WESTERN THOUGHT
Short Title: THE SHAPING OF WESTERN THOUGHT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the foundational, intellectual and artistic texts of the western tradition from Ancient Greece to Medieval Islam. Consideration of texts and images over time and in their historical development as we reflect on who we are and how we got here. Readings would include: The Gilgamesh Epic, Homer’s Illad, Thucydides’ War, Plato’s Republic, Book of Genesis, Virgil’s Aeneid, Gospels of Luke and of Thomas, Augustine’s Confessions and The Qur’an. Department Permission Required.

MLSC 502 - OUR ENVIRONMENT: SCIENCE & CULTURE
Short Title: OUR ENVIRONMENT:SCIENCE & CULT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will learn environmental concepts, the science and culture behind them and possible reactions to related problems from a political, economic and cultural perspective. The instructor will introduce the necessary background material in biology, ecology and chemistry as needed but the emphasis will be on obtaining scientific literacy in environmental studies. Department Permission Required.

MLSC 503 - INTRODUCTION TO ENVIRONMENTAL STUDIES
Short Title: INTRO TO ENVIRONMENTAL STUDIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Department Permission Required.

MLSC 504 - OUR ENVIRONMENT: SCIENCE & CULTURE
Short Title: OUR ENVIRONMENT:SCIENCE & CULT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Department Permission Required.

MLSC 505 - SHAKESPEARE AND FILM
Short Title: SHAKESPEARE AND FILM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine several Shakespeare plays and their theatrical productions. The instructor will teach each play as a text (and a script) first, and then study the films of these plays in an effort to understand the choices the film-makers have made in adapting Shakespeare’s plays to the screen. In this course, then, we will be concerned with studying both Shakespeare’s plays and what happens to those plays in the hands of a creative film-maker. Department Permission Required.

MLSC 506 - THE SOLAR SYSTEM, THE SUN AND THE MIND OF MAN
Short Title: SOLAR SYSTEM,SUN & MIND OF MAN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore the beauty of our near-by cosmic environment, the solar system, both as a work of nature and also from the standpoint of a challenge to the observational and analytical capabilities of human beings. The course will follow two parallel tracks: a historical/conceptual understanding of the solar system and the various paradigms or models used to describe the physical ”universe.” In the second track we will tour the solar system beginning with the Sun, examining each planet and its satellite(s) in detail. The course will be non-mathematical; however, a few equations maybe show to illustrate a point. Department Permission Required.

MLSC 508 - EARTH SYSTEMS DYNAMICS
Short Title: EARTH SYSTEMS DYNAMICS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves exposing the advanced student to the interactions among the several mechanisms that combine to produce a working Earth. It would include concepts of Physics, Chemistry, Biology, Geology, Meteorology and Ecology. Department Permission Required.
MLSC 509 - STEREOTYPES, PREJUDICE AND DISCRIMINATION
Short Title: STEREOTYPES, PREJUDICE, DISCRIM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In the past century social scientists have learned an enormous amount about stereotypes, prejudice and discrimination, yet they remain poorly understood by the public at large and especially by public policy makers. We all hold stereotypes, show prejudices and discriminate although not necessarily in traditional racist or sexist ways. This course will explore what social scientists, especially social psychologists, have learned about these issues especially in the last quarter century. While we will cover traditional racial and gender issues, we will also consider material related to obesity, homosexuality, mental and physical disability and age among other topics. Department Permission Required.

MLSC 510 - MUSIC AND OTHER ARTS: COLLABORATION AND FUSION
Short Title: MUSIC AND OTHER ARTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the collaboration between music and other arts - poetry, drama, mythology, the visual arts (as applied to set and costume design) and dance - that often occurs during the creation of large musical works such as symphonies, operas and ballets. By investigating six musical masterpieces, it will be possible to discuss aspects of the collaborative process and how they lead to artistic fusion. Department Permission Required.

MLSC 513 - DNA: HUMAN IDENTITY AND ORIGINS
Short Title: DNA: HUMAN IDENTITY & ORIGINS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: “Who am I?” “Where did I come from?” All branches of knowledge address these fundamental questions. This course examines how DNA informs the structure and function of humans, and how humans have in turn used DNA as a source of information to solve mysteries and improve lives. We will introduce the structure of DNA and show how it influences physical traits and is passed on from parent to child. We will review the original goals of the Human Genome Project and discuss how the surprising results that emerged from it have altered the way we view the role of genes in human development. We will examine how breakthroughs in DNA technology have allowed us to answer questions about human origins, worldwide migrations and personal genealogy and aided criminal investigations and medical treatment. This course will also use the specifics of DNA investigation as examples of science in action. Department Permission Required.

MLSC 515 - SCIENCE IN THE FIRST PERSON
Short Title: SCIENCE IN THE FIRST PERSON
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Have you wondered what it would be like to participate in a major scientific discovery, or to deal with highly competitive or cantankerous colleagues, or to convince a skeptical world that your idea is right and the rest of the world has got it wrong? By reading material written by scientists who have made major discoveries, we will look at how science is done from the first-person perspective. We will see how scientists confront troubling thoughts when they see the modern world in conflict with the nature they love, and why science has been called a "contact sport." Department Permission Required.

MLSC 517 - MODERN DRAMA ON FILM AND IN PERFORMANCE
Short Title: MODERN DRAMA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on drama not only as text but also as performance. We will read modern plays and discuss them as they are often discussed in English courses, concentrating on theme, character, world, imagery, language and dramatic action. In addition, we will also examine the "texts" as scripts, as working papers for actors and directors: in short, as source materials for performance. To this end we will also view movie versions of many of these plays. Department Permission Required.

MLSC 519 - PSYCHOLOGY OF BELIEFS
Short Title: PSYCHOLOGY OF BELIEFS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Beliefs are among the most primitive, important and central of mental constructs. Many of our reactions to others are based on our beliefs and our perceptions of theirs, and it is impossible to understand racism, prejudice, religious and national conflicts without considering disagreement over basic belief systems. While there are several ways to approach the study of beliefs, we will focus on problematic beliefs, sometimes called anomalous or bizarre beliefs. Examples are beliefs in ESP and the paranormal, astrology, the reality of events that could not possibly have occurred, scientific theories and medical cures that are rejected by most experts, as well as extreme religious and political ideas. Department Permission Required.
MLSC 523 - THEORY AND PRACTICE OF PUNISHMENT
Short Title: THEORY & PRACTICE OF PUNISHMENT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the writings of some of the most influential scholars in sociology, legal philosophy and political theory who have contributed to the creation of ideal or normative views of legal punishment and exposing the harsh realities of how non-violent and violent criminals are actually punished. Department Permission Required.

MLSC 525 - PLAGUES AND POPULATIONS
Short Title: PLAGUES AND POPULATIONS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the interaction of pathogens and human societies. It will cover the biological nature of pathogens and disease, the human immune system and therapeutic and societal interventions to prevent and cure disease. Specific diseases will be studied to determine the biology of the disease agent, its exploitation of the human host, its transmission and epidemiology and how the disease impacts the economic, political, social structure and values of the affected populations, and how the response to disease may limit its impact. Department Permission Required.

MLSC 526 - CONTEMPORARY MORAL ISSUES
Short Title: CONTEMPORARY MORAL ISSUES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The cardinal objective of the course is to stimulate students to analyze and evaluate the opposing viewpoints of some scholars who have expressed their views on some of the most disputed moral issues in contemporary American culture. Specifically, the required readings for the class focus on abortion, the death penalty, euthanasia, world hunger and poverty, sexual morality, drugs and addiction and affirmative action. Arrangements will be made for a tour of a prison unit and the opportunity to discuss the death penalty with several inmates. Department Permission Required.

MLSC 522 - THE GRAND DESIGN
Short Title: THE GRAND DESIGN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The book “The Grand Design” by Stephen Hawking and Leonard Mlodinow asks the big questions: how did our universe begin and is it the only one or are there multiple parallel universes; why is there something rather than nothing; why are we here; why are the laws of nature so finely tuned that they allow a stable universe? Guided by the Hawking/Mlodinow book, this course will explore these questions. We will address the question: do the laws of physics provide for the possibility of a multiplicity of universes of which ours, by happenstance or probability, turned out to have the right set of physical constants to provide for a stable universe and hence the possibility of life or is a Divine Creator necessary? To address these questions we will take a layman’s tour of basic concepts of cosmology, quantum mechanics, relativity, string theory, and extra-dimensions. Department Permission Required.

MLSC 533 - SELF-DETERMINATION IN ARAB WORLD
Short Title: SELF-DETERMINATION ARAB WORLD
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course investigates the history of the struggle for self determination and democracy in the Arab world. It provides a historical perspective by exploring the antecedents to the current so-called “Arab Spring,” specifically by comparing the anti-colonial nationalisms of the twentieth century with the today’s pro-democracy movements. It will also examine the role of the West, including the United States, in hindering or promoting anti-colonialism, nationalism and democracy in the Arab world. Department Permission Required.

MLSC 534 - HUMAN RIGHTS IN WORLD AFFAIRS
Short Title: HUMAN RIGHTS IN WORLD AFFAIRS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the history of human rights and humanitarianism from the eighteenth century Enlightenment era to the present. How did human rights become the premier moral language of our times and the idiom in which recent generations frame their idealism? While universal human rights may seem timeless, they have a long and checkered political and philosophical history. This seminar will explore that history through anthropology and legal studies as well as through case studies of non-governmental organizations. Special attention will be given to international law and shifts in international politics in the twentieth century. The course will also analyze the passions that motivated people to pursue human rights and the empathy that led them to uproot injustice. Department Permission Required.
MLSC 535 - "PLEASE SIR, I WANT SOME MORE": DICKENS, OLIVER TWIST, POVERTY, AND SOCIAL JUSTICE
Short Title: DICKENS, TWIST, SOCIAL JUSTICE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: During the worldwide celebrations of Charles Dickens’s bicentenary in 2011-12 Oliver Twist received vibrant new attention because its treatment of children, welfare, poverty, domestic violence, and anti-Semitism seemed so relevant to contemporary issues. In this course we will read the novel alongside and against the economic and social theories and practices of Dickens’s time, and ask many questions. Department Permission Required.

MLSC 536 - TRADITIONAL CHINESE CULTURE AND ITS MODERN LEGACY
Short Title: TRADITIONAL CHINESE CULTURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An analysis of the language, philosophy, religion, art, literature, institutions and social customs of the Qing dynasty (1644-1912), the last imperial regime and a crucial bridge between "traditional" and "modern" China. Although this course is intended in part as an exercise in appreciation, it is designed primarily to encourage critical and creative thinking about another place and time. Department Permission Required.

MLSC 537 - PROFILES FROM THE PAST: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What has happened during the course of time, regarding culture and human experience that has been transmitted from the ancient to the modern world? What ideas and concepts concerning subjects such as politics, art, music, and philosophy have been our legacy from the western past? This course will survey the answers to these questions covering the time of classical Greece through the period of the high middle ages. Department Permission Required.

MLSC 538 - OUR CHANGING PLANET
Short Title: OUR CHANGING PLANET
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Earth can be studied by considering it to be made up of certain elements or systems that interact. The systems that we will consider in this course are the lithosphere, atmosphere, hydrosphere and biosphere. Not quite earth, air, fire and water, but close. We will then explore how these systems interact and finally attempt to evaluate the human impact on the entire earth. Department Permission Required.

MLSC 539 - IMMIGRATION AND THE STATE: EUROPE AND THE US IN COMPARATIVE PERSPECTIVE
Short Title: IMMIGRATION AND THE STATE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course traces the history of immigration within and to Europe and to the United States from the late 19th century to the present. How did the United States and the European states elicit, regulate or contain successive waves of labor and colonial migrants, stateless persons and asylum seekers? And what type of legal, political and cultural debates did the "immigrant question" raise in the public sphere since the advent of mass migration? We will discuss key issue regarding immigration including political asylum, guest-worker programs, assimilation and integration debates, and immigrants and the welfare state Department Permission Required.

MLSC 540 - IS ANYBODY OUT THERE: THE SEARCH FOR LIFE BEYOND EARTH
Short Title: IS ANYBODY OUT THERE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Imagine what the reaction would be if life were discovered on another planet in the solar system or on a planet orbiting another star. With the dawn of the space age tools have become available to tackle this problem with serious scientific research. This course will look at some of this research and examine the prospects for finding life. Department Permission Required.
MLSC 541 - HUMAN RIGHTS, GENDER EQUALITY AND RELIGIOUS BELIEFS
Short Title: EQUALITY & RELIGIOUS BELIEFS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class aims to explore the intertwined relationship between gender equality, human rights and religious beliefs globally. Additionally, the class will focus on realities and misconceptions on women's status in the Middle East and North Africa and explore the impact of the socio-cultural and political context on shaping gender relations across the region. Department Permission Required.

MLSC 542 - THE EPIC JOURNEY
Short Title: THE EPIC JOURNEY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class explores some of the classic texts of Western literature, books from the ancient world that have had, and continue to have a formative influence on who we are and how we got here. The works we will study all share a common theme: the epic journey. We explore different variations of this theme, follow ancient travelers on their journeys, and reflect with them about their discoveries. Department Permission Required.

MLSC 543 - THE CITY IN LITERATURE
Short Title: THE CITY IN LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will read a variety of writers from both the nineteenth and twentieth centuries. For some historical background and city discourse, we will also read parts of Lewis Mumford's The City in History, Jane Jacobs's The Death and Life of Great American Cities, and the essays of Michel de Certeau, Georg Simmel, E B White, among others. Department Permission Required.

MLSC 544 - WRITING LITERATURE FOR CHILDREN
Short Title: WRITING CHILDREN'S LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many of us have beloved stories we either read or that someone read to us when we were children. This course returns us to those roots and delves deeply into the meaning and purpose of children's literature with the ultimate goal of trying our hand at writing several original pieces. Students will produce a portfolio of creative work that includes poetry, fiction, and/or drama for very young and older children. Department Permission Required.

MLSC 545 - WINDOW TO THE SOUL: EXPLORING RELIGION AND ETHNICITY THROUGH MUSIC
Short Title: RELIGION & ETHNICITY MUSIC
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore the music of a variety of religious and ethnic groups in an attempt to bridge differences and create understanding among those of different traditions. Each class session will be based upon the music connected to a specific religious or ethnic group. Department Permission Required.

MLSC 546 - THE ROLE OF CHEMISTRY IN HISTORY
Short Title: ROLE OF CHEMISTRY IN HISTORY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Could the outcome of a war be decided simply on the material chosen for the buttons on the soldier's garments? What in pantyhose was desired for WWII? How did phenols and formaldehyde lead to a worldwide revolution via plastics? These questions and more will be answered as we explore important molecules that have changed the course of human history. Department Permission Required.
MLSC 547 - PROFILES FROM THE PAST II: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the span of years from the beginning of the French Revolution to the middle of the 20th century. In addition to the study of selected individuals such as Napoleon Bonaparte, Czar Alexander I, Cecil Rhodes, Gregor Rasputin, Vladimir Lenin, Joseph Stalin, Adolf Hitler and Mohandas Gandhi, there will be examinations of Romanticism, Nationalism, Imperialism, and Fascism. Department Permission Required.

MLSC 548 - HISTORY OF PHILOSOPHY SET IN INTERDISCIPLINARY CONTEXT
Short Title: HIST OF INTERSIC PHILOSOPHY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to leading figures, ideas and arguments of the history of western philosophy, set in interdisciplinary context in this interdisciplinary MLS program. For a general educated audience philosophy is best approached from multiple perspectives - historical, literary, scientific, religious, artistic - and we will take this approach.

MLSC 549 - COMPARATIVE IMPERIAL PLEASURE GARDENS: POWER AND LANDSCAPE
Short Title: IMPERIAL PLEASURE GARDENS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines pre-modern designed landscapes used for creating, declaring, and reading social and political claims. While understanding the garden as art form and sacred space, we focus on the relationship between landscape and power in a globally comparative context. Department Permission Required.

MLSC 550 - MODERN ASTRONOMY AND OUR PLACE IN THE UNIVERSE
Short Title: MODERN ASTRONOMY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to modern astrophysics beyond the solar system including a brief history of astronomy from antiquity through Galileo and Newton. Our modern understanding of the formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe will then be surveyed. Department Permission Required.

MLSC 551 - PROFILES FROM THE PAST III: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST III
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the span of years from the beginning of the French Revolution to the middle of the 20th century. In addition to the study of selected individuals such as Napoleon Bonaparte, Czar Alexander I, Cecil Rhodes, Gregor Rasputin, Vladimir Lenin, Joseph Stalin, Adolf Hitler and Mohandas Gandhi, there will be examinations of Romanticism, Nationalism, Imperialism, and Fascism. Department Permission Required.

MLSC 552 - CONSERVING BIODIVERSITY
Short Title: CONSERVING BIODIVERSITY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many scientists have coined the current geological age as the "Anthropocene" in reference to the impact of mankind on the planet. This course will examine biodiversity, how biodiversity influences our lives, the forces that affect biodiversity worldwide, and how we can protect it. Local species and ecosystems will be highlighted.

MLSC 553 - SOLVING THE CLIMATE CHALLENGE
Short Title: SOLVING THE CLIMATE CHALLENGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course overviews climate science and explores strategies for transforming electricity, transportation, and agriculture to avert the impacts of abrupt climate change. Department Permission Required.
MLSC 554 - MY FAVORITE NOVELS - AND GREAT FILMS MADE FROM THEM  
Short Title: MY FAVORITE NOVELS AND FILMS  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: In this class we will carefully examine four great novels from different eras: "Pride and Prejudice," "Great Expectations," "One Flew Over the Cuckoo's Nest," and "Atonement," to see what makes them so successful. Then we will watch and discuss the great films made from them. Department Permission Required.

MLSC 555 - THE POLITICAL PHILOSOPHY OF THE AMERICAN REVOLUTION  
Short Title: POL PHIL OF AMER REVOLUTION  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will 1) discuss the significance of some events in Colonial American that precipitate the clarion call the dissolve forever all political ties to Great Britain: 2) discuss the ideological origins of the American Revolution in the key documents, specifically the Declaration of Independence, the Constitution, the Bill of Rights and the Federalist Papers. Department Permission Required.

MLSC 556 - HEAVEN AND HELL: FROM DANTE TO MILTON AND BEYOND  
Short Title: LITERATURE FROM HEAVEN & HELL  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The ultimate end of human life resides in landscapes defined by aspiration or terror, punishment or reward. Thus heaven and hell are places frequently conjured by the literary imagination. This course looks closely at the implications of such imaginings from Dante's Divine Comedy to Milton's Paradise Lost to the present. Department Permission Required.

MLSC 557 - EARLY MODERN ISLAMIC WORLD: ART AND EMPIRE  
Short Title: ISLAMIC EMPIRES  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to Islamic empires of the early modern Muslim world: Ottoman, Safavid, and Mughal. Focus on art, architecture, literature, religion, kingship, family, which shape the cultural heritage of the Muslim world today. Opportunity to study works of art produced in these imperial workshops at MFAH. Department Permission Required.

MLSC 558 - EVOLUTION AND SOCIETY  
Short Title: EVOLUTION AND SOCIETY  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The science of evolution has come a long way since Charles Darwin first proposed his theory for how species change through natural selection in 1859. This course will provide an overview of modern evolutionary biology, with a focus on its relevance for 21st century society. Department Permission Required.

MLSC 559 - ENVIRONMENTAL LITERATURE  
Short Title: ENVIRONMENTAL LITERATURE  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Environmental Literature will focus on nature essay writers, ecopoets, and ecocriticism. The course will include poetry and other literary writing designed to inspire and creatively capture the natural environment and nonfiction nature writing that highlights major concerns about the environment and aims to transform the thoughts and behavior of society. Department Permission Required.

MLSC 560 - WOMEN IN SOUTHERN LITERATURE  
Short Title: WOMEN IN SOUTHERN LITERATURE  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will consider the role of women in southern literature, focusing mostly on the works of women writers from the 1800's to the 2000's with some readings from male writers as well. Some very early works, including letters, diaries, and captivity narratives will be included, but most of the readings will be modern and contemporary short stories, novels, and memoirs. Department Permission Required.
MLSC 561 - HISTORY OF SOUTH ASIA: THE ORIGINS OF INDIA AND PAKISTAN
Short Title: HISTORY OF SOUTH ASIA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A broad introduction to the history of the cultural, religious, economic and political systems of South Asia, this course explores the centuries-long development of Hinduism and Buddhism, rise of Islamic state power and establishment of British control, culminating in resistance movements among South Asians and establishment of modern nation states, alongside the wrenching experience of Partition. Department Permission Required.

MLSC 562 - MUSIC AND MEDIEVALISM
Short Title: MUSIC AND MEDIEVALISM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the history and aesthetics of medievalist music in the context of literature, drama, and film. We consider the authentic models for medievalist works, establish the romanticizing methodology, and then observe how medievalism plays out in the concert hall, film, and other media. Department Permission Required.

MLSC 563 - A HISTORY OF TUDOR ENGLAND
Short Title: A HISTORY OF TUDOR ENGLAND
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: At the end of the long and brutal Wars of the Roses, a new royal dynasty emerged in England to great acclaim and relief - and uncertainty. Henry Tudor, who styled himself as Henry VII, began a successful reign and the beginning of a family dynasty lasting a little longer than a century. This course will study the Tudor century. Department Permission Required.

MLSC 564 - THE POLITICS OF WORLD WAR TWO IN EUROPE
Short Title: THE POLITICS OF WORLD WAR TWO
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is an in-depth exploration of the Second World War in Europe. Hitler's conquest of Europe elicited political, social, economic and demographic upheavals in all parts of the continent. While closely following the military chronology of the conflict, our course will examine the radical transformations brought about by Nazi rule in Western and Eastern Europe as well as the Balkans. Department Permission Required.

MLSC 565 - PAST AND FUTURE CLIMATE CHANGE: NATURAL VERSUS HUMAN INFLUENCE
Short Title: PAST AND FUTURE CLIMATE CHANGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Have humans really altered the course of natural climate change? Can this course be altered? This course introduces students to the methods used by scientists to study Earth's climate history. We will examine methods used to study Earth's climate evolution over hundreds of millions to decadal time scales. Why did Earth's climate undergo extreme changes from "icehouse" conditions when much of its surface was covered by ice, to "greenhouse" conditions when the planet was much warmer than present? What was the impact of these changes on Earth's inhabitants? Lastly, we will use Earth's climate history as context for understanding the role of humans in altering the course of our planet. How reliable are climate predictions and what can be done to curtail climate change? Department Permission Required.

MLSC 566 - MUSIC IN THE ERA OF THE REFORMATION
Short Title: MUSIC IN THE REFORMATION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar concerns musical responses to the changing religious climate in the fifteenth and sixteenth centuries. Examination of the concomitant polemics in theology and government, Biblical Humanism and the Devotio Moderna, secular vernacular song, and popular preaching will shed light on the complex interactions between music and society in this age of religious reform. Department Permission Required.
MLSC 567 - THE HOUSE OF STUART  
**Short Title:** THE HOUSE OF STUART  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Although the Stuarts were a royal dynasty in Scotland since the fourteenth century, they arrived in England after the death of Elizabeth I. Unlike the Tudors who preceded them, the Stuarts never gained a great popularity with their subjects. There were, nevertheless, as a result of friction amongst the population, great constitutional developments during their century which continue to shape the United Kingdom until this day. Department Permission Required.

MLSC 568 - PSYCHOLOGY OF AGGRESSION AND VIOLENCE  
**Short Title:** AGGRESSION AND VIOLENCE  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course provides an overview of empirical research on the social psychology of aggression and violence, flowing from evolutionary/biological perspectives, cultural perspectives, and contextual/situational perspectives. Through exposure to classic and contemporary works in this course, students will get a taste of the breadth of social-psychological research on aggression and violence. Department Permission Required.

MLSC 569 - FORESIGHT IN SOCIAL JUSTICE  
**Short Title:** FORESIGHT IN SOCIAL JUSTICE  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Foresight in Social Justice will explore and analyze social justice issues, and then suggest positive action for social change. This course introduces students to future studies research, enabling individuals to spot emerging opportunities and threats within the context of social justice and develop innovative responses to serve changing needs. Department Permission Required.

MLSC 570 - CHILDREN OF IMMIGRANTS  
**Short Title:** CHILDREN OF IMMIGRANTS  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Through this course, students will learn about developmental psychology and developmental outcomes within the context of immigration. Given that the Houston metropolitan area hosts the fourth highest number of children of immigrants in the entire country, this course will provide students with the opportunity to connect theoretical knowledge with community related issues. Throughout the semester, the students will read recent scientific articles and policy-related reports that will provide background information for in-class discussions. In addition, students will engage in class exercises to brainstorm about local and national issues related to the course content. As a semester project, students will select a topic for further exploration resulting in a written essay and oral representation to the class. Department Permission Required.

MLSC 571 - MORAL LEADERSHIP IN ECONOMICS  
**Short Title:** MORAL LEADERSHIP IN ECONOMICS  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course explores how we can be (or become) virtuous and successful leaders. This course helps students to develop personal and professional mission and values statements as aids in good leadership. On the path to developing mission and values statements, students will explore elements of moral psychology and philosophy, emotional intelligence, character development, the formation of communal and personal identities, the purpose and practice of commercial activities from the vantage point of five spiritual traditions, practical examples of institutions applying missions and values (both successfully and unsuccessfully), ideas regarding meaning-making, measuring our success in life, creating a life purpose, and giving voice to our values. The question at the center of the course is whether we can live professional and personal lives that do not conflict, but rather work in concert with the economic dimensions of institutions, especially if we find ourselves leading others in these organizations.
MLSC 600 - INTRODUCTION TO GRADUATE RESEARCH, ANALYSIS AND EXPOSITION

Short Title: INTRO GRAD RESEARCH & WRITING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: The goals of this course will be to develop the students’ abilities to perform library or Internet scholarly research at a graduate level; conduct graduate-level analysis of representative graduate-level readings and topics similar to those encountered in the MLS program; demonstrate the advanced analytical and critical thinking abilities required inside and outside the graduate classroom; express the results of scholarly research and analysis and original ideas in the written formats that meet the criteria for graduate-level essays, papers and reports; use oral expression, discussion and presentation techniques at the level expected in graduate classrooms. Department Permission Required.

MLSC 604 - EXPLORATION AND DISCOVERY IN ANTARCTICA

Short Title: EXPLOR & DISC IN ANTARCTICA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course will introduce students to the seventh continent through the history of austral exploration and through an explanation of the scientific research that has happened, is happening and will happen there. This course will begin with a basic scientific description of the highest, driest, coldest, windiest continent on Earth. Participants will then study journals of some of the original explorers as well as recent works analyzing the “glory days” of polar exploration. The class will then move from the period of exploration, through the early scientific work, and on to the modern hypothesis-driven science that is taking place now and is being planned for the future. The class will close with an examination of tourism and its effects on the nature of the Antarctic ecosystems and cryosphere. Department Permission Required.

MLSC 606 - THE HEBREW BIBLE AND ITS INTERPRETERS

Short Title: HEBREW BIBLE/ITS INTERPRETERS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This seminar seeks to acquaint students with the principal parts of the Hebrew Bible/Old Testament, with the modern, historical-critical study of the Bible as an academic discipline, and a few episodes in the recent history of the Bible in the West. Our reading of the biblical literature will primarily be historical-critical in the sense that it emphasizes that the Hebrew Bible is rooted in the ancient Near East, its history and literature. At the same time we will be sensitive to traditional, Jewish and Christian readings of the Bible as they evolved over two millennia and examine how these faith-based traditions arose, how they differ from modern critical approaches and how the two can complement each other. Department Permission Required.

MLSC 610 - PSYCHOLOGY OF HAPPINESS

Short Title: PSYCHOLOGY OF HAPPINESS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Truth, beauty and, yes, happiness, are issues that have engaged thoughtful people over the centuries. What is happiness (and what makes us happy)? Until recently we have relied on philosophers and religious thinkers for answers to that question, and many of them have provided useful recipes that seem to work for at least some people some of the time. The last century or so has seen many psychologists and self-help gurus who have also handed out (well, more often sold) recipes that generally seem to be less satisfactory than the wisdom of the ancients. Interestingly until recently psychologists have tended to ignore this seeming important topic, but in the past 10 or so years social and personality psychologists, neuroscientists and even economists have begun to pose empirically answerable questions about happiness and to find some data-based answers to what makes people happy. In this course we will read some of the traditional wisdom provided by religious and philosophical thinkers, but we will focus primarily on questions and issues that are subject to empirical resolution. Department Permission Required.
MLSC 612 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The discovery of the Dead Sea Scrolls a little over a half a century ago in the Judean desert has been celebrated as the most significant manuscript discovery of the 20th century. Students will study the fascinating history of the discovery and publication of the Scrolls. They will read the most important Scrolls, learn about the beliefs and practices of the Jewish group that authored them and discuss what can be learned from the Scrolls about the nature of Early Judaism and the origins of Christianity. Department Permission Required.

MLSC 614 - PUBLIC SPEAKING
Short Title: PUBLIC SPEAKING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to give the student exposure to and experience using basic principles and skills of oral communication in the public context. Emphasis will be on the development of speech organization, support and delivery. Informative and persuasive speeches will be practiced. An important outcome of the course is that the student better understand and appreciate the important role public speaking plays in modern society. Instructor Permission Required.

MLSC 615 - TEN MASTERPEICES OF NORTHERN RENAISSANCE ART
Short Title: MASTERPEICES OF REN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the great "masterpieces" of painting produced in Northern Europe during the Renaissance of the fifteenth and sixteenth centuries. Each week we will focus on a single work of art from this period and explore a constellation of issues around the creation and reception of the painting. Students will learn in-depth methods of visual analysis and interpretation of works within their historical context. These same skills and strategies may be applied to the full range of western painting and provide useful tools for enriching visits to museums or experiences of European travel. Department Permission Required.

MLSC 616 - OCEANWAYS OF THE BRITISH EMPIRE
Short Title: OCEANWAYS OF BRITISH EMPIRE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Never in the history of imperial expansion has there ever been anything that compared to the British Empire at its height in the days of Queen Victoria. In size the Empire was supreme, ruling the largest area and the largest number of people. This course will examine these aspects of the Victorian Empire and compare them with imperial activities of the present day. Department Permission Required.

MLSC 617 - CREATIVE NONFICTION
Short Title: CREATIVE NONFICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Creative nonfiction takes many forms, including expository writing, personal essay, narrative story-telling, literary journalism, memoir, nature and science writing, travel and food writing, historical narrative, biographical narrative, and academic and cultural criticism. This course is designed to help students read and write creative nonfiction with a focus on the voice, structure, messages, style, and technique found in contemporary creative nonfiction. The material covered applies to the humanities, the social sciences, and the sciences. Department Permission Required. Repeatable for Credit.

MLSC 618 - THE AWAKENING OF RUSSIA: A MUSICAL AND HISTORICAL PASSAGE
Short Title: THE AWAKENING OF RUSSIA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There was a spectacular flowering of Russian culture in the aftermath of the death of Czar Nicholas I (1825-55). Ushered in was a relatively liberal ear which, combined with a powerful natural upsurge, yielded a period of remarkable creativity - noted especially in this course by Russian music. This interdisciplinary course will couple the historical and musical threads of Russian culture. Department Permission Required.
MLSC 620 - MASTERPIECES OF THE POETIC TRADITION
Short Title: POETIC TRADITION MASTERPIECES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the appreciation and analysis of poetic masterpieces. We will focus on poetry produced in the English and American literary tradition, with particular attention to the poems, poets, and cultures that influence the development of those traditions. Department Permission Required.

MLSC 621 - ART MUSIC IN WESTERN EUROPEAN CULTURE II
Short Title: ART MUSIC EUROPEAN CULTURE II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the second course in a sequence devoted to advanced musical understanding. In the first part of this sequence (Art Music in Western European Culture I) we will examine a wide range of music from a single time period. In this, the second part of the sequence, we will instead concentrate in depth upon one piece of music per class and will combine a focus upon advanced listening skills with music specific research techniques. The first weeks of the class will review musical listening, discourse, and the specialized skills necessary for musical research. Subsequently, each class session will focus upon a major work by a significant composer such as Mozart, Beethoven, Schubert, Mahler, and Debussy, among others. Department Permission Required.

MLSC 622 - THE SCEPTER'D ISLE: ANCIENT AND MEDIEVAL BRITAIN
Short Title: ANCIENT AND MEDIEVAL BRITAIN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: From the murky prehistoric times of Stonehenge and New Grange to the tumultuous times of Henry II and Eleanor of Aquitaine, the dramatic combinations of history and myth have continually fascinated lovers of the British Isles. This course will explore ancient and medieval Britain, meandering from prehistoric sites to the early invaders, from the delightful legends of Glastonbury to the centuries of Roman invasions, from the Anglo-Saxon heptarchy to the Norman invasion, and from the hegemony of the Roman Catholic church to the challenge of secular kings. Department Permission Required.

MLSC 623 - WHAT MODERN WAS: CELEBRATING THE CENTENNIAL
Short Title: CELEBRATING THE CENTENNIAL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What constituted "modern music" in 1912? Works such as Arnold Schoenberg's Perrot lunaire, Claude Debussy's Jeux, and compositions by American composers Henry Cowell and Charles Ives set the bar for musical modernism that year. But other pieces from France, Germany, Russia, Spain, Hungary and England suggested that the future would present major changes. What did audiences in the United States know about such music? What did they think about it? What did the founders of the Rice Institute think about the new musical trends? How did the music played at the opening festivities of the Rice Institute reflect these perceptions of musical modernism? This course will consider these questions from a variety of parameters and get a sense of "what modern was" and its relationship to the momentous events of 1912 in Houston, Texas. Department Permission Required.

MLSC 624 - ADVANCED CREATIVE NONFICTION
Short Title: ADVANCED CREATIVE NONFICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers students an opportunity to continue to practice writing creative nonfiction in a guided workshop format. The primary emphasis in the course will be on the professor and students reading and providing constructive feedback on the students' creative nonfiction writings. In addition, the students will read further examples of various types of creative nonfiction writing and complete writing exercises designed to allow them to work on the voice, structure, and technique of their writing. This course is designed for students with experience in writing creative nonfiction, such as completion of MLSC 617 or a similar course or creative writing workshop experience elsewhere. For those who have not taken a creative nonfiction course in the MLS program, consultation with the instructor is recommended before enrolling. Department Permission Required.

MLSC 625 - THE SHAPES OF POETRY: A WORKSHOP
Short Title: THE SHAPES OF POETRY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines fundamental architecture of poetry. How do poets create a sense of shape? What are the nuts and bolts of a poem? Students will read widely in the history of poetry, from traditional meters and historical forms to contemporary free verse and experimental or open forms. Part workshop and part seminar, this course will feature critical and creative assignments and is designed for writers and non-writers of any level of experience. Department Permission Required.
MLSC 626 - THE BROTHERHOOD: LIVES AND LOVES OF THE PRE-RAPHAELITES  
Short Title: PRE-RAPHAELITES LIVES & LOVES  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The Pre-Raphaelite Brotherhood (PRB), founded in 1848, was a small group of British artists who boldly challenged the conventions of Victorian-era art and the materialism of industrialized England. While the PRB influenced the British art world for the remainder of the century, this course will focus on the intriguing personal lives of the artists, including Dante Gabriel Rossetti, William Holman Hunt, and John Millais, rather than the art they created. These artists, along with their wives, paramours, and models (often all one and the same) were part of a highly prolific Victorian creative class which for this course will revolve around the locale of central London and the influence of the towering figure of art and architecture - critic John Ruskin. Department Permission Required.

MLSC 627 - JOHN RUSKIN AND HIS WORLD  
Short Title: JOHN RUSKIN AND HIS WORLD  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine John Ruskin (1819-1900), who rose from a troubled childhood to become one of the most influential critics of art and architecture of his century, forever fulminating the notion that art had a moral purpose and especially that art and architecture produced in France and Italy in the Middle Ages. Department Permission Required.

Short Title: THE BIRTH OF MODERNISM  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: One hundred years have passed since the momentous decade that brought us the beginnings of modernism, the "war to end all wars," and post war cynicism. This course will examine those tumultuous years from the perspective of the wide array of music written to satisfy all types of tastes and circumstances. Department Permission Required.

MLSC 629 - EFFECTIVE THINKING  
Short Title: EFFECTIVE THINKING  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The basis of success in everything, academics, personal relationships, professional life, business leadership, or anything, is effective thinking. This course will address the process and practice of how to think effectively, analytically, and creatively. Department Permission Required.

MLSC 630 - POST-BOP: JAZZ'S GOLDEN AGE  
Short Title: JAZZ'S GOLDEN AGE  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: In this course we will explore the music of some of the most influential and important jazz musicians of the period, and we will also study the social, cultural and political context within which the music was created. We will focus in particular on Charlie Parker, Thelonious Monk, Billie Holiday, Miles Davis, Charles Mingus, and John Coltrane. Department Permission Required.

MLSC 631 - INTRODUCTION TO READING AND WRITING FICTION  
Short Title: INTRO READING WRITING FICTION  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides an introduction to reading fiction critically and writing short fiction successfully. The reading portion of the class focuses on the primary elements of fiction: scenes, tension and conflict, character, point of view, structure, voice, and dialogue. For the writing portion, students will compose original prose and provide feedback on one another's work in a workshop format. Department Permission Required.

MLSC 632 - MUSIC MYTH AND MADNESS  
Short Title: MUSIC MYTH AND MADNESS  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A study of biographical narratives about musicians including Bach, Bob Dylan, Thelonious Monk, Mozart, and Schumann. Considers the nature of creativity and inspiration. Examines the extent to which biography borrows from mythology and literary fiction. Materials include memoirs, letters, novels, and films. Department Permission Required.
MLSC 633 - HOW TO READ A NOVEL
Short Title: HOW TO READ A NOVEL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will start this course by making one of Jane Austen's novels our "norm" and then read a survey of the novel's great variety through the nineteenth, twentieth, and twenty-first centuries. As we read the novels, we will keep asking what we mean by narrative, point of view, the nature of character, the paradigm of character relationships each novel creates, and the meaning of the end. Department Permission Required.

MLSC 634 - CONCEPTS OF MODELS, METAPHORS AND ANALOGIES
Short Title: MODELS, METAPHORS & ANALOGIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will start by developing the concepts of model, metaphor, and analogy. The model is a basis for the scientific method and rational thought. The metaphor is a powerful tool in literature and description. Analogy ties all of this together. We will finish by looking at a computer simulation (model) of the world. Department Permission Required.

MLSC 635 - THE ORIGINS OF CHRISTIANITY
Short Title: THE ORIGINS OF CHRISTIANITY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the origins and earliest history of Christianity, from Jesus to the second century CE. The class is based on a close reading of texts; Jewish texts; texts from the Old Testament; and Christian texts from the second century CE. Department Permission Required.

MLSC 637 - THE LITERATURE OF THE SIXTIES
Short Title: THE LITERATURE OF THE SIXTIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Some decades are not simply a ten-year period but a cultural phase. The Sixties, it seems, started in 1963 with the assassination of JFK and lasted until 1975, when we withdrew our military forces from Saigon and quit the war we lost. The literature of the period reflects some of this upheaval-new themes, greater candor, many different kinds of experiments.

MLSC 638 - THE ART AND ART HISTORY OF EUROPE IN THE LONG NINETEENTH CENTURY (1789-1918)
Short Title: 19TH-CENTURY EUROPEAN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will consider European art from the long nineteenth century, looking in detail at the key movements and artists from this dramatic period of history. We will begin by placing Neo-Classicism in the context of the emergence of the French Revolution, while ending with the emergence of abstraction in the era of the First World War. In so doing we will also consider the varied art historical methods through which scholars have addressed the art of this period. Department Permission Required.

MLSC 639 - EXPLORING THE ARTS
Short Title: EXPLORING THE ARTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to introduce students to an array of contemporary and traditional arts practices and to deepen experience and understanding of those arts through writing. Engaging with the arts offerings available during the semester, the course will cover concepts in theater, opera, dance, and art exhibitions. Department Permission Required.

MLSC 640 - AMERICA THROUGH FOREIGN EYES
Short Title: AMERICA THROUGH FOREIGN EYES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the perceptions and interactions of five regions – Africa, China, France, Mexico, and Russia – with America. Some course content is online, taught by Rice experts of these regions. The course introduces students to various disciplinary approaches to the study of intercultural exchange and representation. Department Permission Required.

MLSC 641 - PHILOSOPHIES FROM INDIA AND TIBET: RELIGION, ART, HEALTH, SCIENCE & SPIRITUALITY
Short Title: PHILOSOPHIES OF INDIA & TIBET
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examining the philosophies and religious traditions from India and Tibet, can give us a broader view of some of the landscape of thought in Asia, from the early Harappan culture and Vedic worldview, to the religious traditions of Hinduism, Jainism, Islam, Bon and Buddhism among others. Department Permission Required.
MLSC 642 - ASIAN RELIGIOUS AND MEDICAL TRADITIONS: INDIA, CHINA AND TIBET
Short Title: ASIAN RELIGIONS AND MEDICINE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploring the philosophical and religious traditions of India, China and Tibet, this course will look at their own understanding of well-being and thus, the medical systems and methods they create accordingly-particularly mind-body conceptions and practices. We will thus examine the relationship between body and mind, illness, suffering, treatment, healing, and death. Department Permission Required.

MLSC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MLSC 699 - CAPSTONE SEMINAR
Short Title: CAPSTONE SEMINAR
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course is designed to familiarize students with the academic requirements of the MLS Capstone Project and to assist students with the research, preparation and defense of the MLS Capstone Proposal. Required for all MLS students who have completed at least 24 hours. Department Permission Required. Recommended Prerequisite(s): Completion of at least 24 hours of MLSC coursework. Repeatable for Credit.

MLSC 700 - CAPSTONE I
Short Title: CAPSTONE I
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The capstone course is designed to help students utilize the knowledge gained in the previous courses and to demonstrate mastery of the intellectual skills required for a Master of Liberal Studies degree. The capstone course will culminate in an extensive written paper (or original creative work such as poetry or fiction) and an oral presentation to MLS faculty and fellow students. The capstone course may be completed in one term as one course, or, optionally, the student may with the advisor's approval, take two terms to complete the capstone. The determination as to whether the capstone will be a one or two term project should, in most cases, be made before the start of the first term. Department Permission Required. Repeatable for Credit.

MLSC 701 - CAPSTONE II
Short Title: CAPSTONE II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of MLSC 700 Capstone I; or for students who plan to take only one term to complete the capstone. Department Permission Required. Repeatable for Credit.

MLSC 750 - INTRODUCTION TO DIPLOMA RESEARCH
Short Title: INTRO TO DIPLOMA RESEARCH
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to students in the Diploma in Liberal Studies Program. The purpose of this course is to prepare students for diploma research in general and for the diploma project research in particular. The course will accomplish this by giving students an opportunity to gain knowledge of research in the two chosen disciplines outlined in their Diploma Proposal. Department Permission Required.
Certificate in Dual Credit Teacher Credentialing - English

Program Learning Outcomes for the Certificate in Dual Credit Teacher Credentialing - English

Upon completing the certificate in Dual Credit Teacher Credentialing - English, students will be able to:

1. Demonstrate mastery of scholarship in English.

Requirements for the Certificate in Dual Credit Teacher Credentialing - English

The certificate in Dual Credit Teacher Credentialing - English is a graduate certificate. For general university requirements, please see Graduate Certificates (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the certificate in Dual Credit Teacher Credentialing - English must complete:

- A minimum of 6 courses (18 credit hours) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- All course requirements must meet with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the Policies (p. 791) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<td>18</td>
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</table>

Certificate in Dual Credit Teacher Credentialing - English

**CIP Code and Description**

- DCE Certificate: CIP Code/Title: 13.1305 - English/Language Arts Teacher Education
- DCH Certificate: CIP Code/Title: 13.1328 - History Arts Teacher Education

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

**Description and Code Legend**

*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:*

**Course Catalog/Schedule**

- Course offerings/subject code: MLSC

**School Description and Code**

- School of Continuing Studies: SOCS

**Graduate Certificate Descriptions and Codes**

- Certificate in Dual Credit Teacher Credentialing - English: DCE
- Certificate in Dual Credit Teacher Credentialing - History: DCH

**MLSC 797 - ADVANCED INDEPENDENT READINGS**

**Short Title:** ADVANCED INDEPENDENT READINGS  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Independent study under faculty supervision and open only to students in the Diploma in Liberal Studies Program. The primary purpose of this course is to allow for study centrally relevant to the two disciplines chosen by the DLS student not covered by existing coursework in liberal studies curriculum. Department Permission Required. Repeatable for Credit.

**MLSC 798 - DIPLOMA PROJECT I**

**Short Title:** DIPLOMA PROJECT I  
**Department:** School of Continuing Studies  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Research for Diploma Project. Open only to students in the Diploma in Liberal Studies program. This is the first of a two-term course sequence in which the diploma student works on his or her diploma project under the supervision of the diploma first reader (advisor), second reader and third reader. Department Permission Required. Repeatable for Credit.

**MLSC 799 - DIPLOMA PROJECT II**

**Short Title:** DIPLOMA PROJECT II  
**Department:** School of Continuing Studies  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Research for Diploma Project. Open only to students in the Diploma in Liberal Studies program. This is the second and final course in the two-term course sequence in which the diploma student works on his or her diploma project under the supervision of the diploma first reader (advisor), second reader and third reader. Department Permission Required. Repeatable for Credit.
# Certificate Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>EDUC 561</td>
<td>THEORY AND METHODS: ENGLISH LANGUAGE ARTS &amp; READING (ELAR)</td>
<td>18</td>
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<tr>
<td>MLSC 505</td>
<td>SHAKESPEARE AND FILM</td>
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<tr>
<td>MLSC 517</td>
<td>MODERN DRAMA ON FILM AND IN PERFORMANCE</td>
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<tr>
<td>MLSC 543</td>
<td>THE CITY IN LITERATURE</td>
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<tr>
<td>MLSC 554</td>
<td>MY FAVORITE NOVELS - AND GREAT FILMS MADE FROM THEM</td>
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<tr>
<td>MLSC 556</td>
<td>HEAVEN AND HELL: FROM DANTE TO MILTON AND BEYOND</td>
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<tr>
<td>MLSC 559</td>
<td>ENVIRONMENTAL LITERATURE</td>
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<td>MLSC 560</td>
<td>WOMEN IN SOUTHERN LITERATURE</td>
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<tr>
<td>MLSC 617</td>
<td>CREATIVE NONFICTION</td>
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<td>MLSC 620</td>
<td>MASTERPIECES OF THE POETIC TRADITION</td>
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<td>MLSC 624</td>
<td>ADVANCED CREATIVE NONFICTION</td>
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<tr>
<td>MLSC 637</td>
<td>THE LITERATURE OF THE SIXTIES</td>
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</tbody>
</table>

Select 6 courses from the following:

Total Credit Hours: 18

# Opportunities for the Certificate in Dual Credit Teacher Credentialing - English

**Association of Graduate Liberal Studies National Honor Society**

Certificate students who are concurrently pursuing the Master of Liberal Studies degree may be eligible for induction into the Association of Graduate Liberal Studies National Honor Society. MLS graduates who earn a 3.75 GPA or higher and have demonstrated leadership in the classroom and in the greater community are eligible for nomination.

# Additional Information

For additional information, please see the Dual Credit Teacher Credentialing website: [https://glasscock.rice.edu/dual-credit](https://glasscock.rice.edu/dual-credit)

# Certificate in Dual Credit Teacher Credentialing - History

**Program Learning Outcomes for the Certificate in Dual Credit Teacher Credentialing - History**

Upon completing the certificate in Dual Credit Teacher Credentialing - History, students will be able to:

1. Demonstrate mastery of scholarship in History.

**Requirements for the Certificate in Dual Credit Teacher Credentialing - History**

The certificate in Dual Credit Teacher Credentialing - History is a graduate certificate. For general university requirements, please see [Graduate Certificates](https://glasscock.rice.edu/dual-credit) (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](https://glasscock.rice.edu/dual-credit) (p. 60). Students pursuing the certificate in Dual Credit Teacher Credentialing - History must complete:

- A minimum of 6 courses (18 credit hours) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- All course requirements met with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the [Policies](https://glasscock.rice.edu/dual-credit) (p. 792) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier ([https://registrar.rice.edu/facstaff/degreeworks/officialcertifier](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier)). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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For additional information, please see the Dual Credit Teacher Credentialing website: [https://glasscock.rice.edu/dual-credit](https://glasscock.rice.edu/dual-credit)
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<td>Total Credit Hours Required for the Certificate in Dual Credit Teacher Credentialing - History</td>
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### Certificate Requirements

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<td>Select 6 courses from the following:</td>
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<tr>
<td>EDUC 566</td>
<td>THEORY AND METHODS: SOCIAL STUDIES</td>
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<tr>
<td>MLSC 536</td>
<td>TRADITIONAL CHINESE CULTURE AND ITS MODERN LEGACY</td>
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<tr>
<td>MLSC 537</td>
<td>PROFILES FROM THE PAST: FAMOUS FIGURES IN WESTERN HISTORY</td>
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<tr>
<td>MLSC 539</td>
<td>IMMIGRATION AND THE STATE: EUROPE AND THE US IN COMPARATIVE PERSPECTIVE</td>
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<tr>
<td>MLSC 547</td>
<td>PROFILES FROM THE PAST II: FAMOUS FIGURES IN WESTERN HISTORY</td>
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<tr>
<td>MLSC 551</td>
<td>PROFILES FROM THE PAST III: FAMOUS FIGURES IN WESTERN HISTORY</td>
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<tr>
<td>MLSC 555</td>
<td>THE POLITICAL PHILOSOPHY OF THE AMERICAN REVOLUTION</td>
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<tr>
<td>MLSC 564</td>
<td>THE POLITICS OF WORLD WAR TWO IN EUROPE</td>
<td></td>
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<tr>
<td>MLSC 640</td>
<td>AMERICA THROUGH FOREIGN EYES</td>
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### Policies for the Certificate in Dual Credit Teacher Credentialing - History

#### Department of Liberal Studies Graduate Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Liberal Studies publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/ Liberal_Studies_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Liberal_Studies_Graduate_Handbook.pdf)

#### Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit](p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the certificate in Dual Credit Teacher Credentialing - History should be aware of the following program-specific transfer credit guidelines:

- Transfer credit coursework cannot be applied or used to meet any of the program's course requirements.

### Additional Information

For additional information, please see the Dual Credit Teacher Credentialing website: [https://glasscock.rice.edu/dual-credit](https://glasscock.rice.edu/dual-credit)

### Opportunities for the Certificate in Dual Credit Teacher Credentialing - History

#### Association of Graduate Liberal Studies National Honor Society

Certificate students who are concurrently pursuing the Master of Liberal Studies degree may be eligible for induction into the Association of Graduate Liberal Studies National Honor Society. MLS graduates who earn a 3.75 GPA or higher and have demonstrated leadership in the classroom and in the greater community are eligible for nomination.

### Additional Information

For additional information, please see the Dual Credit Teacher Credentialing website: [https://glasscock.rice.edu/dual-credit](https://glasscock.rice.edu/dual-credit)

### Earth, Environmental, and Planetary Sciences

#### Contact Information

Earth, Environmental, and Planetary Sciences

[https://earthscience.rice.edu/](https://earthscience.rice.edu/)

105 Keith Wiess Geological Labs

713-348-4880

Julia K. Morgan

Department Chair

morganj@rice.edu

Earth, Environmental, and Planetary Sciences encompass a range of interrelated disciplines focused on understanding the origin of Earth and planetary systems, the processes that operate within them, and their evolution through time. Topics represented in our field include the physics and chemistry of the solid Earth and its planetary neighbors, the causes and consequences of plate tectonics, and the origin and importance of the oceans and atmosphere. The study of past and present-day environmental processes is integral to understanding the impacts of Earth's climate, land surface evolution, natural resources, and natural hazards on the biosphere, including humans.

The Department of Earth, Environmental and Planetary Sciences offers undergraduate and graduate programs for a wide range of interests. All undergraduate majors take a five-course core sequence, typically in the freshman through junior years, gaining a fundamental understanding of Earth and planetary systems, processes, materials, history, and interactions. Majors also take a course in applied laboratory, field, and computational techniques, and introductory courses in mathematics, chemistry, and possibly, physics and biology. The BS degree provides three areas of specialization:

- **Geoscience** - focused on Earth systems and processes, including upper-level courses in solid Earth geophysics, geochemistry, tectonics, and a range of elective options.
- **Environmental Earth Science** - emphasizing interactions between Earth processes and Earth's biosphere, enhanced by upper-level electives selected from BioSciences, Chemistry, Civil and Environmental Engineering, and more.
environmental emphasis have three options at Rice University:

Similarly, students interested in an undergraduate minor with an environmental emphasis have three options at Rice University:

The BS degree with a major in Earth, Environmental, and Planetary Sciences should be chosen by students planning a career or further study in Earth, Environmental, or Planetary Sciences, or a related field. The BA degree is a more flexible program that still provides a comprehensive overview of Earth, Environmental, and Planetary Sciences, but can be combined easily with other majors or professional career paths. Many undergraduate students engage in research projects during their careers, gaining the opportunity to work with complex and highly interconnected problems, gaining skills to become leaders and entrepreneurs in the real world - field and laboratory opportunities abound! Future career opportunities include academia, working in industry, business or government, or working with and for societal issues. Many students present their own research projects at national and international professional conferences.

The department also offers an undergraduate minor providing a solid introduction to the broad field of Earth, Environmental, and Planetary Sciences*, and allowing students to gain exposure to additional advanced topics, while pursuing their major in another field.

The department offers two graduate degrees, a Master of Science and Doctor of Philosophy. Students select research projects in concert with their research advisors, and have the opportunity to work on a wide-range of open-ended, complex, and highly interconnected problems.

Faculty members have joint research projects with scientists at over 100 institutions worldwide, giving an international scope to the department with research programs on all the continents, in all of the oceans, and on four planets. Faculty research interests span a wide range of topics; see https://earthscience.rice.edu for more information. Many departmental research programs involve substantial field activities, both on land and at sea. Several courses also include field trips to a variety of destinations and geologic settings.

*Students interested in an undergraduate major with an environmental emphasis have multiple options at Rice University, spanning the Schools of Natural Sciences, Engineering, Humanities, and Social Sciences, including:

- **Environmental Earth Science Area of Specialization** under the BS degree with a major in Earth, Environmental, and Planetary Sciences, described above. This major is built upon a strong foundation in Earth Science, and focuses on the interface between the Earth and life.
- **Environmental Science (BS and BA degrees)** is a broad and interdisciplinary program that incorporates humanities and social sciences perspectives of environmental issues, in addition to natural sciences. This major is jointly administered by the BioSciences and Earth, Environmental, and Planetary Sciences departments, and offers two corresponding Major Concentrations: Earth Science and Ecology and Evolutionary Biology.
- **Environmental Engineering Area of Specialization** within the Bachelor of Science in Chemical Engineering (BSChE) degree.
- **Environmental Engineering Major Concentration** within the BA degree with a major in Civil and Environmental Engineering.

Similarly, students interested in an undergraduate minor with an environmental emphasis have three options at Rice University:

- **Minor in Earth, Environmental and Planetary Sciences offered by the Earth, Environmental, and Planetary Sciences department, with a strong Earth Science basis.**
- **Minor in Energy and Water Sustainability offered through the Civil and Environmental Engineering department, highlighting engineering and economic considerations.**
- **Minor in Environmental Studies**, an interdisciplinary minor drawing broadly from the Schools of Natural Sciences, Engineering, Humanities, and Social Sciences.

**Bachelor's Programs**

- **Bachelor of Arts (BA) Degree with a Major in Earth, Environmental, and Planetary Sciences** (p. 821)
- **Bachelor of Science (BS) Degree with a Major in Earth, Environmental, and Planetary Sciences** (p. 824)

**Minor**

- **Minor in Earth, Environmental, and Planetary Sciences** (p. 830)

**Master's Programs**

- **Master of Science (MS) Degree in the field of Earth Science** (p. 830)

**Doctoral Program**

- **Doctor of Philosophy (PhD) Degree in the field of Earth Science** (p. 829)

**Chair**

Julia K. Morgan

**Professors**

Jonathan Ajo-Franklin
Rajdeep Dasgupta
Richard G. Gordon
Cin-Ty Lee
Adrian Lenardic
Alan R. Levander
Caroline A. Masiello
Julia K. Morgan
Fenglin Niu
Colin A. Zelt

**Associate Professors**

Helge Gonnermann
Laurence Yeung

**Assistant Professors**

Sylvia Dee
Melodie French
Kirsten Siebach
Mark Torres

**Professors Emeriti**

John B. Anderson
Albert W. Bally
Dieter Heymann
William P. Leeman
Andreas Lüttge

Rice University
EEPS 101 - THE EARTH
Short Title: THE EARTH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the nature of the Earth and its processes. Mutually Exclusive: Cannot register for EEPS 101 if student has credit for ENST 101/ESCI 101/ESCI 115/ESCI 301.

EEPS 102 - HISTORY OF THE EARTH AND LIFE
Short Title: HISTORY OF THE EARTH & LIFE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of Earth’s systems over the past 4.6 billion years. Topics include evolution of life, continents, ocean basins and climate. Mutually Exclusive: Cannot register for EEPS 102 if student has credit for ENST 102/ESCI 102.

EEPS 103 - FIELD TRIPS FOR THE EARTH
Short Title: FIELD TRIPS FOR THE EARTH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will gain a better appreciation of our planet, from how it formed and evolved through millions of years to how its surface environment has been shaped by life, including by humans. These concepts will be introduced through one or more field trips in Texas. Through this course, students will become better stewards of our planet. Mutually Exclusive: Cannot register for EEPS 103 if student has credit for ESCI 103.

EEPS 106 - INVESTIGATING EARTH’S SURFACE
Short Title: INVESTIGATING EARTH’S SURFACE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will be investigation-based course covering processes on Earth’s surface, such as carbon cycling, ocean and atmospheric circulation, and climate change. Lectures will be minimal. Most work will be in-class assignments. Mutually Exclusive: Cannot register for EEPS 106 if student has credit for ESCI 106.
EEPS 107 - THE SCIENCE OF CLIMATE CHANGE
Short Title: SCIENCE OF CLIMATE CHANGE
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This undergraduate course will introduce students to the fundamentals of natural and anthropogenic climate change. After briefly reviewing Earth's composition and its fluid envelopes, we will cover the basic physics of the climate system, providing tools to understand weather and climate phenomena (e.g., monsoons, El Niño), the greenhouse effect, and climate feedbacks. Building on this understanding, a succinct tour of geologic history will help us paint a more complete picture of Earth's climate variations and how they affected human evolution and history. With this context, we will be able to judge the anomalous character of recent climate change, establish its anthropogenic nature, and discuss solutions to the current climate crisis. Students from any major are encouraged to enroll and engage on important topic. Mutually Exclusive: Cannot register for EEPS 107 if student has credit for ENST 201/ESCI 201.

EEPS 108 - NATURAL DISASTERS
Short Title: NATURAL DISASTERS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course students will learn about the science behind natural disasters. The topics that will be discussed include earthquakes, tsunamis, volcanic eruptions, hurricanes, and tornadoes. We will cover the fundamental Earth Science concepts and processes required to understand these phenomena. Mutually Exclusive: Cannot register for EEPS 108 if student has credit for ESCI 108.

EEPS 109 - OCEANOGRAPHY
Short Title: OCEANOGRAPHY
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the oceans, with an emphasis on how the physics, chemistry, geology, and biology of the oceans are linked. Mutually Exclusive: Cannot register for EEPS 109 if student has credit for ESCI 109.

EEPS 110 - THE EARTH SYSTEM, ENVIRONMENT, AND SOCIETY
Short Title: EARTH, ENVIRONMENT, & SOCIETY
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the Earth system, and explores how the environment has changed over time, and the physical, chemical and biological processes responsible for these changes. The course places special emphasis on human-Earth interactions, in the past, present, and future. Topics will include Earth's ecosystems, oceans, and atmosphere, natural resources, natural hazards including catastrophic events, as well as climate change and the role of humans in modifying Earth's environment. Mutually Exclusive: Cannot register for EEPS 110 if student has credit for ESCI 110.

EEPS 111 - INHABITING PLANET EARTH
Short Title: INHABITING PLANET EARTH
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Why is Earth habitable? How do we sustain our existence on this unique planet? This course will introduce students to our species' interactions with Planet Earth. We will explore how Earth formed and what systems through time have made the planet habitable, how we use the rock record to investigate past surface environments and climate changes, and how humans are altering Earth's future. The first segment covers the building of Planet Earth and geologic factors that control habitability. The second segment covers rocks of the American Southwest as a case study for how we read the rock record to understand ancient surface environments and climate changes. The final segment of the course will focus on human impacts on our planet, environmental policy and reading the recently published National Climate Assessment. Mutually Exclusive: Cannot register for EEPS 111 if student has credit for ESCI 111.

EEPS 113 - ENVIRONMENTAL CRISIS SEMINAR
Short Title: ENVIRONMENTAL CRISIS SEMINAR
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Discussion of environmental crises. Topics vary annually. Repeatable for Credit.
EEPS 114 - DISCOVERIES IN EARTH, ENVIRONMENTAL AND PLANETARY SCIENCES SEMINAR
Short Title: DISCOVERIES IN EEPS SEMINAR
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Overview of exciting discoveries, research and recent advances in Earth, Environmental, and Planetary Sciences, facilitated through discussions with graduate students and faculty, as well as laboratory visits and demonstrations. Topics may vary. Distribution Credit for ESCI/ENST 114 no longer eligible beginning Fall 2019. Mutually Exclusive: Cannot register for EEPS 114 if student has credit for ENST 114/ESCI 114.

EEPS 115 - THE PLANETS
Short Title: THE PLANETS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The physical, chemical, and geological development of the solar system from 4.6 billion years ago until today. All planets, their major satellites, comets, and asteroids will be discussed. Mutually Exclusive: Cannot register for EEPS 115 if student has credit for ESCI 214.

EEPS 116 - THE EARTH AND THE SOLAR SYSTEM
Short Title: EARTH AND THE SOLAR SYSTEM
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will provide students with an understanding of how the Earth and Solar System formed and evolved, emphasizing the evidence supporting theories of formation and evolution and the history of these theories. The course includes formation of the Universe, the elements, the stars, the Sun and the Solar System, the early Earth and Earth history, the other planets and the history of modern space exploration.

EEPS 220 - INTRODUCTION TO COMPUTATION IN THE EARTH, ENVIRONMENT AND PLANETARY SCIENCES
Short Title: INTRO TO EEPS COMPUTATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): MATH 101 (may be taken concurrently) or MATH 105 or MATH 111 (may be taken concurrently) or MATH 112 (may be taken concurrently)
Description: A broad introduction to solving earth, environmental, and planetary science problems using programming and basic computational methods. The course will consist of a series of two week modules using the MATLAB environment. Each module consists of lectures to present theory and labs to provide guidance with relevant programing techniques. Recommended Prerequisite(s): Math 102 or equivalent, and PHYS 101 and 102 or equivalents. May be taken concurrently. Mutually Exclusive: Cannot register for EEPS 220 if student has credit for ESCI 220.

EEPS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture/Laboratory
Credit Hours: 1-4
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EEPS 299 - EXPERIENTIAL EDUCATION IN EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES
Short Title: EXPERIENTIAL ED IN EARTH SCI
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to allow currently enrolled undergraduate students to gain experience in a department/faculty-approved internship/practicum with the goal of further developing their professional skills. Repeatable for Credit.
EEPS 307 - ENERGY AND THE ENVIRONMENT
Short Title: ENERGY AND THE ENVIRONMENT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the physical principles of energy use and its impacts on Earth's environment and climate. Topics will include energy mechanics, climate change, and the environmental impacts and future prospects of various fossil fuel and alternative energy sources. Cross-list: CEVE 307, ENST 307. Mutually Exclusive: Cannot register for EEPS 307 if student has credit for ESCI 307.

EEPS 309 - VISUALIZING NATURE
Short Title: VISUALIZING NATURE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An experimental course combining the scientific disciplines of the earth sciences with the artistic disciplines of creative photography to study the natural landscape and related ecosystems. The course will combine classroom lectures and laboratory demonstrations in geoscience with classes in the use of digital and film-based cameras and illustrated lectures on recognized achievements in landscape photography. Extensive field trips will be scheduled. Students will travel frequently, at times in pairs, other times in larger groups and as a full class, accompanied by one or both professors. The budget for the course includes funding both for travel and for photography expenses. Instructor Permission Required. Cross-list: FOTO 390. Mutually Exclusive: Cannot register for EEPS 309 if student has credit for ESCI 380.

EEPS 310 - EARTH AND PLANETARY MATERIALS
Short Title: EARTH AND PLANETARY MATERIALS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 (may be taken concurrently) or ESCI 101 or ENST 101 (may be taken concurrently) or EEPS 107 (may be taken concurrently) or ENST 107 (may be taken concurrently) or ESCI 201 or ENST 201 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or ESCI 108 or EEPS 110 (may be taken concurrently) or ESCI 110 or EEPS 111 (may be taken concurrently) or ESCI 111
Description: This course introduces chemistry of the Solar System and terrestrial planets into their main reservoirs, e.g., continental crust, oceanic crust, mantle, and core. Beginning with the bulk composition of planetary bodies, and an overview of the chemical and petrologic properties of the rocks that make up each of these reservoirs, the basic principles of petrology and geochemistry will be presented in the context of the rock cycle, plate tectonics, as well as the origin of economically and societally important ore deposits. Some basic concepts as to how the whole planet scale processes influence the chemistry of surface environment of Earth will be also be introduced. A laboratory and field trip, where students will see petrologic and geochemical principles applied, will be required. Recommended Prerequisite(s): MATH 101 and MATH 102, PHYS 101 or 111, and CHEM 121 or CHEM 151

EEPS 321 - EARTH AND PLANETARY SURFACE ENVIRONMENTS
Short Title: EARTH AND PLANETARY SURFACES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 (may be taken concurrently) or ESCI 101 or ENST 101 (may be taken concurrently) or EEPS 107 (may be taken concurrently) or ENST 107 (may be taken concurrently) or ESCI 201 or ENST 201 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or ESCI 108 or EEPS 110 (may be taken concurrently) or ESCI 110 or EEPS 111 (may be taken concurrently) or ESCI 111
Description: This course introduces the processes that shape Earth and other planetary surfaces as well as how records of these processes are preserved on landscapes and in sediment deposits. This course will cover a range of topics including surface hydrology, erosion, sediment transport, and chemical weathering and connect them to the development and interpretation of the stratigraphic record. All topics will be treated using descriptive (qualitative) approaches as well as a range of quantitative methods. This course requires a once-a-week 3-hour lab. Prerequisites EEPS 101/ENST 101 or EEPS 107/ENST 107 or EEPS 108 or EEPS 110 or EEPS 111 can be taken concurrently or with permission of instructor. Recommended Prerequisite(s): MATH 101, 102, PHYS 101 or 111, CHEM 121 or 151. Mutually Exclusive: Cannot register for EEPS 321 if student has credit for ESCI 321.

EEPS 322 - EARTH AND PLANETARY CHEMISTRY AND MATERIALS
Short Title: EARTH AND PLANETARY MATERIALS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 (may be taken concurrently) or ESCI 107 (may be taken concurrently) or ESCI 110 (may be taken concurrently) or ESCI 111 (may be taken concurrently) or ESCI 115 (may be taken concurrently) or ESCI 301 (may be taken concurrently) or EEPS 101 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or EEPS 110 (may be taken concurrently) or EEPS 111 (may be taken concurrently)
Description: This course introduces chemistry of the Solar System materials and geochemical cycles in Earth and rocky planets through whole planet scale cycles. Specific topics include rock-forming processes related to the chemical and physical differentiation of the solid Earth and terrestrial planets into their main reservoirs, e.g., continental crust, oceanic crust, mantle, and core. Beginning with the bulk composition of planetary bodies, and an overview of the chemical and petrologic properties of the rocks that make up each of these reservoirs, the basic principles of petrology and geochemistry will be presented in the context of the rock cycle, plate tectonics, as well as the origin of economically and societally important ore deposits. Some basic concepts as to how the whole planet scale processes influence the chemistry of surface environment of Earth will be also be introduced. A laboratory and field trip, where students will see petrologic and geochemical principles applied, will be required. Recommended Prerequisite(s): MATH 101 and MATH 102, PHYS 101 or 111, and CHEM 121 or CHEM 151
Mutually Exclusive: Cannot register for EEPS 322 if student has credit for ESCI 322.
EEPS 323 - EARTH AND PLANETARY STRUCTURE AND DYNAMICS
Short Title: EARTH AND PLANETARY STRUCTURE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 (may be taken concurrently) or ESCI 107 (may be taken concurrently) or ESCI 108 (may be taken concurrently) or ESCI 110 (may be taken concurrently) or ESCI 111 (may be taken concurrently) or ESCI 115 (may be taken concurrently) or ESCI 301 (may be taken concurrently) or EEPS 101 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or EEPS 110 (may be taken concurrently) or EEPS 111 (may be taken concurrently)
Description: This course covers the formation and differentiation of Earth and planetary bodies, the resulting structure and composition of planetary interiors, and the geophysical tools that reveal these details. The mechanics and deformation of the Earth's crust and lithosphere are presented, emphasizing rock strength and rheology, earthquakes and faulting, brittle and ductile deformation mechanisms and processes, and an introduction to tectonic systems. A required 3-hour lab and field trip will further develop skills for recognition, interpretation, and analysis of Earth structures and deformation processes. Prerequisites: MATH 101 and (PHYS 101 or 111). These may be taken concurrently. Mutually Exclusive: Cannot register for EEPS 323 if student has credit for ESCI 323.

EEPS 324 - EARTH'S INTERIOR
Short Title: EARTH'S INTERIOR
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 or ESCI 115 or EEPS 101
Description: Formation of Earth and solar system, Earth differentiation and geochronology. Structural seismology and the composition of Earth's interior. Density, Earth's gravity, and the geoid. Heat flow and Earth energetics. Earth's core and magnetic field. Mantle convection and plate tectonics. Oceanic and continental crust. Recommended Prerequisite(s): MATH 212 and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) or (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142). Mutually Exclusive: Cannot register for EEPS 324 if student has credit for ESCI 324.

EEPS 325 - OCEANS, ATMOSPHERES AND CLIMATE
Short Title: OCEANS, ATMOSPHERES & CLIMATE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 322 or EEPS 322) and (ESCI 323 (may be taken concurrently) or EEPS 323 (may be taken concurrently)) and (ESCI 101 or ESCI 107 or ESCI 108 or ESCI 110 or ESCI 111 or ESCI 115 or ESCI 301 or EEPS 101 or EEPS 108 or EEPS 110 or EEPS 111)
Description: Earth's climate system is characterized by complex interactions between the ocean, atmosphere, and land surfaces that are constantly evolving. This course will cover the physics and chemistry of the ocean and atmosphere to explore the mechanisms that control global and regional climate. Topics include: Earth's energy balance, atmosphere and ocean circulation, and biogeochemical climate feedbacks. We will also explore records of past climate (historical and pre-historical) and projections of future climate. Students will engage in lab-based activities to understand fluid flow in the atmosphere and ocean and complete problem sets including programming assignments. Mutually Exclusive: Cannot register for EEPS 325 if student has credit for ESCI 325.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Mode</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>EEPS 340</td>
<td>GLOBAL BIOGEOCHEMICAL CYCLES</td>
<td>Short Title: GLOBAL BIOGEOCHEMICAL CYCLES</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course introduces students to the coupled nature of the biosphere, atmosphere and hydrosphere using as focal points elemental cycles such as those of carbon and nitrogen. This is a writing-intensive class, and will include 3 required Saturday field trips. Mutually Exclusive: Cannot register for EEPS 340 if student has credit for EBIOS 340/EBIOS 340/ESCI 340.</td>
</tr>
<tr>
<td>EEPS 390</td>
<td>GEOLOGY FIELD CAMP</td>
<td>Short Title: GEOLOGY FIELD CAMP</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>1-6</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Field course typically involving geologic mapping in one or more of sedimentary, metamorphic, igneous rocks and structures. Not offered by Rice University. Students must take an approved field camp from another university and transfer credit to Rice University. Recommended Prerequisite(s): ESCI 334 or EEPS 334 Mutually Exclusive: Cannot register for EEPS 390 if student has credit for ESCI 390.</td>
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<tr>
<td>EEPS 391</td>
<td>EARTH SCIENCE FIELD EXPERIENCE</td>
<td>Short Title: EARTH SCIENCE FIELD EXPERIENCE</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>1-6</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Comprises participating in an earth science expedition or research experience, follow-up analysis of some aspect of the data acquired, and a written report. Must be approved in advance by one of the department undergraduate advisors. Instructor Permission Required. Mutually Exclusive: Cannot register for EEPS 391 if student has credit for ESCI 391.</td>
</tr>
<tr>
<td>EEPS 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>Short Title: SEM: UG HONORS THESIS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Introduction to and presentation of original undergraduate research for Earth Science Undergraduate Honors Thesis candidates. Students will be introduced to basic research protocols and approaches, and will learn how to give presentations on their research, and gain experience presenting their research. Repeatable for Credit.</td>
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<tr>
<td>EEPS 403</td>
<td>SEMINAR: DEPARTMENT RESEARCH</td>
<td>Short Title: SEMINAR: DEPARTMENT RESEARCH</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Introduction to current research in the Earth Science department. Students will learn how to give a presentation and will get experience presenting their research. Graduate/Undergraduate Equivalency: EEPS 603. Repeatable for Credit.</td>
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<tr>
<td>EEPS 404</td>
<td>SEMINAR: DEPARTMENT RESEARCH</td>
<td>Short Title: SEMINAR: DEPARTMENT RESEARCH</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Introduction to current research in the Earth, Environmental &amp; Planetary Sciences department. Students will learn how to give a presentation and will get experience presenting their research. Graduate/Undergraduate Equivalency: EEPS 604. Repeatable for Credit.</td>
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<tr>
<td>EEPS 405</td>
<td>SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE</td>
<td>Short Title: SEM:CURR RESRCH EARTH SCIENCE</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Introduction to current research in the Earth science. Graduate/Undergraduate Equivalency: EEPS 605. Repeatable for Credit.</td>
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<tr>
<td>EEPS 406</td>
<td>SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE</td>
<td>Short Title: SEM:CURR RESRCH EARTH SCIENCE</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Introduction to current research in the Earth science. Graduate/Undergraduate Equivalency: EEPS 606. Repeatable for Credit.</td>
</tr>
</tbody>
</table>
EEPS 410 - OPTICAL MINERALOGY AND PETROGRAPHY
Short Title: OPTICAL MINERALOGY & PETROGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 322 or EEPS 322
Description: This is a lab course focused on the identification of minerals with petrographic microscopy. Principles of crystallography, mineral optics, and mineral chemistry will be covered in the first part of the course. The second part of the course will focus on the identification of minerals in igneous, metamorphic, and sedimentary rocks with emphasis on petrogenetic interpretation. The last third of the course will involve each student working on specific petrologic themes in the context of regional tectonics or magmatic processes. Taught every other Fall.
Graduate/Undergraduate Equivalency: EEPS 610. Mutually Exclusive: Cannot register for EEPS 410 if student has credit for EEPS 610/ESCI 610.

EEPS 411 - CHARACTERIZATION OF EARTH, ENVIRONMENTAL, AND PLANETARY MATERIALS
Short Title: EARTH MATERIALS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 111 or CHEM 121 or CHEM 151
Description: This course will provide an overview of various characterization methods used in geological, chemical, material science and other natural science and engineering research. The techniques that will be discussed include but not limited to electron beam methods (imaging and spectroscopy), X-ray methods, ion-beam analysis, vibrational spectroscopies, and Synchrotron-based techniques.
Graduate/Undergraduate Equivalency: EEPS 611. Mutually Exclusive: Cannot register for EEPS 411 if student has credit for EEPS 611/ESCI 411/ESCI 611.

EEPS 412 - ADVANCED PETROLOGY
Short Title: ADVANCED PETROLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 322 or EEPS 322
Description: Evaluation of the evolution of igneous rocks in the Earth's crust and mantle. Topics will include phase equilibria, experimental studies, and geochemistry. Labs will stress thin section petrography.
Graduate/Undergraduate Equivalency: EEPS 612. Repeatable for Credit.

EEPS 413 - ADVANCED PETROLOGY II
Short Title: ADVANCED PETROLOGY II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will bring together constraints from field geology, petrography, petrology, geochemistry, and geodynamics to tackle advanced A87 research questions of whole Earth processes that are relevant in the 21st century. The topics that may be covered include, but are not limited to, interplay between magmatic and tectonic processes, magma generation, migration, extraction, and dynamic stability in various settings, magmatic differentiation, volatiles and fluids exchange between various reservoirs and effects on long-term climate, ore genesis, and formation and modification of continents.
Graduate/Undergraduate Equivalency: EEPS 613. Mutually Exclusive: Cannot register for EEPS 413 if student has credit for EEPS 613/ESCI 411/ESCI 611.

EEPS 415 - GEOCHEMISTRY OF EARTH'S SURFACE
Short Title: GEOCHEM EARTH'S SURFACE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will cover concepts in aqueous geochemistry in the context of chemical weathering and Earth's major biogeochemical cycles. Central to this course will be weekly student-led discussions of scientific literature. Students will also learn basic numerical modeling and data analysis techniques using MATLAB, field methods, and basic analytical chemistry.
Graduate/Undergraduate Equivalency: EEPS 615. Mutually Exclusive: Cannot register for EEPS 415 if student has credit for EEPS 615/ESCI 407/ESCI 607.

EEPS 417 - TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE
Short Title: TRACE-ELEMENT& ISOPE GEOCHEM
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the principles of trace-element and isotope geochemistry and their applications to high and low temperature processes in the earth. Topics to be covered are trace-element partitioning, basic quantum physics, radiogenic isotopic systems and stable isotope fractionation.
Graduate/Undergraduate Equivalency: EEPS 617. Recommended Prerequisite(s): ESCI 322 or EEPS 322.
Mutually Exclusive: Cannot register for EEPS 417 if student has credit for EEPS 617/ESCI 430/ESCI 630.
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<th>Course Number</th>
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<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 418</td>
<td>ISOTOPE GEOCHEMISTRY</td>
<td>ISOTOPE GEOCHEMISTRY</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Undergraduate Upper-Level</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>An introduction to the principles and techniques of stable and radiogenic geochemistry in the geosciences. The course will begin by examining the fundamental physics relevant to isotope partitioning and decay, followed by a survey of different isotope systems and how they are used to study surface processes, element cycling, climate, and planetary science. Graduate/Undergraduate Equivalency: EEPS 618. Recommended Prerequisite(s): ESCI 322 or EEPS 322. Mutually Exclusive: Cannot register for EEPS 418 if student has credit for EEPS 618/ESCI 433/ESCI 633.</td>
</tr>
<tr>
<td>EEPS 420</td>
<td>ORGANIC GEOCHEMISTRY</td>
<td>ORGANIC GEOCHEMISTRY</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Undergraduate Upper-Level</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course covers the organic geochemistry of the natural environment. Topics include: production, transport, decomposition, and storage of organic matter in the marine and terrestrial environments, use of isotopes to track biogeochemical processes and natural and perturbed carbon cycle issues, including past and recent climate shifts. Graduate/Undergraduate Equivalency: EEPS 620. Mutually Exclusive: Cannot register for EEPS 420 if student has credit for EEPS 620/ESCI 423/ESCI 633.</td>
</tr>
<tr>
<td>EEPS 426</td>
<td>GEOMORPHOLOGY</td>
<td>GEOMORPHOLOGY</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Undergraduate Upper-Level</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course will investigate physical, chemical, and biological processes that contribute to the development and shaping of Earth's surface across a continuum of subaerial and subaqueous environments. Mandatory 4-day field trip is associated with this class. Graduate/Undergraduate Equivalency: EEPS 626. Mutually Exclusive: Cannot register for EEPS 426 if student has credit for EEPS 626/ESCI 431/ESCI 631. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 427</td>
<td>MECHANICS OF SEDIMENT TRANSPORT</td>
<td>MECHANICS-SEDIMENT TRANSPORT</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Undergraduate Upper-Level</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Evaluation of sedimentary transport dynamics: physical interaction between fluid flow and sediment mobility, from grain to bedform scale; exploration of environments including rivers, estuaries, deltas, coastline, and deserts. Examination of sediment transport for geology, environmental, and engineering applications; formation of diagnostic sedimentary features recognized in the stratigraphic record. Graduate/Undergraduate Equivalency: EEPS 627. Mutually Exclusive: Cannot register for EEPS 427 if student has credit for EEPS 627/ESCI 435/ESCI 635.</td>
</tr>
<tr>
<td>EEPS 428</td>
<td>ANTARCTIC MARINE GEOLOGY</td>
<td>ANTARCTIC MARINE GEOLOGY</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Undergraduate Upper-Level</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Evaluation of sediments from the Southern Oceans. Graduate/Undergraduate Equivalency: EEPS 628. Recommended Prerequisite(s): ESCI 321 or EEPS 321. Mutually Exclusive: Cannot register for EEPS 428 if student has credit for EEPS 628/ESCI 423/ESCI 623.</td>
</tr>
<tr>
<td>EEPS 429</td>
<td>PALEOCEANOGRAPHY</td>
<td>PALEOCEANOGRAPHY</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Undergraduate Upper-Level</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>The evolution of the ocean, climate and the global carbon cycle over the last 100 million years as recorded by the biology, chemistry and composition of deep-sea sediment. Graduate/Undergraduate Equivalency: EEPS 629. Recommended Prerequisite(s): ESCI 109 or EEPS 109. Mutually Exclusive: Cannot register for EEPS 429 if student has credit for EEPS 629/ESCI 421/ESCI 621.</td>
</tr>
</tbody>
</table>
EEPS 430 - SEQUENCE STRATIGRAPHY
Short Title: SEQUENCE STRATIGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 or ESCI 107 or ESCI 115 or ESCI 201 or ESCI 301 or ESCI 321 or ESCI 340 or EEPS 101 or EEPS 109 or EEPS 107 or EEPS 321 or EEPS 340
Description: Introduction to electromagnetic remote sensing of the earth and other planets using passive and active methods. The course includes a computer lab component involving processing and interpretation of remote sensing imagery, and an individual project.
Graduate/Undergraduate Equivalency: EEPS 634. Mutually Exclusive: Cannot register for EEPS 435 if student has credit for CEVE 450/EEPS 635/ESCI 450/ESCI 650.

EEPS 431 - GIS FOR SCIENTISTS AND ENGINEERS
Short Title: GIS FOR SCIENTISTS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 or ESCI 107 or ESCI 115 or ESCI 201 or ESCI 301 or ESCI 321 or ESCI 340 or EEPS 101 or EEPS 109 or EEPS 107 or EEPS 321 or EEPS 340
Description: Basic principles of Geographic Information Systems, with a focus on effectively applying the technology to the geosciences. Main platform of the class will be ESRI's ArcGIS, but a wide array of other tools will also be introduced. Material will be delivered via a blend of lecture and hands-on exercises.
Graduate/Undergraduate Equivalency: EEPS 636. Mutually Exclusive: Cannot register for EEPS 436 if student has credit for EEPS 636/ESCI 452/ESCI 652.

EEPS 432 - QUANTITATIVE HYDROGEOLOGY
Short Title: QUANTITATIVE HYDROGEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced course that will provide a quantitative overview of groundwater hydrology. Emphasis will be placed on mastering concepts in fluid mechanics and applying these concepts to water supply, environmental, and geological problems. Graduate/Undergraduate Equivalency: EEPS 632. Mutually Exclusive: Cannot register for EEPS 432 if student has credit for EEPS 630/ESCI 427/ESCI 627.

EEPS 433 - CLIMATE DYNAMICS
Short Title: CLIMATE DYNAMICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 107 or EEPS 321 or EEPS 340 or ESCI 201 or ESCI 301 or ESCI 321 or EEPS 340 or EEPS 430 or EEPS 432
Description: This course will introduce students to the concepts of sequence stratigraphy and the power behind this correlation technique. The course is divided between classic sequence stratigraphy using cores, well-logs, and outcrop examples and seismic sequence stratigraphy. Graduate/Undergraduate Equivalency: EEPS 630. Mutually Exclusive: Cannot register for EEPS 430 if student has credit for EEPS 630/ESCI 427/ESCI 627.

EEPS 434 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 or ESCI 101 or ENST 101 or EEPS 107 or ESCI 201 or ENST 201 or EEPS 109 or ESCI 109 or EEPS 321 or ESCI 321 or EEPS 340 or ESCI 340 or EEPS 448 or ESCI 442
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing.
Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 435 - REMOTE SENSING
Short Title: REMOTE SENSING
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the concepts of climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing.
Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 436 - REMOTE SENSING
Short Title: REMOTE SENSING
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the concepts of climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing.
Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 437 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 or ESCI 101 or ENST 101 or EEPS 107 or ESCI 201 or ENST 201 or EEPS 109 or ESCI 109 or EEPS 321 or ESCI 321 or EEPS 340 or ESCI 340 or EEPS 448 or ESCI 442
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing.
Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 438 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 or ESCI 101 or ENST 101 or EEPS 107 or ESCI 201 or ENST 201 or EEPS 109 or ESCI 109 or EEPS 321 or ESCI 321 or EEPS 340 or ESCI 340 or EEPS 448 or ESCI 442
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing.
Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 439 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 or ESCI 101 or ENST 101 or EEPS 107 or ESCI 201 or ENST 201 or EEPS 109 or ESCI 109 or EEPS 321 or ESCI 321 or EEPS 340 or ESCI 340 or EEPS 448 or ESCI 442
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing.
Graduate/Undergraduate Equivalency: EEPS 634.
EEPS 445 - EARTH AND PLANETARY INTERIORS
Short Title: EARTH AND PLANETARY INTERIORS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 101 or EEPS 101 or ESCI 107 or ESCI 108 or EEPS 108 or ESCI 110 or EEPS 110 or ESCI 111 or EEPS 111 or ESCI 115 or ESCI 301) and (ESCI 323 or EEPS 323) and MATH 211 and (PHYS 101 or PHYS 111 or PHYS 102 or PHYS 112)

EEPS 446 - EXPLORATION GEOPHYSICS
Short Title: EXPLORATION GEOPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 101 or EEPS 101 or ESCI 107 or ESCI 108 or EEPS 108 or ESCI 110 or EEPS 110 or ESCI 111 or EEPS 111 or ESCI 115 or ESCI 301) and (ESCI 323 or EEPS 323) and MATH 211 and (PHYS 101 or PHYS 111 or PHYS 102 or PHYS 112)
Description: Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of seismic, ground-penetrating radar, gravity, magnetic, and electrical data. Graduate/Undergraduate Equivalency: EEPS 648. Mutually Exclusive: Cannot register for EEPS 448 if student has credit for EEPS 648/ESCI 442/ESCI 642.

EEPS 447 - SEISMOLOGY I
Short Title: SEISMOLOGY I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 101 or EEPS 101 or ESCI 107 or ESCI 108 or EEPS 108 or ESCI 110 or EEPS 110 or ESCI 111 or EEPS 111 or ESCI 115 or ESCI 301) and (ESCI 323 or EEPS 323) and MATH 211
Description: Principles of elastic wave propagation, the determination of Earth structure, and the understanding of earthquake physics. Graduate/Undergraduate Equivalency: EEPS 647. Mutually Exclusive: Cannot register for EEPS 447 if student has credit for EEPS 647/ESCI 451/ESCI 651.

EEPS 450 - GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211

EEPS 451 - GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211

EEPS 454 - INTRODUCTION TO SEISMIC INTERPRETATION: STRUCTURAL STYLES AND SEISMIC STRATIGRAPHY
Short Title: 2D SEISMIC STRUCTURE AND STRAT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 442 (may be taken concurrently) or EEPS 448 (may be taken concurrently)
Description: This course will introduce students to analysis of sub-regional structural and stratigraphic frameworks. We will utilize the interpretation of 2D seismic profiles to reconstruct basin history and discuss implications for petroleum systems. Students will gain an understanding of a variety of structural and stratigraphic styles, as expressed on seismic data. Instructor Permission Required. Graduate/Undergraduate Equivalency: EEPS 654. Mutually Exclusive: Cannot register for EEPS 454 if student has credit for EEPS 654.
EEPS 455 - REFLECTION SEISMIC DATA PROCESSING
Short Title: REFLEC SEISMIC DATA PROCESSING
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 101 or MATH 102 and (PHYS 101 or PHYS 102 or PHYS 111) and CAAM 210
Description: Rock physics, the study of the impact of rock microstructure, mineralogy, fluids, stress state, and diagenetic features on wave propagation in porous media. Understanding the use of such relationships for quantitative analysis of seismic datasets. Applications to geologic carbon storage, permafrost characterization, geothermal systems, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 658. Recommended Prerequisite(s): Knowledge of applied geophysics, seismology, continuum mechanics, differential equations, and petrology will expand the value of the material. Mutually Exclusive: Cannot register for EEPS 458 if student has credit for EEPS 456/ESCI 665.

EEPS 456 - 3D SEISMIC REFLECTION DATA INTERPRETATION
Short Title: 3D SEISMIC INTERPRETATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 442 or EEPS 448
Description: Experience with processing reflection seismic data. Includes seismic data organization, velocity analysis, stacking, filtering, deconvolution, migration, and display, using the Center for Computational Geophysics facility's seismic processing system(s).

EEPS 457 - ENVIRONMENTAL & APPLIED ROCK PHYSICS
Short Title: APPLIED ROCK PHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 101 or MATH 102 and (PHYS 101 or PHYS 102 or PHYS 111) and CAAM 210
Description: Rock physics, the study of the impact of rock microstructure, mineralogy, fluids, stress state, and diagenetic features on wave propagation in porous media. Understanding the use of such relationships for quantitative analysis of seismic datasets. Applications to geologic carbon storage, permafrost characterization, geothermal systems, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 658. Recommended Prerequisite(s): Knowledge of applied geophysics, seismology, continuum mechanics, differential equations, and petrology will expand the value of the material. Mutually Exclusive: Cannot register for EEPS 458 if student has credit for EEPS 456/ESCI 665.

EEPS 458 - 3D SEISMIC INTERPRETATION
Short Title: 3D SEISMIC INTERPRETATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 442 or EEPS 448
Description: Workstation-based geologic interpretation of 3D seismic reflection data. The course will focus on interpreting horizons and faults tying interpretation to well data, analyzing seismic attributes, and other relevant topics. Emphasis will be placed on workflows utilized in hydrocarbon exploration. Mutually Exclusive: Cannot register for EEPS 456 if student has credit for ESCI 428.

EEPS 459 - WELL LOGGING AND PETROPHYSICS
Short Title: WELL LOGGING AND PETROPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Basics of wireline logging and logging while drilling including borehole environment, resistivity, radiation, thermal, and elastic wave measurements and measuring tools. Building from this introduction, basic interpretation of logging data and formation evaluation will be studied. Graduate/Undergraduate Equivalency: EEPS 659.

EEPS 460 - GLOBAL TECTONICS
Short Title: GLOBAL TECTONICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Geometrical aspects of plate tectonics, the 3 traditional types of plate boundaries, instantaneous plate motions, earthquakes and faulting, space geodesy, geomagnetic reversals, paleomagnetic poles, "absolute" plate motion, true polar wander, driving forces, diffuse plate boundaries, plate nonrigidity, and rheology of the lithosphere. Graduate/Undergraduate Equivalency: EEPS 660.

EEPS 461 - STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS
Short Title: TECTONIC SYSTEMS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 323 or EEPS 323
Description: Applications of continuum physics to the deformation, flexure, heat transfer, and gravity field of the lithosphere. Graduate/Undergraduate Equivalency: EEPS 662. Recommended Prerequisite(s): MATH 212.
EEPS 464 - INTRODUCTION TO THE HEAT AND MASS TRANSPORT PROCESSES OF PLANETARY INTERIORS  
Short Title: GEODYNAMICS  
Department: Earth/Environment/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to the use of continuum mechanics to solve fundamental problems related to mass and energy transport problems arising in the study of the solid Earth, planets and moons. Topics include: heat conduction, convective heat transfer, planetary thermal evolution, geological fluid dynamics, flow through porous media, rheology of planetary materials. Graduate/Undergraduate Equivalency: EEPS 664.

EEPS 465 - ROCK DEFORMATION AND RHEOLOGY  
Short Title: ROCK DEFORMATION AND RHEOLOGY  
Department: Earth/Environment/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 211 and MATH 212  
Description: Advanced course in the foundations of fluid mechanics and its application to Earth science. Aspects of continuum mechanics, heat and mass transfer, and the rheologic behavior of materials will be covered in developing the fundamental laws that describe fluid motion. Applications include atmospheric dynamics, mantle and lithospheric dynamics, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 665. Mutually Exclusive: Cannot register for EEPS 465 if student has credit for EEPS 665/ESCI 460/ESCI 660.

EEPS 467 - GEOMECHANICS  
Short Title: GEOMECHANICS  
Department: Earth/Environment/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 667.

EEPS 468 - VOLCANOES  
Short Title: VOLCANOES  
Department: Earth/Environment/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to volcanoes and associated physical processes. Conceptual and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 668.

EEPS 469 - PLANETARY VOLCANISM  
Short Title: PLANETARY VOLCANISM  
Department: Earth/Environment/Planetary Sci  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar will cover the broad range of volcanic phenomena in the solar system, via weekly readings of, and student presentations on, classic and recent papers. Topics include: Composition (basaltic, silicic, unusual, carbonatite), cryovolcanism, structure (caldera, rift zones, volcanic spreading radiating dike systems, magma chambers, and sill complexes), and dynamics (eruption mechanism, effusive vs. explosive, volatiles and atmospheres/oceans). The planetary settings to be considered include Earth, Venu, Mars, Mercury, Moon, large asteroids and outer planet satellites. Graduate/Undergraduate Equivalency: EEPS 669.

EEPS 471 - EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS  
Short Title: EARTH SYSTEMS MODELING I  
Department: Earth/Environment/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): CHEM 111 or CHEM 121 or PHYS 101 or PHYS 102  
Description: A model is a simplified representation of something. Scientific models range from conceptual to physical to mathematical. In Earth and planetary science, one is often concerned with modeling interactions between physical, chemical, and biological components, i.e., with modeling systems. This class will cover the fundamentals of scientific modeling with a focus on Earth systems. Graduate/Undergraduate Equivalency: EEPS 671. Recommended Prerequisite(s): MATH 211. Repeatable for Credit.
EEPS 472 - EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS
Short Title: NUMERICAL METHODS EARTH SYSTEM
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 111 or CHEM 121 or PHYS 101 or PHYS 102
Description: Introduction to numerical methods with applications in Earth Science using Matlab and COMSOL. Much of the class is spent in the computer lab learning Matlab and COMSOL, followed by hands-on exercises. Graduate/Undergraduate Equivalency: EEPS 672. Recommended Prerequisite(s): MATH 211. Mutually Exclusive: Cannot register for EEPS 472 if student has credit for EEPS 672/ESCI 472/ESCI 672.

EEPS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Independent Study, Seminar, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory
Credit Hours: 1-4
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact the department for current semester's topic(s). Repeatable for Credit.

EEPS 481 - UNDERGRADUATE RESEARCH IN EARTH SCIENCE
Short Title: UNDERGR RESEARCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced work adapted to the needs of the individual undergraduate student reading. Instructor Permission Required. Repeatable for Credit.

EEPS 484 - DECISION MAKING AND ECONOMICS IN THE ENERGY INDUSTRY
Short Title: DECISION MAKING AND ECONOMICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will provide students with an understanding of how energy projects are evaluated. Topics include resource-size determination, geologic and economic risk, discounted cash-flow economics, and other common methods used in decision making. Emphasis will be placed on working in teams to understand basic concepts and sensitivities. Graduate/Undergraduate Equivalency: EEPS 684. Recommended Prerequisite(s): (EEPS 321 or ESCI 321) and (EEPS 323 or ESCI 323).

EEPS 486 - PETROLEUM INDUSTRY ECONOMICS AND MANAGEMENT
Short Title: PETROLEUM IND ECONOMICS MGMT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics covered include resource size determination; geologic risk analysis; establishing minimum economic thresholds; economic chance factors; the concepts of present worth, investment efficiency, rates of return. Price forecasting, cost inflation are discussed. Graduate/Undergraduate Equivalency: EEPS 686. Recommended Prerequisite(s): ESCI 415 or EEPS 484

EEPS 488 - ECONOMIC GEOLOGY MINERAL DEPOSITS
Short Title: ECON GEOL MINERAL DEPOSITS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of metallic and nonmetallic mineral deposits, theories of their origin, and classification. The impact of government regulation, economics, production practices, and exploration will be considered. Graduate/Undergraduate Equivalency: EEPS 688.

EEPS 491 - SPECIAL STUDIES FOR UNDERGRADUATES
Short Title: SPECIAL STUDY FOR UNDERGRADS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Work in Earth Science adapted to the needs of individual undergraduate research. Instructor Permission Required. Repeatable for Credit.

EEPS 499 - GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS
Short Title: GRAPHIC AND VISUAL DESIGN
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A significant portion of a scientists time is spent solving visual design problems (graphics for papers, visual layouts for seminars, posters, teaching). Effective communication of scientific information is part of a scientists skill set. This class is designed to enhance that skill set in terms of presenting visual information clearly, simply, and effectively. Graduate/Undergraduate Equivalency: EEPS 699. Repeatable for Credit.
EEPS 501 - SPECIAL STUDIES FOR GRADUATE STUDENTS
Short Title: SPECIAL STUDIES GRAD STUDENTS
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced work in Earth science adapted to the needs of individual graduate students. Instructor Permission Required. Repeatable for Credit.

EEPS 510 - ADVANCED BIOGEOCHEMISTRY
Short Title: ADVANCED BIOGEOCHEMISTRY
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar Topics will vary.

EEPS 511 - ADVANCED TOPICS IN GEOCHEMISTRY
Short Title: ADVANCED TOPICS IN GEOCHEMISTRY
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 514 - SEMINAR: SPECIAL TOPICS IN HIGH TEMPERATURE GEOCHEMISTRY
Short Title: SEM:SPEC TOPICS HIGH TEMP
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 516 - FIELD TRIP FOR ADVANCED GEOLOGY AND PETROLOGY
Short Title: FIELD TRIP-ADV GEOL & PETROL
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ESCI 322 or EEPS 322) and ESCI 324 or EEPS 324
Description: A field trip course centered on weekly readings and several mapping projects carried out over the course of 1 week. The course will focus on western North American geology with emphasis on igneous and metamorphic petrology and structural geology in the context of regional tectonics. Field studies will be accompanied by quantitative data collection and analysis. Each student will be responsible for a small field-based project. Repeatable for Credit.

EEPS 525 - APPLIED SEDIMENTOLOGY I
Short Title: APPLIED SEDIMENTOLOGY I
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore carbon, nitrogen, and water cycling at the advanced level. Repeatable for Credit.

EEPS 526 - APPLIED SEDIMENTOLOGY II
Short Title: APPLIED SEDIMENTOLOGY II
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 505
Description: Advanced field studies in sedimentary geology. This course is intended to provide graduate students with experience working in sedimentary rocks by working on projects of their own design.

EEPS 527 - CARBONATE DEPOSITIONAL SYSTEMS
Short Title: CARBONATE DEPOSITIONAL SYSTEMS
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 321 or EEPS 321
Description: Characterization of modern and ancient, shallow and deep sedimentary environments and facies. Includes examination of different depositional models in relation both to climate and to hydrographic and geographic settings, as well as three field trips. Meeting times will be determined after registration.

EEPS 528 - TOPICS ON CARBONATES
Short Title: TOPICS ON CARBONATES
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Topics may vary. 7-day field trip is required. Recommended Prerequisite(s): MATH 211. Repeatable for Credit.

EEPS 530 - SILICICLASTIC DEPOSITIONAL SYSTEMS
Short Title: SILICICLASTIC DEPOSITION SYST
Department: Earth/Environmmt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of modern and ancient sedimentary environments with emphasis on field work. Depositional models examined in relation to climatic, oceanographic, and tectonic influences. Mutually Exclusive: Cannot register for EEPS 530 if student has credit for ESCI 504.
EEPS 531 - ADVANCED TOPICS IN BASIN SEDIMENTOLOGY AND STRATIGRAPHY
Short Title: ADV TOPICS: BASIN SEDIM & STRAT
Department: Earth/Environmental/Planetary Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate the processes that lead to the development of sedimentary stratigraphy across a continuum of depositional environments, including: fluvial, deltaic, coastal near-shore, continental shelf and slope and abyssal settings. Material will include transport linkages based on studies from modern settings, and will also cover the unique stratigraphic signatures preserved in ancient depositional systems.

EEPS 532 - ADVANCED TOPICS IN FLUVIAL-Deltaic SEDIMENTOLOGY AND STRATIGRAPHY
Short Title: ADV TOPICS FLUVIAL-DELTAIC
Department: Earth/Environmental/Planetary Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate physical and biological processes that contribute to the development of fluvial-deltaic environments. Materials will include deriving physical erosion, transport, and deposition laws, in order to evaluate modern processes that shape deltas and coastlines. The course will also focus on sedimentary deposits of fluvial-deltaic systems and preservation potential of the stratigraphy, by examining ancient depositional systems that are preserved in the rock record. The course will explore these topics by reviewing science literature that utilizes numerical, experimental, and field studies, to further theory on the development of fluvial-deltaic systems. Repeatable for Credit.

EEPS 533 - CLASTIC DEPOSITIONAL SYSTEMS FIELD TRIP
Short Title: FIELD TRIP CLASTIC DEP SYSTEMS
Department: Earth/Environmental/Planetary Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 504 or EEPS 530
Description: This is a five day trip that takes place in northwestern New Mexico. The trip is intended for students with strong interests in sedimentology and stratigraphy and focuses on field methods in interpretation of clastic sedimentary deposits in terms of their depositional environment, sequence stratigraphic occurrence and reservoir and source rock potential. The field area includes four different basins, which provides further opportunity for discussion of sedimentary basin evolution. The course also includes reading assignments and class presentations on topics related to the trip. Repeatable for Credit.

EEPS 535 - FIELD COURSE: APPLIED STRATIGRAPHY AND STRUCTURAL GEOLOGY
Short Title: FIELD COURSE: APPLIED STRAT
Department: Earth/Environmental/Planetary Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focus on how to interpret stratigraphy and structure from outcrop and subsurface data using a field transect from the orogenic belt to the foreland basin. By the end of the class, students should be able to measure/describe stratigraphic sections, construct a structural-stratigraphic framework, interpret structural profiles and integrate paleontology.

EEPS 537 - SEMINAR: TOPICS IN SEDIMENTOLOGY
Short Title: SEM: TOPICS-SEDIMENTOLOGY
Department: Earth/Environmental/Planetary Science
Grade Mode: Seminar
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 538 - SEMINAR: CARIBBEAN
Short Title: SEM: CARIBBEAN
Department: Earth/Environmental/Planetary Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 540 - CRYOSPHERE
Short Title: CRYOSPHERE
Department: Earth/Environmental/Planetary Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 321 or EEPS 321
Description: The growth and decay of glaciers play a large role in modulating Earth's climate system. This course focuses on physical glaciology, glacial geomorphology, the geologic record of glaciation, and glacier-climate interactions in the past, present, and future. Mutually Exclusive: Cannot register for EEPS 540 if student has credit for ESCI 503.
EEPS 541 - MOUNTAINS, CLIMATE AND GLOBAL CARBON CYCLING
Short Title: CARBON CYCLE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to discuss the origins of high elevations, such as mountains and epeirogenic uplifts, and their impacts of climate, global carbon cycling, and sedimentary processes. We will discuss the physics and chemistry of building mountains by magmatism and tectonic thickening as well as destroying them by erosion, chemical weathering, and delamination. We will explore perspectives from the deep Earth to the atmosphere. The seminar will meet once a week for two hours with the first hour being a thematic overview given by faculty or students and the second hour devoted to discussion of assigned papers. Recommended Prerequisite(s): (ESCI 321 or EEPS 321) and (ESCI 322 or EEPS 322) Repeatable for Credit.

EEPS 542 - MARINE GEOLOGY SYSTEMS
Short Title: MARINE GEOLOGY SYSTEMS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines areas of the seafloor recently targeted by large-scale science projects, such as the ocean drilling program. The purpose is to understand current ocean geoscience problems, the research being conducted to address these problems, and preliminary results.

EEPS 543 - EARTH'S ATMOSPHERE
Short Title: EARTH'S ATMOSPHERE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How and why has Earth's atmosphere evolved over time? We will begin with an understanding of the atmosphere today - its physics, chemistry, and dynamics - work backwards in time to frontiers that are comparatively data-poor. We focus on empirical/observational constraints that drive theories of atmospheric evolution on Earth and other planets. Recommended Prerequisite(s): MATH 211 Repeatable for Credit.

EEPS 544 - SEMINAR: ADVANCED TOPICS IN HYDROGEOLOGY
Short Title: SEM:ADV TOPICS HYDROGEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 545 - THEORETICAL GLOBAL SEISMOLOGY I
Short Title: THEORETICAL GLBL SEISMOLOGY I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course provides a path through theoretical seismology from a comprehensive analysis perspective. It consists of five parts:
(i) The introduction of Earth's elastic-gravitational deformations through the calculus of variations, and the introduction of fluid-solid boundaries involving Earth's core using an action integral. (ii) The variationallinearized or weak formulation of Earth's elastic-gravitational deformations. (iii) Energy estimates and well-posedness under appropriate conditions (that, for example, constrain the shapes of the major boundaries) of the system of elastic-gravitational equations describing the oscillations of the earth, and a Volterra equation justifying the extraction of the system describing acousto-elastic waves. (iv) The characterization of the spectrum of the earth, seismic normal modes and the essential spectrum associated with internal or gravity modes and embedded eigenfrequencies. The "asymptotic" resolution of the identity or seismic normal mode summation. In radial models such as PREM, a discussion of the Einstein-Brioullin-Keller quantization, trace formula and length spectrum. (v) Incorporation of dynamic ruptures, using rate- and state-dependent friction laws, generating seismic waves through an iterative coupling scheme and viscosity solutions. All parts will be illustrated with computational simulations using numerical formulations closely related to the analysis.

EEPS 546 - SEISMOLOGY II
Short Title: SEISMOLOGY II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

EEPS 548 - 3D SEISMIC REFLECTION DATA INTERPRETATION
Short Title: 3D SEISMIC REFLECTION DATA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Grade
Prerequisite(s): ESCI 442 or ESCI 642 (may be taken concurrently) or EEPS 448 or EEPS 648 (may be taken concurrently)
Description: Workstation-based geologic interpretation of 3D seismic reflection data. The course will focus on interpreting horizons and faults tying interpretation to well data, analyzing seismic attributes, and other relevant topics. Emphasis will be placed on workflows utilized in hydrocarbon exploration. Mutually Exclusive: Cannot register for EEPS 548 if student has credit for ESCI 558.
EEPS 550 - ADVANCED TOPICS IN THE SOLID EARTH I  
Short Title: ADV TOPICS - SOLID EARTH I  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary.  

EEPS 551 - ADVANCED TOPICS IN THE SOLID EARTH II  
Short Title: ADV TOPICS - SOLID EARTH II  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.  

EEPS 552 - ADVANCED TOPICS IN GEOPHYSICS  
Short Title: ADV TOPICS IN GEOPHYSICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.  

EEPS 555 - SEMINAR: SEISMOLOGY  
Short Title: SEM: SEISMOLOGY  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.  

EEPS 556 - SEMINAR: SEISMIC MODELING AND INVERSE METHODS  
Short Title: SEM:SEISMICMODEL&INVERSEMETHOD  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.  

EEPS 557 - SEMINAR: GLOBAL SEISMOLOGY  
Short Title: SEM:GLOBAL SEISMOLOGY  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.  

EEPS 560 - ADVANCED TECTONOPHYSICS/GLOBAL TECTONICS  
Short Title: ADV TECTONOPHY/GLOBL TECTONICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.  

EEPS 561 - TOPICS IN PLANETARY DYNAMICS AND MAGMATIC PROCESSES  
Short Title: TOPICS IN PLANETARY DYNAMICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Instructor Permission Required. Repeatable for Credit.  

EEPS 563 - THE PLANET MARS: FORMATION, DIFFERENTIATION, STRUCTURE AND EVOLUTION  
Short Title: PLANET MARS: FORM, STRUCT, EVO  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar addresses fundamental issues in Mars science, spanning the disciplines of geology, geophysics, geochemistry and petrology. Sources range over six decades of data from flybys and orbiting spacecraft, landed stations and rovers, and laboratory analysis of meteorites and experiments. Readings will be supplemented by presentations from active Mars researchers.  

EEPS 564 - THE MOON: ORIGIN AND EVOLUTION OF EARTH'S COMPANION  
Short Title: THE MOON: ORIGIN & EVOLUTION  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar addresses fundamental issues in the origin and evolution of the Moon, spanning the disciplines of geology, geophysics, geochemistry and petrology. Sources range from classic studies to recent results from orbiting spacecraft and laboratory analysis. Readings will be supplemented by guest presentations from active researchers in the field.
EEPS 567 - SEMINAR: ADVANCED TOPICS IN EARTH STRUCTURE AND DEFORMATION
Short Title: SEM:ADV TOPICS EARTH STRUCTURE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Please contact the department for more details. Repeatable for Credit.

EEPS 568 - SEMINAR: DEVELOPMENTS IN STRUCTURAL GEOLOGY
Short Title: SEM: DEV STRUCTURAL GEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 569 - SEMINAR: TECTONICS OF CONTINENTAL MARGINS
Short Title: SEM:TECTONICS-CONTINEN-MARGINS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 570 - SEMINAR: TOPICS IN VOLCANOLOGY, MAGMATIC, AND HYDROTHERMAL PROCESSES
Short Title: SEM: PHYSICAL VOLCANOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Reading and discussions about current topics related to magma generation, migration, accumulation and eruption, as well as hydrothermal systems. Repeatable for Credit.

EEPS 571 - SEMINAR: ADVANCED TOPICS IN GEOPHYSICS, GEOTHERMICS, AND PLANETARY EVOLUTION
Short Title: SEM:GEOPHYSICS/HERMICS, PLANET
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary.

EEPS 572 - SEMINAR: HYDROCARBON EXPLORATION
Short Title: HYDROCARBON EXPLORATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A student team will analyze and assess petroleum prospects in a sedimentary basin. Using a dataset of industry well/seismic data, the team will analyze data, identify/prioritize exploration targets, and prepare a formal presentation. Team will review their findings to industry judges for AAPG Imperial Barrel Award competition. Instructor Permission Required.

EEPS 573 - SEMINAR: QUANTitative PETROLEUM SYSTEMS ANALYSIS
Short Title: QUANT PETROLEUM SYS ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course has lecture, lab, and field components. Students will learn about the components of the hydrocarbon system and how to rank areas of a basin for prospectively. Activities will be organized on a class and small group basis. Recommended Prerequisite(s): ESCI 323 or EEPS 323 or ESCI 427 or EEPS 430 or ESCI 627 or EEPS 630

EEPS 574 - MODERN EXPLORATION TECHNOLOGY
Short Title: MODERN EXPLORATION TECHNOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Modern petroleum exploration techniques using geology, geophysics, and information technology methods. As new techniques emerge, the course will change to ensure that the course material mirrors the exploration industry.
EEPS 583 - DATA MANAGEMENT AND DATA GOVERNANCE
Short Title: DATA MANAGEMENT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: An organization's data is recognized as the most vital asset of an enterprise, yet far too many fail to appreciate the legal and fiscal responsibilities and liabilities associated with it. This course covers the foundations, principles and methodology of data management and data governance to ensure such high quality data. Mutually Exclusive: Cannot register for EEPS 583 if student has credit for ESCI 549.

EEPS 584 - DATA SCIENCE ENVIRONMENTAL AND GEOSCIENCES
Short Title: DATA SCIENCE GEO-HYDRO-ENV APP
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course focuses on practical applications of common data science techniques to extract information from environmental, hydrologic and geological data. Lectures cover theories and examples with biweekly course work assignments. Students are required to complete a group project and presentation at the end of the course.

EEPS 585 - COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY
Short Title: COMP&DATA SCI ENERGY INDUSTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course will be dedicated to problems and topics occurring in the energy industry, both in R&D and in operations. It has three main components: 1. Computational Geophysics 2. Reservoir Simulation Fundamentals 3. Machine Learning The first two components will be taught together in the first 10 weeks by dedicating half of the class-time to each subject. The Machine Learning component will, in part, build on the first two fundamental components and will be taught using the full class time. Computational Geophysics The participants in this geophysics part of the course are expected to be interested into learn how to use modern seismic data to image the subsurface with awareness of the computational costs of the techniques involved. The main focus will be given to current seismic imaging tools including cutting-edge Machine Learning (ML) applications. As the result of the successful completion of this course part, the course participants should be able to: (1) Understand the context and value of imaging tools for the hydrocarbon exploration business. (2) Relate the imaging tools with their computational costs for modern computer resources. (3) Properly use wave-based geophysical imaging and ML-based tools and (4) Understand main seismic processing and interpretation decisions. Applied Reservoir Simulation This component of the course will introduce participants to the practice of reservoir simulation. This class will be an applied course on reservoir simulation. Theoretical descriptions will be provided as warranted but will be kept to minimum. Class participants will learn about the fundamentals of applied reservoir simulation, use of a reservoir simulator, and how to select the proper model for a simulation study. This course will also cover data preparation, grid design, calibration of the reservoir model, forecasting of future performance, and interpretation of simulation results. Participants will also be introduced to the role of simulation in reservoir management, limitations of reservoir simulation, and the structural aspects of the models. Upscaling and recent advances simulation techniques will also be discussed. A realistic open-source reservoir simulation software will be used during the tutorials and computer projects. Machine Learning for Oil & Gas This part of the course will introduce the fundamentals of statistical learning, present a few of the popular learning paradigms and algorithms, and culminate in a small student project applying them to an oil reservoir data set using the R programming language (solutions to class problems will be accepted in any programming language or system). Much of the material presented here is also known under the names “Big Data”, “Data Analytics”, “Artificial Intelligence”, “Data Mining”, “Petroleum Data Driven Analytics” and other terms. Weeks 11 and 12 are theory only, weeks 13-15 will have small hands-on exercises incorporated and week 16 and 17 are dedicated to solving a simple oil reservoir problem using machine learning. Mutually Exclusive: Cannot register for EEPS 585 if student has credit for ESCI 570.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 586</td>
<td>DATA SCIENCE METHODS AND DATA MANAGEMENT</td>
<td>METHODS DATA SCIENCE/MGMT</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Data has become a critical asset for enabling organizations to be competitive, make better decisions and support diverse stakeholders. In recent years, new methods, tools and techniques for data management and processing have been developed. In this vein, ensuring that users have the knowledge and skills to profit from this wealth of information is critical. In this course, participants will learn a holistic overview about infrastructure, data life cycles, metadata standards, policies and techniques for successfully managing and using data for decision-making. The emphasis of the course will be from the perspective of the Oil &amp; Gas and Energy Industries. Recommended Prerequisite(s): Basic programming, introductory statistics.</td>
</tr>
<tr>
<td>EEPS 587</td>
<td>SEM: PETROLEUM GEOCHEMISTRY - PRINCIPALS AND PRACTICE</td>
<td>SEM: PETROLEUM GEOCHEMISTRY</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Seminar topics may vary. Course taught at the University of Houston. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 589</td>
<td>TOPICS IN GEOMATHEMATICS</td>
<td>TOPICS IN GEOMATHEMATICS</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>1-3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Content varies from year to year. Recommended Prerequisite(s): CAAM 335 and CAAM 336.</td>
</tr>
<tr>
<td>EEPS 590</td>
<td>SEMINAR: DEPARTMENT TYPE-LOCALSE FIELD TRIPS</td>
<td>SEM:DEPT-LOCALSE-FIELD TRIPS</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Seminar topics may vary. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 591</td>
<td>SEMINAR: DEPARTMENT TYPE - LOCALE FIELD TRIP</td>
<td>SEM: Locale Field Trip</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>2-4</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Seminar topics vary depending on location of field trip. This is a Seminar/Trip type course combination. Undergraduates are required to take prerequisites to register for this course. Prerequisites do not apply for graduate students. Prerequisites may be taken concurrently. Additional fee may be required for this course. Instructor Permission Required. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 592</td>
<td>SPECIAL TOPICS IN EARTH, ENVIRONMENTAL &amp; PLANETARY SCIENCES</td>
<td>SPECIAL TOPICS IN EEPS</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Seminar</td>
<td>2</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This course deals with miscellaneous special topics not covered in other courses. Please contact the Earth Science department for the specific topics. Topics change each semester. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 594</td>
<td>INTRODUCTION TO SCIENCE COMMUNICATION</td>
<td>INTRO TO SCIENCE COMMUNICATION</td>
<td>Earth/Environmt/Planetary Sci</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Seminar</td>
<td>1</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>This course will introduce students to the methods of communicating science to the public, by exposing them to professionals and researchers from various communication careers. It will teach students to convey science to the lay audience through several methods, such as media reporting, museum programming, and general public outreach.</td>
</tr>
</tbody>
</table>
EEPS 595 - PITCHING YOUR SCIENCE
Short Title: PITCHING YOUR SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for senior level graduate students who will be facing high-stakes professional speaking opportunities, such as impromptu job conversations, formal academic and professional presentations, conversations with journalists, and/or industrial job interviews. Students will construct and practice 90-second, 5-minute, and 15-minute presentations. Most assignments will take place in-class, with limited work occurring outside of the classroom. Requirement: Participation in the Rice University 90-second thesis competition. Instructor Permission Required.

EEPS 597 - GEOPHYSICAL FIELD WORK FOR EDUCATORS
Short Title: GEOPHYS FLD WK FOR EDUCATORS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course consists of 2 weeks of geophysical field work and is designated for in-service K-12 teachers. Instructor Permission Required. Repeatable for Credit.

EEPS 598 - PUTTING EARTH SCIENCE INTO ACTION
Short Title: SEM: EARTH SCIENCE INTO ACTION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 406. Repeatable for Credit.

EEPS 603 - SEMINAR: DEPARTMENT RESEARCH
Short Title: SEMINAR: DEPARTMENT RESEARCH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to current research in the Earth Science department. Students will learn how to give a presentation and will get experience presenting their research. Graduate/Undergraduate Equivalency: EEPS 403. Repeatable for Credit.

EEPS 604 - SEMINAR: DEPARTMENT RESEARCH
Short Title: SEMINAR: DEPARTMENT RESEARCH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to current research in the Earth Science department. Students will learn how to give a presentation and will get experience presenting their research. Graduate/Undergraduate Equivalency: EEPS 404. Repeatable for Credit.

EEPS 605 - SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE
Short Title: SEM:CURR RESRCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 405. Repeatable for Credit.

EEPS 606 - SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE
Short Title: SEM:CURR RESRCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 406. Repeatable for Credit.

EEPS 610 - OPTICAL MINERALOGY AND PETROGRAPHY
Short Title: OPTICAL MINERALOGY & PETROGRPH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a lab course focused on the identification of minerals with petrographic microscopy. Principles of crystallography, mineral optics, and mineral chemistry will be covered in the first third of the course. The second third of the course will focus on the identification of minerals in igneous, metamorphic, and sedimentary rocks with emphasis on petrogenetic interpretation. The last third of the course will involve each student working on specific petrologic themes in the context of regional tectonics or magmatic processes. Taught every other Fall. Graduate/Undergraduate Equivalency: EEPS 410. Mutually Exclusive: Cannot register for EEPS 610 if student has credit for EEPS 410/ESCI 410/ESCI 610.
EEPS 611 - CHARACTERIZATION OF EARTH, ENVIRONMENTAL, AND PLANETARY MATERIALS
Short Title: MATERIALS CHARACTERIZATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide an overview of various characterization methods used in geological, chemical, material science and other natural science and engineering research. The techniques that will be discussed include but not limited to electron beam methods (imaging and spectroscopy), X-ray methods, ion-beam analysis, vibrational spectroscopies, and Synchrotron-based techniques. Graduate/Undergraduate Equivalency: EEPS 411. Mutually Exclusive: Cannot register for EEPS 611 if student has credit for EEPS 411/ESCI 419/ESCI 619.

EEPS 612 - ADVANCED PETROLOGY
Short Title: ADVANCED PETROLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evaluation of the evolution of igneous rocks in the Earth's crust and mantle. Topics will include phase equilibria, experimental studies, and geochemistry. Labs will stress thin section petrography. Graduate/Undergraduate Equivalency: EEPS 412. Repeatable for Credit.

EEPS 613 - ADVANCED PETROLOGY II
Short Title: ADVANCED PETROLOGY II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will bring together constraints from field geology, petrography, petrology, geochemistry, and geodynamics to tackle advanced A87 research questions of whole Earth processes that are relevant in the 21st century. The topics that may be covered include, but are not limited to, interplay between magmatic and tectonic processes, magma generation, migration, extraction, and dynamic stability in various settings, magmatic differentiation, volatiles and fluids exchange between various reservoirs and effects on long-term climate, ore genesis, and formation and modification of continents. Graduate/Undergraduate Equivalency: EEPS 413. Mutually Exclusive: Cannot register for EEPS 613 if student has credit for EEPS 413.

EEPS 615 - GEOCHEMISTRY OF EARTH'S SURFACE
Short Title: GEOCHEM EARTH'S SURFACE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover concepts in aqueous geochemistry in the context of chemical weathering and Earth's major biogeochemical cycles. Central to this course will be weekly student-led discussions of scientific literature. Students will also learn basic numerical modeling and data analysis techniques using MATLAB, field methods, and basic analytical chemistry. Graduate/Undergraduate Equivalency: EEPS 415. Mutually Exclusive: Cannot register for EEPS 615 if student has credit for EEPS 415/ESCI 407/ESCI 607.

EEPS 617 - TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE
Short Title: TRACE-ELEMENT& ISOTOPE GEOCHEM
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the principles of trace-element and isotope geochemistry and their applications to high and low temperature processes in the earth. Topics to be covered are trace-element partitioning, basic quantum physics, radiogenic isotopic systems and stable isotope fractionation. Graduate/Undergraduate Equivalency: EEPS 417. Mutually Exclusive: Cannot register for EEPS 617 if student has credit for EEPS 417/ESCI 430/ESCI 630.

EEPS 618 - ISOTOPE GEOCHEMISTRY
Short Title: ISOTOPE GEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the principles and techniques of stable and radiogenic geochemistry in the geosciences. The course will begin by examining the fundamental physics relevant to isotope partitioning and decay, followed by a survey of different isotope systems and how they are used to study surface processes, element cycling, climate, and planetary science. Graduate/Undergraduate Equivalency: EEPS 418. Recommended Prerequisite(s): ESCI 322 or ESCI 322 Mutually Exclusive: Cannot register for EEPS 618 if student has credit for EEPS 418/ESCI 433/ESCI 633.
EEPS 620 - ORGANIC GEOCHEMISTRY
Short Title: ORGANIC GEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the organic geochemistry of the natural environment. Topics include: production, transport, decomposition, and storage of organic matter in the marine and terrestrial environments, use of isotopes to track biogeochemical processes and natural and perturbed carbon cycle issues, including past and recent climate shifts. Graduate/Undergraduate Equivalency: EEPS 420. Mutually Exclusive: Cannot register for EEPS 620 if student has credit for EEPS 420/ESCI 425/ESCI 625.

EEPS 625 - PLANETARY SURFACE PROCESSES
Short Title: PLANETARY SURFACE PROCESSES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to expand understanding of geologic processes by considering how common or distinctive different geologic processes are on Earth compared to other bodies throughout the solar system. Students will leave the course with an appreciation for the types of surface processes that dominate different bodies throughout the solar system. How does the surface of Earth compare to the surfaces of other bodies in our solar system? How can we best extrapolate our understanding of Earth to other bodies? What do we learn about Earth from such comparisons? Mutually Exclusive: Cannot register for EEPS 625 if student has credit for ESCI 425/ESCI 625.

EEPS 626 - GEOMORPHOLOGY
Short Title: GEOMORPHOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate physical, chemical, and biological processes that contribute to the development and shaping of Earth's surface across a continuum of subaerial and subaqueous environments. Mandatory 4-day field trip is associated with this class. Graduate students will be assigned exercises more challenging than those assigned to undergraduate students. Graduate/Undergraduate Equivalency: EEPS 426. Mutually Exclusive: Cannot register for EEPS 626 if student has credit for EEPS 426/ESCI 431/ESCI 631. Repeatable for Credit.

EEPS 627 - MECHANICS OF SEDIMENT TRANSPORT
Short Title: MECHANICS-SEDIMENT TRANSPORT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evaluation of sedimentary transport dynamics: physical interaction between fluid flow and sediment mobility, from grain to bedform scale; exploration of environments including rivers, estuaries, deltas, coastlines, and deserts. Examination of sediment transport for geology, environmental, and engineering applications; formation of diagnostic sedimentary features recognized in the stratigraphic record. Graduate/Undergraduate Equivalency: EEPS 427. Mutually Exclusive: Cannot register for EEPS 627 if student has credit for EEPS 427/ESCI 435/ESCI 635.

EEPS 628 - ANTARCTIC MARINE GEOLOGY
Short Title: ANTARCTIC MARINE GEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of marine geologic principles and processes using examples from the Southern Oceans. Graduate/Undergraduate Equivalency: EEPS 428. Mutually Exclusive: Cannot register for EEPS 628 if student has credit for EEPS 428/ESCI 423/ESCI 623.

EEPS 629 - PALEOCEANOGRAPHY
Short Title: PALEOCEANOGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The evolution of the ocean, climate and the global carbon cycle over the last 100 million years as recorded by the biology, chemistry and composition of deep-sea sediment. Graduate/Undergraduate Equivalency: EEPS 429. Mutually Exclusive: Cannot register for EEPS 629 if student has credit for EEPS 429/ESCI 421/ESCI 621.

EEPS 630 - SEQUENCE STRATIGRAPHY
Short Title: SEQUENCE STRATIGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the concepts of sequence stratigraphy and the power behind this correlation technique. The course is divided between classic sequence stratigraphy using cores, well-logs, and outcrop examples and seismic sequence stratigraphy. Graduate/Undergraduate Equivalency: EEPS 430. Mutually Exclusive: Cannot register for EEPS 630 if student has credit for EEPS 430/ESCI 427/ESCI 627.
EEPS 632 - QUANTITATIVE HYDROGEOLOGY
Short Title: QUANTITATIVE HYDROGEOLOGY
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced course that will provide a quantitative overview of groundwater hydrology. Emphasis will be placed on mastering concepts in fluid mechanics and applying these concepts to water supply, environmental, and geological problems. Graduate/Undergraduate Equivalency: EEPS 432. Mutually Exclusive: Cannot register for EEPS 632 if student has credit for EEPS 432/ESCI 418/ESCI 618.

EEPS 633 - CLIMATE DYNAMICS
Short Title: CLIMATE DYNAMICS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Earth's climate is a chaotic system, characterized by nonlinear interactions between the ocean, atmosphere, and land surfaces. This course will focus on the dynamics of the ocean and atmosphere, including the drivers of large-scale circulation, heat transport, and modes of natural variability. We will also explore projections of future climate change scenarios and records of historical climate change. Students will learn to post-process climate model output, analyze, and map these data using Python. Graduate/Undergraduate Equivalency: EEPS 433. Mutually Exclusive: Cannot register for EEPS 633 if student has credit for EEPS 433/ESCI 422/ESCI 622.

EEPS 634 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing. Graduate/Undergraduate Equivalency: EEPS 434.

EEPS 635 - REMOTE SENSING
Short Title: REMOTE SENSING
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to electromagnetic remote sensing of the Earth and other planets using passive and active methods. The course includes a computer lab component involving processing and interpretation of remote sensing imagery, and an individual project. Graduate/Undergraduate Equivalency: EEPS 435. Mutually Exclusive: Cannot register for EEPS 635 if student has credit for EEPS 435.

EEPS 636 - GIS FOR SCIENTISTS AND ENGINEERS
Short Title: GIS FOR SCIENTISTS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic principles of Geographic Information Systems, with a focus on effectively applying the technology to the geosciences. Main platform of the class will be ESRI's ArcGIS, but a wide array of other tools will also be introduced. Material will be delivered via a blend of lecture and hands-on exercises. Graduate/Undergraduate Equivalency: EEPS 436. Mutually Exclusive: Cannot register for EEPS 636 if student has credit for EEPS 436.

EEPS 645 - EARTH AND PLANETARY INTERIORS
Short Title: EARTH AND PLANETARY INTERIORS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

EEPS 646 - SEISMOLOGY I
Short Title: SEISMOLOGY I
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Principles of elastic wave propagation, the determination of Earth structure, and the understanding of earthquake physics. Graduate/Undergraduate Equivalency: EEPS 446. Mutually Exclusive: Cannot register for EEPS 646 if student has credit for EEPS 446/ESCI 461/ESCI 661.
EEPS 648 - EXPLORATION GEOPHYSICS
Short Title: EXPLORATION GEOPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to analysis of subregional structural and stratigraphic frameworks. We will utilize the interpretation of 2D seismic profiles to reconstruct basin history and discuss implications for petroleum systems. Students will gain an understanding of the diversity of structural and stratigraphic styles, as expressed on seismic data. Instructor Permission Required. Graduate/Undergraduate Equivalency: EEPS 458. Mutually Exclusive: Cannot register for EEPS 648 if student has credit for EEPS 458/ESCI 458/ESCI 658.

EEPS 650 - GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

EEPS 651 - GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Data sampling, aliasing, discrete Fourier transform, digital filter design techniques, z-transform, and discrete Hilbert transform are introduced. Deconvolution, velocity filters, polarization filter, stacking, beam forming and migration techniques will be taught together with their application in geophysical studies. Graduate/Undergraduate Equivalency: EEPS 450. Mutually Exclusive: Cannot register for EEPS 650 if student has credit for EEPS 450/ESCI 450/ESCI 640.

EEPS 654 - INTRODUCTION TO SEISMIC INTERPRETATION: STRUCTURAL STYLES AND SEISMIC STRATIGRAPHY
Short Title: 2D SEISMIC STRUCTURE AND STRAT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 642 or EEPS 648 (may be taken concurrently)
Description: This course will introduce students to the interpretation of 2D seismic profiles and stratigraphic frameworks. We will utilize the interpretation of 2D seismic profiles to reconstruct basin history and discuss implications for petroleum systems. Students will gain an understanding of the variety of structural and stratigraphic styles, as expressed on seismic data. Instructor Permission Required. Graduate/Undergraduate Equivalency: EEPS 454. Mutually Exclusive: Cannot register for EEPS 654 if student has credit for EEPS 454.

EEPS 658 - ENVIRONMENTAL & APPLIED ROCK PHYSICS
Short Title: APPLIED ROCK PHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Rock physics, the study of the impact of rock microstructure, mineralogy, fluids, stress state, and diagenetic features on wave propagation in porous media. Understanding the use of such relationships for quantitative analysis of seismic datasets. Applications to geologic carbon storage, permafrost characterization, geothermal systems, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 458. Mutually Exclusive: Cannot register for EEPS 658 if student has credit for EEPS 458/ESCI 458/ESCI 665.

EEPS 659 - WELL LOGGING AND PETROPHYSICS
Short Title: WELL LOGGING AND PETROPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basics of wireline logging and logging while drilling including borehole environment, resistivity, radiation, thermal, and elastic wave measurements and measuring tools. Building from this introduction, basic interpretation of logging data and formation evaluation will be studied. Graduate/Undergraduate Equivalency: EEPS 459.

EEPS 660 - GLOBAL TECTONICS
Short Title: GLOBAL TECTONICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Geometrical aspects of plate tectonics, the 3 traditional types of plate boundaries, instantaneous plate motions, earthquakes and faults, space geodesy, geomagnetic reversals, geomagnetic poles, hotspots, absolute plate motion, true polar wander, driving forces, diffuse plate boundaries, plate nonrigidity, and rheology of the lithosphere. Graduate/Undergraduate Equivalency: EEPS 460.

EEPS 661 - STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS
Short Title: TECTONIC SYSTEMS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The distribution, origin, and evolution of various tectonic systems, and characterization of their structural and geophysical signatures, emphasizing crustal and lithospheric processes associated with tectonic deformation. Review of representative global examples of convergent and collisional margins, divergent and passive margins, and transform margins. Graduate/Undergraduate Equivalency: EEPS 461.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
<th>Restrictions</th>
<th>Credit Hours</th>
<th>Grade Mode</th>
<th>Department</th>
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</thead>
<tbody>
<tr>
<td>EEPS 467</td>
<td>Undergraduate Equivalency: EEPS 467</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 467.</td>
<td>Graduate</td>
<td></td>
<td>Enrollment is limited to Graduate level students.</td>
<td>3</td>
<td>Lecture</td>
<td>Earth/Environmnt/Planetary Sci</td>
</tr>
<tr>
<td>EEPS 665</td>
<td>GEODEYNAMICS</td>
<td>FUNDEMENTS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 467.</td>
<td>Graduate</td>
<td>Introduction to geodynamics and applications in geodynamics, mantle and lithospheric processes. Classical and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 468.</td>
<td>Graduate level students.</td>
<td>2</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Earth/Environmnt/Planetary Sci</td>
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<td>EEPS 667</td>
<td>GEOMECHANICS</td>
<td>FUNDAMENTALS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 467.</td>
<td>Graduate</td>
<td>Introduction to volcanoes and associated physical processes. Conceptual and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 468.</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>3</td>
<td>Lecture</td>
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<tr>
<td>EEPS 668</td>
<td>VOLCANOES</td>
<td>VOLCANOES</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Graduate</td>
<td>Lecture</td>
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<td>An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 467.</td>
<td>Graduate</td>
<td>Introduction to volcanoes and associated physical processes. Conceptual and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 468.</td>
<td>Enrollment is limited to Graduate level students.</td>
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<td>Satisfactory/Unsatisfactory</td>
<td>Earth/Environmnt/Planetary Sci</td>
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<td>EEPS 669</td>
<td>PLANETARY VOLCANISM</td>
<td>PLANETARY VOLCANISM</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 467.</td>
<td>Graduate</td>
<td>Introduction to volcanoes and associated physical processes. Conceptual and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 468.</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>2</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Earth/Environmnt/Planetary Sci</td>
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</table>

**Notes:**
- EEPS 465 has credit for EEPS 467.
- EEPS 464 has credit for EEPS 465.
- EEPS 469 has credit for EEPS 468.
- EEPS 467 has credit for EEPS 471.
EEPS 672 - EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS
Short Title: NUMERICAL METHODS EARTH SYSTEM
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to numerical methods with applications in Earth Science using Matlab and COMSOL. Much of the class is spent in the computer lab learning Matlab and COMSOL, followed by hands-on exercises. Graduate/Undergraduate Equivalency: EEPS 472. Mutually Exclusive: Cannot register for EEPS 672 if student has credit for EEPS 472/ESCI 472/ESCI 672. Repeatable for Credit.

EEPS 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory
Credit Hours: 1-4
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EEPS 684 - DECISION MAKING AND ECONOMICS IN THE ENERGY INDUSTRY
Short Title: DECISION MAKING AND ECONOMICS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide students with an understanding of how energy projects are evaluated. Topics include resource-size determination, geologic and economic risk, discounted cash-flow economics, and other common methods used in decision making. Emphasis will be placed on working in teams to understand basic concepts and sensitivities. Graduate/Undergraduate Equivalency: EEPS 484.

EEPS 686 - PETROLEUM INDUSTRY ECONOMICS AND MANAGEMENT
Short Title: PETROLEUM IND ECONOMICS MGMT
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics covered include resource size determination; geologic risk analysis; establishing minimum economic thresholds; economic chance factors; the concepts of present worth, investment efficiency, rates of return. Price forecasting, cost inflation are discussed. Graduate/Undergraduate Equivalency: EEPS 486.

EEPS 688 - ECONOMIC GEOLOGY MINERAL DEPOSITS
Short Title: ECON GEOL MINERAL DEPOSITS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of metallic and nonmetallic mineral deposits, theories of their origin, and classification. The impact of government regulation, economics, production practices, and exploration will be considered. Graduate/Undergraduate Equivalency: EEPS 488.

EEPS 695 - GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS
Short Title: VISUAL DESIGN FOR SCIENTISTS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: A significant portion of a scientists time is spent solving visual design problems (graphics for papers, visual layouts for seminars, posters, teaching). Effective communication of scientific information is part of a scientist's skill set. This class is designed to enhance that skill set in terms of presenting visual information clearly, simply, and effectively. Repeatable for Credit.

EEPS 699 - GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS
Short Title: VISUAL DESIGN FOR SCIENTISTS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A significant portion of a scientists time is spent solving visual design problems (graphics for papers, visual layouts for seminars, posters, teaching). Effective communication of scientific information is part of a scientist's skill set. This class is designed to enhance that skill set in terms of presenting visual information clearly, simply, and effectively. Graduate/Undergraduate Equivalency: EEPS 499. Repeatable for Credit.

EEPS 800 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Earth/Environment/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis research. Recommended Prerequisite(s): Students must pass the preliminary exam before taking this course. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: EEPS
Department Description and Code
• Earth, Environmental, and Planetary Sciences: EEPS

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA
• Bachelor of Science degree: BS

Undergraduate Major Description and Code
• Major in Earth, Environmental, and Planetary Sciences (for both the BA and BS degrees): EEPS

Undergraduate Minor Description and Code
• Minor in Earth, Environmental, and Planetary Sciences: EEPM

Graduate Degree Descriptions and Codes
• Master of Science degree: MS
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Earth Science: ESCI

CIP Code and Description ¹
• EEPS Major/Program: CIP Code/Title: 40.0601 - Geology/Earth Science, General
• ESCI Major/Program: CIP Code/Title: 40.0601 - Geology/Earth Science, General
• EEPM Minor: CIP Code/Title: 40.0601 - Geology/Earth Science, General

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Requirements for the BA Degree with a Major in Earth, Environmental, and Planetary Sciences

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Earth, Environmental, and Planetary Sciences must complete:

- A minimum of 20 courses (60-63 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9 courses (31 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier.) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
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<td>Total Credit Hours Required for the Major in Earth, Environmental, and Planetary Sciences</td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Earth, Environmental, and Planetary Sciences</td>
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</tbody>
</table>

| Degree Requirements |
|---------------------|------------------|----------------|
| Code               | Title            | Credit Hours   |
|                    |                  |                |
| MATH 101           | SINGLE VARIABLE CALCULUS I                      | 3              |
| or MATH 105        | AP/OTH CREDIT IN CALCULUS I                      |                |
| MATH 102           | SINGLE VARIABLE CALCULUS II                     | 3              |
| or MATH 106        | AP/OTH CREDIT IN CALCULUS II                     |                |
| CHEM 121           | GENERAL CHEMISTRY I                              | 3              |
| or CHEM 111        | AP/OTH CREDIT IN GENERAL CHEMISTRY I             |                |
| CHEM 123           | GENERAL CHEMISTRY LABORATORY I                  | 1              |
| or CHEM 113        | AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I         |                |
| CHEM 122           | GENERAL CHEMISTRY II                             | 3              |
| or CHEM 112        | AP/OTH CREDIT IN GENERAL CHEMISTRY II            |                |
| CHEM 124           | GENERAL CHEMISTRY LABORATORY II                 | 1              |
| or CHEM 114        | AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II        |                |
| Select 1 course from the following: |                  | 3-4            |
| EEPS 101           | THE EARTH                                     |                |
| EEPS 107           | THE SCIENCE OF CLIMATE CHANGE                   |                |
| EEPS 108           | NATURAL DISASTERS                              |                |
| EEPS 110           | THE EARTH SYSTEM, ENVIRONMENT, AND SOCIETY      |                |
| EEPS 111           | INHABITING PLANET EARTH                         |                |
| EEPS 115           | THE PLANETS                                    |                |
| EEPS 116           | THE EARTH AND THE SOLAR SYSTEM                  |                |

Bachelor of Arts (BA) Degree with a Major in Earth, Environmental, and Planetary Sciences

Program Learning Outcomes for the BA Degree with a Major in Earth, Environmental, and Planetary Sciences

Upon completing the BA degree with a major in Earth, Environmental, and Planetary Sciences, students will be able to:

1. Demonstrate comprehensive knowledge of how the Earth, and also terrestrial planetary systems, operate over geologic and modern timescales.
2. Demonstrate the ability to make and record observations in the field, and to analyze and interpret these data in the context of the geologic history.
3. Demonstrate effective oral and written communication skills.
4. Demonstrate the ability to apply critical thinking and problem-solving skills to evaluate published research in the Earth, Environmental and Planetary sciences.
Directed Electives in Natural Science and Engineering or above.

Sciences departmental (EEPS) course offerings at the 300-level

Select 4 courses from Earth, Environmental, and Planetary Sciences

Directed Electives in Earth, Environmental, and Planetary Sciences

Directed Electives in Fields Outside Earth, Environmental, and Planetary Sciences

Select 2 courses from the School of Natural Sciences or the School of Engineering course offerings at the 200-level or above.

Total Credit Hours Required for the Major in Earth, Environmental, and Planetary Sciences: 60-63

Additional Credit Hours to Complete Degree Requirements: 26-29

University Credit Hours Requirements (p. 29)

Total Credit Hours: 120

Elective Requirements

Directed Electives in Fields Outside Earth, Environmental, and Planetary Sciences

Select 2-4 courses from either Group A or Group B: 6-8

Group A

Select 1 from the following:

BIOS 201  INTRODUCTORY BIOLOGY I
& BIOS 202  and INTRODUCTORY BIOLOGY II

PHYS 101  MECHANICS (WITH LAB)
& PHYS 103  and MECHANICS DISCUSSION
& PHYS 102  and ELECTRICITY & MAGNETISM (WITH LAB)
& PHYS 104  and ELECTRICITY AND MAGNETISM DISCUSSION

PHYS 125  GENERAL PHYSICS (WITH LAB)
& PHYS 126  and GENERAL PHYSICS II (WITH LAB)

Group B

Select 2 from the following Option Categories:

Option Category - 1

PHYS 101  MECHANICS (WITH LAB)
& PHYS 103  and MECHANICS DISCUSSION

PHYS 125  GENERAL PHYSICS (WITH LAB)

PHYS 102  ELECTRICITY & MAGNETISM (WITH LAB)
& PHYS 104  and ELECTRICITY AND MAGNETISM DISCUSSION

PHYS 126  GENERAL PHYSICS II (WITH LAB)

Option Category - 2

BIOS 211  INTERMEDIATE EXPERIMENTAL BIO SCIENCES
& BIOS 213  and INTRODUCTORY LAB IN ECOLOGY & EVOLUTION

Option Category - 3

MATH 211  ORDINARY DIFFERENTIAL EQUATIONS
AND LINEAR ALGEBRA

Option Category - 4

Directed Electives in Earth, Environmental, and Planetary Sciences

EEPS 220  INTRODUCTION TO COMPUTATION IN THE EARTH, ENVIRONMENT AND PLANETARY SCIENCES
or CAAM 210  INTRODUCTION TO ENGINEERING COMPUTATION

Select 4 courses from Earth, Environmental, and Planetary Sciences departmental (EEPS) course offerings at the 300-level or above. 12

Directed Electives in Natural Science and Engineering

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 CHEM 121 or CHEM 111 can be satisfied by completing CHEM 151; CHEM 123 or CHEM 113 can be satisfied by completing CHEM 153; CHEM 122 or CHEM 112 can be satisfied by completing CHEM 152; CHEM 124 or CHEM 114 can be satisfied by completing CHEM 154.

2 Students may select any course from Earth, Environmental, and Planetary Sciences departmental (EEPS) course offerings between course numbers EEPS 300:399, EEPS 407:476, EEPS 495:499 to fulfill the 4 courses (minimum of 12 credit hours) from departmental (EEPS) course offerings.

3 Courses must be approved by the department undergraduate advisor. Courses from the School of Natural Sciences or the School of Engineering include the following subject codes: ASTR, BIOS, BIOE, CAAM, CEVE, CHBE, CHEM, COMP, DSCI, EEPS, ELEC, ENGI, ENST, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYS, STAT.

Policies for the BA Degree with a Major in Earth, Environmental, and Planetary Sciences

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Earth, Environmental, and Planetary Sciences should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Earth, Environmental, and Planetary Sciences may not additionally pursue the BS Degree with a Major in Earth, Environmental, and Planetary Sciences.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their
academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Earth, Environmental, and Planetary Sciences should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Earth Environmental, and Planetary Sciences major page, on the Department of Earth, Environmental, and Planetary Sciences website: https://earthscience.rice.edu/academics/undergraduate-program/

Opportunities for the BA Degree with a Major in Earth, Environmental, and Planetary Sciences

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Undergraduate Independent Research
The department encourages, but does not require, Earth, Environmental, and Planetary Sciences undergraduate majors to pursue independent supervised research in EEPS 481. This can also be carried out as part of the Earth, Environmental, and Planetary Sciences Honors Thesis Program (described below), or independently with a faculty mentor. Undergraduates enrolled in the Honors Research program automatically will be eligible for consideration for Distinction in Research and Creative Work. Other students who wish to be considered for this honor within the EEPS majors should discuss with an EEPS major advisor at the beginning of their senior year.

Honors Research
Undergraduates are encouraged to embark on an undergraduate honors thesis. The purpose of the honors thesis is for students to develop and demonstrate their creative and independent research potential. Students are recommended to begin in the fall of their junior year to provide ample time for research projects to be developed, executed and written. Students are expected to enroll in at least two semesters of the course EEPS 481, spanning their senior year. Juniors who have identified a research project and mentor can also enroll in EEPS 481. Students should sign up for EEPS 481 for 3 credits.

Criteria for Participating in Undergraduate Honors Thesis Research
• Strong performance in ESCI courses, in particular, EEPS 321, EEPS 322, EEPS 323, EEPS 324, and EEPS 334
• Letter of recommendation of a faculty research mentor
• Brief research proposal

Requirements and Recommendations for Completing an Undergraduate Honors Thesis

Spring Semester of Junior Year
Students are encouraged to choose their honors thesis research topic during their junior year. Each candidate should identify a faculty research advisor, and initiate independent research. The student should select a thesis committee, consisting of a faculty advisor, one member of the honors thesis committee, and one other faculty member of their choosing. By the end of their spring semester, candidates are expected to turn in a preliminary written proposal (2 pages), accompanied by a formal application, both of which will be evaluated by the honors thesis committee for consideration of acceptance into the honors thesis program in their senior year. Recommended courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EEPS 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>1</td>
</tr>
</tbody>
</table>

If they have already identified a research project by the beginning of the semester, they may also take:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EEPS 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Fall Semester of Senior Year
Students accepted into the honors thesis program continue to develop and refine their proposed research in concert with their research advisor and thesis committee. Students participate in meetings with other honors thesis candidates to discuss basic research protocols and philosophies, and meet independently with their chosen scientific advisor, and generate data, experiments or models. Students will give oral presentations of their research proposals in public by mid-semester, in the presence of their examining committee. At the end of the semester, students must submit final versions of their proposals, describing motivation, hypothesis, methodology, and preliminary results. The honors thesis committee will evaluate the proposals, and if approved, students can continue in the honors thesis program. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tr>
<td>EEPS 401</td>
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<tr>
<td>EEPS 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>1-6</td>
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</table>

Spring Semester of Senior Year
Students continue and complete their research. A mid-semester progress report must be submitted to the thesis committee for feedback. At the end of the spring semester, students submit their final theses, and give public oral exit talks. To complete the honors thesis program, student theses must be approved by the honors thesis committee. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
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<td>EEPS 401</td>
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Requirements for the BS Degree with a Major in Earth, Environmental, and Planetary Sciences

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Earth, Environmental, and Planetary Sciences must complete:

- A minimum of 22-24 courses (68-71 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 10-12 courses (30-36 credit hours), depending on course selection, taken at the 300-level or above.
- The requirements for one area of specialization (see below for areas of specialization). The BS degree with a major in Earth, Environmental, and Planetary Sciences offers three areas of specialization:
  - Environmental Earth Science (p. 825), or
  - Geoscience (p. 825), or
  - Planetary Science (p. 826).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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<td>Total Credit Hours Required for the Major in Earth, Environmental, and Planetary Sciences</td>
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<td>Total Credit Hours Required for the BS Degree with a Major in Earth, Environmental, and Planetary Sciences</td>
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Degree Requirements

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<td>Core Requirements</td>
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<td>MATH 101</td>
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<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<td>MATH 102</td>
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<td>or MATH 106</td>
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<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
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<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I ¹</td>
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</tr>
<tr>
<td>or CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I ¹</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
<td></td>
</tr>
<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II ¹</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 112</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>CHEM 124</td>
<td>GENERAL CHEMISTRY LABORATORY II ¹</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 114</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 from the following: 4
Areas of Specialization

To fulfill the remaining Earth, Environmental, and Planetary Sciences major requirements, students must complete one of the following areas of specialization. Students are encouraged to discuss course selection with their academic advisor. Course lists to satisfy requirements are listed below the areas of specialization.

Area of Specialization: Environmental Earth Science
To fulfill the remaining Earth, Environmental, and Planetary Sciences major requirements, students pursuing the Environmental Earth Science area of specialization must complete a minimum of 7 courses (21-23 credit hours, depending on course selection) as listed below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area of Specialization: Environmental Earth Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 1 course from each of the following 5 fields (see course lists below):</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Breadth in Environmental Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Climate, Atmosphere, and Water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental Geochemistry and Geophysics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modeling and Computation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface Processes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 2 courses from the following:</td>
<td>6-8</td>
</tr>
<tr>
<td></td>
<td>Any course from Earth, Environmental, and Planetary Sciences departmental (EEPS) course offerings between course numbers EEPS 407:480, EEPS 482:490, EEPS 492:499</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOS 201 INTRODUCTORY BIOLOGY I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BIOS 202 INTRODUCTORY BIOLOGY II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 211 ORGANIC CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&amp; CHEM 213 ORGANIC CHEMISTRY DISCUSSION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 212 ORGANIC CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&amp; CHEM 214 ORGANIC CHEM DISCUSSION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EEPS 390 GEOLOGY FIELD CAMP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or EEPS 391 EARTH SCIENCE FIELD EXPERIENCE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 212 MULTIVARIABLE CALCULUS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 201 WAVES, LIGHT, AND HEAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STAT 280 ELEMENTARY APPLIED STATISTICS</td>
<td></td>
</tr>
</tbody>
</table>

Any course at the 300-level (or above) from the following subject codes: BIOS, CAAM, CEVE, CHEM, ENVS, MATH, MECH, PHYS, or STAT

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>21-23</td>
</tr>
</tbody>
</table>

Area of Specialization: Geoscience
To fulfill the remaining Earth, Environmental, and Planetary Sciences major requirements, students pursuing the Geoscience area of specialization must complete a minimum of 7 courses (21-23 credit hours, depending on course selection) as listed below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area of Specialization: Geoscience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 1 course from each of the following 4 fields (see course lists below):</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Deformation and Dynamics</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 CHEM 121 or CHEM 111 can be satisfied by completing CHEM 151; CHEM 123 or CHEM 113 can be satisfied by completing CHEM 153; CHEM 122 or CHEM 112 can be satisfied by completing CHEM 152; CHEM 124 or CHEM 114 can be satisfied by completing CHEM 154.
Bachelor of Science (BS) Degree with a Major in Earth, Environmental, and Planetary Sciences

Geophysics

Petroleum, Geochemistry, and Materials Characterization

Surface Processes

Elective Requirements

Select a minimum of 2 courses from the following:

Any course from Earth, Environmental, and Planetary Sciences departmental (EEPS) course offerings between course numbers EEPS 407:480, EEPS 482:490, EEPS 492:499

BIOS 201 INTRODUCTORY BIOLOGY I

BIOS 202 INTRODUCTORY BIOLOGY II

BIOS 211 INTERMEDIATE EXPERIMENTAL BIOSCIENCES

CHEM 211 ORGANIC CHEMISTRY I & CHEM 213 ORGANIC CHEMISTRY DISCUSSION

CHEM 212 ORGANIC CHEMISTRY II & CHEM 214 ORGANIC CHEM DISCUSSION II

EEPS 390 GEOLOGY FIELD CAMP

or EEPS 391 EARTH SCIENCE FIELD EXPERIENCE

MATH 212 MULTIVARIABLE CALCULUS

PHYS 201 WAVES, LIGHT, AND HEAT

Any course at the 300-level (or above) from the following subject codes: ASTR, CAAM, CHEM, MATH, MECH, PHYS, or STAT

Total Credit Hours 21-23

Footnotes and Additional Information

1 Students following the Geoscience area of specialization must complete EEPS 445 in addition to 1 course (minimum of 3 credit hours) from the Geophysics field. See course lists below.

Area of Specialization: Planetary Science

To fulfill the remaining Earth, Environmental, and Planetary Sciences major requirements, students pursuing the Planetary Science area of specialization must complete a minimum of 7 courses (21-23 credit hours, depending on course selection) as listed below.

Code Title Credit Hours

Area of Specialization: Planetary Science

Select at least 1 course from each of the following 5 fields (see course lists below):

Deformation and Dynamics
Modeling and Computation
Petroleum, Geochemistry, and Materials Characterization
Solar System Workings
Surface Processes

Elective Requirements

Select a minimum of 2 courses from the following:

Any course from Earth, Environmental, and Planetary Sciences departmental (EEPS) course offerings between course numbers EEPS 407:480, EEPS 482:490, EEPS 492:499

EEPS 390 GEOLOGY FIELD CAMP

or EEPS 391 EARTH SCIENCE FIELD EXPERIENCE

MATH 212 MULTIVARIABLE CALCULUS

Total Credit Hours 21-23

Course Lists to Satisfy Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 310</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 434</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 444</td>
<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 518</td>
<td>ENVIRONMENTAL HYDROGEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 307 / CEVE 307 / ENST 307</td>
<td>ENERGY AND THE ENVIRONMENT</td>
<td>3</td>
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</table>

Climate, Atmosphere, and Water

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 411</td>
<td>ATMOSPHERIC CHEMISTRY AND CLIMATE</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 412</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 432</td>
<td>QUANTITATIVE HYDROGEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 433</td>
<td>CLIMATE DYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 434</td>
<td>CLIMATE OF THE COMMON ERA</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 543</td>
<td>EARTH'S ATMOSPHERE</td>
<td>3</td>
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</table>

Deformation and Dynamics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 460</td>
<td>GLOBAL TECTONICS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 461</td>
<td>STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 462</td>
<td>TECTONOPHYSICS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 464</td>
<td>INTRODUCTION TO THE HEAT AND MASS TRANSPORT PROCESSES OF PLANETARY INTERIORS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 465</td>
<td>ROCK DEFORMATION AND RHEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 467</td>
<td>GEOMECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 468</td>
<td>VOLCANOES</td>
<td>3</td>
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</tbody>
</table>

Environmental Geochemistry and Geophysics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>EEPS 418</td>
<td>ISOTOPE GEOCHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 420</td>
<td>ORGANIC GEOCHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 458</td>
<td>ENVIRONMENTAL &amp; APPLIED ROCK PHYSICS</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
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<tr>
<td>----------</td>
<td>------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>EEPS 445</td>
<td>EARTH AND PLANETARY INTERIORS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 446</td>
<td>SEISMOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 448</td>
<td>EXPLORATION GEOPHYSICS</td>
<td>4</td>
</tr>
<tr>
<td>EEPS 450</td>
<td>GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 451</td>
<td>GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 454</td>
<td>INTRODUCTION TO SEISMIC INTERPRETATION: STRUCTURAL STYLES AND SEISMIC STRATIGRAPHY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 458</td>
<td>ENVIRONMENTAL &amp; APPLIED ROCK PHYSICS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 459</td>
<td>WELL LOGGING AND PETROPHYSICS</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>EEPS 471</td>
<td>EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 472</td>
<td>EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 417 / CEVE 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 454 / BIOE 454 / CEVE 454</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>EEPS 410</td>
<td>OPTICAL MINERALOGY AND PETROGRAPHY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 411</td>
<td>CHARACTERIZATION OF EARTH, ENVIRONMENTAL, AND PLANETARY MATERIALS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 412</td>
<td>ADVANCED PETROLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 413</td>
<td>ADVANCED PETROLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 418</td>
<td>ISOTOPE GEOCHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ASTR 101</td>
<td>STARS, GALAXIES, AND THE UNIVERSE</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 102</td>
<td>EXPLORATION OF THE SOLAR SYSTEM</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 230</td>
<td>ASTRONOMY LAB</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 243</td>
<td>LIVING WITH A STAR: THE PHYSICS OF THE SUN-EARTH CONNECTION</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>EEPS 415</td>
<td>GEOCHEMISTRY OF EARTH’S SURFACE</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 426</td>
<td>GEOMORPHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 427</td>
<td>MECHANICS OF SEDIMENT TRANSPORT</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 Students following the Geoscience area of specialization must complete EEPS 445 in addition to 1 course (minimum of 3 credit hours) from the Geophysics field.

Policies for the BS Degree with a Major in Earth, Environmental, and Planetary Sciences

Program Restrictions and Exclusions

Students pursuing the BS Degree with a Major in Earth, Environmental, and Planetary Sciences should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Earth, Environmental, and Planetary Sciences may not additionally pursue the BA Degree with a Major in Earth, Environmental, and Planetary Sciences.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Earth, Environmental, and Planetary Sciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Earth Environmental, and Planetary Sciences major page, on the Department of Earth, Environmental, and Planetary Sciences website: https://earthscience.rice.edu/academics/undergraduate-program/
Opportunities for the BS Degree with a Major in Earth, Environmental, and Planetary Sciences

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Undergraduate Independent Research

The department encourages, but does not require, Earth, Environmental, and Planetary Sciences undergraduate majors to pursue independent supervised research in EEPS 481. This can also be carried out as part of the Earth, Environmental, and Planetary Sciences Honors Thesis Program (described below), or independently with a faculty mentor. Undergraduates enrolled in the Honors Research program automatically will be eligible for consideration for Distinction in Research and Creative Work. Other students who wish to be considered for this honor within the EEPS majors should discuss with an EEPS major advisor at the beginning of their senior year.

Honors Research

Undergraduates are encouraged to embark on an undergraduate honors thesis. The purpose of the honors thesis is for students to develop and demonstrate their creative and independent research potential. Students are recommended to begin in the fall of their junior year to provide ample time for research projects to be developed, executed and written. Students are expected to enroll in at least two semesters of the course EEPS 481, spanning their senior year. Juniors who have identified a research project and mentor can also enroll in EEPS 481. Students should sign up for EEPS 481 for 3 credits.

Criteria for Participating in Undergraduate Honors Thesis Research

- Strong performance in ESCI courses, in particular, EEPS 321, EEPS 322, EEPS 323, EEPS 324, and EEPS 334
- Letter of recommendation of a faculty research mentor
- Brief research proposal

Requirements and Recommendations for Completing an Undergraduate Honors Thesis

Spring Semester of Junior Year

Students are encouraged to choose their honors thesis research topic during their junior year. Each candidate should identify a faculty research advisor, and initiate independent research. The student should select a thesis committee, consisting of a faculty advisor, one member of the honors thesis committee, and one other faculty member of their choosing. By the end of their spring semester, candidates are expected to turn in a preliminary written proposal (2 pages), accompanied by a formal application, both of which will be evaluated by the honors thesis committee for consideration of acceptance into the honors thesis program in their senior year. Recommended courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESS</td>
<td>1</td>
</tr>
</tbody>
</table>

If they have already identified a research project by the beginning of the semester, they may also take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Fall Semester of Senior Year

Students accepted into the honors thesis program continue to develop and refine their proposed research in concert with their research advisor and thesis committee. Students participate in meetings with other honors thesis candidates to discuss basic research protocols and philosophies, and meet independently with their chosen scientific advisor, and generate data, experiments or models. Students will give oral presentations of their research proposals in public by mid-semester, in the presence of their examining committee. At the end of the semester, students must submit final versions of their proposals, describing motivation, hypothesis, methodology, and preliminary results. The honors thesis committee will evaluate the proposals, and if approved, students can continue in the honors thesis program. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>1</td>
</tr>
<tr>
<td>EEPS 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Spring Semester of Senior Year

Students continue and complete their research. A mid-semester progress report must be submitted to the thesis committee for feedback. At the end of the spring semester, students submit their final theses, and give public oral exit talks. To complete the honors thesis program, student theses must be approved by the honors thesis committee. Required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 401</td>
<td>SEMINAR: UNDERGRADUATE HONORS THESIS</td>
<td>1</td>
</tr>
<tr>
<td>EEPS 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Further details about the program, and expectations and criteria for the thesis proposal and final thesis can be found on the Department of Earth, Environmental, and Planetary Sciences website (https://earthscience.rice.edu/academics/undergraduate-program/honors-thesis/).

Application Process

Students must apply and be accepted to participate in the senior honors research program. The application form can be downloaded from Department of Earth, Environmental, and Planetary Sciences website (https://earthscience.rice.edu/academics/undergraduate-program/honors-thesis/), and should be submitted along with an approximately two page thesis proposal at the end of the spring semester of the junior year.

Other Points of Consideration

Students who are accepted into the ‘RUSP: Rice Undergraduate Scholars Program’ can substitute EEPS 481 courses for semesters 2 and 3 with...
HONS 470 and HONS 471. However, the students will have to meet all other requirements of the honors thesis set by the department.

Additional Information
For additional information, please see the Earth, Environmental, and Planetary Sciences major page, on the Department of Earth, Environmental, and Planetary Sciences website: [https://earthscience.rice.edu/academics/undergraduate-program/](https://earthscience.rice.edu/academics/undergraduate-program/)

Doctor of Philosophy (PhD) Degree in the field of Earth Science

Program Learning Outcomes for the PhD Degree in the field of Earth Science

Upon completing the PhD degree in the field of Earth Science, students will be able to:

1. Understand the structure and composition of the Earth and Planets, their evolution, and how the Earth changes over time.
2. Use appropriate computational or analytical techniques in the conduct of research investigations.
3. Demonstrate significant skills in scientific communication, written and oral.
4. Demonstrate peer-reviewed literature, and to write and publish a substantial contribution.

Requirements for the PhD Degree in the field of Earth Science

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

All incoming students should have a strong background in physics, chemistry, and mathematics and should have, or should acquire, a broad grounding in fundamental earth science. The department encourages applications from well-qualified students with degrees in the other sciences, mathematics, or engineering. The requirements for the MS and PhD Degrees in earth science are similar, but the PhD demands a significantly higher level of knowledge, research skills, and scholarly independence. Most students need at least two years beyond the bachelor’s degree to complete the MS or four years beyond the bachelor’s degree to complete the PhD.

Candidates determine, with their major professor and thesis committee, a course of study following the [Guidelines for Advanced Degrees in the Department of Earth Science](https://gradhandbooks.rice.edu/2021_22/EEPS_Graduate_Handbook.pdf) handbook, distributed to all incoming students. Students pursuing the MS and PhD degrees in the field of Earth Science must:

- Complete 20 semester hours of coursework at the 500-level or above (or other approved courses), not including research hours
- Pass a written preliminary exam
- Maintain a grade point average of 3.00 (B) or better
- Prepare a written thesis comprised of peer-reviewed publication(s) that represent an original contribution to science
- Defend the research and conclusions of the thesis in an oral examination

Students with a bachelor’s degree and department approval may work directly toward the PhD, in which case the course of study is equivalent to that required for both degrees; performance on the examinations and the thesis, however, should be at the level required for the PhD. Because the graduate programs require full-time study and close interaction with faculty and fellow students, the department discourages students from holding full-time (or nearly full-time) jobs outside the university. Outside employment must be approved by the chair.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours for the PhD Degree in the field of Earth Science</td>
<td>90</td>
</tr>
</tbody>
</table>

Policies for the PhD Degree in the field of Earth Science

Department of Earth, Environmental, and Planetary Science Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Earth, Environmental, and Planetary Science publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/EEPS_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/EEPS_Graduate_Handbook.pdf)

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Earth Science should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Earth, Environmental, and Planetary Science website: [https://earthscience.rice.edu/](https://earthscience.rice.edu/)

Opportunities for the PhD Degree in the field of Earth Science

Additional Information

For additional information, please see the Earth, Environmental, and Planetary Science website: [https://earthscience.rice.edu/](https://earthscience.rice.edu/)
Master of Science (MS) Degree in the field of Earth Science

Program Learning Outcomes for the MS Degree in the field of Earth Science

Upon completing the MS degree in the field of Earth Science, students will be able to:

1. Understand the structure and composition of the Earth and Planets, their evolution, and how the Earth changes over time.
2. Use appropriate computational or analytical techniques in the conduct of research investigations.
3. Demonstrate significant skills in scientific communication, written and oral.
4. Develop the ability to contribute to the peer-reviewed literature.

Requirements for the MS Degree in the field of Earth Science

The MS degree is a thesis master's degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). All incoming students should have a strong background in physics, chemistry, and mathematics and should have, or should acquire, a broad grounding in fundamental earth science. The department encourages applications from well-qualified students with degrees in the other sciences, mathematics, or engineering. The requirements for the MS and PhD in earth science are similar, but the PhD demands a significantly higher level of knowledge, research skills, and scholarly independence. Most students need at least 2 years beyond the bachelor's degree to complete the MS or 4 years beyond the bachelor's degree to complete the PhD.

Candidates determine, with their major professor and thesis committee, a course of study following the Guidelines for Advanced Degrees in the Department of Earth Science handbook, distributed to all incoming students. For both degrees, candidates must:

- Complete a minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.
- Complete 20 semester hours of coursework at the 500-level or above (or other approved courses), not including research hours
- Pass a written preliminary exam
- Maintain a grade point average of 3.00 (B) or better
- Prepare a written thesis comprised of peer-reviewed publication(s) that represent an original contribution to science
- Defend the research and conclusions of the thesis in an oral examination

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MS Degree in the field of Earth Science</td>
<td>30</td>
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</tbody>
</table>

Policies for the MS Degree in the field of Earth Science

Department of Earth, Environmental, and Planetary Science Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Earth, Environmental, and Planetary Science publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/EEPS_Graduate_Handbook.pdf

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Earth Science should be aware of the following departmental transfer credit guidelines

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Earth, Environmental, and Planetary Science website: https://earthscience.rice.edu/

Opportunities for the MS Degree in the field of Earth Science

Additional Information

For additional information, please see the Earth, Environmental, and Planetary Science website: https://earthscience.rice.edu/

Minor in Earth, Environmental, and Planetary Sciences

Program Learning Outcomes for the Minor in Earth, Environmental, and Planetary Sciences

Upon completing the minor in Earth, Environmental, and Planetary Sciences, students will be able to:

1. Demonstrate a comprehensive knowledge of the structure of the earth from core to atmosphere, and how it has changed over time.
2. Acquire and demonstrate knowledge in a number of advanced earth, environmental, and planetary topics of their choosing.

Requirements for the Minor in Earth, Environmental, and Planetary Sciences

Students pursuing the minor in Earth, Environmental, and Planetary Sciences must complete:

- A minimum of 6 courses (19-24 credit hours, depending on course selection), to satisfy minor requirements.
A minimum of 5 courses (15 credit hours) taken at the 300-level or above.
A minimum of 3 courses (9 credit hours) to satisfy the Core Requirements.
A minimum of 3 courses (9 credit hours) to satisfy the Elective Requirements.
A maximum of 1 course (3 credit hours) from study abroad or transfer credit. No courses for study abroad or other transfer credit will be accepted for upper-level coursework (taken at the 300-level or above).

For additional departmental guidelines regarding transfer credit, see the Policies (p. 831) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Earth, Environmental, and Planetary Sciences</td>
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Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td>Select 1 course from the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>EEPS 101</td>
<td>THE EARTH</td>
<td></td>
</tr>
<tr>
<td>EEPS 107</td>
<td>THE SCIENCE OF CLIMATE CHANGE</td>
<td></td>
</tr>
<tr>
<td>EEPS 109</td>
<td>OCEANOGRAPHY</td>
<td></td>
</tr>
<tr>
<td>EEPS 110</td>
<td>THE EARTH SYSTEM, ENVIRONMENT, AND SOCIETY</td>
<td></td>
</tr>
<tr>
<td>EEPS 111</td>
<td>INHABITING PLANET EARTH</td>
<td></td>
</tr>
<tr>
<td>EEPS 115</td>
<td>THE PLANETS</td>
<td></td>
</tr>
<tr>
<td>EEPS 116</td>
<td>THE EARTH AND THE SOLAR SYSTEM</td>
<td></td>
</tr>
<tr>
<td>Select 2 courses from the following:</td>
<td>7-8</td>
<td></td>
</tr>
<tr>
<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
<td></td>
</tr>
<tr>
<td>EEPS 322</td>
<td>EARTH AND PLANETARY CHEMISTRY AND MATERIALS</td>
<td></td>
</tr>
<tr>
<td>EEPS 323</td>
<td>EARTH AND PLANETARY STRUCTURE AND DYNAMICS</td>
<td></td>
</tr>
<tr>
<td>EEPS 325</td>
<td>OCEANS, ATMOSPHERES AND CLIMATE</td>
<td></td>
</tr>
<tr>
<td>EEPS 334</td>
<td>THE EARTH LABORATORY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
<td>9-12</td>
</tr>
<tr>
<td>Select 3 courses from Earth, Environmental, and Planetary Sciences departmental course offerings (EEPS) at the 300-level or above,</td>
<td>9-12</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 19-24

Footnotes and Additional Information

1. Courses not used to fulfill Core Requirements may be used to meet Elective Requirements. A minimum of 5 courses (15 credit hours) must be taken at the 300-level or above.

Policies for the Minor in Earth, Environmental, and Planetary Sciences

Program Restrictions and Exclusions

Students pursuing the minor in Earth, Environmental, and Planetary Sciences should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Earth, Environmental, and Planetary Sciences should be aware of the following departmental transfer credit guidelines:

- Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Earth, Environmental, and Planetary Sciences website: https://earthscience.rice.edu/

Opportunities for the Minor in Earth, Environmental, and Planetary Sciences

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Earth, Environmental, and Planetary Sciences website: https://earthscience.rice.edu/

Economics

Contact Information

Economics
Students will learn the basic principles of microeconomics, macroeconomics, and econometrics, and how to apply those principles in studying economic phenomena and analyzing public policy issues.

Undergraduates may major in one of the following: economics, mathematical economic analysis, or managerial economics and organizational sciences. The major in mathematical economic analysis is a mathematically-intensive course of study recommended for students who intend to pursue graduate work in economics or a business or governmental job in which extensive analytical and quantitative skills are required. The major in managerial economics and organizational sciences exposes students to the broader contexts of business and management, via required courses in economics, political science, and psychology.

Master of Energy Economics (MEEcon) students will be able to produce insightful analyses of energy markets to inform such things as capital asset decisions, firm strategic direction, and future market orientation.

The PhD program in economics equips students with the theoretical and empirical skills essential to entering research careers in academia, business, and government.

Bachelor’s Programs

- Bachelor of Arts (BA) Degree with a Major in Economics (p. 850)
- Bachelor of Arts (BA) Degree with a Major in Managerial Economics and Organizational Sciences (p. 1342)
- Bachelor of Arts (BA) Degree with a Major in Mathematical Economic Analysis (p. 1385)

Minor

- Minor in Financial Computation and Modeling (p. 1030)

Master’s Programs

- Master of Energy Economics (MEEcon) Degree (p. 941)
- Master of Arts (MA) Degree in the field of Economics∗

Doctoral Programs

- Doctor of Philosophy (PhD) Degree in the field of Economics
- and a Major Concentration in Econometrics and Quantitative Economics (p. 853)†
- and a Major Concentration in Economics and Finance (p. 855)

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.
† Students are normally admitted directly into the PhD degree in the field of Economics and a Major Concentration in Econometrics and Quantitative Economics.

Chair

George Zodrow

Professors

Kerry E. Back
Richard Thomas Boylan
Bryan W. Brown
James N. Brown
Flávio Cunha
Mahmoud A. El-Gamal
Hülya Eraslan
Jeremy Fox
Peter Reginald Hartley
Vivian Ho
Ted Loch-Temzelides
Isabelle Perrigne
Xun Tang
George Zodrow

Associate Professors

Marc Peter Dudey
Mallesh Pai

Assistant Professors

Nina Bobkova
Rosella Calvi
Maura Coughlin
Yinghua He
Yunmi Kong
Matt Thirkettle

Professors Emeriti

Dagobert Brito
Donald L. Huddle
Peter Mieszkowski
Robin Sickles
Ronald Soligo

Lecturers

Maria Bejan
Michele Biavati
Amelie Carlton
James P. DeNicco
Adjunct Assistant Professors

John Diamond
Kenneth Medlock

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Economics (ECON)

ECON 100 - PRINCIPLES OF ECONOMICS
Short Title: PRINCIPLES OF ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the basic concepts of microeconomics and macroeconomics. Microeconomics component includes analysis of supply and demand, consumer and producer behavior, and competitive and noncompetitive market equilibria, with applications to current policy issues. Macroeconomics component provides an overview of the determination of national output, employment, interest rates, and inflation, and analyzes monetary fiscal policies and international trade. Designed for both non-majors and majors.

ECON 101 - INTRODUCTION TO MICROECONOMICS
Short Title: INTRODUCTION TO MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to microeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 112/ECON 113. Student has credit for ECON 112/ECON 113. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 103 or MTEC majors. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 101. Student has credit for ECON 101. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 111.

ECON 103 - INTRODUCTION TO MACROECONOMICS
Short Title: INTRODUCTION TO MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to macroeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 112/ECON 113. Student has credit for ECON 112/ECON 113. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 103 or MTEC majors. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 101. Student has credit for ECON 101. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 111.
ECON 200 - MICROECONOMICS
Short Title: MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 and (MATH 102 (may be taken concurrently) or MATH 106)
Description: Intermediate level analysis of theories of household behavior, including demand for consumer goods, labor supply, and savings/investment decisions, and producer behavior including the supply of output and demands for labor, capital and other production inputs. Emphasizes individual and interactive decision making under resource constraints and discusses equilibria in competitive markets. MATH 102 may be taken concurrently with ECON 200. As much of the analysis in ECON 200 involves partial differentiation, MATH 212 is strongly recommended. Recommended Prerequisite(s): MATH 212 Mutually Exclusive: Cannot register for ECON 200 if student has credit for ECON 301.

ECON 203 - MACROECONOMICS
Short Title: MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100
Description: Intermediate level analysis of theories of the national economy including output, inflation, interest rates, employment, the business cycle, monetary and fiscal policy, and more generally the role of government in influencing aggregate economic performance. Introduces both the traditional aggregate-only approach to Macroeconomics and the more recent New Classical and New Keynesian micro-foundations approaches. Mutually Exclusive: Cannot register for ECON 203 if student has credit for ECON 303.

ECON 205 - INTRODUCTION TO GAME THEORY
Short Title: INTRODUCTION TO GAME THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides an introduction to game theory, a branch of mathematics that studies decision-making by agents in situations where the outcome for each depends on the actions taken by all. Students will develop a familiarity with analytical tools that have found applications in, for example, economics and other social sciences, biology, computer science, and philosophy. Designed for students who do not wish to major in ECON or MTEC and does not apply to ECON or MTEC major requirements. Mutually Exclusive: Cannot register for ECON 205 if student has credit for ECON 300.

ECON 209 - APPLIED ECONOMETRICS
Short Title: APPLIED ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (ECON 100 or ECON 200) and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Applied econometric methods: econometric theory with practical emphasis on modeling, estimation, and hypothesis testing. A computer lab one day a week focuses on empirical implementation of econometric methods using STATA software. Mutually Exclusive: Cannot register for ECON 209 if student has credit for ECON 309/ECON 446.

ECON 210 - BEHAVIORAL ECONOMICS
Short Title: BEHAVIORAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Examines behavioral economics, which seeks to insert more behavioral realism into economic theory by incorporating into economic models insights based on empirical observations from psychology, sociology, and neuroscience. Emphasizes attempts by behavioral economists to explain anomalies that depart from the predictions of standard economic theory. Topics include temptation and self-control, fairness and reciprocity, reference dependence, bounded rationality and choice under risk and uncertainty.

ECON 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
ECON 239 - LAW AND ECONOMICS
Short Title: LAW AND ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Exploration of the law using economic tools based on microeconomic theory. Focuses on legal issues most applicable to business. Mutually Exclusive: Cannot register for ECON 239 if student has credit for ECON 438.

ECON 260 - MICROECONOMICS AND PUBLIC POLICY
Short Title: MICROECONOMICS & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the microeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 270 - MACROECONOMICS AND PUBLIC POLICY
Short Title: MACROECONOMICS & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the macroeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 275 - INTERNATIONAL MACROECONOMICS AND PUBLIC POLICY
Short Title: INT MACRO & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the macroeconomic component of ECON 100 to the analysis of issues related to international public policy, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 280 - TRANSPORTATION, INFRASTRUCTURE AND LOGISTICS
Short Title: TRANSPORT, INFRASTRU & LOGISTS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: The health of an economy depends critically on the efficient flow of goods and products. This course will analyze the economic impacts of transportation, infrastructure and logistics from a policy perspective. Topics will include technological change, regulation versus deregulation, the impact of globalization, and the roles of government and agencies at various levels. Readings will include specific case studies as well as one or two books giving a broad overview of the importance of transportation policy. It is open to majors and non-majors, has a pre-requisite of ECON 100 or ECON 200, and provides three hours of university credit but does not count toward the ECON or MTEC majors.

ECON 299 - EXPERIENTIAL EDUCATION IN ECONOMICS
Short Title: EXPERIENTIAL EDUC IN ECONOMICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Economics or Mathematical Economic Analysis. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 200
Description: Provides one hour of university credit for faculty-approved internship. Students must obtain approval from a member of the department's undergraduate committee and must submit an offer letter from the internship provider as well as a letter indicating completion and satisfactory performance. Instructor Permission Required. Repeatable for Credit.
ECON 300 - GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS
Short Title: GAME THEORY, MICRO TOPICS/ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Advanced applied analysis of topics in microeconomics designed for students in the ECON major. Topics include the foundations and applications of game theory, the economics of choice under uncertainty, and information economics including issues of asymmetric information. Additional topics may include auction theory and mechanism design. Open to all majors other than MTEC. Mutually Exclusive: Cannot register for ECON 300 if student has credit for ECON 205.

ECON 305 - GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS
Short Title: GAME THEORY, MICRO TOPICS/MTEC
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 307 or STAT 310 or STAT 315 or DSCI 301) and ECON 308
Description: Advanced theoretical analysis of topics in microeconomics, focusing on mathematical modeling. Topics include the foundations and applications of game theory, general equilibrium theory and applications, the economics of choice under uncertainty, and information economics including issues of asymmetric information. Additional topics may include auction theory and mechanism design. Open to all majors but designed for students in the MTEC major. Mutually Exclusive: Cannot register for ECON 305 if student has credit for ECON 405.

ECON 307 - PROBABILITY AND STATISTICS
Short Title: PROBABILITY & STATISTICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102 or MATH 106
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Cross-list: STAT 310. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for ECON 307 if student has credit for BUSI 395.

ECON 308 - MATHEMATICAL ECONOMICS
Short Title: MATHEMATICAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (MATH 212 or (MATH 221 and MATH 222))
Description: Coverage of mathematical topics used in economics, such as linear algebra, optimization, and real analysis, with applications to fundamental topics in economic theory, constrained optimization, labor market dynamics, game theory and Leontief input-output model. Emphasizes logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs. Students must have either (1) made a grade of B- or higher in MATH 212 or MATH 221/MATH 222 taken at Rice, or (2) received transfer credit for MATH 212 or MATH 221/MATH 222 and received approval of the course instructor. Mutually Exclusive: Cannot register for ECON 308 if student has credit for ECON 401.

ECON 310 - ECONOMETRICS
Short Title: ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 209 and ECON 308
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: STAT 376. Mutually Exclusive: Cannot register for ECON 310 if student has credit for ECON 409/STAT 400.

ECON 320 - PUBLIC POLICY AND SOCIAL PROGRAM EVALUATION
Short Title: EVALUATION OF SOCIAL PROGRAMS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 307 or STAT 310 or STAT 315 or SOSC 302
Description: This course covers quantitative methods to evaluate three aspects of public policy and social programs. The first aspect is the quality of the implementation: are public policy and social programs implemented according to plan? The second aspect is impact: are interventions impacting the populations or issues for which they were designed? The third aspect is cost: do the program benefits justify the costs? The course audience are students interested in innovation in public policy and the design of social programs that aim to reduce inequality and to increase prosperity.
ECON 343 - CORPORATE FINANCE
Short Title: CORPORATE FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 100 or ECON 200) and (STAT 280 or STAT 305 or STAT 310 or STAT 315 or ECON 307 or STAT 312 or POLI 395 or PSYC 339 or SOSC 302) and BUSI 305
Description: Corporate financial management including tools used to evaluate and select investment projects and the method of financing those investments. The influence of corporate control on investment decisions. The valuation of stocks, bonds and options using the time value of money, the trade-off between risk and return, and arbitrage. Mutually Exclusive: Cannot register for ECON 343 if student has credit for BUSI 343.

ECON 355 - FINANCIAL MARKETS
Short Title: FINANCIAL MARKETS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Principles governing U.S. and international equity and debt markets, and the interactions between such markets and national monetary and exchange rate policies. Focuses on the role of financial markets and institutions in the allocation and transfer of credit and risk, and examines various existing and suggested regulatory frameworks.

ECON 365 - WORLD ECONOMIC HISTORY
Short Title: WORLD ECONOMIC HISTORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 100 and ECON 200 and ECON 203
Description: Study and analysis of world economy focusing on the economic expansion of Western countries between the 14th and 21st centuries. Emphasis on contextual changes in economy, geography, history, society, culture, religion and politics in determining economic leadership of certain economies, such as Italy, Portugal, Spain, the United Kingdom, Belgium, the Netherlands, France, Germany, Sweden, the United States and Japan. Cross-list: HIST 365.

ECON 399 - INDEPENDENT RESEARCH
Short Title: INDEPENDENT RESEARCH
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and ECON 209 and (ECON 300 or ECON 305)
Description: Independent research project under the supervision of a faculty member who must approve the topic. Consult the department website under "Independent Research" for additional details. Students must have a GPA of 3.0 or higher in the prerequisite courses and must have taken the 400-level course or courses most relevant to the research topic. Faculty advisors may require additional prerequisites. Instructor and department permission required. Not offered during the summer. Instructor Permission Required.

ECON 415 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and "hedonic" equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 515. Mutually Exclusive: Cannot register for ECON 415 if student has credit for ECON 515.

ECON 418 - ECONOMIC FORECASTING
Short Title: ECONOMIC FORECASTING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and ECON 209
Description: Application of econometric techniques to problems in macroeconomics and financial economics. The course focuses on macroeconomic forecasting and test of economic theories using stationary and non-stationary time-series data. Methods include predictive regressions, vector autoregressions, impulse response functions, and variance decomposition. Tests and comparisons of forecast accuracy are also included. Projects will be completed in STATA.
ECON 419 - ADVANCED TOPICS IN ECONOMETRICS
Short Title: ADV TOPICS IN ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 310 or STAT 376
Description: Introduction to advanced econometrics, with an emphasis on methods used in microeconomic applications. Methods covered are used in the estimation of the demand for goods and services, production functions, and for analyzing the impact of social programs.

ECON 422 - INTERNATIONAL ECONOMICS AND FINANCE
Short Title: INTERNATIONAL ECON & FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: Studies the economic relationships among countries. Explores the sources of comparative advantage and reasons for trade policies. Examines foreign exchange and international capital markets and linkages between exchange rates, interest rates, and prices. Includes trade theory, tariffs, and other trade restrictions, an overview of historical and institutional developments, and current policy issues. Mutually Exclusive: Cannot register for ECON 422 if student has credit for ECON 420/ECON 421.

ECON 424 - EMPIRICAL METHODS FOR INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL METHODS FOR IO
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 300 or ECON 305)
Description: Analyzes income redistribution, taxation, the production of public goods, and other actions of the public sector as reasons for redistribution by a political process simultaneously with the economic process of exchange and production. Investigates the connection between public policies and the political forces that shape them.

ECON 425 - INDUSTRIAL ORGANIZATION
Short Title: INDUSTRIAL ORGANIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 300 or ECON 305) and (ECON 209 or ECON 310)
Description: A mathematical approach to topics in industrial organization and market design, including price discrimination, oligopoly, collusion, and auctions.

ECON 432 - POLITICAL ECONOMY
Short Title: POLITICAL ECONOMY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Addresses the role of economics in understanding the legal system, in particular how the law allocates entitlements and risk in property, tort and contract law. Intended primarily for students who are considering attending law school and uses instruction methods appropriate for that goal.

ECON 437 - ENERGY ECONOMICS
Short Title: ENERGY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Cross-list: ENST 437. Graduate/Undergraduate Equivalency: ECON 601. Mutually Exclusive: Cannot register for ECON 437 if student has credit for ECON 601.

ECON 439 - ADVANCED TOPICS IN LAW AND ECONOMICS
Short Title: ADV TOPICS IN LAW AND ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Addresses the role of economics in understanding the legal system, in particular how the law allocates entitlements and risk in property, tort and contract law. Intended primarily for students who are considering attending law school and uses instruction methods appropriate for that goal.

ECON 441 - EMPIRICAL METHODS FOR INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL METHODS FOR IO
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 209
Description: Covers empirical methods for the analysis of markets and industries. Focuses on various topics related to incomplete information in industrial organization. Topics include markets, strategy, interactions among firms, and the pricing of products, including non-linear pricing.
ECON 443 - FINANCIAL ECONOMICS  
Short Title: FINANCIAL ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 305 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)  
Description: Economic analysis of the operation of financial markets from a mathematical and theoretical perspective. Topics include asset pricing, risk management, portfolio theory, arbitrage theory, and market efficiency. Emphasizes the application of the financial concepts to decisions faced by households and firms.

ECON 445 - MANAGERIAL ECONOMICS  
Short Title: MANAGERIAL ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: Application of economics to the determination of the profitability of the firm. Includes organization theory and problems of control. A student may not receive credit for ECON 445 and ECON 245/POLI 245.

ECON 449 - PRINCIPLES OF FINANCIAL ENGINEERING  
Short Title: FINANCIAL ENGINEERING  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (ECON 308 or MATH 211) and MATH 212 and (ECON 310 or STAT 376)  
Description: Covers the use of financial securities and derivatives to take or hedge financial risk positions, including most commonly used instruments, from simple forwards and futures to exotic options and swaptions. Studies the pricing of derivative securities with emphasis on the mechanics and uses of financial engineering methods. Mutually Exclusive: Cannot register for ECON 449 if student has credit for STAT 449.

ECON 450 - ECONOMIC DEVELOPMENT  
Short Title: ECONOMIC DEVELOPMENT  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and ECON 203  
Description: This course covers different dimensions of economic development, focusing on poverty, inequality, demography, and health. It provides an overview of the economies of less developed countries, the lives of the poor, and the theories for why some countries are rich and others are poor. It also describes how labor and credit markets function in poor countries, the consequences for health and education, and the role of institutions.

ECON 452 - RELIGION, ETHICS, AND ECONOMICS  
Short Title: RELIGION, ETHICS, & ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)  
Description: Reviews economic models of the demand, supply, and markets for religion, including the effects of economic conditions on religious choice and vice versa. Students will write a term paper on topics of their choosing, subject to professor's approval. Recommended Prerequisite(s): ECON 209 or ECON 310 or STAT 376.

ECON 455 - MONEY AND BANKING  
Short Title: MONEY AND BANKING  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and ECON 203  
Description: Micro-foundations of monetary, fiscal and financial theory. Examines the unique roles of money and of banking in providing the transactions mechanism and in the functioning of financial markets. Explains the use of valued fiat, unbacked money which appears to violate basic microeconomics, in the context of Samuelson's overlapping generations model, including the implications for monetary and fiscal policy and for inflation. Discusses bank runs and financial instability.
ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.
ECON 483 - PUBLIC FINANCE
Short Title: PUBLIC FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Provides an economic analysis of tax policy, focusing on the current national debate regarding the relative merits of income and consumption-based taxes in terms of equity, efficiency, and simplicity. Analyzes tax effects on individual and business behavior and discusses general equilibrium modeling of the economic and distributional effects of alternative tax reforms. Special topics include optimal taxation, taxation of the family, estate taxation, taxation of electronic commerce, and state and local public finance.

ECON 484 - PUBLIC ECONOMICS
Short Title: PUBLIC ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and MATH 212
Description: Theory and evidence on government expenditure policy. Topics include the theory of public goods, education, state and local public goods, redistribution and welfare policy, cost-benefit analysis, social insurance programs such as social security and unemployment insurance, and health care policy.

ECON 485 - THE ECONOMICS OF SUSTAINABILITY, CONSERVATION, AND PANDEMICS
Short Title: ECON, CONSERVATION & PANDEMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: This course will cover issues related to conservation, sustainability and pandemics from an economics point of view. Topics will include the need for conservation policies and planning, how science informs conservation strategies, incentives and the design of conservation agreements, and the role of deforestation and wildlife markets in pandemic emergence. Policies to reduce the likelihood of pandemic emergence, as well as the effects of pandemics like influenza, HIV, and COVID-19 on the global economy will also be discussed. Recommended Prerequisite(s): MATH 212

ECON 489 - ECONOMICS OF SOCIAL NETWORKS
Short Title: ECONOMICS OF SOCIAL NETWORKS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 209
Description: This course introduces research on social networks and analyzes how these networks affect our choices: the products we buy, the careers we follow, whom we marry, how we raise our children. Students will learn about network measurement and formation and the influence of social networks on our decisions.

ECON 496 - RESEARCH IN ECONOMIC THEORY
Short Title: RESEARCH IN ECONOMIC THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305
Description: Capstone course for MTEC majors whose primary interest is in economic theory. Review and analysis of seminal and current research in economic theory, including independent analysis by the student. Topics vary from year to year.

ECON 497 - RESEARCH IN ECONOMETRICS
Short Title: RESEARCH IN ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305
Description: Capstone course for MTEC majors whose primary interest is in econometrics. Review and analysis of seminal and current research in econometrics, including independent analysis by the student. Topics vary from year to year.
ECON 498 - HONORS PROGRAM IN ECONOMICS-I
Short Title: HONORS PROGRAM IN ECONOMICS-I
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 209 or ECON 310) and (ECON 300 or ECON 305)
Description: Research workshop open to ECON and MTEC majors. Students must have a GPA of at least 3.67 in all courses taken toward satisfying major requirements, and must have taken all ECON courses directly related to the topic of their research. Students develop a research idea, construct an economic model with testable hypotheses, test those hypotheses, and write and present an academic quality paper. Econometrics pre-requisite is ECON 209 for ECON majors and ECON 310 for MTEC majors.

ECON 499 - HONORS PROGRAM IN ECONOMICS-II
Short Title: HONORS PROGRAM IN ECONOMICS-II
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 498
Description: Continuation of ECON 498. University credit only.

ECON 501 - MICROECONOMICS I
Short Title: MICROECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal mathematical treatments of the classic topics in microeconomics: consumer and producer theory, choice under risk and uncertainty, revealed preference theory and general equilibrium theory. Introduces and uses mathematical tools that are the workhorses of economic theory: real analysis, constrained optimization, monotone comparative statics and fixed point theorems.

ECON 502 - MACROECONOMICS
Short Title: MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of static general equilibrium theory; elements of functional analysis for optimization; deterministic and stochastic difference equations, local stability analysis; introduction to Markov processes; dynamic optimization techniques, including stochastic optimal control theory, dynamic programing, and robust control; applications to growth theory, search, industrial organization, and monetary economics; dynamic stochastic general equilibrium modeling.

ECON 504 - COMPUTATIONAL ECONOMICS
Short Title: COMPUTATIONAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 505 and ECON 508 and ECON 510 and ECON 511 and MATH 321
Description: Numerical methods most commonly used in economics and their application to frontier research projects in economic modeling. Topics include optimization theory and numerical integration. Cross-list: STAT 604.

ECON 505 - FINANCIAL ECONOMICS I
Short Title: FINANCIAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502
Description: Introduction to asset pricing and portfolio choice theory. Covers mathematical analysis of single-period and dynamic models, including pricing by arbitrage, mean-variance analysis, factor models, dynamic optimization, recursive utility, and an introduction to continuous-time finance. Cross-list: BUSI 521.

ECON 507 - MATHEMATICAL ECONOMICS I
Short Title: MATHEMATICAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to provide the first-year PhD students in Economics with the essential mathematical tools. The course covers topics in real analysis, topology, linear algebra, etc. Aside from providing the mathematical tools, a primary aim of this course is to develop the level of mathematical sophistication necessary to conduct research in modern economics. The course will therefore emphasize logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs.

ECON 508 - MICROECONOMICS II
Short Title: MICROECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and MATH 321
Description: Two modules: (1) Introduces students to the mathematical tools of game theory and the modeling of economic settings as games. Covers normal form games, extensive form games with perfect information, Bayesian games, and extensive form games with imperfect information; (2) introduces students to information economics and the theory of mechanism design. Applies tools from game theory and linear and non-linear
ECON 509 - TOPICS IN MICROECONOMICS
Short Title: TOPICS IN MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Discussion of selected topics in microeconomic theory. Repeatable for credit. The Spring 2021 topic was Psychology and Economics, especially individual choice under risk and uncertainty, reference-dependent preferences, temptation and self-control, other-regarding preferences, behavioral game theory, and bounded rationality. Repeatable for Credit.

ECON 510 - ECONOMETRICS I
Short Title: ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508 or STAT 610
Description: Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on critical analysis of the literature. Cross-list: STAT 610.

ECON 511 - ECONOMETRICS II
Short Title: ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: STAT 611.

ECON 512 - INTERNATIONAL TRADE THEORY
Short Title: INTERNATIONAL TRADE THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploration of classical, neoclassical, and modern trade theory. Includes welfare aspects of trade such as the theory of commercial policy, with emphasis on applications.

ECON 514 - EMPIRICAL INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL INDUSTRIAL ORGANIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include structural analysis of auction, nonlinear pricing, insurance and bargaining data. Emphasizes the use of advanced econometric methods (nonparametric and semiparametric) to estimate and test models under incomplete information.

ECON 515 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Mathematical and statistical analysis of empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and "hedonic" equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 415. Mutually Exclusive: Cannot register for ECON 515 if student has credit for ECON 415.

ECON 516 - EMPIRICAL INDUSTRIAL ORGANIZATION II
Short Title: EMPIRICAL INDUSTRIAL ORGANIZATION II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Overview of methods used in empirical microeconomic research. Examples are drawn from health economics, law and economics, and business economics. Emphasis is placed on designing econometric and statistical analyses to test economic hypotheses. Class projects will expand on analyses from previously published studies.

ECON 517 - EMPIRICAL MICROECONOMICS
Short Title: EMPIRICAL MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 514
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: STAT 611.

ECON 518 - LABOR ECONOMICS II
Short Title: LABOR ECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 515
Description: Mathematical and statistical analysis of empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and "hedonic" equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 415. Mutually Exclusive: Cannot register for ECON 518 if student has credit for ECON 415.

ECON 519 - EMPIRICAL INDUSTRIAL ORGANIZATION III
Short Title: EMPIRICAL INDUSTRIAL ORG III
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 516
Description: Overview of methods used in empirical microeconomic research. Examples are drawn from health economics, law and economics, and business economics. Emphasis is placed on designing econometric and statistical analyses to test economic hypotheses. Class projects will expand on analyses from previously published studies.

ECON 520 - TOPICS IN MICROECONOMICS
Short Title: TOPICS IN MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 517 or STAT 611
Description: Discussion of selected topics in microeconomic theory. Repeatable for credit. The Spring 2021 topic was Psychology and Economics, especially individual choice under risk and uncertainty, reference-dependent preferences, temptation and self-control, other-regarding preferences, behavioral game theory, and bounded rationality. Repeatable for Credit.
ECON 518 - INTERNATIONAL MACROECONOMICS
Short Title: INTERNATIONAL MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Effects of fiscal and monetary policies on exchange rates and the current account and balance of payments. Includes exchange market efficiency, exchange rates and prices, LDC debt, and policy coordination.

ECON 519 - ECONOMIC GROWTH AND DEVELOPMENT
Short Title: ECONOMIC GROWTH & DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511
Description: Mathematical and statistical analysis of topics in microeconomic development and introduction to some frequently used applied econometric methods. Topics covered include poverty and inequality, health, education, fertility, marriage markets, and other gender issues. Special focus is given to intra-household bargaining models and their applications.

ECON 521 - MATCHING AND MARKET DESIGN
Short Title: MATCHING AND MARKET DESIGN
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 510 and ECON 511
Description: This course begins with an overview of different matching markets (e.g., one-to-one or many-to-one AND with or without transfers AND centralized or decentralized) and the common empirical models; it then provides a relatively in-depth discussion of market design, both theoretical and empirical, for school choice and kidney transplants.

ECON 522 - PUBLIC ECONOMICS: TAX POLICY
Short Title: PUBLIC ECONOMICS: TAX POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the effects of taxation on individual and firm behavior, general equilibrium tax incidence analysis, optimal taxation theory, optimal implementation of tax reform, analysis of comprehensive income, and consumption taxes.

ECON 523 - DYNAMIC OPTIMIZATION
Short Title: DYNAMIC OPTIMIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of dynamic optimization in discrete and continuous time, including numerical methods and applications to macroeconomics, finance and resource and energy economics.

ECON 547 - ADVANCED TOPICS IN ENERGY ECONOMICS
Short Title: ADV TOPICS IN ENERGY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ECON 301 or ECON 370) and (ECON 309 or ECON 446 or ECON 409 or ECON 400 or STAT 400) and ECON 437
Description: A detailed development and analysis of topics in energy modeling. Topics include optimal extraction of depletable resources, models of storable energy commodities, energy demand by end-use sector, models of non-competitive behavior, energy security and the relationship between energy and commodity prices. ECON 547 requires an additional assignment in addition to the assignments of ECON 447. Recommended Prerequisite(s): ECON 477 or ECON 401. Mutually Exclusive: Cannot register for ECON 547 if student has credit for ECON 447/ECON 604.

ECON 565 - HEALTH ECONOMICS
Short Title: HEALTH ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ECON 301 or ECON 370) and (ECON 309 or ECON 446 or ECON 409 or ECON 400 or STAT 400) and ECON 437
Description: Application of empirical and theoretical economic models to health and healthcare. Includes production, cost, demand and supply factors; methods of payment and effects of regulation. Topics include optimal design of health insurance markets, econometric evaluation of government regulations and reimbursement in the healthcare sector, and testing of hypothesis that explain rising prices and costs of healthcare. Graduate/Undergraduate Equivalency: ECON 481. Mutually Exclusive: Cannot register for ECON 565 if student has credit for ECON 481.
ECON 575 - TOPICS IN FINANCIAL ECONOMICS  
Short Title: TOPICS IN FINANCIAL ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): ECON 505  
Description: Topics in asset pricing, corporate financial theory, and market microstructure, including asymmetric information, learning, heterogeneous priors, market frictions, nonstandard preferences, production models, q theory, real options, dynamic capital structure, quote-driven markets, order-driven markets, and dealer markets. Repeatable for Credit.  

ECON 576 - TOPICS IN MACROECONOMICS  
Short Title: TOPICS IN MACROECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Discussion topics in macroeconomics. Repeatable for Credit.  

ECON 577 - TOPICS IN ECONOMIC THEORY I  
Short Title: TOPICS IN ECONOMIC THEORY I  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Discussion of topics in advanced economic theory. Repeatable for Credit.  

ECON 578 - TOPICS IN ECONOMETRICS I  
Short Title: TOPICS IN ECONOMETRICS I  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Discussion of selected topics in advanced econometrics. Repeatable for Credit.  

ECON 579 - TOPICS IN ECONOMETRICS II  
Short Title: TOPICS IN ECONOMETRICS II  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): ECON 511  
Description: Discussion of selected topics in advanced econometrics that focus on the mathematical and statistical modeling of such phenomena as (1) extended panel data methods; (2) spatial econometrics; (3) bootstrapping; (4) factor models, wavelets, smoothing-splines, sieves; (5) model averaging; (6) continuous and discrete dynamic programming models; (7) econometrics of auctions; (8) BLP methods of demand estimation; (9) structural and non-structural models of producer behavior; (10) point and set identification; (11) Bayesian Econometrics/Metropolis-Hastings MCMC algorithms. Repeatable for Credit.  

ECON 592 - TOPICS IN POLICY AND APPLIED ECONOMICS  
Short Title: TOP-POLICY&APPL'D ECON  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Discussion of selected topics and applied economics. Repeatable for Credit.  

ECON 593 - WORKSHOP IN MICROECONOMICS  
Short Title: WORKSHOP IN ECONOMICS  
Department: Economics  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): ECON 508 and ECON 510  
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit. Repeatable for Credit.  

ECON 594 - WORKSHOP IN ECONOMICS II  
Short Title: WORKSHOP IN ECONOMICS II  
Department: Economics  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): ECON 508 and ECON 510  
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit. Repeatable for Credit.
ECON 596 - RESEARCH SEMINAR
Short Title: RESEARCH SEMINAR
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervises fourth-year and fifth-year Ph.D. students in their quantitative dissertation research in preparation for graduation. Students must present their own research at least once during the semester. Repeatable for Credit.

ECON 597 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Prepares graduate students for completing innovative and original research. All second year graduate students must attend the workshop. Each week, a faculty member will give a brief lecture about their experience with research. Possible topics include how they came up with ideas, how those ideas evolved and became papers, how these papers proceeded through the publication process, etc. Alternatively, faculty members can present a broad overview of particular research areas and discuss outstanding questions in those areas. Instructor Permission Required. Repeatable for Credit.

ECON 598 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Workshop prepares graduate students for completing innovative and original research. All second year graduate students must attend the workshop. Each week, a faculty member will give a brief lecture about their experience with research. Possible topics include how they came up with ideas, how those ideas evolved and became papers, how these papers proceeded through the publication process, etc. Alternatively, faculty members can present a broad overview of particular research areas and discuss outstanding questions in those areas. Instructor Permission Required. Repeatable for Credit.

ECON 601 - ENERGY ECONOMICS I
Short Title: ENERGY ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces the energy sector to students, discusses key aspects of energy supply, demand and pricing, and is foundational for the MEECON degree. Topics include optimal extraction of depletable resources, investment in energy-using capital, trade of energy commodities, storage, end-use demand and energy efficiency, and the relationship between economic activity, energy and the environment. Students learn to apply dynamic optimization, linear programming and econometric techniques in addressing the course topics. Graduate/Undergraduate Equivalency: ECON 437. Mutually Exclusive: Cannot register for ECON 601 if student has credit for ECON 437.

ECON 602 - MICROECONOMICS OF THE ENERGY SECTOR
Short Title: MICROECONOMICS - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Covers basic microeconomic concepts and applies them to contemporary issues in the energy sector. Topics covered include demand and supply analysis, market equilibrium and different market structures, international trade, investment and capacity expansion, risk and investment finance, and economic analysis of energy policy including environmental policy. This course enables students to apply quantitative microeconomic theory in order to make data-driven recommendations to case studies presented by industry partners.

ECON 603 - APPLIED ECONOMETRICS FOR ENERGY MARKETS
Short Title: APPLIED ECONOMETRICS ENGY MKTS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Students will be introduced to basic concepts in statistical analysis and how to use statistical tools to analyze economic data and test economic theories. The course includes a laboratory session where students practice using the tools discussed in lectures with data that is particularly relevant to the energy industry.
ECON 604 - ENERGY ECONOMICS II
Short Title: ENERGY ECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Explores a variety of topics in energy modeling and energy data analysis. Topics include optimal extraction of depletable resources, game theoretic approaches to OPEC behavior, national oil company behavior, models of storable energy commodities and energy demand by end-use sector, energy security and fundamental drivers of commodity prices. This course tasks students to expand on the dynamic optimization problems and econometric techniques applied to energy economics. Mutually Exclusive: Cannot register for ECON 604 if student has credit for ECON 547.

ECON 605 - TAXATION IN THE ENERGY SECTOR
Short Title: TAXATION IN THE ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces basic principles of taxation, and general equilibrium modeling of the economic effects of taxes, and applies them to federal and state taxes on the energy sector. Topics include royalties resource rent taxes, corporate income taxes including international tax issues such as transfer pricing and income shifting, excess profit taxes, production-sharing agreements, and environmental taxes. Students will formulate, implement, and use quantitative models to solve problems related to private and public decision making in the context of taxes applied to U.S. energy systems.

ECON 606 - CORPORATE FINANCE FOR THE ENERGY SECTOR
Short Title: CORP FINANCE - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Examines the investment decisions of corporations, the valuation of stock, bonds and options investments by individual investors. The implications of investor decisions for corporations, and specifically the manner in which they evaluate investment projects and finance investments are a core focus. Examples and case studies focus on the energy sector. Students will increase their understanding of financing and investment decision as the relate to energy companies and energy related projects using analytical and mathematical techniques to make data-driven recommendation to real-world problems.

ECON 607 - THE ECONOMICS OF ENERGY AND THE ENVIRONMENT
Short Title: ECON OF ENERGY & ENVIRONMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course provides students with an introduction to, and overview of, policies to protect environmental resources against emissions from energy production and use and hazardous wastes. The first part of the course will present an economic analysis of the costs and benefits of using different types of policies to control emissions from fossil fuel use. The remainder of the course, taught from a practitioner's perspective, will discuss the interrelationship between science, institutions and politics when designing environmental policy. The focus will be on problems associated with oil and gas production - especially water contamination and use - and hazardous waste disposal.

ECON 608 - RISK MANAGEMENT IN THE ENERGY INDUSTRY
Short Title: RISK MANAGEMENT/ENERGYINDUSTRY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course introduces quantitative risk management techniques often employed in the energy industry. It covers topics such as real options, value at risk, conditional value at risk, and expected shortfall, as well as the use of derivatives for trading and hedging various risk exposures. The course is methodologically self-contained and provides students with hands-on experience with state-of-the-art software to measure and manage risk-adjusted returns of heterogeneous asset portfolios.

ECON 610 - ENERGY AND THE MACROECONOMY
Short Title: ENERGY & THE MACROECONOMY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses connections between energy and economic activity at the regional, national, and international level, and especially the role of energy shocks in economic fluctuations, innovations in energy supply as drivers of regional economic growth, and the role of energy commodities in transportation and international trade.
ECON 611 - GEOPOLITICS OF ENERGY
Short Title: GEOPOLITICS OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Explores the geopolitical issues around energy security and trade by focusing on role of energy as the world's largest business and a strategic requirement of the modern nation-state, a source of power in international relations, and a major influence on national politics and institutions. This course equips students with the analytical skills to inform policy debates, advocate for the interests of principals, and advise policy makers and firms amid rapid changes in energy markets. Students learn both to produce sound empirical analysis by employing state of the art econometric techniques and to be discerning consumers of empirical research.

ECON 612 - ENERGY PROJECT DEVELOPMENT
Short Title: ENERGY PROJECT DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course will cover the development of energy projects, especially electric power projects, from inception through to financing. It examines key issues such as: siting/permitting, including compliance with federal, state and local environmental and regulatory issues; fuel supply agreements; capital cost pricing; off-take agreements; and the various methods of project financing. Microsoft Excel is used for project financial analysis, including revenue and cost modeling, debt management, project net cash flow, project internal rate of return and net present value. The course also will cover strategies to monetize the project including development fees, carried equity, and private and public sale of equity, including initial public offerings ("IPOs").

ECON 613 - INTERNATIONAL TRADE IN ENERGY
Short Title: INTERNATIONAL TRADE IN ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course explores the effects of international trade and the determinants of the amount of trade between countries in energy commodities, and the role of international capital flows in financing energy projects, in particular. It will also discuss the many ways that governments can alter international trade through various policies.

ECON 614 - POLITICAL ECONOMY OF OIL IN DEVELOPING COUNTRIES
Short Title: POLITICAL ECONOMY OF OIL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course evaluates the political and economic determinants of oil and gas policies in developing countries and their impact on world markets, the interaction between states and oil companies, the challenges of oil wealth management, and the causal links between resource dependency, development, institutions, and political regimes. Although the main focus is on oil production, natural gas is also analyzed, and both are compared to other natural resources. Emphasis is on the analysis of institutional change and the functions of institutional change in the energy industry using data-driven methods to examine case studies.

ECON 615 - SOCIAL STUDIES OF ENERGY
Short Title: SOCIAL STUDIES OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Investigate the ways in which energy production and consumption impacts social life. By studying the implementation and use of renewable and on-renewable energy infrastructures in different parts of the world, the students will develop a contextual, self-reflexive and critical lens that will help them make decisions in later stages of their careers.

ECON 620 - INDUSTRIAL ORGANIZATION AND THE ENERGY SECTOR
Short Title: INDUSTRIAL ORG & ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: The course will discuss monopoly, oligopoly, and the underlying sources of monopoly power in energy industries and how the industries can be restructured to isolate the monopoly elements from the more competitive ones. Other topics include price discrimination, vertical control, mergers and acquisitions, and strategic behavior between firms.
ECON 621 - THE ECONOMICS OF THE ELECTRICITY INDUSTRY
Short Title: ELECTRICITY INDUSTRY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses the determinants of the cost of electricity, the effects of organizing the industry in different ways, the need to encourage sufficient investment in reserve capacity, and the use of information technology to allow for new ways of pricing electricity, operating the network and coordinating supply and demand. Students will learn to analyze the behavior of power markets, the effect of different policies, and draw empirical solutions to the real-world issues.

ECON 622 - TRANSPORTATION ECONOMICS
Short Title: TRANSPORTATION ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses transportation as a major source of energy demand in modern post-industrial economies and of future demands in emerging economies. Emphasizes that the demand for energy use in the transportation sector involves modeling household choices, economic growth and demographic transition, government decisions to support transportation infrastructure development, and the introduction of new technologies. Students will apply problem solving and analytical skills to perform calculations related to transportation energy and its environmental impact.

ECON 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ECON 699 - PRACTICUM
Short Title: PRACTICUM
Department: Economics
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Projects developed by an industry advisory group to be researched and presented to participating industry at completion of all course work. Internships with an approved employer may be substituted. Emphasis on skill building components may include: analyzing data for accuracy and reconciliation across different sources, quantitative analysis and risk assessment of a firm's portfolio of assets and capital investment opportunities, and briefing expert and non-expert audiences.

ECON 700 - DEPARTMENTAL SERVICE COURSE
Short Title: DEPARTMENTAL SERVICE COURSE
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In each semester in which students perform departmental service, they need to register in the departmental service course Econ 700. Students must meet their faculty supervisors as early as possible before the semester starts and regularly during the semester to ensure there is a mutual understanding of the job responsibilities.

ECON 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assists students in the dissertation writing process. Students must write an independent and original piece of quantitative research that is of sufficient quality to merit publication in an academic economics journal. Towards this objective, faculty mentor evaluate and critique the research of PhD students who are either preparing research before formally selecting a dissertation topic or actively engaged in dissertation research. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: ECON

Department Description and Code
- Economics: ECON

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA
Bachelor of Arts (BA) Degree with a Major in Economics

Program Learning Outcomes for the BA Degree with a Major in Economics

Upon completing the BA degree with a major in Economics, students will have:

1. Learned the core principles of microeconomics, including supply and demand, utility maximization by consumers and profit maximization by firms, and equilibrium market structures.
2. Learned the core principles of macroeconomics, including the effects of monetary and fiscal policy, business cycles, determinants of growth, and a variety of approaches to researching and critically analyzing the macroeconomy.
3. Learned various statistical and econometric skills, and used statistical software to analyze economic data, interpret and communicate statistical results, both orally and in writing.

Requirements for the BA Degree with a Major in Economics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Economics must complete:

- A minimum of 14 or 15 courses (44-48 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.
- A maximum of 5 courses (15 credit hours) from study abroad or transfer credit after matriculation at Rice may be applied towards specific major requirements. For additional departmental guidelines regarding transfer credit, see the Policies (p. 851) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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Degree Requirements

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<tr>
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<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td></td>
<td>Mathematics and Statistics</td>
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<tr>
<td></td>
<td>Select 1 from the following:</td>
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</tr>
<tr>
<td></td>
<td>MATH 101 SINGLE VARIABLE CALCULUS I</td>
<td>3 or 6</td>
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<tr>
<td></td>
<td>or MATH 101AP/OTH CREDIT IN CALCULUS I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 111 &amp; MATH 112 CALCULUS: DIFFERENTIATION AND ITS APPLICATIONS and CALCULUS: INTEGRATION AND ITS APPLICATIONS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 102 SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or MATH 106 AP/OTH CREDIT IN CALCULUS II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECON 307 / STAT 310 PROBABILITY AND STATISTICS</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>or STAT 315 / DSCI 301 PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economics and Econometrics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECON 100 PRINCIPLES OF ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ECON 200 MICROECONOMICS</td>
<td>4</td>
</tr>
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</table>
ECON 203    MACROECONOMICS             3
ECON 209    APPLIED ECONOMETRICS      4
ECON 300    GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS     3

Elective Requirements 1, 2, 3
Select 3 courses from the following: 9

ECON 210    BEHAVIORAL ECONOMICS
ECON 239    LAW AND ECONOMICS
Courses between ECON 320-ECON 495
ECON 498    HONORS PROGRAM IN ECONOMICS-I

Select 3 courses from ECON 410-ECON 495 and ECON 498. 9

Total Credit Hours Required for the Major in Economics 44-48
Additional Credit Hours to Complete Degree Requirements * 41-45
University Graduation Requirements (p. 29) * 31

Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, I, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 After matriculation: In some cases, transfer credit may be awarded by the economics department for courses completed at other schools after the student has matriculated at Rice. Students may present a maximum of 2 such transfer courses in fulfilling the mathematics and statistics core requirements, and a maximum of 3 such transfer courses in fulfilling the economics/econometrics core requirements and elective requirements combined. (Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major.)

Before matriculation: Credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the departmental limit on transfer courses, but all students must complete more than half of their upper-level major coursework (300-level and 400-level courses) at Rice.

2 Students who have received credit for ECON 111 and ECON 113 and have made a grade of B- or better in MATH 102 (taken at Rice University) may substitute any Economics major elective for ECON 100. Students must notify the department’s Director of Undergraduate Studies if they wish to exercise this option.

3 As specified in their course descriptions, the following courses do not satisfy the Electives requirement for the major in Economics: ECON 101, ECON 103, ECON 111, ECON 113, ECON 205, ECON 260, ECON 270, ECON 275, ECON 280, ECON 499. In addition, BUSI 343 may be substituted for ECON 343, and STAT 449 may be substituted for ECON 449.

Policies for the BA Degree with a Major in Economics

Program Restrictions and Exclusions
Students pursuing the major in Economics should be aware of the following program restrictions:

• Students pursuing the major in Economics may not additionally declare the major in Managerial Economics and Organizational Sciences.
• Students pursuing the major in Economics may not additionally declare the major in Mathematical Economic Analysis.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Economics should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
• No more than 5 courses (15 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards specific major requirements after matriculation at Rice as follows:
  • No more than 2 courses (6 credit hours) of transfer credit may apply towards the mathematics and statistics core requirements
  • No more than 3 courses (9 credit hours) of transfer credit may apply towards the economics/econometrics core requirements and the elective requirements combined

Please Note: Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major. Credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the departmental limit on transfer courses, but all students must complete more than half of their upper-level major coursework (300-level and 400-level courses) at Rice.

Additional Information
For additional information, please see the Economics website: https://economics.rice.edu/.

Opportunities for the BA Degree with a Major in Economics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Requirements for Departmental Honors
1. To earn departmental honors in economics, students must earn a grade of B+ (3.33 grade points) or better in each semester of the department’s two-semester honors program, ECON 498 and ECON 499.
2. The honors program is available to both ECON and MTEC majors.
3. To be admitted to the honors program, students:
   a. must have a GPA of 3.67 or better in all courses taken toward fulfilling their departmental major requirements at the beginning of the academic year in which they enter the honors program;
   b. must have completed all of the core requirements for their major;
   c. must have completed the 400-level course or courses most closely related to their area of research, and
   d. must be accepted to the honors program by the professor supervising the program.
4. For additional information, consult the Economics Department Honors Program at https://economics.rice.edu/undergraduate-program/honors-program (https://economics.rice.edu/undergraduate-program/honors-program/).

Additional Information
For additional information, please see the Economics website: https://economics.rice.edu/.

Doctor of Philosophy (PhD) Degree in the field of Economics

Program Learning Outcomes for the MA and PhD Degrees in the field of Economics

Upon completing the MA degree in the field of Economics, students will be able to:

1. Carry out independent research in economics, using mathematical, statistical, econometric, and computational tools.
2. Conduct a focused review of the literature and develop a research design to carry out independent research. Read critically and assess research manuscripts related to their field of study and in other fields.

Additionally, upon completing the PhD degree in the field of Economics, students will be able to:

1. Write an independent and original thesis that is of sufficient quality to merit publication in a top economics journal.
2. Defend their research design and modeling choices by presenting their paper in a seminar environment. Communicate their research effectively by writing clearly, concisely, and cogently.

Requirements for the MA and PhD Degrees in the field of Economics

MA Degree Program
The MA degree is a non-thesis master's degree. For general university requirements for non-thesis masters degrees, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA, graduate students may earn the MA along the way to the PhD. In order to obtain the MA Degree in the field of Economics, students must:

• Earn a satisfactory grade in ECON 700 in the last two semesters before graduation.

Summary
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</table>

Total Credit Hours Required for the MA Degree in the field of Economics 30

Requirements for the PhD Degree in the field of Economics

PhD Degree Program
For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates for the PhD usually spend from 2 to 2-1/2 years in full-time coursework and at least 1 year writing the thesis; 5 years is a reasonable goal for completing the program. For the PhD degree in the field of Economics, students must:

• Attend the statistics and mathematics camp before starting their first year courses.
• Complete an approved program of at least 18 courses (including approved courses in other departments), no more than 4 of which are research workshops. At least 2 years of full-time study must be in residence at Rice.
• Perform satisfactorily on the required coursework.
• Write a research paper proposal before the start of their third year.
• Write and present a research paper before the end of their third year.
• Choose a thesis advisor by the end of their seventh semester.
• Attend a research workshop every semester after their first year and present their own research in a workshop once every semester after their second year.
• Submit a written progress report in every semester they register for ECON 800.
• Submit a thesis progress report every year starting with their fourth year.
• Defend their thesis proposal to the faculty and students in a seminar during the spring semester of their fourth year.

Summary
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<th>Code</th>
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<tbody>
<tr>
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</tbody>
</table>

Total Credit Hours Required for the PhD Degree in the field of Economics 90

Policies for the PhD Degree in the field of Economics

Department of Economics Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Economics publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2020_21/Economics_PhD_Graduate_Handbook.pdf (https://gradhandbooks.rice.edu/2020_21/Economics_PhD_Graduate_Handbook.pdf)
Admission

Preparation for PhD Program: Applicants to the PhD program should have a strong background in mathematics and statistics. All applicants are required to take the Graduate Record Exam (GRE).

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Economics website: https://economics.rice.edu/

Opportunities for the PhD Degree in the field of Economics

Additional Master's Degrees Options for the PhD Degree in the field of Economics, or the PhD Degree in the field of Statistics

Students pursuing the PhD degree in the field of Economics, or in the field of Statistics, have the opportunity to also earn a Master of Arts (MA) degree in either the fields of Economics or Statistics, respectively.

Requirements for the PhD Degree in the field of Economics with an MA Degree in the field of Statistics

Students pursuing the PhD degree in the field of Economics and the MA degree with coordinated work in Statistics must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>ECON 502</td>
<td>MACROECONOMICS</td>
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</tr>
<tr>
<td>ECON 504</td>
<td>COMPUTATIONAL ECONOMICS</td>
<td>1</td>
</tr>
<tr>
<td>STAT 604</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 505</td>
<td>FINANCIAL ECONOMICS I</td>
<td>1</td>
</tr>
<tr>
<td>BUSI 521</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Filter in Economics at the comparable level of a field of examination from the MA degree in the field of Economics.

A Major Project

Total Credit Hours: 32

Footnotes and Additional Information

1 Courses that are jointly listed (cross-listed) between the 2 departments are counted toward the number of courses in the "home" department of the particular course.

2 This may be directed by Economics faculty, but must have strong statistical content. The doctoral proposal in Economics can count toward this requirement.

Requirements for the PhD Degree in the field of Statistics with an MA Degree in the field of Economics

Students pursuing the PhD degree in the field of Statistics and the MA degree with coordinated work in Economics must complete:

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 508</td>
<td>MICROECONOMICS II</td>
<td>5</td>
</tr>
<tr>
<td>ECON 511</td>
<td>ECONOMETRICS II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 611</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 Courses that are jointly listed (cross-listed) between the 2 departments are counted toward the number of courses in the "home" department of the particular course.

2 This may be directed by Statistics faculty, but must have strong econometrics content. The doctoral proposal in Statistics can count toward this requirement.

Requirements for the PhD Degree in the field of Economics and a Major Concentration in Econometrics and Quantitative Economics

Upon completing the PhD degree in the field of Economics and a major concentration in Econometrics and Quantitative Economics, students will be able to:

1. Carry out independent research in economics and finance, using mathematical, statistical, econometric, and computational tools.

2. Write an independent and original thesis that is of sufficient quality to merit publication in a top economics or finance journal.

3. Conduct a focused review of the literature and develop a research design to carry out independent research.
4. Defend their research design and modeling choices by presenting their paper in a seminar environment.

Requirements for the MA and PhD Degrees in the field of Economics

MA Degree Program
The MA degree is a non-thesis master's degree. For general university requirements for non-thesis master's degrees, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA degree, students may earn the MA along the way to the PhD. In order to obtain the MA Degree in the field of Economics, students must:

• Pass the first year core courses with a grade point average of 2.67 or better.
• Complete 6 field courses with passing grades.
• Earn a satisfactory grade in ECON 700 in the last two semesters before graduation.

Summary

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<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MA Degree in the field of Economics</td>
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</table>

Requirements for the PhD Degree in the field of Economics

PhD Degree Program
For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates for the PhD usually spend from 2 to 2-1/2 years in full-time coursework and at least 1 year writing the thesis; 5 years is a reasonable goal for completing the program. For the PhD degree in the field of Economics, students must:

• Attend the statistics and mathematics camp before starting their first year courses.
• Complete an approved program of at least 18 courses (including approved courses in other departments), no more than 4 of which are research workshops. At least 2 years of full-time study must be in residence at Rice.
• Perform satisfactorily on the required coursework.
• Write a research paper proposal before the start of their third year.
• Write and present a research paper before the end of their third year.
• Choose a thesis advisor by the end of their seventh semester.
• Attend a research workshop every semester after their first year and present their own research in a workshop once every semester after their second year.
• Submit a written progress report in every semester they register for ECON 800.
• Submit a thesis progress report every year starting with their fourth year.
• Defend their thesis proposal to the faculty and students in a seminar during the spring semester of their fourth year.

Summary

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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Economics</td>
<td>90</td>
</tr>
</tbody>
</table>

Requirements for the Major Concentration: Econometrics and Quantitative Economics
Econometrics and quantitative economics are integral parts of the curriculum for the graduate program in economics. All students earning MA or PhD degrees in the field of Economics are awarded a Major Concentration in Econometrics and Quantitative Economics.

Policies for the PhD Degree in the field of Economics

Department of Economics Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Economics publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021-22/Economics_PhD_Graduate_Handbook.pdf

Admission
Preparation for PhD Program: Applicants to the PhD program should have a strong background in mathematics and statistics. All applicants are required to take the Graduate Record Exam (GRE).

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Economics should be aware of the following departmental transfer credit guidelines:

• Request for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Economics website: https://economics.rice.edu/

Opportunities for the PhD Degree in the field of Economics
Additional Information
For additional information, please see the Economics website: https://economics.rice.edu/
Doctor of Philosophy (PhD) Degree in the field of Economics and a Major Concentration in Economics and Finance

Program Learning Outcomes for the PhD Degree in the field of Economics and a Major Concentration in Economics and Finance

Upon completing the PhD degree in the field of Economics and a major concentration in Economics and Finance, students will be able to:

1. Carry out independent research in economics and finance, using mathematical, statistical, econometric, and computational tools.
2. Write an independent and original thesis that is of sufficient quality to merit publication in a top economics or finance journal.
3. Conduct a focused review of the literature and develop a research design to carry out independent research.
4. Defend their research design and modeling choices by presenting their paper in a seminar environment.
5. Communicate their research effectively by writing clearly, concisely, and cogently.
6. Read critically and assess research manuscripts related to their field of study and in other fields.

Requirements for the MA and PhD Degrees in the field of Economics

MA Degree Program

The MA degree is a non-thesis master’s degree. For general university requirements for non-thesis masters degrees, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA, graduate students may earn the MA along the way to the PhD. In order to obtain the MA Degree in the field of Economics, students must:

• Pass the first year core courses with a grade point average of 2.67 or better.
• Complete 6 field courses with passing grades.
• Earn a satisfactory grade in ECON 700 in the last two semesters before graduation.

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<td></td>
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</table>

Total Credit Hours Required for the MA Degree in the field of Economics

Requirements for the PhD Degree in the field of Economics

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates for the PhD usually spend from 2 to 2-1/2 years in full-time coursework and at least 1 year writing the thesis; 5 years is a reasonable goal for completing the program. For the PhD degree in the field of Economics, students must:

• Attend the statistics and mathematics camp before starting their first year courses.
• Complete an approved program of at least 18 courses (including approved courses in other departments), no more than 4 of which are research workshops. At least 2 years of full-time study must be in residence at Rice.
• Perform satisfactorily on the required coursework.
• Write a research paper proposal before the start of their third year.
• Write and present a research paper before the end of their third year.
• Choose a thesis advisor by the end of their seventh semester.
• Attend a research workshop every semester after their first year and present their own research in a workshop once every semester after their second year.
• Submit a written progress report in every semester they register for ECON 800.
• Submit a thesis progress report every year starting with their fourth year.
• Defend their thesis proposal to the faculty and students in a seminar during the spring semester of their fourth year.

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<tbody>
<tr>
<td></td>
<td></td>
<td>90</td>
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</table>

Total Credit Hours Required for the PhD Degree in the field of Economics

Requirements for the Major Concentration: Economics and Finance

Students pursuing the PhD degree program in the field of Economics and a major concentration in Economics and Finance must:

1. Achieve a minimum grade of B (3.00 grade points) in each of the 10 required courses (32 credit hours), including Microeconomics, Macroeconomics, Econometrics, Real Analysis, Computational Economics, and Financial Economics.
3. Successfully complete 6 credit hours of elective requirements from the following courses: BUSI 524, BUSI 525, BUSI 526, and BUSI 527.
4. Successfully pass a comprehensive exam on Asset Pricing, Corporate Finance, and Empirical Methods administered by the Finance faculty at the end of the Fall semester of the second year.
5. Write and present a paper in the third year of the program. The paper and its presentation must be approved by two faculty advisors, one of whom must be in the Economics department and one of whom must be a member of the Finance group in the Business school.
6. Write and defend a thesis. The thesis committee must include at least one member from the Economics department and at least one member from the Finance group in the Business School.
Summary

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<tr>
<td>ECON 502</td>
<td>MACROECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>ECON 504 / STAT 604</td>
<td>COMPUTATIONAL ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>ECON 505 / BUSI 521</td>
<td>FINANCIAL ECONOMICS I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 508</td>
<td>MICROECONOMICS II</td>
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</tr>
<tr>
<td>ECON 510 / STAT 610</td>
<td>ECONOMETRICS I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 511 / STAT 611</td>
<td>ECONOMETRICS II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 321</td>
<td>INTRODUCTION TO ANALYSIS I</td>
<td>3</td>
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<td>BUSI 522</td>
<td>CORPORATE FINANCE</td>
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<td>BUSI 523</td>
<td>EMPIRICAL METHODS IN FINANCE</td>
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</tbody>
</table>

Footnotes and Additional Information

1 Each of the 10 core requirements (32 credit hours) must be completed with a minimum grade of B (3.00 grade points) or above.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Economics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Economics website: https://economics.rice.edu/

Opportunities for the PhD Degree in the field of Economics

Additional Information

For additional information, please see the Economics website: https://economics.rice.edu/

Education

Contact Information

Admission

Preparation for PhD Program: Applicants to the PhD program should have a strong background in mathematics and statistics. All applicants are required to take the Graduate Record Exam (GRE).

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

The Education program at Rice University’s Susanne M. Glasscock School of Continuing Studies offers a comprehensive educational program that integrates work in courses with fieldwork experience. Additionally, we facilitate a network of support for our students and alumni so that we ensure our teacher leaders continue to grow and evolve as professionals.

Education courses are open to Rice students studying for careers in teaching and to Rice students interested in studying the complexities of the educational system and its role in society. The program provides fieldwork grounded in education research and theory. All of the courses include field-based experiences that encourage students to compare and apply their theoretical work to what is actually happening in schools. Our 21st century mission is to prepare and support teacher leaders to work with diverse students and be responsive to the paradigm shift in education that moves our children from passive recipients of knowledge to active responders to the knowledge they explore.

The Education program engages, prepares, and supports its leaders for student-centered classrooms in a diverse society. The program emphasizes the value of equity in education and the political and educational policies that should undergird that equity. Students acquire a strong foundation in educational leadership, assessment, classroom culture, instructional strategies, and skills. All students will implement culturally responsive content and pedagogy in working with languages and diverse learners as this program acknowledges the changing face of Houston and the nation.
Rice offers four education plans:

1. a program leading to the state of Texas Teacher Certification in combination with the undergraduate degree in the elected subject field(s), including notation of Texas Teacher Certification on the recipient’s Rice academic transcript,
2. a Master of Arts in Teaching (MAT) that can be completed concurrently with a Rice bachelor’s degree with generally one additional year of study,
3. a Master of Arts in Teaching (MAT) for pre-service, and
4. a Master of Arts in Teaching (MAT) for experienced teachers with an optional route to principal certification.

The Rice Education program balances academic integrity with Texas Education Agency (TEA) compliance. Students seeking additional information about the Education program are encouraged to meet with an advisor in the Education department in Rice University’s Susanne M. Glasscock School of Continuing Studies.

**Texas Teaching (TEA) Credentials (Texas Teacher and Principal Certifications)**

Rice is approved by the State of Texas to offer teacher preparation programs in the following fields: art, English language arts and reading, history, Latin, life sciences, mathematics, physical sciences, physics/mathematics, science, social studies, Spanish, and principalship.

After satisfactory completion of the Rice Education program, which includes the state-mandated examinations for teachers, students are recommended for a Texas teaching credential. The Texas Education Agency (TEA) then awards Texas Teacher Certification (for Grades 7–12) or Principal Certification.

**Higher Education Act Title II Reports**

The Higher Education Act (HEA) of the U.S. Congress requires each institution of higher education with a teacher preparation program that enrolls students receiving federal assistance under this act to report annually “to the State and the general public” certain information. This information includes the pass rate of their program completers on assessments required by the state for teacher licensure or certification, the statewide pass rate on those assessments and other basic information on their teacher preparation program.

Rice University’s Education program is accredited by the state of Texas. The first year pass rate for program completers on assessments required by the state for 2019-2020 was 100%, compared with 92% for the overall state pass rate. Eighteen students were enrolled in the program. Students spent an average of 40 hours per week in supervised student teaching with a student/faculty ratio of 4.5-to-1. Rice Education program graduates are regularly recruited by school districts in Houston and the surrounding areas because of their innovative ideas, content knowledge, expertise, leadership abilities, and dedication to the teaching profession.

Rice students will receive an acknowledgement and formal notation of their Texas Teacher Certification on their official Rice academic transcript.

Undergraduate students participating in the Education program, who wish to obtain Texas Teacher (TEA) Certification must complete:

- A minimum of 21 credit hours to satisfy the Texas Teacher (TEA) Certification requirements. Students must meet with an Education program advisor to develop a course of study.
- All university and major requirements for a Rice University bachelor’s degree.
- All courses in teaching field and education with a grade of B- (2.67 grade points) or better.
- All of the content courses specified by the certification field advisor(s). Lists of courses for each subject are available online and in the Education office.
- A minimum of 75 hours of field-based experience in local secondary schools, in conjunction with satisfactory results on background check with participating school districts.

In addition, undergraduate students in the Education program must satisfy the following requirements:

- Students must begin two-semester work in assigned school with first semester curriculum development and theory and methods courses and a second semester full-day practicum with a cooperating teacher (EDUC 421, EDUC 460, EDUC 461, EDUC 462, EDUC 463, EDUC 464, EDUC 465, EDUC 466, and EDUC 467).
- Students must pass the appropriate TExES exams.
- Students must apply with the appropriate (Texas) state agency for Texas Teacher (TEA) Certification when all requirements are completed.

**Professional Education Courses**

The following courses fulfill requirements for Texas Teacher (TEA) Certification. For additional information regarding requirements, students should contact the Education program (https://teach.rice.edu/texas-teacher-certification-rice-undergraduates/).

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EDUC 305</td>
<td>EDUCATIONAL PSYCHOLOGY</td>
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<tr>
<td>EDUC 316</td>
<td>ASSESSMENT</td>
<td>3</td>
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<td>EDUC 320</td>
<td>TEACHING DIVERSE LEARNERS</td>
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<td>EDUC 421</td>
<td>CURRICULUM DEVELOPMENT</td>
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**Theory and Methods**

Select 1 from the following:

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<tr>
<th>Code</th>
<th>Title</th>
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<td>EDUC 461</td>
<td>THEORY AND METHODS: ENGLISH LANGUAGE ARTS &amp; READING (ELAR)</td>
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<td>EDUC 462</td>
<td>THEORY AND METHODS: LOTE</td>
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<td>EDUC 463</td>
<td>THEORY AND METHODS: MATHEMATICS</td>
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<td>EDUC 464</td>
<td>THEORY AND METHODS: PHYSICAL EDUCATION</td>
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<td>EDUC 465</td>
<td>THEORY AND METHODS: SCIENCE</td>
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<tr>
<td>EDUC 466</td>
<td>THEORY AND METHODS: SOCIAL STUDIES</td>
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</table>
Footnotes and Additional Information

* The Education Program advises students to take EDUC 304 Race, Class, Gender in Education as an introductory course during the fall semester of the freshman year.

Admission

Rice undergraduate students may apply for admission to the Rice University Education program. In support of their application, candidates must submit:

- Official transcripts of previous and current university studies
- Proof of SAT or ACT scores
- Three letters of reference accompanied by the forms provided with the application
- Minimum 2.50 GPA
- Applications submitted during sophomore year with minimum 12 credit hours in the content area (15 credit hours for math and science) completed before admission
- Evidence that the applicant’s knowledge, experience, skills, and aptitude are appropriate for the certification sought.

The Texas Education Agency (TEA) requires candidates to undergo a criminal background check prior to field-based experience, prior to clinical training, and prior to being hired as a first-year teacher. Candidates may go through the fingerprinting process before applying for admission. If the results are unsatisfactory, the candidate may petition the TEA for reconsideration of the results. More information on this important rule is on the Education program website at: https://glasscock.rice.edu/departments/education/teacher-certification-undergraduate-students

Master’s Program

- Master of Arts in Teaching (MAT) Degree (p. 869) for Current Rice Undergraduates
- Master of Arts in Teaching (MAT) Degree (p. 874) for New Teachers
- Master of Arts in Teaching (MAT) Degree (p. 871) for Experienced Teachers
- Master of Arts in Teaching (MAT) Degree (p. 873) for Experienced Teachers with Principal Certification

Certificates

- Certificate in Dual Credit Teacher Credentialing: English (p. 790)
- Certificate in Dual Credit Teacher Credentialing: History (p. 791)

Education (EDUC)

EDUC 101 - SCIENCE EDUCATION AND CAREER EXPLORATION: INTRODUCTION TO AEROSPACE AND AVIATION

Short Title: INTRO TO AEROSPACE & AVIATION

Department: Education

Grade Mode: Satisfactory/Unsatisfactory

Course Type: Lecture/Laboratory

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: This course enables students to survey the fields of aerospace and aviation and various career options within each. Student will explore career trajectories and supporting educational pathways; engage with engineering faculty from Rice University and practicing professionals during an interactive exploration through all of the phases of product creation; tour a rocket propulsion research facility; experience a mini-ground school simulation at a flight museum; and compete in both a high altitude weather balloon launch and rocket man challenge (each designed to apply learnings from classroom teachings). Department Permission Required.

EDUC 202 - CONTEMPORARY ISSUES IN EDUCATION

Short Title: CONTEMPORARY ISSUES IN EDUC

Department: Education

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: The course examines the way globalization, immigration, privatization and the increasing diversity in our student population is shaping, and being shaped, by America’s schools. An exploration of these and other issues from both micro- (student) and macro- (systemic) levels, will be the mainstay of the course. The lenses of sociology, psychology and political economy will be used throughout the semester. The course is open to students in these fields and to students exploring a career in teaching, and is recommended for students entering the teacher education program. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 502. Mutually Exclusive: Cannot register for EDUC 202 if student has credit for EDUC 502.
EDUC 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Education  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.  

EDUC 267 - CAREER PRACTICUM  
Short Title: CAREER PRACTICUM  
Department: Education  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This experiential learning course provides academic content and guided career and professional development for undergraduate students in a real-world, professional context. It is designed for students to gain experience in a work-place setting while engaging with relevant, focused academic course content. The course provides an opportunity for students to apply the theoretical knowledge learned in the classroom and further develop practical experiences and professional skills in their field of interest while under the supervision and guidance of a field-based, industry-focused mentor and academic instructor. Department Permission Required. Repeatable for Credit.  

EDUC 301 - PHILOSOPHICAL, HISTORICAL, AND SOCIAL FOUNDATIONS OF EDUCATION  
Short Title: PHIL,HIST,&SOC FOUNDTN OF EDUC  
Department: Education  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: In this course students analysis events and ideas that have shaped the philosophy and practice of American schools today. It is appropriate for all students interested in the influences and stresses that have created a unique educational system in our culturally diverse country. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 501. Mutually Exclusive: Cannot register for EDUC 301 if student has credit for EDUC 501.  

EDUC 304 - RACE, CLASS, GENDER IN EDUCATION  
Short Title: RACE, CLASS, GENDER IN EDUC  
Department: Education  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course examines the complex ways in which race, ethnicity, gender, and class intersect and influence the educational experience of students in American schools. By employing an interdisciplinary approach centered both on individuals’ lived experiences and educational system as a whole; EDUC 304 explores and critiques these critical issues and their impact on student learning. Likely topics include the historical foundations of race, class and gender in education, segregation, Title IX, and other contemporary topics. Graduate/Undergraduate Equivalency: EDUC 504. Mutually Exclusive: Cannot register for EDUC 304 if student has credit for EDUC 504.  

EDUC 305 - EDUCATIONAL PSYCHOLOGY  
Short Title: EDUCATIONAL PSYCHOLOGY  
Department: Education  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The goal of this course is to introduce students to a psychological understanding of teaching and learning through an overview of principles, issues, and related research in educational psychology. Students in this course will examine theories of learning, complex cognitive processes, cognitive and emotional development, and motivation. These constructs will be applied to effective instruction, the design of optimum learning environments, assessment of student learning, and teaching in diverse classrooms. Required for those seeking teacher certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 505. Mutually Exclusive: Cannot register for EDUC 305 if student has credit for EDUC 505.  

EDUC 310 - INTRODUCTION TO SPECIAL EDUCATION  
Short Title: INTRODUCTION SPECIAL EDUCATION  
Department: Education  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will introduce and expose students to the field of Special Education. Students will learn about the various individuals who receive special education as well as other types of exceptionality, including giftedness. Controversial issues in this field will be examined along with pertinent legislation. This course will familiarize students with instructional approaches in special education and the social issues impacting the field. Students will visit area schools. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 510. Mutually Exclusive: Cannot register for EDUC 310 if student has credit for EDUC 510.
EDUC 319 - ADOLESCENT DEVELOPMENT
Short Title: ADOLESCENT DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The goal of this course is to introduce students to basic theories of adolescent development and cognition. The course will examine principles and concepts in the areas of physical, emotional and psychological development, identity formation, sexuality, and family and peer relations. Other ‘hot topics’ such as substance abuse, eating disorders, and teenagers and the media will also be examined. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 519. Mutually Exclusive: Cannot register for EDUC 319 if student has credit for EDUC 519.

EDUC 316 - ASSESSMENT
Short Title: ASSESSMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, students will use formative and summative assessment to drive instructional decisions. Disaggregation of student data growth in the classroom and on standardized tests will foster academic achievement. Graduate/Undergraduate Equivalency: EDUC 516. Mutually Exclusive: Cannot register for EDUC 316 if student has credit for EDUC 516.

EDUC 319 - TEACHING AND LEARNING WITH INQUIRY
Short Title: TEACHING & LEARNING W/INQUIRY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Education for the 21st Century of change and innovation demands problem-solving and critical thinking skills. This course approaches the teaching of context areas with a student-focused lens that engages inquiring minds with the small group exploration of open-ended problems. Lesson structure, activities, and assessment will be integral to the course. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 519. Mutually Exclusive: Cannot register for EDUC 319 if student has credit for EDUC 519.

EDUC 320 - TEACHING DIVERSE LEARNERS
Short Title: TEACHING DIVERSE LEARNERS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers pedagogies for learners who have different ways of seeing the world, different experiences, and different learning needs. A variety of teaching methods and strategies help special needs students, gifted and talented students and English language learners succeed in the classroom. This course also addresses effective communication in ARDS, LPACS, and staffing within classrooms. Students learn about the support personnel who can assist the classroom teacher. Required for certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 520. Mutually Exclusive: Cannot register for EDUC 320 if student has credit for EDUC 520.

EDUC 323 - CREATIVE WRITING IN THE CLASSROOM
Short Title: CREATIVE WRITING IN CLASSROOM
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Rice students enrolled in this intensive summer internship will work alongside master teachers and professional writers to promote creative thinking and writing with middle and high school students. Students in this course will explore arts integration pedagogy, engage in the classroom planning process, lead lessons, facilitate student writing, and develop anthologies to showcase student voices. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 523. Mutually Exclusive: Cannot register for EDUC 323 if student has credit for EDUC 523. Repeatable for Credit.

EDUC 325 - ADOLESCENT LITERATURE
Short Title: ADOLESCENT LITERATURE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The nature of adolescence in an increasingly complex and diversity society is examined through literature written for and about adolescents and young adults. This study of the cultural, literary and developmental issues in adolescent literature is relevant to students of literature, psychology, child development, anthropology and sociology, and is recommended for students preparing to become teachers. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 525. Mutually Exclusive: Cannot register for EDUC 325 if student has credit for EDUC 525.
EDUC 330 - THE AMERICAN HIGH SCHOOL
Short Title: THE AMERICAN HIGH SCHOOL
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historically one of the few universally experienced institutions in the U.S., the American high school has been an essential rite of passage for youth and an essential building block of democracy. Students in this course will study the historical origins of the high school and examine its roles in the economy, culture, and the lives of youth. Using field study of an urban high school (15 hours of observation required for undergraduates), students will analyze the contemporary high school and debate about its future. Graduate/Undergraduate Equivalency: EDUC 530. Mutually Exclusive: Cannot register for EDUC 330 if student has credit for EDUC 530.

EDUC 335 - URBAN EDUCATION: ISSUES, POLICY, AND PRACTICE
Short Title: URBAN ED:ISSUES, POLICY & PRAC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the major issues facing urban education, including poverty, the implications of racial and ethnic diversity for educational institutions, and strategies for improving academic achievement in urban schools. Students will examine sociological, political, cultural and educational research and theory, as well as explore strategies for improvement of urban education at the classroom, school and policy levels. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 535. Mutually Exclusive: Cannot register for EDUC 335 if student has credit for EDUC 535.

EDUC 345 - EDUCATIONAL TECHNOLOGIES & DIGITAL LEARNING
Short Title: EDUC TECH & DIGITAL LRNING
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The primary purposes of this course is to prepare teachers to identify and evaluate effective, appropriate data and curriculum management systems/programs that improve student achievement, to determine how technologies can personalize and accelerate learning goals for students; and understand how technology can be used to change communication and pedagogical practices in the classroom. This course is required for certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 545. Mutually Exclusive: Cannot register for EDUC 345 if student has credit for EDUC 545.

EDUC 350 - EDUCATION POLICY: FROM LEGISLATURES TO CLASSROOMS
Short Title: EDUCATION POLICY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Policy issues in this course include school funding, curriculum decisions, accountability systems, discipline policies, and other areas. What are the major policy discussions affecting K-12 education today, and how are they resolved in the political arena? Who drives policy in each of these areas and what role can or does research-based analysis play? We will answer these questions and more as we explore the political arena of educational policy. This class requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 550. Mutually Exclusive: Cannot register for EDUC 350 if student has credit for EDUC 550/POST 340.

EDUC 421 - CURRICULUM DEVELOPMENT
Short Title: CURRICULUM DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is the first of a two-part series for preservice teachers. It offers a reflective study of classroom practice through seventy-five (75) hours of observation in secondary schools and teaching activities under the guidance of cooperating teachers and education team members in an actual classroom setting. This course includes opportunities to structure lessons for diverse student populations with whole group and small group lessons. This course is required for certification. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 521. Mutually Exclusive: Cannot register for EDUC 421 if student has credit for EDUC 521.

EDUC 422 - LITERACY ACROSS THE CURRICULUM
Short Title: LITERACY ACROSS THE CURRICULUM
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How students are taught to read and write in all academic and elective disciplines is critical to the academic development of adolescents. In this course multiple literacies will be discussed in terms of theory and practice. Students will examine reading, writing, listening, speaking and thinking strategies across the curriculum and their impact on learning. Additionally students will investigate, plan, and practice the skills of using literacy strategies for the specific discipline. Required for certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 522. Mutually Exclusive: Cannot register for EDUC 422 if student has credit for EDUC 522.
EDUC 460 - THEORY AND METHODS: ART
Short Title: THEORY AND METHODS: ART
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 560. Mutually Exclusive: Cannot register for EDUC 460 if student has credit for EDUC 560.

EDUC 461 - THEORY AND METHODS: ENGLISH LANGUAGE ARTS & READING (ELAR)
Short Title: THEORY AND METHODS: ELAR
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 561. Mutually Exclusive: Cannot register for EDUC 461 if student has credit for EDUC 561.

EDUC 462 - THEORY AND METHODS: LOTE
Short Title: THEORY AND METHODS: LOTE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 562. Mutually Exclusive: Cannot register for EDUC 462 if student has credit for EDUC 562.

EDUC 463 - THEORY AND METHODS: MATHEMATICS
Short Title: THEORY AND METHODS:MATHEMATICS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 563. Mutually Exclusive: Cannot register for EDUC 463 if student has credit for EDUC 563.

EDUC 464 - THEORY AND METHODS: PHYSICAL EDUCATION
Short Title: THEORY AND METHODS:PHYSICAL ED
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 564. Mutually Exclusive: Cannot register for EDUC 464 if student has credit for EDUC 564.

EDUC 465 - THEORY AND METHODS: SCIENCE
Short Title: THEORY AND METHODS: SCIENCE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 565. Mutually Exclusive: Cannot register for EDUC 465 if student has credit for EDUC 565.
EDUC 466 - THEORY AND METHODS: SOCIAL STUDIES
Short Title: THEORY AND METHODS: SOCIAL STUDS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 566. Mutually Exclusive: Cannot register for EDUC 466 if student has credit for EDUC 566.

EDUC 467 - PRACTICUM FOR PRESERVICE TEACHERS
Short Title: PRACT FOR PRESERVICE TEACHERS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (EDUC 460 or EDUC 461 or EDUC 462 or EDUC 463 or EDUC 464 or EDUC 465 or EDUC 466) and EDUC 421
Description: This is the second course in the two-part series for preservice teachers. In this field-based practicum. The preservice teacher will have a concentrated experience in student teaching based on the lesson development, pedagogical explorations, and field-based work of the previous semester. Students are expected to follow the assigned district/campus academic calendar for the semester of student teaching. This course is required for certification. Graduate/Undergraduate Equivalency: EDUC 567. Mutually Exclusive: Cannot register for EDUC 467 if student has credit for EDUC 567.

EDUC 470 - FIELD-BASED STUDIES IN TEACHING AND LEARNING
Short Title: FLD-BASED STDY TEACH & LRNG
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Students with a class of Freshman or Sophomore may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The study of critical issues in urban education uses ethnographic research methods to study a wide range of educational subjects, from policy impact to classroom practice, from curriculum and pedagogy to the cultures of the children. The course includes a seminar on research methodologies, with a focus on ethnography; independent research projects in a local school setting; and directed case studies. It is open particularly to students in education, sociology, psychology, anthropology and cultural studies. Graduate/Undergraduate Equivalency: EDUC 570. Mutually Exclusive: Cannot register for EDUC 470 if student has credit for EDUC 570.

EDUC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Laboratory, Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EDUC 491 - INDEPENDENT STUDY AND RESEARCH
Short Title: INDEPENDENT STUDY AND RESEARCH
Department: Education
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course uses ethnographic and quantitative research methods to study a specific issue in education. Independent research projects may include literature reviews and analysis, and/or case studies in school settings. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 591. Mutually Exclusive: Cannot register for EDUC 491 if student has credit for EDUC 591. Repeatable for Credit.

EDUC 501 - PHILOSOPHICAL, HISTORICAL, AND SOCIAL FOUNDATIONS OF EDUCATION
Short Title: PHILOS,HIST,&SOC FOUNDTN OF EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course students analysis events and ideas that have shaped the philosophy and practice of American schools today. It is appropriate for all students interested in the influences and stresses that have created a unique educational system in our culturally diverse country. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 501. Graduate/Undergraduate Equivalency: EDUC 301. Mutually Exclusive: Cannot register for EDUC 501 if student has credit for EDUC 301.
EDUC 502 - CONTEMPORARY ISSUES IN EDUCATION
Short Title: CONTEMPORARY ISSUES IN EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the way globalization, immigration, privatization and the increasing diversity in our student population is shaping, and being shaped, by America's schools. An exploration of these and other issues from both micro- (student) and macro- (systemic) levels, will be the mainstay of the course. The lenses of sociology, psychology and political economy will be used throughout the semester. The course is open to students in these fields and to students exploring a career in teaching, and is recommended for students entering the teacher education program. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 202. Graduate/Undergraduate Equivalency: EDUC 202. Mutually Exclusive: Cannot register for EDUC 502 if student has credit for EDUC 202.

EDUC 504 - RACE, CLASS, GENDER IN EDUCATION
Short Title: RACE, CLASS, GENDER IN EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the complex ways in which race, ethnicity, gender, and class intersect and influence the educational experience of students in American schools. By employing an interdisciplinary approach centered both on individuals' lived experiences and educational system as a whole; EDUC 504 explores and critiques these critical issues and their impact on student learning. Likely topics include the historical foundations of race, class and gender in education, segregation, Title IX, and other contemporary topics. This graduate equivalent of EDUC 304 requires additional assignments. Graduate/Undergraduate Equivalency: EDUC 304. Mutually Exclusive: Cannot register for EDUC 504 if student has credit for EDUC 304.

EDUC 505 - EDUCATIONAL PSYCHOLOGY
Short Title: EDUCATIONAL PSYCHOLOGY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to introduce students to a psychological understanding of teaching and learning through an overview of principles, issues, and related research in educational psychology. Students in this course will examine theories of learning, complex cognitive processes, cognitive and emotional development, and motivation. These constructs will be applied to effective instruction, the design of optimum learning environments, assessment of student learning, and teaching in diverse classrooms. Required for those seeking teacher certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 305. Mutually Exclusive: Cannot register for EDUC 505 if student has credit for EDUC 305.

EDUC 510 - INTRODUCTION TO SPECIAL EDUCATION
Short Title: INTRODUCTION SPECIAL EDUCATION
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce and expose students to the field of Special Education. Students will learn about the various individuals who receive special education as well as other types of exceptionality, including giftedness. Controversial issues in this field will be examined along with pertinent legislation. This course will familiarize students with instructional approaches in special education and the social issues impacting the field. Students will visit area schools. This course requires five hours of observation in a local secondary school. Recommended for certification. Additional assignments are required beyond those for EDUC 310. Graduate/Undergraduate Equivalency: EDUC 310. Mutually Exclusive: Cannot register for EDUC 510 if student has credit for EDUC 310.

EDUC 515 - ADOLESCENT DEVELOPMENT
Short Title: ADOLESCENT DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to introduce students to basic theories of adolescent development and cognition. The course will examine principles and concepts in the areas of physical, emotional and psychological development, identity formation, sexuality, and family and peer relations. Other 'hot topics' such as substance abuse, eating disorders, and teenagers and the media will also be examined. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 315. Graduate/Undergraduate Equivalency: EDUC 315. Mutually Exclusive: Cannot register for EDUC 515 if student has credit for EDUC 315.

EDUC 516 - ASSESSMENT
Short Title: ASSESSMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will use formative and summative assessment to drive instructional decisions. Disaggregation of student data growth in the classroom and on standardized tests will foster academic achievement. Additional requirements are required beyond those for EDUC 316. Graduate/Undergraduate Equivalency: EDUC 316. Mutually Exclusive: Cannot register for EDUC 516 if student has credit for EDUC 316.
EDUC 519 - TEACHING AND LEARNING WITH INQUIRY
Short Title: TEACHING & LEARNING W/INQUIRY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Education for the 21st Century of change and innovation demands problem-solving and critical thinking skills. This course approaches the teaching of context areas with a student-focused lens that engages inquiring minds with the small group exploration of open-ended problems. Lesson structure, activities, and assessment will be integral to the course. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those of EDUC 319. Graduate/Undergraduate Equivalency: EDUC 319. Mutually Exclusive: Cannot register for EDUC 519 if student has credit for EDUC 319.

EDUC 520 - TEACHING DIVERSE LEARNERS
Short Title: TEACHING DIVERSE LEARNERS
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers pedagogies for learners who have different ways of seeing the world, different experiences, and different learning needs. A variety of teaching methods and strategies help special needs students, gifted and talented students and English language learners succeed in the classroom. This course also addresses effective communication in ARDS, LPACS, and staffing within classrooms. Students learn about the support personnel who can assist the classroom teacher. Required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 320. Graduate/Undergraduate Equivalency: EDUC 320. Mutually Exclusive: Cannot register for EDUC 520 if student has credit for EDUC 320.

EDUC 521 - CURRICULUM DEVELOPMENT
Short Title: CURRICULUM DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is the first of a two-part series for preservice teachers. It offers a reflective study of classroom practice through seventy-five (75) hours of observation in secondary schools and teaching activities under the guidance of cooperating teachers and education team members in an actual classroom setting. This course includes opportunities to structure lessons for diverse student populations with whole group and small group lessons. This course is required for certification. Additional assignments are required beyond those for EDUC 421. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 421. Mutually Exclusive: Cannot register for EDUC 521 if student has credit for EDUC 421.

EDUC 522 - LITERACY ACROSS THE CURRICULUM
Short Title: LITERACY ACROSS THE CURRICULUM
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How students are taught to read and write in all academic and elective disciplines is critical to the academic development of adolescents. In this course multiple literacies will be discussed in terms of theory and practice. Students will examine reading, writing, listening, speaking and thinking strategies across the curriculum and their impact on learning. Additionally students will investigate, plan, and practice the skills of using literacy strategies for the specific discipline. Required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 422. Graduate/Undergraduate Equivalency: EDUC 422. Mutually Exclusive: Cannot register for EDUC 522 if student has credit for EDUC 422.

EDUC 523 - CREATIVE WRITING IN THE CLASSROOM
Short Title: CREATIVE WRITING IN CLASSROOM
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Rice students enrolled in this intensive summer internship will work alongside master teachers and professional writers to promote creative thinking and writing with middle and high school students. Students in this course will explore arts integration pedagogy, engage in the classroom planning process, lead lessons, facilitate student writing, and develop anthologies to showcase student voices. Additional assignments are required beyond those for EDUC 323. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 323. Mutually Exclusive: Cannot register for EDUC 523 if student has credit for EDUC 323. Repeatable for Credit.

EDUC 525 - ADOLESCENT LITERATURE
Short Title: ADOLESCENT LITERATURE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The nature of adolescence in an increasingly complex and diversity society is examined through literature written for and about adolescents and young adults. This study of the cultural, literary and developmental issues in adolescent literature is relevant to students of literature, psychology, child development, anthropology and sociology, and is recommended for students preparing to become teachers. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 325. Graduate/Undergraduate Equivalency: EDUC 325. Mutually Exclusive: Cannot register for EDUC 525 if student has credit for EDUC 325.
EDUC 530 - THE AMERICAN HIGH SCHOOL
Short Title: THE AMERICAN HIGH SCHOOL
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Historically one of the few universally experienced institutions in the U.S., the American high school has been an essential rite of passage for youth and an essential building block of Democracy. This course will study the historical origins of the high school; examine its roles in the economy, our culture, and the lives of youth. We will examine the contemporary high school and debates about its future, through the field of study of an urban high school (20 hours of observation required for graduates). Required for certification unless EDUC 501 is substituted. Additional assignments are required. Graduate/Undergraduate Equivalency: EDUC 330. Mutually Exclusive: Cannot register for EDUC 530 if student has credit for EDUC 330.

EDUC 535 - URBAN EDUCATION: ISSUES, POLICY, AND PRACTICE
Short Title: URBAN ED:ISSUES, POLICY & PRAC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on the major issues facing urban education, including poverty, the implications of racial and ethnic diversity for educational institutions, and strategies for improving academic achievement in urban schools. Students will examine sociological, political, cultural and educational research and theory, as well as explore strategies for improvement of urban education at the classroom, school and policy levels. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 335. Graduate/Undergraduate Equivalency: EDUC 335. Mutually Exclusive: Cannot register for EDUC 535 if student has credit for EDUC 335.

EDUC 540 - SEMINAR FOR FIRST-YEAR TEACHERS
Short Title: SEMINAR FOR FIRST-YR TEACHERS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this single-year internship, first year teachers will be supported in their work by field supervisors. In a weekly seminar, teachers will analyze their practice with current theories in education. Teachers will also develop and defend portfolios of their work. This course is required for stand certification and for the Master of Arts in Teaching. Repeatable for Credit.

EDUC 545 - EDUCATIONAL TECHNOLOGIES & DIGITAL LEARNING
Short Title: EDUC TECH & DIGITAL LRNING
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The primary purposes of this course is to prepare teachers to identify and evaluate effective, appropriate data and curriculum management systems/programs that improve student achievement; to determine how technologies can personalize and accelerate learning goals for students; and understand how technology can be used to change communication and pedagogical practices in the classroom. This course is required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 345. Graduate/Undergraduate Equivalency: EDUC 345. Mutually Exclusive: Cannot register for EDUC 545 if student has credit for EDUC 345.

EDUC 550 - EDUCATION POLICY: FROM LEGISLATURES TO CLASSROOMS
Short Title: EDUCATION POLICY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Policy issues in this course include school funding, curriculum decisions, accountability systems, discipline policies, and other areas. What are the major policy discussions affecting K-12 education today, and how are they resolved in the political arena? Who drives policy in each of these areas and what role can or does research-based analysis play? We will answer these questions and more as we explore the political arena of educational policy. This class requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 350. Graduate/Undergraduate Equivalency: EDUC 350. Mutually Exclusive: Cannot register for EDUC 550 if student has credit for EDUC 350/POST 340.

EDUC 556 - THEORY AND METHODS: ART
Short Title: THEORY AND METHODS: ART
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 460. Graduate/Undergraduate Equivalency: EDUC 460. Mutually Exclusive: Cannot register for EDUC 560 if student has credit for EDUC 460.
EDUC 561 - THEORY AND METHODS: ENGLISH LANGUAGE ARTS & READING (ELAR)
Short Title: THEORY AND METHODS: ELAR
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 461. Graduate/Undergraduate Equivalency: EDUC 461. Mutually Exclusive: Cannot register for EDUC 561 if student has credit for EDUC 461.

EDUC 562 - THEORY AND METHODS: LOTE
Short Title: THEORY AND METHODS: LOTE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 462. Graduate/Undergraduate Equivalency: EDUC 462. Mutually Exclusive: Cannot register for EDUC 562 if student has credit for EDUC 462.

EDUC 563 - THEORY AND METHODS: MATHEMATICS
Short Title: THEORY AND METHODS:MATHEMATICS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 463. Graduate/Undergraduate Equivalency: EDUC 463. Mutually Exclusive: Cannot register for EDUC 563 if student has credit for EDUC 463.

EDUC 564 - THEORY AND METHODS: PHYSICAL EDUCATION
Short Title: THEORY AND METHODS:PHYSICAL ED
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 464. Graduate/Undergraduate Equivalency: EDUC 464. Mutually Exclusive: Cannot register for EDUC 564 if student has credit for EDUC 464.

EDUC 565 - THEORY AND METHODS: SCIENCE
Short Title: THEORY AND METHODS: SCIENCE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 465. Graduate/Undergraduate Equivalency: EDUC 465. Mutually Exclusive: Cannot register for EDUC 565 if student has credit for EDUC 465.

EDUC 566 - THEORY AND METHODS: SOCIAL STUDIES
Short Title: THEORY AND METHODS:SOCIAL STUD
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 466. Graduate/Undergraduate Equivalency: EDUC 466. Mutually Exclusive: Cannot register for EDUC 566 if student has credit for EDUC 466.
EDUC 567 - PRACTICUM FOR PRESERVICE TEACHERS
Short Title: PRACT FOR PRESERVICE TEACHERS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): EDUC 560 or EDUC 561 or EDUC 562 or EDUC 563 or EDUC 564 or EDUC 565 or EDUC 566 and EDUC 521
Description: This is the second course in the two-part series for preservice teachers. In this field-based practicum, the preservice teacher will have a concentrated experience in student teaching based on the lesson development, pedagogical explorations, and field-based work of the previous semester. Students are expected to follow the assigned district/campus academic calendar for the semester of student teaching. This course is required for certification. Additional assignments are required beyond those for EDUC 467. Graduate/Undergraduate Equivalency: EDUC 467. Mutually Exclusive: Cannot register for EDUC 567 if student has credit for EDUC 467. Repeatable for Credit.

EDUC 570 - FIELD-BASED STUDIES IN TEACHING AND LEARNING
Short Title: FLD-BASED STDY TEACH & LRNG
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of critical issues in urban education uses ethnographic research methods to study a wide range of educational subjects, from policy impact to classroom practice, from curriculum and pedagogy to the cultures of the children. The course includes a seminar on research methodologies, with a focus on ethnography; independent research projects in a local school setting; and directed case studies. It is open particularly to students in education, sociology, psychology, anthropology and cultural studies. Additional assignments are required beyond those for EDUC 470. Graduate/Undergraduate Equivalency: EDUC 470. Mutually Exclusive: Cannot register for EDUC 570 if student has credit for EDUC 470. Repeatable for Credit.

EDUC 597 - PRACTICUM FOR PRINCIPALS
Short Title: PRACTICUM FOR PRINCIPALS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): EDUC 504 and EDUC 516 and EDUC 590 and EDUC 596
Corequisite:
Description: This course uses ethnographic and quantitative research methods to study a specific issue in education. Independent research projects may include literature reviews and analysis, and/or case studies in school settings. Additional assignments are required beyond those for EDUC 491. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 491. Mutually Exclusive: Cannot register for EDUC 591 if student has credit for EDUC 491. Repeatable for Credit.

EDUC 591 - INDEPENDENT STUDY AND RESEARCH
Short Title: INDEPENDENT STUDY AND RESEARCH
Department: Education
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course uses ethnographic and quantitative research methods to study a specific issue in education. Independent research projects may include literature reviews and analysis, and/or case studies in school settings. Additional assignments are required beyond those for EDUC 491. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 491. Mutually Exclusive: Cannot register for EDUC 591 if student has credit for EDUC 491. Repeatable for Credit.

EDUC 595 - CAPSTONE
Short Title: CAPSTONE
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: EDUC 590
Description: The Capstone Project is the culmination of the program as the student melds the MAT course of study specialization with classroom experience. The work in this two-semester course is showcased in a portfolio to be defended before an academic committee. Repeatable for Credit.

EDUC 596 - ORGANIZATIONAL LEADERSHIP
Short Title: ORGANIZATIONAL LEADERSHIP
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: EDUC 590
Description: Students will be challenged in workshops that test a leader’s ability to solve problems that include school finance management, student demographics and test scores, teachers’ effectiveness, and the community’s needs. Department Permission Required.

EDUC 597 - PRACTICUM FOR PRINCIPALS
Short Title: PRACTICUM FOR PRINCIPALS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): EDUC 504 and EDUC 516 and EDUC 590 and EDUC 596
Description: During this two-semester course students will be implementing the knowledge gained from classroom experiences into tasks in their home schools under guidance of a school mentor and a field supervisor. Department Permission Required. Repeatable for Credit.
EDUC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: EDUC

Program Description and Code
- Education: EDUC

Graduate Degree Description and Code
- Master of Arts in Teaching degree: MAT

Graduate Degree Program Description and Code
- Degree Program in Education: EDUC

Graduate Degree Program Option Descriptions and Codes*
- Degree Program Option - Current Rice Undergraduates: MAT
- Degree Program Option - New Teachers: MAT-NEW
- Degree Program Option - Experienced Teachers: MAT-EXP
- Degree Program Option - Experienced Teachers with Principal Certification: MAT-PRN

Graduate Certificate Descriptions and Codes
- Certificate in Dual Credit Teacher Credentialing - English: DCE
- Certificate in Dual Credit Teacher Credentialing - History: DCH

CIP Code and Description ¹
- EDUC Major/Program: CIP Code/Title: 13.1205 - Secondary Education and Teaching
- DCE Certificate: CIP Code/Title: 13.1305 - English/Language Arts Teacher Education
- DCH Certificate: CIP Code/Title: 13.1328 - History Arts Teacher Education

Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/.

Master of Arts in Teaching (MAT) Degree, for Current Rice Undergraduates

Program Learning Outcomes for the MAT Degree
Upon completing the MAT degree, students will be able to:

1. Foster culturally responsive pedagogy that uses the lives, culture, and community assets of the students.
2. Facilitate teaching strategies for diverse learners.
3. Assess students’ progress and content mastery to guide instruction.
5. Demonstrate instructional leadership.

Requirements for the MAT Degree, for Current Rice Undergraduates
The MAT degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MAT degree must complete:

- A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 870) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of B- (2.67 grade points) in each course.

The MAT is a non-thesis degree program for students who want to qualify for secondary school teaching following the completion of a bachelor’s degree. Most MAT degree candidates entering the program have had no professional education courses. MAT degree and Education program participants who wish to obtain Texas Teacher (TEA) Certification (for grades 7-12) must satisfy the following requirements:

- Students must begin two-semesters of work in assigned school with first semester curriculum development and theory and methods courses and a second semester full-day field-based study with a cooperating teacher (EDUC 521, EDUC 560, EDUC 561, EDUC 562, EDUC 563, EDUC 564, EDUC 565, EDUC 566, and EDUC 570).
- Students must complete a two-semester supervised teaching internship by acquiring and fulfilling all professional responsibilities...
of a teaching position in a local accredited secondary school and completing a seminar course (EDUC 540).

- Students must complete 75 hours of field-based experience in local secondary schools, in conjunction with satisfactory results on background check with participating school districts.
- Students must earn grades of B- (2.67 grade points) or better in all teaching field and education courses.
- Students must pass the appropriate TExES exams.
- Students must apply with the appropriate (Texas) state agency for Texas Teacher (TEA) Certification when all requirements are completed.

The cooperating school districts pay a regular salary for internship teaching.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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<td>Total Credit Hours Required for the MAT Degree, for Current Rice Undergraduates</td>
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### Degree Requirements

#### Core Requirements

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<tr>
<td>EDUC 504</td>
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<td>EDUC 505</td>
<td>EDUCATIONAL PSYCHOLOGY</td>
<td>3</td>
</tr>
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<td>EDUC 516</td>
<td>ASSESSMENT</td>
<td>3</td>
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<td>EDUC 520</td>
<td>TEACHING DIVERSE LEARNERS</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 521</td>
<td>CURRICULUM DEVELOPMENT</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 545</td>
<td>EDUCATIONAL TECHNOLOGIES &amp; DIGITAL LEARNING</td>
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</tbody>
</table>

#### Theory and Methods

Select 1 course from the following: 3

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<thead>
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<th>Title</th>
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<tbody>
<tr>
<td>EDUC 560</td>
<td>THEORY AND METHODS: ART</td>
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</tr>
<tr>
<td>EDUC 561</td>
<td>THEORY AND METHODS: ENGLISH LANGUAGE ARTS &amp; READING (ELAR)</td>
<td></td>
</tr>
<tr>
<td>EDUC 562</td>
<td>THEORY AND METHODS: LOTE</td>
<td></td>
</tr>
<tr>
<td>EDUC 563</td>
<td>THEORY AND METHODS: MATHEMATICS</td>
<td></td>
</tr>
<tr>
<td>EDUC 564</td>
<td>THEORY AND METHODS: PHYSICAL EDUCATION</td>
<td></td>
</tr>
<tr>
<td>EDUC 565</td>
<td>THEORY AND METHODS: SCIENCE</td>
<td></td>
</tr>
<tr>
<td>EDUC 566</td>
<td>THEORY AND METHODS: SOCIAL STUDIES</td>
<td></td>
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</table>

#### Senior Year, Full-time Practice Teaching

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>EDUC 570</td>
<td>FIELD-BASED STUDIES IN TEACHING AND LEARNING</td>
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#### (Supervised Teaching) Internship

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 540</td>
<td>SEMINAR FOR FIRST-YEAR TEACHERS (2 semesters required, 1st semester)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 540</td>
<td>SEMINAR FOR FIRST-YEAR TEACHERS (2 semesters required, 2nd semester)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Total Credit Hours 30

### Footnotes and Additional Information

1. At the discretion of the associate dean and academic advisor, some students may require additional courses to address deficiencies prior to seeking Texas Teacher Certification.

### Fifth-Year MAT Degree Option for Rice Undergraduate Students

Rice students have the option to pursue the MAT degree by adding an additional fifth year to their four undergraduate years of study. For more information, please see the Opportunities (p. 871) tab.

### Policies for the MAT Degree, for Current Rice Undergraduates

#### Department of Education Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Education publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Education_Graduate_Handbook.pdf

#### Admission

Applicants must have at least 12 to 15 credit hours in the content area before admission, scholarly ability, and a commitment to teaching, and SAT or ACT scores. Specific requirements include:

- Completion of a bachelor's degree before the internship year (5th year).
- A minimum of 12.15 credit hours in the subject-specific content area for the certification sought, depending on the certification sought:
  - A minimum of 12 semester credit hours in the subject-specific content area for the certification sought, if the certification sought is outside mathematics or science at or above Grade 7, or
  - A minimum of 15 credit hours in the subject-specific content area for the certification sought, if the certification sought is for mathematics or science at or above Grade 7.
- Grades of B- (2.67 grade points) or better in all coursework attempted in the teaching field and a grade point average of 3.00 or better, both in courses for the teaching field and overall.
- Evidence that the applicant's knowledge, experience, skills, and aptitude are appropriate for the certification sought.

The Texas Education Agency (TEA) requires candidates to undergo a criminal background check prior to field-based experience, prior to clinical training, and prior to being hired as a first-year teacher. Candidates may go through the fingerprinting process before applying for admission. If the results are unsatisfactory, the candidate may petition the TEA for reconsideration of the results. More information on this important rule is on the Education program website at: https://glasscock.rice.edu/degrees-certificates/degrees/master-arts-teaching/master-arts-teaching-new-teachers/https://glasscock.rice.edu/degrees-certificates/degrees/master-arts-teaching/master-arts-teaching-new-teachers/
Education team members review each application. Limited tuition assistance is available. See Admission to Graduate Study (https://graduate.rice.edu/admissions/).

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MAT degree should be aware of the following program-specific transfer credit guidelines:

1. No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
2. Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Education program website: https://glasscock.rice.edu/departments/education-department (https://glasscock.rice.edu/departments/education-department/)

Opportunities for the MAT Degree, for Current Rice Undergraduates
Fifth-Year Master's Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

1. must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
2. should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
3. more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students have the option to pursue the Master of Arts Teaching (MAT) degree and apply to the master's degree program during their sophomore year. Upon acceptance, they may then start taking some required courses of the master's degree program during their junior year. For additional information, students should contact their undergraduate major advisor and the MAT program director.

As part of this option and opportunity, Rice undergraduate students:

1. must complete a minimum of 12-15 credit hours in the subject-specific content area for the certification sought, depending on the certification sought:
   - a minimum of 12 semester credit hours in the subject-specific content area for the certification sought, if the certification sought is outside mathematics or science at or above Grade 7, or
   - a minimum of 15 credit hours in the subject-specific content area for the certification sought, if the certification sought is for mathematics or science at or above Grade 7.

Requirements for Visiting Post-Baccalaureate (VPB) Certification
A non-degree (Visiting Post-Baccalaureate) plan leading to secondary teacher certification or principal certification is available for those who have earned a BA and/or MA degree, but do not choose to pursue a Rice University graduate degree. Candidates complete all requirements for state of Texas secondary teacher certification or principal certification, including professional education courses. Interested students should contact the Education Program.

Master of Arts in Teaching (MAT) Degree, for Experienced Teachers
Program Learning Outcomes for the MAT Degree
Upon completing the MAT degree, students will be able to:

1. Foster culturally responsive pedagogy that uses the lives, culture, and community assets of the students.
2. Facilitate teaching strategies for diverse learners.
3. Assess students’ progress and content mastery to guide instruction.
5. Demonstrate instructional leadership.

Requirements for the MAT Degree, for Experienced Teachers
The MAT degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MAT degree must complete:

1. A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
2. A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
3. A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 872) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of B- (2.67 grade points) in each course.

This MAT degree program is offered for experienced teachers that have a minimum of 2 years experience teaching. This degree program for experienced teachers also offers a route toward Texas Education Agency (TEA) principal certification (please see the separate program entry for the Master of Arts in Teaching (MAT) Degree, for Experienced Teachers with Principal Certification (p. 873)).

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://glasscock.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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<tr>
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<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MAT Degree, for Experienced Teachers</td>
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### Degree Requirements

#### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EDUC 504</td>
<td>RACE, CLASS, GENDER IN EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 516</td>
<td>ASSESSMENT</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 520</td>
<td>TEACHING DIVERSE LEARNERS</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 545</td>
<td>EDUCATIONAL TECHNOLOGIES &amp; DIGITAL LEARNING</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 590</td>
<td>INSTRUCTIONAL LEADERSHIP</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 595</td>
<td>CAPSTONE (2 semesters required, 1st semester)</td>
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<tr>
<td>EDUC 595</td>
<td>CAPSTONE (2 semesters required, 2nd semester)</td>
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#### Elective Requirements

Select 3 from the following Professional Education courses or Academic Content Specialization:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>EDUC 505</td>
<td>EDUCATIONAL PSYCHOLOGY</td>
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<tr>
<td>EDUC 521</td>
<td>CURRICULUM DEVELOPMENT</td>
</tr>
<tr>
<td>EDUC 560</td>
<td>THEORY AND METHODS: ART</td>
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</table>

### Policies for the MAT Degree, for Experienced Teachers

#### Department of Education Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Education publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Education_Graduate_Handbook.pdf

#### Admission

Applicants must have a bachelor’s degree, scholarly ability, and a commitment to teaching. Specific requirements include:

- Completion of a bachelor’s degree before admission to the program.
- Grades of B- (2.67 grade points) or better in all coursework attempted in the teaching field and a grade point average of 3.00 or better overall.
- Evidence that the applicant’s knowledge, experience, skills, and aptitude are appropriate for the certification sought.

Education team members review each application. Limited tuition assistance is available. See Admission to Graduate Study (https://graduate.rice.edu/admissions/).

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the MAT degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

#### Additional Information

For additional information, please see the Education program website: https://glasscock.rice.edu/departments/education-department/
Opportunities for the MAT Degree, for Experienced Teachers

Requirements for Visiting Post-Baccalaureate (VPB) Certification

A non-degree (Visiting Post-Baccalaureate) plan leading to secondary teacher certification or principal certification is available for those who have earned a BA and/or MA degree, but do not choose to pursue a Rice University graduate degree. Candidates complete all requirements for state of Texas secondary teacher certification or principal certification, including professional education courses. Interested students should contact the Education Program.

Additional Information

For additional information, please see the Education program website: https://glasscock.rice.edu/departments/education-department

Master of Arts in Teaching (MAT) Degree, for Experienced Teachers with Principal Certification

Program Learning Outcomes for the MAT Degree

Upon completing the MAT degree, students will be able to:

1. Foster culturally responsive pedagogy that uses the lives, culture, and community assets of the students.
2. Facilitate teaching strategies for diverse learners.
3. Assess students’ progress and content mastery to guide instruction.
5. Demonstrate instructional leadership.

Requirements for the MAT Degree, for Experienced Teachers with Principal Certification

The MAT degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MAT degree must complete:

- A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 874) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of B- (2.67 grade points) in each course.

This MAT degree program is offered for experienced teachers that have a minimum of 2 years teaching experience and desire a route toward Texas Education Agency (TEA) principal certification.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Degree Requirements

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<td>Core Requirements</td>
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<td>EDUC 516</td>
<td>ASSESSMENT</td>
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<td>EDUC 520</td>
<td>TEACHING DIVERSE LEARNERS</td>
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<td>EDUC 545</td>
<td>EDUCATIONAL TECHNOLOGIES &amp; DIGITAL LEARNING</td>
<td>3</td>
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<td>INSTRUCTIONAL LEADERSHIP</td>
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<td>EDUC 596</td>
<td>ORGANIZATIONAL LEADERSHIP</td>
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<td>Elective Requirements</td>
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<td>Select 2 courses from the following Professional Education courses:</td>
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<tr>
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<td></td>
</tr>
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<td>EDUC 521</td>
<td>CURRICULUM DEVELOPMENT</td>
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<td>EDUC 570</td>
<td>FIELD-BASED STUDIES IN TEACHING AND LEARNING</td>
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</tr>
<tr>
<td>EDUC 591</td>
<td>INDEPENDENT STUDY AND RESEARCH</td>
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</table>

Total Credit Hours 30
Policies for the MAT Degree, for Experienced Teachers with Principal Certification

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Admission
Applicants must have a bachelor's degree, scholarly ability, and a commitment to teaching. Specific requirements include:

- Completion of a bachelor's degree before admission to the program.
- A minimum of two years of teaching experience.
- A valid classroom teaching certificate.
- Grades of B+ (2.67 grade points) or better in all coursework and a grade point average of 3.00 or better overall.
- Evidence that the applicant's knowledge, experience, skills, and aptitude are appropriate for the certification sought.

Education team members review each application. Limited tuition assistance is available. See Admission to Graduate Study (https://graduate.rice.edu/admissions/).

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MAT degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
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Opportunities for the MAT Degree, for Experienced Teachers with Principal Certification

Requirements for Visiting Post-Baccalaureate (VPB) Certification
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Additional Information
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Master of Arts in Teaching (MAT) Degree, for New Teachers

Program Learning Outcomes for the MAT Degree
Upon completing the MAT degree, students will be able to:

1. Foster culturally responsive pedagogy that uses the lives, culture, and community assets of the students.
2. Facilitate teaching strategies for diverse learners.
3. Assess students’ progress and content mastery to guide instruction.
5. Demonstrate instructional leadership.

Requirements for the MAT Degree, for New Teachers

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- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 875) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of B- (2.67 grade points) in each course.

The MAT is a non-thesis degree program for students who want to qualify for secondary school teaching following the completion of a bachelor’s degree. Most MAT degree candidates entering the program have had no professional education courses. MAT degree and Education program participants who wish to obtain Texas Teacher (TEA) Certification (for grades 7-12) must satisfy the following requirements:
• Students must begin two-semesters of work in assigned school with first semester curriculum development and theory and methods courses and a second semester full-day field-based study with a cooperating teacher (EDUC 521, EDUC 560, EDUC 561, EDUC 562, EDUC 563, EDUC 564, EDUC 565, EDUC 566, and EDUC 570).

• Students must complete a two-semester supervised teaching internship by acquiring and fulfilling all professional responsibilities of a teaching position in a local accredited secondary school and completing a seminar course (EDUC 540).

• Students must complete 75 hours of field-based experience in local secondary schools, in conjunction with satisfactory results on background check with participating school districts.

• Students must earn grades of B- (2.67 grade points) or better in all teaching field and education courses.

• Students must pass the appropriate TEExES exams.

• Students must apply with the appropriate (Texas) state agency for Texas Teacher (TEA) Certification when all requirements are completed.

The cooperating school districts pay a regular salary for internship teaching.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MAT Degree, for New Teachers</td>
<td>30</td>
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</table>

**Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td>EDUC 504</td>
<td>RACE, CLASS, GENDER IN EDUCATION</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 505</td>
<td>EDUCATIONAL PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 516</td>
<td>ASSESSMENT</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 520</td>
<td>TEACHING DIVERSE LEARNERS</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 521</td>
<td>CURRICULUM DEVELOPMENT</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 545</td>
<td>EDUCATIONAL TECHNOLOGIES &amp; DIGITAL LEARNING</td>
<td>3</td>
</tr>
</tbody>
</table>

**Theory and Methods**

Select 1 course from the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>EDUC 560</td>
<td>THEORY AND METHODS: ART</td>
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<tr>
<td>EDUC 561</td>
<td>THEORY AND METHODS: ENGLISH LANGUAGE ARTS &amp; READING (ELAR)</td>
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<tr>
<td>EDUC 562</td>
<td>THEORY AND METHODS: LOTE</td>
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<tr>
<td>EDUC 563</td>
<td>THEORY AND METHODS: MATHEMATICS</td>
</tr>
</tbody>
</table>

**Policies for the MAT Degree, for New Teachers**

**Department of Education Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Education publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Education_Graduate_Handbook.pdf

**Admission**

Applicants must have a bachelor’s degree, scholarly ability, and a commitment to teaching. Specific requirements include:

• Completion of a bachelor’s degree before admission to the program.

• A minimum of 12-15 credit hours in the subject-specific content area for the certification sought, depending on the certification sought:
  • A minimum of 12 semester credit hours in the subject-specific content area for the certification sought, if the certification sought is outside mathematics or science at or above Grade 7, or
  • A minimum of 15 credit hours in the subject-specific content area for the certification sought, if the certification sought is for mathematics or science at or above Grade 7.

• Grades of B- (2.67 grade points) or better in all coursework attempted in the teaching field and a grade point average of 3.00 or better, both in courses for the teaching field and overall.

• Evidence that the applicant’s knowledge, experience, skills, and aptitude are appropriate for the certification sought.

The Texas Education Agency (TEA) requires candidates to undergo a criminal background check prior to field-based experience, prior to clinical training, and prior to being hired as a first-year teacher. Candidates may go through the fingerprinting process before applying for admission. If the results are unsatisfactory, the candidate may petition the TEA for reconsideration of the results. More information on this important rule is on the Education program website at: https://glasscock.rice.edu/degrees-certificates/degrees/master-arts-teaching/master-arts-teaching-new-teachers/
Education team members review each application. Limited tuition assistance is available. See Admission to Graduate Study (https://graduate.rice.edu/admissions/).

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MAT degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Education program website: https://glasscock.rice.edu/departments/education-department (https://glasscock.rice.edu/departments/education-department/)

Opportunities for the MAT Degree, for New Teachers
Requirements for Visiting Post-Baccalaureate (VPB) Certification
A non-degree (Visiting Post-Baccalaureate) plan leading to secondary teacher certification or principal certification is available for those who have earned a BA and/or MA degree, but do not choose to pursue a Rice University graduate degree. Candidates complete all requirements for state of Texas secondary teacher certification or principal certification, including professional education courses. Interested students should contact the Education Program.

Additional Information
For additional information, please see the Education program website: https://glasscock.rice.edu/departments/education-department (https://glasscock.rice.edu/departments/education-department/)

Electrical and Computer Engineering
Contact Information
Electrical and Computer Engineering
https://www.ece.rice.edu/
A204 Abercrombie Lab
713-348-4020

Ashutosh Sabharwal
Chair
ashu@rice.edu

The Electrical and Computer Engineering (ECE) department provides high-quality degree programs that emphasize fundamental principles, respond to the changing demands and opportunities of new technology, challenge the exceptional abilities of Rice students, and prepare students for roles of leadership in their chosen careers.

The department’s research areas include: Computer Engineering; Data Science; Neuroengineering; Photonics, Electronics, and Nano-devices; and Systems.

- **Computer Engineering** topics include: computer architecture, high performance application specific systems, mobile and embedded systems, integrated circuits and antennas for medical imaging and bio-sensing, and parallel I/O for large-scale network storage systems.
- **Data Science** topics include: data acquisition, data analytics, data storage, and computing infrastructure.
- **Neuroengineering** topics include: neural signal processing, brain-computer interfaces at the device, circuit, and systems levels.
- **Photonics, Electronics, and Nano-devices** topics include: nanophotonics/nanospectroscopy, molecular electronics, biophotonics, ultrafast optics and optoelectronics, materials for energy, semiconductor optics and devices, multispectral imaging and terahertz imaging, and condensed matter physics/materials science.
- **Systems** topics include: communications systems, dynamical systems and computation, networks, signal and image processing, wireless networking, pattern recognition, scalable personal healthcare, and computational neuroscience and neuroengineering.

The Electrical and Computer Engineering department offers two undergraduate degree programs. The Bachelor of Science in Electrical Engineering (BSEE) degree program is comprehensive and covers fundamental and emerging hardware and software topics. Courses, research, and design projects grouped in four areas of specialization prepare students for technical leadership in engineering, computing, and science careers. The ECE department also offers a Bachelor of Arts (BA) in Electrical Engineering degree program.

The Electrical and Computer Engineering department offers two graduate degree programs. The Master of Electrical and Computer Engineering (MECE) degree is a course-based program designed to increase a student’s mastery of advanced subjects; no thesis is required. The MECE prepares a student to succeed and advance rapidly in today’s competitive technical marketplace.

The Doctor of Philosophy (PhD) degree program prepares students for a research career in academia or industry. The PhD degree program consists of formal courses and original research conducted under the guidance of a faculty advisor leading to a thesis. Students in the PhD program complete a Master of Science (MS) degree as part of their program; the Electrical and Computer Engineering department does not admit students for a terminal MS degree.

**Bachelor’s Programs**

- **Bachelor of Arts (BA) Degree with a Major in Electrical Engineering** (p. 908)
- **Bachelor of Science in Electrical Engineering (BSEE) Degree** (p. 912)
Master's Programs
• Master of Electrical and Computer Engineering (MECE) Degree (p. 918)
• Master of Science (MS) Degree in the field of Electrical and Computer Engineering*

Doctoral Program
• Doctor of Philosophy (PhD) Degree in the field of Electrical and Computer Engineering (p. 917)

*Although students are not normally admitted to a Master of Science (MS) degree program, graduate students may earn the MS as they work towards the PhD.

Chair
Ashutosh Sabharwal

Professors
Behnaam Aazhang
Athanasios C. Antoulas
Richard G. Baraniuk
Joseph R. Cavallaro
Naomi J. Halas
Edward W. Knightly
Junichiro Kono
Michael T. Orchard
Peter J. Varman
Ashok Veeraraghavan

Associate Professors
Genevera I. Allen
Kevin Kelly
Caleb Kemere
Jacob Robinson
John Seymour
Chong Xie
Yuji Zhao

Assistant Professors
Alessandro Alabastri
Guha Balakrishnan
Songtao Chen
Taiyun Chi
Yingyan Lin
Lan Luan
Gururaj Naik
Ankit Patel
Akan Sano
Santiago Segarra
César Uribe
Kaiyuan Yang

Professors Emeriti
Don Herrick Johnson
Frank K. Tittel
James Young

Assistant Teaching Professor
Joseph Young

Assistant Research Professor
Rahman Doost-Mohammady

Professors in the Practice
Gene Frantz
Saad Saleh
Ray Simar, Jr.
Thanh Tran
Gary L. Woods

Lecturers
Fabrizio A. Gabbiani
Joseph Mait
Osama R. Mawlawi
Harel Shouval
Clayton Shepard

Adjunct Faculty
Ravindra Athale
Aydin Babakhani
Alexios Balatsoukas-Stimming
Gavin Britz
Michael Brogioni
Anand Dabak
Clifford C. Dacso
Christopher H. Dick
Valentin Dragoi
Henry O. Everitt
Amir H. Faraji
Wayne Goodman
Omer Gurewitz
Reinhard Heckel
Markku Juntti
Joo-won Kim
Vaishnav Krishnan
Matthew McGinley
Tarik Muharemovic
Bijan Najafi
Theodora Dorina Papageorgiou
Xaq Pitkow
Arvind Rao
David Ress
Stephan M. Schwanauer
Steve Sheafor
Sameer Sheth
Francois St-Pierre
Christoph Studer
James Suliburk
Nitin Tandon
Andreas S. Tolias
Hadley Wickham
Lin Zhong

For Rice University degree-granting programs:
Electrical & Comp. Engineering (ELEC)

ELEC 101 - ELEMENTS OF ELECTRICAL ENGINEERING
Short Title: ELEMENTS OF ELECT ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to fundamentals of electrical engineering through the hands-on design of a micro-controlled model electric car. Topics from fields of circuits, signals, computing, and sensing are covered as needed to support the student in designing systems to power, monitor, and control the vehicle's speed, and to guide its trajectory, in order to pass a series of vehicle tests. Instructor Permission Required.

ELEC 220 - FUNDAMENTALS OF COMPUTER ENGINEERING
Short Title: FUND COMPUTER ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Computer Science, Engineering Division, Electrical & Computer Eng. or Electrical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An overview of computer engineering, starting with fundamental building blocks including transistors, bits, data representation, logic and state machines, progressing to computer organization, instruction sets, interrupts, input/output, assembly language programming, and linkage conventions, and ending with an introduction to architectural performance enhancements and computing services.
Course URL: www.owlnet.rice.edu/~elec220 (http://www.owlnet.rice.edu/~elec220/)

ELEC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

ELEC 241 - FUNDAMENTALS OF ELECTRICAL ENGINEERING I
Short Title: FUND EE I LAB
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Corequisite: ELEC 242
Description: Laboratory course that introduces basic electronic measurement techniques and demonstrates the principles of information management by electronic means. Lectures supplement the laboratory experiments.

ELEC 242 - SIGNALS, SYSTEMS, AND TRANSFORMS
Short Title: SIGNALS, SYSTEMS, & TRANSFORMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Corequisite: ELEC 241
Description: The creation, manipulation, transmission, and extraction of information by electronic and computational means. Elementary signal theory; time and frequency-domain analysis; sampling theorem. Introduction to data science. Information theory; digital communication systems; error-correcting codes.

ELEC 244 - FUNDAMENTALS OF ELECTRICAL ENGINEERING I
Short Title: FUND EE I LAB
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ELEC 241
Corequisite: ELEC 244
Description: Transforms between the time and frequency domains. Linear time-invariant systems: convolutions, impulse response, and eigenfunctions. Delta functions, their nature, and their uses. Fourier series and the Fourier transform for continuous signals. Fourier transform for discrete-time signals. Sampling and aliasing. Laplace transform: poles and zeros, and system stability. Students must register for both ELEC 242 and ELEC 244.
such as ELEC 305.

ELEC 261 will lay the foundation for follow-on PEN and circuits courses.

Field effect transistors, optical devices, microwave and power devices.

also introduce the basic concepts of advanced devices such as junction (MOSFETs), and bipolar junction transistors (BJTs). In addition, 261 will contacts, metal-oxide semi-conductor capacitors and transistors.

and design of semiconductor devices including metal-semiconductor construction, and testing of basic electronic circuits; RLC networks; oscilloscopes, and circuit debugging. Topics covered include design, interfacing digital and analog circuits; pulse width modulation; motors; and feedback control. Students must register for both ELEC 242 and ELEC 244.

The second part of 261 is focused on understanding the operation transport, and finally the basics of pn junctions and pn junction diodes.

is focused on understanding of semiconductor materials in terms of physics and operation of semiconductor de-vices. The first part of 261 is focused on understanding of semiconductor materials in terms of crystal structure, energy bands, density of states, dopants, and electronic transport, and finally the basics of pn junctions and pn junction diodes. The second part of 261 is focused on understanding the operation and design of semiconductor devices including metal-semiconductor contacts, metal-oxide semi-conductor capacitors and transistors (MOSFETs), and bipolar junction transistors (BJTs). In addition, 261 will also introduce the basic concepts of advanced devices such as junction field effect transistors, optical devices, microwave and power devices.

ELEC 261 will lay the foundation for follow-on PEN and circuits courses such as ELEC 305.
ELEC 305 - INTRODUCTION TO PHYSICAL ELECTRONICS II
Short Title: INTRO PHYSICAL ELECTRONICS II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 261 and (MATH 212 or MATH 222)
Description: Physical principles and practical applications of devices used in modern electronic systems, with an emphasis on transistors, integrated circuits, electromagnetic propagation, and transmission lines.

ELEC 323 - PRINCIPLES OF PARALLEL PROGRAMMING
Short Title: FUNDAMENTALS OF PARALLEL PROG
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 211 or COMP 215
Description: Fundamentals of parallel programming: abstract models of parallel computers, parallel algorithms and data structures, and common parallel programming patterns including task parallelism, undirected and directed synchronization, data parallelism, divide-and-conquer parallelism, and map-reduce. Laboratory assignments will explore these topics through the use of parallel extensions to the Java language. Cross-list: COMP 322. Recommended Prerequisite(s): COMP 221.

ELEC 326 - DIGITAL LOGIC DESIGN
Short Title: DIGITAL LOGIC DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220
Description: Study of gates, flip-flops, combinational and sequential switching circuits, registers, logical and arithmetic operations, introduction to the Verilog hardware description language. Cross-list: COMP 326.

ELEC 327 - IMPLEMENTATION OF DIGITAL SYSTEMS
Short Title: IMPLEMENTATION OF DIGITAL SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 326 or COMP 326
Description: Embedded microsystems are widely employed to provide intelligence to sensors and actuators throughout our daily life. In this course, we learn the software and hardware frameworks which underly embedded systems design. Students will learn the fundamentals of embedded system programming and feel competent to design, build, and manufacture their own embedded devices. In particular, we focus on principles of low-power design and interface with external peripherals. In addition, students will learn how to design their own manufacturable hardware and discover how application-specific blocks enable modern commercial devices to function. There are weekly lab assignments and two projects. Instructor Permission Required.

ELEC 332 - ELECTRONIC SYSTEMS PRINCIPLES AND PRACTICE
Short Title: ELEC SYS PRINCIPLES & PRACTICE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242
Description: This course covers the theory and techniques necessary to realize modern, high performance electronic systems. Design considerations for systems utilizing high speed, high frequency analog and digital integrated circuits will be covered. Students develop a microcontroller system for controlling the functions of a model electric car. Power and sensor circuits will be designed to monitor and control the vehicle’s speed, and to guide its trajectory, in order to pass a series of vehicle tests. Instructor Permission Required.

ELEC 342 - ANALOG ELECTRONIC CIRCUITS
Short Title: ANALOG ELECTRONIC CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242 or ELEC 243
Description: The course covers an in-depth analysis of large-signal behavior, linearization, and small signal models. Furthermore, it discusses single-stage and multi-stage amplifiers as well as differential amplifiers, common mode rejection ratio (CMRR), and techniques for increasing gain and improving linearity.
ELEC 361 - QUANTUM MECHANICS FOR ENGINEERS
Short Title: QUANTUM MECHANICS FOR ENGINEER
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 261
Description: This course provides the background in quantum mechanics and solid state physics necessary for further studies in semiconductor optoelectronic devices, quantum electronics, nanoscience, and photonics. Examples include: electronic energy levels in semiconductor quantum wells and superlattices; tunneling phenomena in semiconductor devices; the Kronig-Penney model; crystal momentum, effective mass, and Bloch oscillations; band structure of graphene and carbon nanotubes; and introduction to quantum information science.
Course URL: www.ece.rice.edu/~kono/ELEC361.html

ELEC 364 - PHOTONICS MEASUREMENTS: PRINCIPLES AND PRACTICE
Short Title: PHOTONICS MEASUREMENTS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 262 or PHYS 201
Description: After completing this course, students will have the knowledge and experimental skills to design and apply a photonic measurement system to monitor an environment, process, device, or system. The course will combine predefined labs to develop skills with application projects. Instructor Permission Required.

ELEC 365 - NANOMATERIALS FOR ENERGY
Short Title: NANOMATERIALS FOR ENERGY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the fundamental science of nanomaterials. Many of the concepts will be explained by drawing from applications in sustainability (photovoltaics, solar-to-fuel conversion thermionic, thermoelectric, fuel cells). Students will design a lab demo from scratch using amongst others the infrastructure provided by the photonics measurement lab. Cross-list: MSNE 365.

ELEC 380 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY
Short Title: INTRO TO NEUROENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Cross-list: BIOE 380, NEUR 383. Graduate/Undergraduate Equivalency: ELEC 587. Mutually Exclusive: Cannot register for ELEC 380 if student has credit for BIOE 480/BIOE 590/ELEC 480/ELEC 580/ELEC 587.

ELEC 382 - INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE
Short Title: INTRO COMPUTATIONAL NEURSCI
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to methods and theories used to describe and understand neural information processing in the brain. Models covered will range from single neuron to networks for sensory, motor and learning tasks. Programming exercises will be done using Matlab. Cross-list: NEUR 382. Recommended Prerequisite(s): CAAM 210. Mutually Exclusive: Cannot register for ELEC 382 if student has credit for NEUR 582.

ELEC 385 - TRANSFER CREDIT - JUNIOR
Short Title: TRANSFER CREDIT - JUNIOR
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for transfer credit for courses not offered at Rice. Permission of ECE Undergraduate Committee and review by faculty in related specialization area is required. ELEC 395 is for Junior level ECE Specialization course credit. Department Permission Required. Repeatable for Credit.
ELEC 410 - SECURE AND CLOUD COMPUTING
Short Title: SECURE & CLOUD COMPUTING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321
Description: What is “cloud computing?” How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today's services run inside the cloud – a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today's cloud systems. Cross-list: COMP 436. Graduate/Undergraduate Equivalency: ELEC 510. Mutually Exclusive: Cannot register for ELEC 410 if student has credit for ELEC 510.

ELEC 411 - MICROWAVE ENGINEERING
Short Title: MICROWAVE ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics covered include transmission line, Smith Chart, scattering parameters, impedance matching, passive microwave circuits (power divider, coupler, 180° hybrid, filter), and antenna design fundamentals. Graduate/Undergraduate Equivalency: ELEC 517. Recommended Prerequisite(s): ELEC 262 or ELEC 305 or equivalent courses with the key concepts of Maxwell's Equations and Linear Algebra Mutually Exclusive: Cannot register for ELEC 411 if student has credit for ELEC 517.

ELEC 414 - WIRELESS INTEGRATED CIRCUITS AND SYSTEMS
Short Title: WIRELESS IC
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305
Description: Topics covered include system architectures for modern wireless transceivers and transistor-level design considerations for circuit building blocks (low noise amplifier, mixer, power amplifier, etc.) in a wireless transceiver. Graduate/Undergraduate Equivalency: ELEC 514. Recommended Prerequisite(s): Equivalent Courses with the Key Concepts: • Transistor-level CMOS analog circuits (basic configurations, small-signal models, parasitic effects) • Frequency response of transistor-level CMOS circuits (pole/zero calculations) • Frequency response of simple passive networks (1st order and 2nd order RLC networks)• Noise analysis of transistor-level CMOS circuits (noise sources in CMOS transistors, input-referred voltage/current noise for CMOS transistor-level circuits)

ELEC 418 - EMBEDDED COMPUTER SYSTEMS PROGRAMMING
Short Title: EMBEDDED SYSTEMS PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Embedded computer systems programming focuses on the integrated design of hardware and software for system on chip devices. The course will develop an integrated foundation including principles, practices, and experimentation. Computer languages including C and C++ will be used to analyze and implement algorithms. Object-oriented programming for trees and graphs and other data structures will be explored. Embedded operating systems including Linux, peripheral interfacing, and development environments will be utilized in the laboratory. Mutually Exclusive: Cannot register for ELEC 418 if student has credit for ELEC 518. Graduate/Undergraduate Equivalency: ELEC 518. Recommended Prerequisite(s): COMP 140. ELEC 220, and (ELEC 327 or ELEC 332 or DSCI 400 or DSCI 435) Mutually Exclusive: Cannot register for ELEC 418 if student has credit for ELEC 518.
ELEC 419 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Cross-list: BIOE 419. Graduate/Undergraduate Equivalency: ELEC 559. Mutually Exclusive: Cannot register for ELEC 419 if student has credit for ELEC 559. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html
www.ece.rice.edu/~ashu/ELEC419.html

ELEC 421 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Cross-list: COMP 421. Graduate/Undergraduate Equivalency: ELEC 552. Mutually Exclusive: Cannot register for ELEC 421 if student has credit for ELEC 552.
Course URL: www.clear.rice.edu/comp421/ www.clear.rice.edu/comp421/

ELEC 422 - VLSI SYSTEMS DESIGN
Short Title: VLSI SYSTEMS DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 326 or COMP 326
Description: A study of VLSI technology and design. MOS devices, Characteristics and fabrication. Logic design and implementation. VLSI design methodology, circuit simulation and verification. Graduate/Undergraduate Equivalency: ELEC 527. Mutually Exclusive: Cannot register for ELEC 422 if student has credit for ELEC 527.

ELEC 423 - DIGITAL INTEGRATED CIRCUITS
Short Title: DIGITAL INTEGRATED CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220 and ELEC 242 and (ELEC 326 or COMP 326)
Description: This course introduces students to the analysis and design of digital integrated circuits. We look at how CMOS devices are fabricated and how they operate physically, as well as how to design high-performance and low-power circuits. Various types of memory devices and designs are also covered in the course. Recommended Prerequisite(s): ELEC 305 or ELEC 261.

ELEC 424 - MOBILE AND EMBEDDED SYSTEM DESIGN AND APPLICATION
Short Title: MOBILE & EMBEDDED SYSTEM DESIGN AND APPLICATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220
Description: ELEC 424 introduces mobile and embedded system design and applications to undergraduate students and provides them hands-on design experience. It consists of three interlearning parts: lectures, student project, and student presentations. Cross-list: COMP 424. Graduate/Undergraduate Equivalency: ELEC 553. Mutually Exclusive: Cannot register for ELEC 424 if student has credit for ELEC 553.

ELEC 425 - COMPUTER SYSTEMS ARCHITECTURE
Short Title: COMPUTER SYSTEMS ARCHITECTURE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305 or ELEC 261
Description: This course provides an introduction to computer systems architecture. It is designed to provide undergraduate students with a solid foundation in computer architecture, and to provide them with the knowledge and skills necessary to design and implement computer systems that are efficient and effective. It is also designed to provide students with an understanding of the role of computer architecture in the broader context of computer system design.

ELEC 305 or ELEC 261
**ELEC 426 - ADVANCED DIGITAL INTEGRATED CIRCUITS DESIGN**  
**Short Title:** ADV DIGITAL IC DESIGN  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ELEC 305 and (ELEC 326 or COMP 326)  
**Description:** The course addresses advanced issues in custom digital IC design. Topics range from physical-level analysis and modeling of new devices, interconnect, and power supply, to circuit-level design techniques for low power and high performance, to application-oriented digital circuits/systems for security and machine learning. Graduate/Undergraduate Equivalency: ELEC 521. Recommended Prerequisite(s): ELEC 342, 422 and 423.

**ELEC 427 - ADVANCED DIGITAL HARDWARE DESIGN, IMPLEMENTATION, AND OPTIMIZATION**  
**Short Title:** ADV DIGITAL DESIGN & IMPLEMENT  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ELEC 326 or COMP 326  
**Description:** This senior level course will investigate design and implementation of modern digital signal processing, machine learning, and security algorithms in hardware (including FPGAs and ASICs). Along with learning the principals of design, students will acquire hands-on experience in hardware implementation and the use of the hardware in modern applications including but not limited to mobile phones, biomedical devices, and smart cards. Emphasis is on digital processors, design implementation on FPGA/ASIC fabrics and testing real systems on board, architectures, control, functional units, and circuit topologies for increased performance and reduced circuit size and power dissipation. Graduate/Undergraduate Equivalency: ELEC 555. Mutually Exclusive: Cannot register for ELEC 427 if student has credit for ELEC 555. Repeatable for Credit.

**ELEC 429 - INTRODUCTION TO COMPUTER NETWORKS**  
**Short Title:** INTRO TO COMPUTER NETWORKS  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** COMP 221 or COMP 321  
**Course URL:** www.clear.rice.edu/comp429/ (http://www.clear.rice.edu/comp429/)

**ELEC 430 - MODERN COMMUNICATION THEORY AND PRACTICE**  
**Short Title:** MODERN COMM. THEORY & PRACTICE  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ELEC 301 and ELEC 303  
**Description:** This is an upper-level course in digital communications, which is designed to prepare students for engineering work in high-tech industries and for graduate work in communications, signal processing, and computer systems. The course covers basic concepts and useful tools for design and performance analysis of transmitters and receivers in the physical layer of a communication system, including multiple antenna MIMO systems. A hands-on laboratory using a state-of-the-art radio testbed illustrates course concepts. Mutually Exclusive: Cannot register for ELEC 430 if student has credit for ELEC 551. Graduate/Undergraduate Equivalency: ELEC 551. Mutually Exclusive: Cannot register for ELEC 430 if student has credit for ELEC 551.

**ELEC 431 - DIGITAL SIGNAL PROCESSING**  
**Short Title:** DIGITAL SIGNAL PROCESSING  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ELEC 301  
**Description:** Methods for analysis of discrete-time signals and design of discrete-time systems including topics of: discrete-time linear systems, difference equations, z-transforms, discrete convolution, stability, discrete-time Fourier transforms, analog-to-digital and digital-to-analog conversion, digital filter design, discrete Fourier transforms, fast Fourier transforms, multi-rate signal processing, filter banks, and spectral analysis. Graduate/Undergraduate Equivalency: ELEC 558. Mutually Exclusive: Cannot register for ELEC 431 if student has credit for ELEC 558.

**ELEC 432 - MOBILE BIO-BEHAVIORAL SENSING**  
**Short Title:** MOBILE BIO-BEHAVIORAL SENSING  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ELEC 301  
**Description:** In the next-generation of devices, designed for diverse fields as healthcare and education, the devices will understand the human user. At the core of this understanding will be data that is gathered from a new class of sensors, that can measure both biological and behavioral markers. This course introduces the fundamentals of bio- and behavioral sensing. Graduate/Undergraduate Equivalency: ELEC 534. Mutually Exclusive: Cannot register for ELEC 432 if student has credit for ELEC 302/ELEC 534.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Prerequisite(s)</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 433</td>
<td>INTRODUCTION TO COMMUNICATION NETWORKS</td>
<td>Electrical &amp; Computer Eng.</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>ELEC 303 and ELEC 244</td>
<td>This course covers practical aspects of high-speed system design, highlights system design and simulation challenges, and demonstrates common pitfalls and how to prevent them. In this course, students will learn how to design, do gigahertz speed PCB layout, simulate (spice and Hyperlynx), and apply good design practices to minimize both component and system noise and to ensure system design success. Graduate/Undergraduate Equivalency: ELEC 543. Mutually Exclusive: Cannot register for ELEC 434 if student has credit for ELEC 543.</td>
</tr>
<tr>
<td>ELEC 434</td>
<td>ADVANCED HIGH-SPEED SYSTEM DESIGN</td>
<td>Electrical &amp; Computer Eng.</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>ELEC 305 and ELEC 244</td>
<td>This is an FPGA laboratory course. Students will embark upon a detailed study and implementation of digital communications systems. Major functional blocks of end-to-end wireless communication systems will be discussed, built, and tested in hardware. Course will also cover analysis and design of communication systems, especially modulation, demodulation and detection. Students will benefit from a combined theory-lab approach to communications and work in groups on weekly lab assignments and a major semester project. Graduate/Undergraduate Equivalency: ELEC 536. Mutually Exclusive: Cannot register for ELEC 433 if student has credit for ELEC 536.</td>
</tr>
<tr>
<td>ELEC 435</td>
<td>INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS</td>
<td>Electrical &amp; Computer Eng.</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>ELEC 242 or ELEC 243</td>
<td>Introduction to electromechanical systems, focusing on motor mechanics, electric drives &amp; electronics, &amp; modern digital control algorithms. Covers basic principles of electromechanical energy conversion &amp; motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Cross-list: MECH 435. Graduate/Undergraduate Equivalency: ELEC 532. Mutually Exclusive: Cannot register for ELEC 435 if student has credit for ELEC 532.</td>
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<tr>
<td>ELEC 436</td>
<td>FUNDAMENTALS OF CONTROL SYSTEMS</td>
<td>Electrical &amp; Computer Eng.</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Linear systems and the fundamental principles of classical feedback control, state variable analysis of linear dynamic systems, stability of linear control systems, time-domain analysis and control of linear systems, root-locus analysis and design and pole-zero synthesis, frequency domain techniques for the analysis and design of control systems. Required for mechanical engineering majors in B.S program. Cross-list: MECH 420.</td>
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<tr>
<td>ELEC 437</td>
<td>INTRODUCTION TO COMMUNICATION NETWORKS</td>
<td>Electrical &amp; Computer Eng.</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>ELEC 303</td>
<td>Introduction to design and analysis of communication networks. Topics include wireless networks, media access, routing traffic modeling, congestion control, and scheduling. Graduate/Undergraduate Equivalency: ELEC 539. Mutually Exclusive: Cannot register for ELEC 437 if student has credit for ELEC 539.</td>
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<tr>
<td>ELEC 438</td>
<td>WIRELESS NETWORKING FOR UNDER-RESOURCED URBAN COMMUNITIES</td>
<td>Electrical &amp; Computer Eng.</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>WIRELESS NETWKG UNDER-RESRC'D</td>
<td>The Rice Networks Group and the non-profit organization Technology For All have recently deployed a state-of-the art wireless network in one of Houston's most economically disadvantaged neighborhoods. The objective of this network is to empower under-resourced communities with access to technology and educational and work-at-home tools. In this course project teams will perform measurement studies both in the Rice Networks Lab and in the East End neighborhood to characterize the system capacity; optimize placement of wireless nodes; study the effects of traffic and channel characteristics on system-wide performance; and plan deployment of additional nodes to extend the coverage area.</td>
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ELEC 440 - ARTIFICIAL INTELLIGENCE
Short Title: ARTIFICIAL INTELLIGENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In many applications one is faced with the task of simulating or controlling complex dynamical systems. Such applications include for instance, weather prediction, air quality management, VLSI chip design, molecular dynamics, active noise reduction, chemical reactors, etc. In all these cases complexity manifests itself as the number of first order differential equations which arise. Model (order) reduction (MOR) seeks to replace a large-scale system described in terms of differential or difference equations by a system of much lower dimension that has nearly the same response characteristics. The ensuing methods have been an indispensable tool for speeding up the simulations arising in various engineering applications involving large-scale dynamical systems. In this course we will develop the underlying approximation theory paying particular attention to its data-driven aspects.

ELEC 441 - COMPUTATIONAL IMAGING
Short Title: COMPUTATIONAL IMAGING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A upper-level introduction to imaging systems as an integral part of the sense-process-decide-act cycle. This cycle is central to the operation of any goal-directed system, biological or engineered. Students will gain a basic understanding of the mechanisms by which information about a scene is encoded on an electro-magnetic wave. Furthermore, the students will learn to analyze the information extraction process realized via the imaging chain of front-end optics, transduction, and post-processing. The objective of the course is to understand the limits of modern image formation and how optics, photonic-to-electronic transduction, and post-detection processing can be jointly designed to enable imagers with unique capabilities.

ELEC 442 - INTRODUCTION TO ANALOG INTEGRATED CIRCUITS
Short Title: ANALOG INTEGRATED CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 424
Description: There has been growing interest in analog computing in both academia and industry in the era of artificial intelligence. This course provides a comprehensive introduction to various aspects of modern analog integrated circuits. Students will learn how to 1) analyze, simulate and design a complementary metal oxide semiconductor (CMOS) analog integrated circuit, 2) analyze and simulate elementary transistor stages, current mirrors, supply- and temperature-independent bias and reference circuits, and 3) explore performance evaluation using computer-aided design tools.

ELEC 444 - INTRODUCTION TO DIGITAL IMAGE AND VIDEO PROCESSING
Short Title: DIGITAL IMAGE & VIDEO PROC.
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301
Description: This course covers theory and tools for representing and processing digital images and video. Topics include: multi-dimensional sampling, transforms, and filtering; human visual perception; visual scanning and display; tomographic reconstruction; image and video coding theory and standards; video streaming; and, image restoration. Recommended Prerequisite(s): ELEC 431

Course URL: www.owlnet.rice.edu/~comp440 (http://www.owlnet.rice.edu/~comp440/)
ELEC 446 - MOBILE DEVICE APPLICATIONS PROJECT
Short Title: MOBILE DEVICE APPLICATIONS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Connected mobile devices require updated programming models and design concepts to take advantage of their capabilities. We will explore applications primarily on the Apple iPhone and iPad but will also cover smart watches, Google Android and intelligent voice assistants like Amazon Echo and Google Home. We will briefly touch on the development of web services to support mobile applications. The course culminates with a large project taking up most of the second half of the semester. Although the curriculum centers around and teaches iOS and Xcode, final projects may be completed in any major mobile system including Android and Alexa, etc. Cross-list: COMP 446. Recommended Prerequisite(s): COMP 310 or prior Object Oriented Programming experience highly recommended.

ELEC 447 - INTRODUCTION TO COMPUTER VISION
Short Title: INTRO TO COMPUTER VISION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301 or ELEC 475 or COMP 314 or ELEC 322 or COMP 330
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Cross-list: COMP 447. Graduate/Undergraduate Equivalency: ELEC 546. Mutually Exclusive: Cannot register for ELEC 447 if student has credit for ELEC 345/ELEC 546.

ELEC 450 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeons in life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanisms useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today's robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: COMP 450, MECH 450. Graduate/Undergraduate Equivalency: ELEC 550. Mutually Exclusive: Cannot register for ELEC 450 if student has credit for ELEC 550.

ELEC 460 - PHYSICS OF SENSOR MATERIALS AND NANOSENSOR TECHNOLOGY
Short Title: PHYSICS OF SENSORS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 261 and ELEC 305
Description: Topics covered include MEMS, MOEMS, and NEMS systems along with special materials such as liquid crystals, piezoelectrics, memory metal, and topological insulators. Graduate/Undergraduate Equivalency: ELEC 560. Mutually Exclusive: Cannot register for ELEC 460 if student has credit for ELEC 560.

ELEC 461 - SOLID STATE PHYSICS
Short Title: SOLID STATE PHYSICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 261
Description: This is a course for juniors and seniors whose specialization is in photonics, electronics, and nanoengineering. This course will provide an introduction to elementary topics in solid state physics, including free electron Fermi gas, crystal structure, reciprocal lattice, lattice vibrations, electronic band structure, Bloch electron dynamics, superconductivity, magnetism, and optical properties.
ELEC 462 - OPTOELECTRONIC DEVICES
Short Title: OPTOELECTRONIC DEVICES
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305
Description: This course provides an introduction to the fundamental principles of semiconductor optoelectronic devices. After reviewing the basic elements of quantum mechanics of electrons and photons, light-matter interaction (including laser oscillations), and semiconductor physics (band structure, heterostructures and alloys, optical processes), we will study the details of modern semiconductor devices for the generation, detection, and modulation of light. Graduate/Undergraduate Equivalency: ELEC 562. Mutually Exclusive: Cannot register for ELEC 462 if student has credit for ELEC 562.
Course URL: www.ece.rice.edu/~kono/ELEC462.html

ELEC 475 - LEARNING FROM SENSOR DATA
Short Title: LEARNING FROM SENSOR DATA
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The first half of this course develops the basic machine learning tools for signals images, and other data acquired from sensors. Tools covered include principal components analysis, regression, support vector machines, neural networks, and deep learning. The second half of this course overviews a number of applications of sensor data science in neuroscience, image and video processing, and machine vision. Graduate/Undergraduate Equivalency: ELEC 575. Mutually Exclusive: Cannot register for ELEC 475 if student has credit for ELEC 575.
Course URL: www.ece.rice.edu/~kono/ELEC462.html

ELEC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

ELEC 478 - INTRODUCTION TO MACHINE LEARNING
Short Title: INTRO TO MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 405 or CAAM 210 or COMP 140) and (CAAM 335 or MATH 355 or MATH 354) and (ELEC 301 or STAT 315 or DSCI 301)
Description: This course is an advanced introduction to concepts, methods, best practices, and theoretical foundations of machine learning. Topics covered include regression, classification, regularization, kernels, clustering, dimension reduction, decision trees, ensemble learning, and neural networks. Graduate/Undergraduate Equivalency: ELEC 578. Mutually Exclusive: Cannot register for ELEC 478 if student has credit for DSCI 303.

ELEC 483 - MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURAL SIGNAL PROCESSING
Short Title: NEURAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355 or CAAM 335) and (ELEC 303 or STAT 305 or STAT 310 or ECON 307) and (CAAM 210 or COMP 140)
Description: This course covers advanced statistical signal processing and machine learning approaches for modern neuroscience data (primarily many-channel spike trains). Topics include latent variable models, point processes, Bayesian inference, dimensionality reduction, dynamical systems, and spectral analysis. Neuroscience applications include modeling neural firing rates, spike sorting, decoding. Graduate/Undergraduate Equivalency: ELEC 548. Recommended Prerequisite(s): ELEC 475 and STAT 413 and COMP 540 and (ELEC 242 or ELEC 243) Mutually Exclusive: Cannot register for ELEC 483 if student has credit for ELEC 548.

ELEC 485 - FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305 or MATH 211 and MATH 212.
Recommended Prerequisite(s): MATH 211 and MATH 212.
Cross-list: BIOE 485, COMP 485
Graduate/Undergraduate Equivalency: ELEC 585. Recommended Prerequisite(s): MATH 211 and MATH 212. Mutually Exclusive: Cannot register for ELEC 485 if student has credit for ELEC 585.
ELEC 486 - FUNDAMENTALS OF MEDICAL IMAGING II
Short Title: FUND MEDICAL IMAGING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 485 or BIOE 485 or COMP 485
Description: This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site in also planned to gain experience with nuclear medicine imaging. Cross-list: BIOE 486, COMP 486. Graduate/Undergraduate Equivalency: ELEC 586. Mutually Exclusive: Cannot register for ELEC 486 if student has credit for ELEC 586.

ELEC 487 - IMAGING OPTICS
Short Title: IMAGING OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 102 or PHYS 112 or PHYS 126
Description: The course covers the fundamental properties of light propagation and interaction with matter under the approximations of geometrical optics and scalar wave optics, as well as the fundamentals of optical microscopy. The course emphasizes a system approach to the analysis and design of optical systems from a user and an engineering perspective, focusing on the physical intuition and underlying mathematical tools, and application of the physical concepts to topical engineering domains such as a selection of microscopy techniques. Students will have direct hands-on experience with optics and optical imaging systems in the classroom. Graduate/Undergraduate Equivalency: ELEC 582.

ELEC 488 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS
Short Title: THEORETICAL NEUROSCIENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Cross-list: CAAM 415, NEUR 415. Graduate/Undergraduate Equivalency: ELEC 588. Recommended Prerequisite(s): CAAM 210 or MATH 211 or CAAM 335 or MATH 355. Mutually Exclusive: Cannot register for ELEC 488 if student has credit for ELEC 588.

ELEC 489 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including “what does a network compute?”, “how does it compute?”, and “why does it compute that way?” Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: CAAM 416, NEUR 416. Graduate/Undergraduate Equivalency: ELEC 589. Mutually Exclusive: Cannot register for ELEC 489 if student has credit for ELEC 589.

ELEC 490 - UNDERGRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS
Short Title: UG ELEC ENG’G RES PROJECTS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theoretical and experimental investigations under staff direction. A research project plan should be prepared and approved by the faculty member advising the project. Information about ELEC 490 project plans is available on the ECE Web site on the Academics section under ECE forms. May be repeated for a total of 6 credit hours for undergraduates. Instructor Permission Required. Repeatable for Credit.

ELEC 491 - UNDERGRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS-VERTICALLY INTEGRATED PROJECTS-VIP
Short Title: UG ELEC ENG’G RESEARCH VIP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Vertically Integrated Projects (VIP) teams include students from multiple years working on one larger, multi-year project defined by the instructor. Students participating in VIP for 3 or more semesters may be eligible for the Distinction in Research and Creative Work graduation award. Instructor Permission Required. Graduate/Undergraduate Equivalency: ELEC 591. Repeatable for Credit.
ELEC 494 - SENIOR DESIGN
Short Title: SENIOR DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Senior Design is a year-long course required of all BSEE-degree students. In order to fulfill the BSEE degree requirements, students must register for ELEC 494 for both fall and spring semesters of the same academic year. The course is taught in conjunction with the Senior Design courses in BioEngineering and in Mechanical Engineering and Materials Science. Teams of students will design, construct, and document a prototype system to meet specifications determined by the team and the instructor. Senior design projects are the culmination of the Rice engineering experience. Cross-departmental projects are allowed and encouraged, and extensive use will be made of the Oshman Engineering Design Kitchen. Many projects will involve advisors from industrial affiliates. Throughout the year there will be several opportunities for presentations on the project. Top projects will be eligible for several awards from within Rice and outside the university, including some nation-wide competitions. Instructor Permission Required. Repeatable for Credit.

ELEC 495 - TRANSFER CREDIT - SENIOR
Short Title: TRANSFER CREDIT - SENIOR
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for transfer credit for courses not offered at Rice. Permission of ECE Undergraduate Committee and review by faculty in related specialization area is required. ELEC 495 is for Senior level ECE Specialization course credit. Department Permission Required. Repeatable for Credit.

ELEC 497 - DESIGN OF ANALOG PRINTED CIRCUIT BOARDS
Short Title: ANALOG PRINTED CIRCUIT BOARDS
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 494 (may be taken concurrently) or BIOE 451 (may be taken concurrently) or MECH 407 (may be taken concurrently)
Description: This course covers the basics of designing, fabricating, and testing daughter cards for microcontrollers such as the Arduino. Using PCB design software such as Eagle, students will design, fabricate, and test their printed circuit board. Prerequisites may be taken concurrently.

ELEC 498 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 354 or MATH 355 or CAAM 335
Description: The course will provide the student with a mathematical introduction to many of the key ideas used in today’s intelligent robot systems. The focus of the course is on the analysis and control of manipulators. The course will also give an overview of common approaches to building intelligent robot systems. Cross-list: COMP 498, MECH 498. Graduate/Undergraduate Equivalency: ELEC 598. Recommended Prerequisite(s): MECH 211 or CEVE 211 or MECH 310
Mutually Exclusive: Cannot register for ELEC 498 if student has credit for ELEC 598.

ELEC 502 - NEURAL MACHINE LEARNING I
Short Title: NEURAL MACHINE LEARNING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of major neural machine learning (Artificial Neural Network) paradigms. Analytical discussion of supervised and unsupervised neural learning algorithms and their relation to information theoretical methods. Practical applications to data analysis such as pattern recognition, clustering, classification, function approximation/ regression, non-linear PCA, projection pursuit, independent component analysis, with lots of examples from image and digital productions. Details are posted at www.ece.rice.edu/~erzsebet/ANNcourse.html. Cross-list: COMP 502, STAT 502. Recommended Prerequisite(s): ELEC 430 and ELEC 431 or equivalent or permission of instructor.
Course URL: www.ece.rice.edu/~erzsebet/ANNcourse.html (http://www.ece.rice.edu/~erzsebet/ANNcourse.html)

ELEC 507 - NON LINEAR DYNAMIC SYSTEMS ANALYSIS
Short Title: NONLINEAR DYNAMIC SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analytical methods for the study of nonlinear systems are introduced, including singular point and phase plane analysis, the describing function technique, Lyapunov and Lagrangian state functions, stability analysis, bifurcation analysis, and chaotic behavior in nonlinear dynamic systems. As a substrate for the study of nonlinear systems, numerical analysis of ordinary and partial differential equations, boundary value problems, simulation methods, parameter estimation and sensitivity analysis methods are also included.
ELEC 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL
Short Title: NONLINEAR SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

ELEC 510 - SECURE AND CLOUD COMPUTING
Short Title: SECURE & CLOUD COMPUTING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is “cloud computing?” How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today's services run inside the cloud - a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today's cloud systems. Cross-list: COMP 536. Graduate/Undergraduate Equivalency: ELEC 410. Mutually Exclusive: Cannot register for ELEC 510 if student has credit for ELEC 410.

ELEC 511 - DESIGN AND ANALYSIS OF SECURE EMBEDDED SYSTEMS FOR IoT ERA
Short Title: SECURE EMBEDDED SYS FOR IoT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course emphasizes the security of small embedded devices that are central to the Internet of Things (IoT) Era. We discuss the practical security attacks, challenges, constraints, and opportunities that arise in the IoT domain. Covered topics include security engineering, real world attacks, practical and side channel attacks, and hands-on lab/projects. Cross-list: COMP 508. Repeatable for Credit.

ELEC 512 - GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS
Short Title: GR DESGN ANALY OF ALGORITHMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods for designing and analyzing computer algorithms and data structures. The focus of this course will be on the theoretical and mathematical aspects of algorithms and data structures. Cross-list: COMP 582.

ELEC 513 - COMPLEXITY IN MODERN SYSTEMS
Short Title: COMPLEXITY IN MODERN SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A modern computer is a system with enormous complexity in both software and hardware. The course presents the principles for managing such complexity using examples from modern computing systems. It covers emergent issues from system complexity such as energy efficiency, bug finding, and heterogeneous hardware. It also covers designing experiments and writing systems papers. The course consists of lectures, student presentation of classic papers, and a final project. Cross-list: COMP 513.

ELEC 514 - WIRELESS INTEGRATED CIRCUITS AND SYSTEMS
Short Title: WIRELESS IC
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics covered include system architectures for modern wireless transceivers and transistor-level design considerations for circuit building blocks (low noise amplifier, mixer, power amplifier, etc.) in a wireless transceiver. Graduate/Undergraduate Equivalency: ELEC 414. Recommended Prerequisite(s): ELEC 305, ELEC 342, or Equivalent Courses with the Key Concepts Listed Below • Transistor-level CMOS analog circuits (basic configurations, small signal models, parasitic effects) • Frequency response of transistor-level CMOS circuits (pole/zero calculations) • Frequency response of simple passive networks (1st order and 2nd order RLC networks) • Noise analysis of transistor-level CMOS circuits (noise sources in CMOS transistors, input referred voltage/current noise for CMOS transistor-level circuits)
ELEC 515 - MACHINE LEARNING FOR RESOURCE-CONstrained PLATFORMS
Short Title: EMBEDDED MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Machine learning is in tremendous demand in numerous applications; however, its often prohibitive complexity remains a major challenge for its extensive deployment in resource constrained platforms. This course will introduce techniques which enable the development of energy/time efficient machine learning systems, taking a path from algorithm to architecture down to the circuit level. In particular, you will first learn commonly used machine learning algorithms, and then algorithm-, architecture-, circuit-level techniques for reducing the energy/time cost of machine learning systems while maintaining their powerful performance. Finally, we will do a deep dive into state-of-the-art efficient machine learning systems, such as Google’s TPU and Eyeriss.
Course URL: yl150.web.rice.edu/course2019fall_home.html (http://yl150.web.rice.edu/course2019fall_home.html)

ELEC 516 - ANALOG INTEGRATED CIRCUITS
Short Title: ANALOG INTEGRATED CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There has been growing interest in analog computing in both academia and industry in the era of artificial intelligence. This course provides a comprehensive introduction to various aspects of modern analog integrated circuits. Students will learn how to 1) analyze, simulate and design a complementary metal oxide semiconductor (CMOS) analog integrated circuit, 2) analyze and simulate elementary transistor stages, current mirrors, supply- and temperature-independent bias and reference circuits, and 3) explore performance evaluation using computer-aided design tools. Graduate/Undergraduate Equivalency: ELEC 516. Mutually Exclusive: Cannot register for ELEC 442 if student has credit for ELEC 442.

ELEC 517 - MICROWAVE ENGINEERING
Short Title: MICROWAVE ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics covered include transmission line, Smith Chart, scattering parameters, impedance matching, passive microwave circuits (power divider, coupler, 180° hybrid, filter), and antenna design fundamentals. Graduate/Undergraduate Equivalency: ELEC 411. Mutually Exclusive: Cannot register for ELEC 517 if student has credit for ELEC 411.

ELEC 518 - EMBEDDED COMPUTER SYSTEMS PROGRAMMING
Short Title: EMBEDDED SYSTEMS PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Embedded computer systems programming focuses on the integrated design of hardware and software for system on chip devices. The course will develop an integrated foundation including principles, practices, and experimentation. Computer languages including C and C++ will be used to analyze and implement algorithms. Object-oriented programming for trees and graphs and other data structures will be explored. Embedded operating systems including Linux, peripheral interfacing, and development environments will be utilized in the laboratory. Additional course work required beyond the undergraduate course requirement. Mutually Exclusive: Cannot register for ELEC 518 if student has credit for ELEC 418.

ELEC 519 - DATA SCIENCE AND DYNAMICAL SYSTEMS
Short Title: DATA AND SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In many applications one is faced with the task of simulating or controlling complex dynamical systems. Such applications include for instance, weather prediction, air quality management, VLSI chip design, molecular dynamics, active noise reduction, chemical reactors, etc. In all these cases complexity manifests itself as the number of first order differential equations which arise. Model (order) reduction (MOR) seeks to replace a large-scale system described in terms of differential or difference equations by a system of much lower dimension that has nearly the same response characteristics. The ensuing methods have been an indispensable tool for speeding up the simulations arising in various engineering applications involving large-scale dynamical systems. In this course we will develop the underlying approximation theory paying particular attention to its data-driven aspects. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 439. Mutually Exclusive: Cannot register for ELEC 519 if student has credit for ELEC 439.
ELEC 520 - DISTRIBUTED SYSTEMS
Short Title: DISTRIBUTED SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Course URL: www.cs.rice.edu/~alc/comp520/ (http://www.cs.rice.edu/~alc/comp520/)

ELEC 521 - ADVANCED DIGITAL INTEGRATED CIRCUITS DESIGN
Short Title: ADV DIGITAL IC DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course addresses advanced issues in custom digital IC design. Topics range from physical-level analysis and modeling of new devices, interconnect, and power supply, to circuit-level design techniques for low power and high performance, to application-oriented digital circuits/systems for security and machine learning. Graduate/Undergraduate Equivalency: ELEC 426. Recommended Prerequisite(s): ELEC 326/COMP 326 or ELEC 342 or Digital Circuit Courses.

ELEC 522 - ADVANCED VLSI DESIGN
Short Title: ADV VLSI DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design and analysis of algorithm-specific VLSI processor architectures. Topics include the implementation of pipelined and systolic processor arrays. Techniques for mapping numerical algorithms onto custom processor arrays. Course includes design project using high-level VLSI synthesis tools.
Course URL: www.owlnet.rice.edu/~elec522 (http://www.owlnet.rice.edu/~elec522/)

ELEC 523 - INTRODUCTION TO MICROFABRICATION
Short Title: INTRO TO MICROFABRICATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Microfabrication and nanofabrication are among the most important electrical and computer engineering technologies, and are the basis of manufacturing for nearly all modern miniaturized systems. This course provides an introduction to integrated circuit device fabrication and micromachining technology, including film deposition, lithography, etching, thermal oxidation, ion implantation, impurity diffusion, contacts and interconnections, and process integration topics. Recommended Prerequisite(s): Introductory physics (mechanics, electricity and magnetism), introductory chemistry.

ELEC 524 - MOBILE AND WIRELESS NETWORKING
Short Title: MOBILE AND WIRELESS NETWORKING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: Study of network protocols for mobile and wireless networking, particularly at the media access control, network, and transport protocol layers. Focus is on the unique problems and challenges presented by the properties of wireless transmission and host or router mobility. Cross-list: COMP 524. Recommended Prerequisite(s): COMP 421 OR ELEC 421.

ELEC 525 - VIRTUALIZATION AND CLOUD RESOURCE MANAGEMENT
Short Title: VIRTUAL & CLOUD RESOURCE MGMT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 425 or ELEC 425

ELEC 526 - HIGH PERFORMANCE COMPUTER ARCHITECTURE
Short Title: HIGH PERFORM COMPUTER ARCH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of high performance computer systems, including shared-memory and message-passing multiprocessors and vector systems. Hardware and software techniques to tolerate and reduce memory and communication latency. Case studies and performance simulation of high-performance systems. Cross-list: COMP 526. Recommended Prerequisite(s): ELEC 425 or COMP 425
ELEC 527 - VLSI SYSTEMS DESIGN
Short Title: VLSI SYSTEMS DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of VLSI technology and design. MOS devices, Characteristics and fabrication. Logic design and implementation. VLSI design methodology, circuit simulation and verification. Additional course work required beyond the undergraduate course requirement. Graduate/ Undergraduate Equivalency: ELEC 422. Mutually Exclusive: Cannot register for ELEC 527 if student has credit for ELEC 422.

ELEC 528 - SECURITY TOPICS OF EMBEDDED SYSTEMS
Short Title: EMBEDDED HW SYSTEMS SECURITY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course covers wide range of topics pertaining to security of Hardware Embedded systems, including cryptographic processors, secure memory access, hardware IT protection by monitoring and watermarking FPGA security, physical and side-charmed attacks, Trojan horses. Cross-list: COMP 538. Repeatable for Credit.
Course URL: www.ece.rice.edu/~fk1/ (http://www.ece.rice.edu/~fk1/)

ELEC 529 - ADVANCED COMPUTER NETWORKS
Short Title: ADVANCED COMPUTER NETWORKS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: This course explores advanced solutions in computer networks that are driven by the need to go beyond the best-effort capabilities of the Internet. Topics include network fault tolerance, traffic engineering, scalable data center network architectures, network support for big data processing, network support for cloud computing, extensible network control via software defined networking, denial-of-service-attack defense mechanisms. Readings from original research papers. Also include design project and oral presentation components. This course assumes students already have a good understanding of the best-effort Internet. Cross-list: COMP 529. Repeatable for Credit.
Course URL: www.clear.rice.edu/comp529/ (http://www.clear.rice.edu/comp529/)

ELEC 530 - DETECTION THEORY
Short Title: DETECTION THEORY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Classic and modern methods of optimal decisions in communications and signal processing. Continuous- and discrete-time methods. Gaussian and non-Gaussian problems.

ELEC 531 - STATISTICAL SIGNAL PROCESSING
Short Title: STATISTICAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Statistical models for single- and multi-channel signals. Optimal detection and estimation solutions for Gaussian and non-Gaussian environments. Recommended Prerequisite(s): ELEC 533 and knowledge of digital signal processing at the level of ELEC 431

ELEC 532 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS
Short Title: INTRO TO MECHATRONICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Additional coursework required beyond the undergraduate course requirements. Cross-list: MECH 535. Graduate/Undergraduate Equivalency: ELEC 435. Mutually Exclusive: Cannot register for ELEC 532 if student has credit for ELEC 435.

ELEC 533 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
Short Title: INTRO RANDOM PROCESSES & APPL
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems; expansions of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: CAAM 583, STAT 583.
ELEC 534 - MOBILE BIO-BEHAVIORAL SENSING
Short Title: MOBILE BIO-BEHAVIORAL SENSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In the next-generation of devices, designed for diverse fields as healthcare and education, the devices will understand the human user. At the core of this understanding will be data that is gathered from a new class of sensors, that can measure both biological and behavioral markers. This course introduces the fundamentals of bio- and behavioral sensing. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 432. Mutually Exclusive: Cannot register for ELEC 534 if student has credit for ELEC 432.

ELEC 535 - INFORMATION THEORY
Short Title: INFORMATION THEORY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to information theory concepts; basic theorems of channel coding and source coding with a fidelity criterion. The course material requires background of a first course in probability, like Rice ELEC 303.

ELEC 536 - ARCHITECTURE FOR WIRELESS COMMUNICATIONS
Short Title: ARCH - WIRELESS COMMUNICATIONS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an FPGA laboratory course. Students will embark upon a detailed study and implementation of digital communications systems. Major functional blocks of end-to-end wireless communication systems will be discussed, built, and tested in hardware. Course will also cover analysis and design of communication systems, especially modulation, demodulation and detection. Students will benefit from a combined theory-lab approach to communications and work in groups on weekly lab assignments and a major semester project. Graduate/Undergraduate Equivalency: ELEC 433. Mutually Exclusive: Cannot register for ELEC 536 if student has credit for ELEC 433.

ELEC 537 - COMMUNICATION NETWORKS
Short Title: COMMUNICATION NETWORKS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level introduction to design and analysis of communication networks. Topics include wireless networks, medium access, routing, traffic modeling, congestion control, and scheduling. Cross-list: MECH 537.

ELEC 538 - ADVANCED WIRELESS NETWORKING
Short Title: ADVANCED WIRELESS NETWORKING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics in next generation mobile and wireless networks. Recommended Prerequisite(s): An introductory course in networking or communications is recommended.

ELEC 539 - INTRODUCTION TO COMMUNICATION NETWORKS
Short Title: INTO COMMUNICATION NETWORK
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to design and analysis of communication networks. Topics include wireless networks, media access, routing traffic modeling, congestion control, and scheduling. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 437. Mutually Exclusive: Cannot register for ELEC 539 if student has credit for ELEC 437.

ELEC 540 - ADVANCED WIRELESS COMMUNICATIONS
Short Title: ADVANCED WIRELESS COMM
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course will teach advanced techniques in wireless, e.g. MIMO, Massive MIMO, Full-duplex and Coordinated Multi-point. The focus will be on both the theoretical foundations and practical use in actual systems, explored with a combination of lectures, homeworks, data-driven evaluations and mini-projects. Recommended Prerequisite(s): ELEC 430 or ELEC 551 or ELEC 535.

ELEC 541 - ERROR CORRECTING CODES
Short Title: ERROR CORRECTING CODES
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 430
Description: Introductory course on error correcting codes. Topics covered include linear block codes, convolutional codes, turbo codes and LDPC codes.
ELEC 542 - THE APPLICATION OF VECTOR SPACE METHODS AND OTHER ADVANCED TECHNIQUES TO DSP
Short Title: VECTOR SPACES AND DSP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 431 (may be taken concurrently)
Description: The course will introduce the application of vector space methods to digital signal processing. This includes topics such as representing a signal using basis expansions, Gram-Schmidt orthogonalization, linear inverse problems, gradient-descent, the use of regularization in approximation, and other advanced topics. The course may be taken in the same semester as ELEC 431.

ELEC 543 - ADVANCED HIGH-SPEED SYSTEM DESIGN
Short Title: ADV H-S SYSTEM DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers practical aspects of high-speed system design, highlights system design and simulation challenges, and demonstrates common pitfalls and how to prevent them. In this course, students will learn how to design, do gigahertz speed PCB layout, simulate (spice and Hyperlynx), and apply good design practices to minimize both component and system noise and to ensure system design success. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 434. Recommended Prerequisite(s): Knowledge of mixed analog/digital circuits, active filters and transmission line theories. Mutually Exclusive: Cannot register for ELEC 543 if student has credit for ELEC 434.

ELEC 544 - ADVANCED DSP
Short Title: ADVANCED DSP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will cover advanced topics in FIR and IIR digital filter design, advanced topics in signal processing algorithms, especially in FFTs and high speed convolution and correlation, and in wavelet based signal processing and the discrete wavelet transform. The course will be one-half lecture based and one-half project based.

ELEC 545 - INTRODUCTION TO DIGITAL IMAGE AND VIDEO PROCESSING
Short Title: DIGITAL IMAGE & VIDEO PROC.
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers theory and tools for representing and processing digital images and video. Topics include: multi-dimensional sampling, transforms, and filtering; human visual perception; visual scanning and display; tomographic reconstruction; image and video coding theory and standards; video streaming; and, image restoration. Recommended Prerequisite(s): Knowledge of the fundamentals of signals and systems and digital signal processing.

ELEC 546 - INTRODUCTION TO COMPUTER VISION
Short Title: INTRO TO COMPUTER VISION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Additional coursework required beyond the undergraduate course requirements. Additional coursework required beyond the undergraduate requirements. Cross-list: COMP 546. Graduate/Undergraduate Equivalency: ELEC 447. Mutually Exclusive: Cannot register for ELEC 546 if student has credit for ELEC 447.

ELEC 547 - COMPUTER VISION
Short Title: COMPUTER VISION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of computer vision is to make sense of the three dimensional world from captured images and videos. This requires understanding how light interacts with objects in the environment and then captured by a camera. The goal is to solve problems such as estimating 3D shape of an environment (How does Kinect work?), how to detect and recognize people (How to build your own iPhoto?), detect and track how things move. The course provides an introduction to solving such problems using vision tools such as feature detection, image segmentation, motion estimation, image mosaics, 3D shape reconstruction, and object recognition.
ELEC 548 - MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING
Short Title: NEURAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers advanced statistical signal processing and machine learning approaches for modern neuroscience data (primarily many-channel spike trains). Topics include latent variable models, point processes, Bayesian inference, dimensionality reduction, dynamical systems, and spectral analysis. Neuroscience applications include modeling neural firing rates, spike sorting, decoding. Cross-list: BIOE 548. Graduate/Undergraduate Equivalency: ELEC 483. Mutually Exclusive: Cannot register for ELEC 548 if student has credit for ELEC 483.

ELEC 549 - COMPUTATIONAL PHOTOGRAPHY
Short Title: COMPUTATIONAL PHOTOGRAPHY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Computational photography is an emerging field that aims to overcome the limitations of conventional digital imaging and display devices by using novel optics, signal processing and computer vision to perform more efficient and accurate measurement as well as produce more compelling and meaningful visualizations of the world around us. It is a convergence of many areas, such as optics, computer vision, computer graphics, image processing, photography, and so on. We will cover topics such as computational sensors with assorted pixel, mobile camera control, light field capture and rendering, computational flash photography, computational illumination for appearance acquisition and 3D reconstruction, reflectance transformation imaging, light transport analysis and novel displays.

ELEC 550 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon in life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today’s robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: COMP 550, MECH 550. Graduate/Undergraduate Equivalency: ELEC 450. Mutually Exclusive: Cannot register for ELEC 550 if student has credit for ELEC 450.

ELEC 551 - MODERN COMMUNICATION THEORY AND PRACTICE
Short Title: MODERN COMM. THEORY & PRACTICE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an upper-level course in digital communications, which is designed to prepare students for engineering work in high-tech industries and for graduate work in communications, signal processing, and computer systems. The course covers basic concepts and useful tools for design and performance analysis of transmitters and receivers in the physical layer of a communication system, including multiple antenna MIMO systems. A hands-on laboratory using a state-of-the-art radio testbed illustrates course concepts. Additional coursework required beyond the undergraduate course requirements. Mutually Exclusive: Cannot register for ELEC 551 if student has credit for ELEC 430. Graduate/Undergraduate Equivalency: ELEC 430. Mutually Exclusive: Cannot register for ELEC 551 if student has credit for ELEC 430.
ELEC 552 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedules, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Additional coursework required beyond the undergraduate course requirements. Cross-list: COMP 521. Graduate/Undergraduate Equivalency: ELEC 421. Mutually Exclusive: Cannot register for ELEC 552 if student has credit for ELEC 421.
Course URL: www.clear.rice.edu/comp421/ (http://www.clear.rice.edu/comp421/)

ELEC 553 - MOBILE AND EMBEDDED SYSTEM DESIGN AND APPLICATION
Short Title: MOBILE & EMBEDDED SYSTEM
Department: Electrical & Computer Eng.
Grade Mode: Standard
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: ELEC 553 introduces mobile and embedded system design and applications to students and provides them hands-on design experience. It consists of three interlearning parts: lectures, student project, and student presentations. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 424. Mutually Exclusive: Cannot register for ELEC 553 if student has credit for ELEC 424.

ELEC 554 - COMPUTER SYSTEMS ARCHITECTURE
Short Title: COMPUTER SYSTEMS ARCHITECTURE
Department: Electrical & Computer Eng.
Grade Mode: Standard
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evolution of key architecture concepts found in advanced uniprocessor systems. Fundamental and advanced pipelining techniques and associated issues for improving processor performance. Illustrated with RISC processors such as the ARM processor. Examine several metrics for processor performance, such as Amdahl's law. Key concepts of data and program memory systems found in modern systems with memory hierarchies and caches. Perform experiments in cache performance analysis. Influence of technology trends, such as Moore's law, on processor implementation Approaches for exploiting instruction level parallelism, such as VLIW. Introduction to parallel and multicore architectures. Introduction to processor architectures targeted for imbedded applications. Additional coursework required beyond the undergraduate course requirements. Cross-list: COMP 554. Graduate/Undergraduate Equivalency: ELEC 425. Mutually Exclusive: Cannot register for ELEC 554 if student has credit for ELEC 425.

ELEC 555 - ADVANCED DIGITAL HARDWARE DESIGN, IMPLEMENTATION, AND OPTIMIZATION
Short Title: ADV DIGITAL DESIGN & IMPLEMENT
Department: Electrical & Computer Eng.
Grade Mode: Standard
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course will investigate design and implementation of modern digital signal processing, machine learning, and security algorithms in hardware (including FPGAs and ASICs). Along with learning the principals of design, students will acquire hands-on experience in hardware implementation and the use of the hardware in modern applications including but not limited to mobile phones, biomedical devices, and smart cards. Emphasis is on digital processors, design implementation on FPGA/ASIC fabrics and testing real systems on board, architectures, control, functional units, and circuit topologies for increased performance and reduced circuit size and power dissipation. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 427. Mutually Exclusive: Cannot register for ELEC 555 if student has credit for ELEC 427. Repeatable for Credit.

ELEC 556 - INTRODUCTION TO COMPUTER NETWORKS
Short Title: INTRO TO COMPUTER NETWORKS
Department: Electrical & Computer Eng.
Grade Mode: Standard
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 221 or COMP 321
ELEC 558 - DIGITAL SIGNAL PROCESSING
Short Title: DIGITAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods for analysis of discrete-time signals and design of discrete-time systems including topics of: discrete-time linear systems, difference equations, z-transforms, discrete convolution, stability, discrete-time Fourier transforms, analog-to-digital and digital-to-analog conversion, digital filter design, discrete Fourier transforms, fast Fourier transforms, multi-rate signal processing, filter banks, and spectral analysis. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 440. Mutually Exclusive: Cannot register for ELEC 558 if student has credit for ELEC 440.

Course URL: www.owlnet.rice.edu/~comp440 (http://www.owlnet.rice.edu/~comp440/)

ELEC 559 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Additional course work required beyond the undergraduate course requirements. Cross-list: BIOE 534. Graduate/Undergraduate Equivalency: ELEC 419. Mutually Exclusive: Cannot register for ELEC 559 if student has credit for ELEC 419. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)

ELEC 560 - PHYSICS OF SENSOR MATERIALS AND NANOSENSOR TECHNOLOGY
Short Title: PHYSICS OF SENSORS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics covered include MEMS, MOEMS, and NEMS systems along with special materials such as liquid crystals, piezoelectrics, memory metal, and topological insulators. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 460. Mutually Exclusive: Cannot register for ELEC 560 if student has credit for ELEC 460.

ELEC 561 - OPTICAL TECHNIQUES FOR IMAGING THROUGH SCATTERING MEDIA
Short Title: IMAGING THROUGH SCATTERS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics covered include basics of Physical optics, and Fourier optics with a strong emphasis on its applications to imaging through scattering media.
ELEC 562 - OPTOELECTRONIC DEVICES
Short Title: OPTOELECTRONIC DEVICES
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to the fundamental principles of semiconductor optoelectronic devices. After reviewing the basic elements of quantum mechanics of electrons and photons, light-matter interaction (including laser oscillations), and semiconductor physics (band structure, heterostructures and alloys, optical processes), we will study the details of modern semiconductor devices for the generation, detection, and modulation of light. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 462. Mutually Exclusive: Cannot register for ELEC 562 if student has credit for ELEC 462.

ELEC 563 - INTRODUCTION TO SOLID STATE PHYSICS I
Short Title: INTRO SOLID STATE PHYSICS I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamental concepts of crystalline solids, including crystal structure, band theory of electrons, and lattice vibration theory. Cross-list: PHYS 563.

ELEC 564 - SOLID-STATE PHYSICS II
Short Title: INTRO SOLID STATE PHYSICS II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of PHYS 563, including scattering of waves by crystals, transport theory, and magnetic phenomena. Cross-list: PHYS 564.

ELEC 565 - MATERIALS FOR ENERGY AND PHOTOCATALYSIS
Short Title: MATERIALS FOR ENERGY&CATALYSIS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the basic physics and chemistry of solar energy conversion and storage devices, and the current state of the art and future challenges in materials for energy and photocatalysis. In addition, physical and chemical characterization techniques will be covered.

ELEC 566 - NANOPHOTONICS AND METAMATERIALS
Short Title: NANOPHOTONICS & METAMATERIALS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will discuss basic concepts of nanophotonics and focus on what metamaterials are, how they work and how to build them. The course will conclude with applications of various meta-devices and upcoming research topics.

ELEC 567 - NANO-OPTICS
Short Title: NANO-OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to understand concepts of light localization and light-matter interactions on the nanoscale, and to familiarize the students with the state-of-the-art research in the field of nano-optics.

ELEC 568 - LASER SPECTROSCOPY
Short Title: LASER SPECTROSCOPY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the theory and practice of laser spectroscopy as applied to atomic and molecular systems. The course covers fundamentals of spectroscopy, lasers and spectroscopic light sources, high resolution and time resolved laser spectroscopy with applications in atmospheric chemistry, environmental science and medicine. Repeatable for Credit.

ELEC 569 - ULTRAFAST OPTICAL PHENOMENA
Short Title: ULTRAFAST OPTICAL PHENOMENA
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the generation, propagation, and measurement of short laser pulses, of duration less than one picosecond. Concepts include mode locking, the effects of dispersion, optical pulse amplification, and time-domain non-linear optical phenomena. Intended as an introduction to ultrafast phenomena for graduate students or advanced undergraduates; a basic understanding of electromagnetic waves and of quantum mechanics is assumed. Cross-list: PHYS 569.
ELEC 571 - IMAGING AT THE NANOSCALE
Short Title: IMAGING AT THE NANOSCALE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of the techniques used in imaging micron and nanometer structures with an emphasis on applications in chemistry, physics, biology, and engineering. The course includes an introduction to scanning probe, submicron optical, and electron microscopies, as well as discussions on the fundamental and practical aspects of image acquisition, artifacts, filtering, and machine learning analysis of such data. Homeworks will involve some familiarity and proficiency with Matlab. The final project will include analysis of the student’s own research data.

ELEC 572 - FINITE ELEMENT METHOD FOR MULTIPHYSICS MODELING
Short Title: MULTIPHYSICS MODELING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a hands-on experience on the modeling of micro and nano systems based on the mutual interaction among different physical phenomena. COMSOL Multiphysics, based on the Finite Element Method (FEM), will be utilized as flexible modeling tool to learn how to design a wide range of devices or describe coupled physical mechanisms including electromagnetic waves, heat transfer, fluid dynamics and mass transport. The course will focus in particular on the interaction between light and nanomaterials and how electromagnetic heat dissipation can play a major role in different applications. Recommended Prerequisite(s): Basic electromagnetism and basic calculus.

ELEC 573 - NETWORK SCIENCE AND ANALYTICS
Short Title: NETWORK SCIENCE AND ANALYTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to complex networks, their structure, and function, with examples from engineering, biology, and social sciences. Topics include spectral graph theory, notions of centrality, community detection, random graph models, inference in networks, opinion dynamics, and contagion phenomena. Our main goal is to study network structures and how they can be leveraged to better understand data defined on them. Recommended Prerequisite(s): Linear algebra, probability and statistics, and basic ability to program in Python.

ELEC 574 - UBIQUITOUS AND WEARABLE COMPUTING
Short Title: UBQ AND WEARABLE COMPUTING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Wireless and mobile computing, affordable sensors and interaction devices being woven into our daily life and invisible, has created boundless opportunities for in-the-world computing applications that can transform our lives. This course will introduce students to the field of Ubiquitous and Wearable Computing -- a multidisciplinary research area that draws from sensors, machine learning, signal processing, as well as human computer interaction. This class combines lectures, hands-on exercises and assignments, reading state of the art research papers, class discussions and a final project.

ELEC 575 - LEARNING FROM SENSOR DATA
Short Title: LEARNING FROM SENSOR DATA
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The first half of this course develops the basic machine learning tools for signals images, and other data acquired from sensors. Tools covered include principal components analysis, regression, support vector machines, neural networks, and deep learning. The second half of this course overviews a number of applications of sensor data science in neuroscience, image and video processing, and machine vision. Additional course work required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 475. Mutually Exclusive: Cannot register for ELEC 575 if student has credit for ELEC 475. Repeatable for Credit.

ELEC 576 - A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING
Short Title: INTRODUCTION TO DEEP LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Deep Machine Learning has recently made many advances in difficult perceptual tasks, including object and phoneme recognition, and natural language processing. However, the field has a steep learning curve, both conceptually and practically. The point of this course is to engage students by jumping into the deep end, and building their own architectures and algorithms. Cross-list: COMP 576.
ELEC 577 - ALGORITHMS AND OPTIMIZATION FOR DATA SCIENCE
Short Title: OPTIMIZATION FOR DATA SCIENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, we study algorithms for analyzing data with provable performance, statistical, and computational guarantees. We focus on applications in machine learning and signal processing. Topics include: efficient algorithms for convex optimization, inverse problem, low-rank and sparse models, dimensionality reduction, and randomized algorithms. Recommended Prerequisite(s): MATH 355 and (ECON 307 or STAT 310) or digital circuit courses.

ELEC 578 - INTRODUCTION TO MACHINE LEARNING
Short Title: INTRO TO MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a graduate level introduction to concepts, methods, best practices, and theoretical foundations of machine learning. Topics covered include regression, classification, regularization, kernels, clustering, dimension reduction, decision trees, ensemble learning, and neural networks. Additional work is required for graduate students beyond the undergraduate requirement. Graduate/Undergraduate Equivalency: ELEC 478. Recommended Prerequisite(s): Basic statistics and probability, linear algebra, and programming in R or Python are required. Mutually Exclusive: Cannot register for ELEC 578 if student has credit for DSCI 303.

ELEC 579 - COMPUTATIONAL IMAGING
Short Title: COMPUTATIONAL IMAGING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 441.

ELEC 582 - IMAGING OPTICS
Short Title: IMAGING OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course covers the fundamental properties of light propagation and interaction with matter under the approximations of geometrical optics and scalar wave optics, as well as the fundamentals of optical microscopy. The course emphasizes a system approach to the analysis and design of optical systems from a user and an engineering perspective, focusing on the physical intuition and underlying mathematical tools, and application of the physical concepts to topical engineering domains such as a selection of microscopy techniques. Students will have direct hands-on experience with optics and optical imaging systems in the classroom. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 487. Mutually Exclusive: Cannot register for ELEC 582 if student has credit for ELEC 482.

ELEC 584 - FUNDAMENTALS OF HUMAN NEUROIMAGING
Short Title: HUMAN NEUROIMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of methods and results for human brain imaging. Describes the physical and physiological mechanisms of image formation. Provides examples from clinical and basic research, particularly in visual cortex. Emphasis on magnetic resonance imaging, but surveys other imaging modalities including PET, optical, and EEG/MEG source localization. Course taught at Baylor College of Medicine. Cross-list: NEUR 584. Mutually Exclusive: Cannot register for ELEC 584 if student has credit for ELEC 484.

ELEC 585 - FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Additional coursework required beyond the undergraduate course requirements. Cross-list: BIOE 591. Graduate/Undergraduate Equivalency: ELEC 485. Mutually Exclusive: Cannot register for ELEC 585 if student has credit for ELEC 485.
ELEC 586 - FUNDAMENTALS OF MEDICAL IMAGING II
Short Title: FUND MEDICAL IMAGING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site in also planned to gain experience with nuclear medicine imaging. Additional coursework required beyond the undergraduate course requirements. Cross-list: BIOE 596. Graduate/Undergraduate Equivalency: ELEC 486. Mutually Exclusive: Cannot register for ELEC 586 if student has credit for ELEC 486.

ELEC 587 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY
Short Title: INTRO TO NEUROENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 380. Mutually Exclusive: Cannot register for ELEC 587 if student has credit for BIOE 480/BIOE 590/ELEC 380/ELEC 480/ELEC 580.

ELEC 588 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: CAAM 615, NEUR 615. Graduate/Undergraduate Equivalency: ELEC 488. Mutually Exclusive: Cannot register for ELEC 588 if student has credit for ELEC 488.

ELEC 589 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including “what does a network compute?”, “how does it compute?”, and “why does it compute that way?” Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Graduate/Undergraduate Equivalency: ELEC 489. Mutually Exclusive: Cannot register for ELEC 589 if student has credit for ELEC 489.

ELEC 590 - GRADUATE NON-THESIS RESEARCH PROJECTS
Short Title: GR NON-THESIS RES PROJECTS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical and experimental investigations under staff direction. Instructor Permission Required. Repeatable for Credit.

ELEC 591 - GRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS-VERTICALLY INTEGRATED PROJECTS
Short Title: GRAD ELEC ENG'G RESEARCH VIP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Vertically Integrated Projects (VIP) teams include students from multiple years working on one larger, multi-year project defined by the instructor. Instructor Permission Required. Graduate/Undergraduate Equivalency: ELEC 491. Repeatable for Credit.

ELEC 592 - GRADUATE PRE-THESIS RESEARCH PROJECT EXPLORATION
Short Title: PRE-THESIS PROJECT EXPLORATION
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Electrical & Computer Eng. Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy degree.
Course Level: Graduate
Description: Theoretical and experimental investigations under faculty direction. Department Permission Required.
ELEC 594 - MECE CAPSTONE PROJECT
Short Title: MECE CAPSTONE PROJECT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Electrical Comp Eng degree.
Course Level: Graduate
Description: Supervised project required of all first-year graduate students in the Ph.D. program.

ELEC 599 - FIRST YEAR GRAD STUDENT PROJECTS
Short Title: 1ST YEAR GRAD STUDENTS PROJECT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised project required of all first-year graduate students in the Ph.D. program.

ELEC 602 - NEURAL MACHINE LEARNING AND DATA MINING II
Short Title: NEURAL MACHINE LEARNING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 502 or COMP 502 or STAT 502
Description: Advanced topics in ANN theories, with a focus on learning high-dimensional complex manifolds with neural maps (Self-Organizing Maps, Learning Vector Quantizers and variants). Application to data mining, clustering, classification, dimension reduction, sparse representation. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: COMP 602, STAT 602. Repeatable for Credit.

Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

ELEC 603 - TOPICS IN NANOPHOTONICS
Short Title: TOPICS IN NANOPHOTONICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed as a cornerstone for the NSF funded Integrative Graduate Research and Educational Training (IGERT) program in nanophotonics. It is also an official "home" for the Laboratory for Nanophotonics (LANP) seminars that serve as a forum for the interaction between researchers in nanophotonics at Rice. The conversational atmosphere of the seminar continues the relatively unstructured spirit of the interaction that has been the hallmark of past LANP meetings and collaboration. The course is open to graduate students who are interested in pursuing research in Nanophotonics. Repeatable for Credit.

ELEC 604 - NANO-OPTICS
Short Title: NANO-OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed as a cornerstone for the NSF funded Integrative Graduate Research and Educational Training (IGERT) program in nanophotonics. It is also an official "home" for the Laboratory for Nanophotonics (LANP) seminars that serve as a forum for the interaction between researchers in nanophotonics at Rice. The conversational atmosphere of the seminar continues the relatively unstructured spirit of the interaction that has been the hallmark of past LANP meetings and collaboration. The course is open to graduate students who are interested in pursuing research in Nanophotonics. Repeatable for Credit.
**ELEC 631 - ADVANCED MACHINE LEARNING**  
**Short Title:** ADVANCED MACHINE LEARNING  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** There is a long history of algorithmic development for solving inferential and estimation problems that play a central role in a variety of learning, sensing, and processing systems, including medical imaging scanners, numerous machine learning algorithms, and compressive sensing, to name just a few. Until recently, most algorithms for solving inferential and estimation problems have iteratively applied static models derived from physics or intuition. In this course, we will explore a new approach that is based on "learning" various elements of the problem including i) stepsizes and parameters of iterative algorithms, ii) regularizers, and iii) inverse functions. For example, we will explore a new approach for solving inverse problems that is based on transforming an iterative, physics-based algorithm into a deep network whose parameters can be learned from training data. For a range of different inverse problems, deep networks have been shown to offer faster convergence to a better quality solution. Specific topics to be discussed include: Ill-posed inverse problems, iterative optimization, deep learning, neural networks, learning regularizers. This is a "reading course," meaning that students will read and present classic and recent papers from the technical literature to the rest of the class in a lively debate format. Discussions will aim at identifying common themes and important trends in the field. Students will also get hands on experience with optimization problems and deep learning software through a group project. Repeatable for Credit.

**ELEC 632 - ADVANCED TOPICS IN IMAGE AND VIDEO PROCESSING**  
**Short Title:** ADV TOPIC IMAGE&VIDEO PROCESS  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Seminar on topics of current research interest in image and video processing. Students participate in selecting and presenting papers from technical literature. Discussions aim at identifying common themes and important trends in the field.

**ELEC 635 - NETWORK INFORMATION THEORY**  
**Short Title:** NETWORK INFORMATION THEORY  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** ELEC 535  
**Description:** This course will introduce the key building blocks in network information theory: multiple access, broadcast, relay and interference channels. Further topics will be explored as part of projects.

**ELEC 660 - QUANTUM INFORMATION SCIENCE AND TECHNOLOGY**  
**Short Title:** QUANTUM INFO  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This is a graduate seminar course on quantum information science and technology. There is currently a world-wide effort to develop technologies based on the principles of quantum mechanics that are expected to revolutionize computation, communication, and sensing. These rapid scientific and technological developments can be viewed as the second quantum revolution. Unlike the first quantum revolution which occurred during the first few decades of the 20th century and totally changed the way we describe the universe, the second quantum revolution is about controlling individual quantum systems to a much greater extent than before, enabling even more powerful applications of quantum mechanics. Many of these new applications rely on genuinely quantum, nonintuitive concepts such as superposition and entanglement. These concepts are becoming more and more common and important in diverse scientific disciplines beyond physics, including materials science, electrical engineering, chemistry, mathematics, and computer science. We will review some of the latest published papers on quantum materials, devices, and systems, and their practical applications to quantum technologies. Recommended Prerequisite(s): Understanding of undergraduate-level classical and quantum mechanics, electromagnetism, statistical mechanics, and solid state physics.

**ELEC 677 - SPECIAL TOPICS**  
**Short Title:** SPECIAL TOPICS  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**ELEC 680 - NANO-NEUROTECHNOLOGY**  
**Short Title:** NANO-NEUROTECHNOLOGY  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will review current nanofabricated technologies for measuring, manipulating, and controlling neural activity. The course will be based on reviewing current academic literature and topics will include nano-electronic, -photonic, -mechanical, and -fluidic neural devices. Cross-list: BIOE 680.
ELEC 681 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMNTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for the different topics of machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on sharing solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 682 - SPOTLIGHT ON LATEST NEUROTECHNOLOGY
Short Title: SPOTLIGHT ON LATEST NEUROTECH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 683 - ADVANCED TOPICS-COMPUTER SYSTEMS
Short Title: ADV TOPICS - COMPUTER SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 684 - HOW TO BE A CHIEF TECHNOLOGY OFFICER
Short Title: HOW TO BE A CTO
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will cover the contributions that nanophotonic concepts and advanced spectroscopy techniques can make to the development and characterization of novel materials for energy and sustainability. We will cover nanophotonic concepts for novel materials and characterization techniques, ultrafast and nanoscale spectroscopy techniques, and applications in energy and sustainability. Repeatable for Credit.

ELEC 685 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMNTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for the different topics of machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on sharing solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 686 - SPOTLIGHT ON LATEST NEUROTECHNOLOGY
Short Title: SPOTLIGHT ON LATEST NEUROTECH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 687 - ADVANCED TOPICS-COMPUTER SYSTEMS
Short Title: ADV TOPICS - COMPUTER SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 688 - HOW TO BE A CHIEF TECHNOLOGY OFFICER
Short Title: HOW TO BE A CTO
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will cover the contributions that nanophotonic concepts and advanced spectroscopy techniques can make to the development and characterization of novel materials for energy and sustainability. We will cover nanophotonic concepts for novel materials and characterization techniques, ultrafast and nanoscale spectroscopy techniques, and applications in energy and sustainability. Repeatable for Credit.

ELEC 689 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMNTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for the different topics of machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on sharing solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 690 - SPOTLIGHT ON LATEST NEUROTECHNOLOGY
Short Title: SPOTLIGHT ON LATEST NEUROTECH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 691 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMNTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for the different topics of machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on sharing solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 692 - ADVANCED TOPICS IN DISTRIBUTED SYSTEMS
Short Title: ADV TOPICS IN DISTRIBUTED SYST
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 693 - ADVANCED TOPICS IN DISTRIBUTED SYSTEMS
Short Title: ADV TOPICS IN DISTRIBUTED SYST
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 694 - HOW TO BE A CHIEF TECHNOLOGY OFFICER
Short Title: HOW TO BE A CTO
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will cover the contributions that nanophotonic concepts and advanced spectroscopy techniques can make to the development and characterization of novel materials for energy and sustainability. We will cover nanophotonic concepts for novel materials and characterization techniques, ultrafast and nanoscale spectroscopy techniques, and applications in energy and sustainability. Repeatable for Credit.

ELEC 695 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMNTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for the different topics of machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on sharing solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 696 - SPOTLIGHT ON LATEST NEUROTECHNOLOGY
Short Title: SPOTLIGHT ON LATEST NEUROTECH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 697 - ADVANCED TOPICS IN DISTRIBUTED SYSTEMS
Short Title: ADV TOPICS IN DISTRIBUTED SYST
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 698 - HOW TO BE A CHIEF TECHNOLOGY OFFICER
Short Title: HOW TO BE A CTO
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will cover the contributions that nanophotonic concepts and advanced spectroscopy techniques can make to the development and characterization of novel materials for energy and sustainability. We will cover nanophotonic concepts for novel materials and characterization techniques, ultrafast and nanoscale spectroscopy techniques, and applications in energy and sustainability. Repeatable for Credit.
ELEC 695 - ADVANCED TOPICS IN COMMUNICATIONS AND STATISTICAL SIGNAL PROCESSING
Short Title: INNOVATIONS IN MOBILE HEALTH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1: Innovations in Mobile Health - In this seminar, we will study the merging area of mobile health, enabled by prevalent data connectivity, highly portable medical sensors, smart-phones and inexpensive cloud computing. The seminar will involve a mix of lectures, paper reading, case studies and group projects. The course is suitable for both undergraduate (junior and seniors) and graduate students. The course is a part of the new ECE initiative on scalable health (http://sh.rice.edu). Open to both undergraduate and graduate students. Section 2: This is a graduate seminar class focused on the role of information theory in engineering wireless networks. Students will survey, read, and present both classic as well as recent papers in the area. Repeatable for Credit.

ELEC 698 - ECE PROFESSIONAL MASTERS SEMINAR SERIES
Short Title: ECE PROFESSIONAL MASTER SEM
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Electrical Eng degree.
Course Level: Graduate
Description: The Professional Masters Seminar Series presents a combination of seminars on emerging research topics in the many areas of ECE and industry-focused professional development. This course includes attendance and reports based on the seminars, colloquia, and distinguished lectures held each semester. Repeatable for Credit.

ELEC 699 - FRONTIERS OF ELECTRICAL AND COMPUTER ENGINEERING
Short Title: FRONTIERS OF ECE
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Electrical & Computer Eng., Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy or Master of Electrical Eng degrees.
Course Level: Graduate
Description: Frontiers of Electrical and Computer Engineering presents emerging research topics in the many areas of ECE. This course includes attendance and reports based on the seminars, colloquia, and distinguished lectures held each semester. Repeatable for Credit.

ELEC 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
Bachelor of Arts (BA) Degree with a Major in Electrical Engineering

Program Learning Outcomes for the Bachelor of Arts Degree (BA) with a Major in Electrical Engineering

Upon completing the BA degree with a major in Electrical Engineering, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
6. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Requirements for the BA Degree with a Major in Electrical Engineering

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Electrical Engineering must complete:

- A minimum of 21-23 courses (63 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (24 credit hours) taken at the 300-level or above.

- The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Electrical Engineering, students must additionally identify and declare one of four areas of specialization, either in:
  - Computer Engineering (p. 909): provides a broad background in computer systems engineering, including computer architecture, digital hardware engineering, software engineering, and computer systems performance analysis,
  - Data Science (p. 910): integrates the foundations, tools and techniques involving data acquisition, data analytics, data storage and computing infrastructure in order to enable meaningful extraction of actionable information from diverse and potentially massive data sources. Applications include wireless communication systems, digital signal processing, image processing, and networking,
  - Neuroengineering (p. 910): exploits engineering techniques to understand, repair, manipulate, or treat the diseases of human neural systems and networks, or
  - Photonics, Electronics, and Nano-devices (p. 911): encompasses studies of electronic materials, including nanomaterials, semiconductor and optoelectronic devices, lasers and their applications.

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BA degree provides a basic technical foundation in electrical and computer engineering through a subset of the core and specialization courses offered by the department. The program leading to the BA degree is not accredited by the EAC of ABET and is often pursued by students as a component of a double major or dual degree program. A course can satisfy only one program requirement within the major. Students who place out of required courses without transcript credit must substitute other approved courses in the same area.

Planning sheets and degree plan forms may be found on the Electrical and Computer Engineering website (http://www.ece.rice.edu/).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<tr>
<th>Summary</th>
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<tr>
<td>Code</td>
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<td>Total Credit Hours Required for the BA Degree with a Major in Electrical Engineering</td>
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<th>Degree Requirements</th>
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<td>Core Requirements</td>
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<td>ELEC 303</td>
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<tr>
<td>MATH 101 or MATH 105</td>
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<td>or MATH 106</td>
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<td>MATH 102 or MATH 106</td>
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<td>or MATH 212</td>
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<td>MATH 212 or MATH 221</td>
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<td>CAAM 334</td>
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<td>&amp; PHYS 103</td>
<td>MECHANICS DISCUSSION</td>
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<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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<td>&amp; PHYS 104</td>
<td>ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<tr>
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<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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Electrical and Computer Engineering (ECE) Core Courses

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<th>Credit Hours</th>
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<tr>
<td>ELEC 241</td>
<td>FUNDAMENTALS OF ELECTRICAL ENGINEERING I</td>
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<tr>
<td>&amp; ELEC 240</td>
<td>FUNDAMENTALS OF ELECTRICAL ENGINEERING I LABORATORY</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 242</td>
<td>SIGNALS, SYSTEMS, AND TRANSFORMS</td>
<td>4</td>
</tr>
<tr>
<td>&amp; ELEC 244</td>
<td>ANALOG CIRCUITS LABORATORY</td>
<td></td>
</tr>
<tr>
<td>ELEC 305</td>
<td>INTRODUCTION TO PHYSICAL ELECTRONICS II</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 326 / COMP 326</td>
<td>DIGITAL LOGIC DESIGN</td>
<td>3</td>
</tr>
</tbody>
</table>

Computation Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 140</td>
<td>COMPUTATIONAL THINKING</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 130</td>
<td>ELEMENTS OF ALGORITHMS AND COMPUTATION</td>
<td></td>
</tr>
</tbody>
</table>

Design Laboratory

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 327</td>
<td>IMPLEMENTATION OF DIGITAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 332</td>
<td>ELECTRONIC SYSTEMS PRINCIPLES AND PRACTICE</td>
<td></td>
</tr>
<tr>
<td>ELEC 364</td>
<td>PHOTONICS MEASUREMENTS: PRINCIPLES AND PRACTICE</td>
<td></td>
</tr>
</tbody>
</table>

Areas of Specialization

Students must complete the requirements as listed for one of the following areas of specialization as offered by the Electrical Engineering major. A total of 4 courses (minimum of 12 credit hours) must be taken from at least two areas of specialization, including a minimum of 2 courses from one area of specialization, 1 course from an area of specialization outside the student's chosen specialization, and 1 course from any area of specialization. In addition, ELEC graduate coursework at the 500-level may be used to satisfy specialization requirements with permission. Consult departmental advisors and the Electrical and Computer Engineering (http://www.ece.rice.edu/) website for the latest information.

Area of Specialization: Computer Engineering

To fulfill the remaining Electrical Engineering major requirements, students pursuing the Computer Engineering area of specialization must complete:

- a minimum of 2 courses (6 credit hours) from the Computer Engineering area of specialization
- 1 course (3 credit hours) from any area of specialization outside Computer Engineering (from Data Science/Systems, Neuroengineering, or Photonics, Electronics, or Nano-devices)
- 1 course (3 credit hours) from any area of specialization (including Computer Engineering)

Code     Title                                      Credit Hours
-------------------------------------------------------------------
COMP 321  INTRODUCTION TO COMPUTER SYSTEMS          6
COMP 382  REASONING ABOUT ALGORITHMS                
COMP 430  INTRODUCTION TO DATABASE SYSTEMS          
ELEC 323  PRINCIPLES OF PARALLEL                    
COMP 322  PROGRAMMING                               
ELEC 410  SECURE AND CLOUD COMPUTING                
COMP 436  
ELEC 411  MICROWAVE ENGINEERING                     
ELEC 414  WIRELESS INTEGRATED CIRCUITS AND SYSTEMS   
ELEC 421  OPERATING SYSTEMS AND CONCURRENT PROGRAMMING 
COMP 421  
ELEC 422  VLSI SYSTEMS DESIGN                       
ELEC 423  DIGITAL INTEGRATED CIRCUITS

**Footnotes and Additional Information**

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Design Laboratory is typically taken in the junior year. The required Design Laboratory does not count as a specialization course. It is important to consult a departmental advisor when choosing the Design Laboratory course or if interested in taking a second one. Any Design Laboratory course taken above the one required course will count as a General Elective, not as a specialization course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 221</td>
<td>INTRODUCTION TO COMPUTER SYSTEMS</td>
<td>4</td>
</tr>
<tr>
<td>COMP 321</td>
<td>INTRODUCTION TO COMPUTER SYSTEMS</td>
<td>6</td>
</tr>
<tr>
<td>COMP 382</td>
<td>REASONING ABOUT ALGORITHMS</td>
<td></td>
</tr>
<tr>
<td>COMP 430</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>ELEC 323</td>
<td>PRINCIPLES OF PARALLEL</td>
<td></td>
</tr>
<tr>
<td>COMP 322</td>
<td>PROGRAMMING</td>
<td></td>
</tr>
<tr>
<td>ELEC 410</td>
<td>SECURE AND CLOUD COMPUTING</td>
<td></td>
</tr>
<tr>
<td>COMP 436</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 411</td>
<td>MICROWAVE ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ELEC 414</td>
<td>WIRELESS INTEGRATED CIRCUITS AND SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>ELEC 421</td>
<td>OPERATING SYSTEMS AND CONCURRENT PROGRAMMING</td>
<td></td>
</tr>
<tr>
<td>COMP 421</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 422</td>
<td>VLSI SYSTEMS DESIGN</td>
<td></td>
</tr>
<tr>
<td>ELEC 423</td>
<td>DIGITAL INTEGRATED CIRCUITS</td>
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</tbody>
</table>
Bachelor of Arts (BA) Degree with a Major in Electrical Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 424 / COMP 424</td>
<td>MOBILE AND EMBEDDED SYSTEM DESIGN AND APPLICATION</td>
<td></td>
</tr>
<tr>
<td>ELEC 425 / COMP 425</td>
<td>COMPUTER SYSTEMS ARCHITECTURE</td>
<td></td>
</tr>
<tr>
<td>ELEC 426</td>
<td>ADVANCED DIGITAL INTEGRATED CIRCUITS DESIGN</td>
<td></td>
</tr>
<tr>
<td>ELEC 429 / COMP 429</td>
<td>INTRODUCTION TO COMPUTER NETWORKS</td>
<td></td>
</tr>
<tr>
<td>ELEC 434</td>
<td>ADVANCED HIGH-SPEED SYSTEM DESIGN</td>
<td></td>
</tr>
<tr>
<td>ELEC 437</td>
<td>INTRODUCTION TO COMMUNICATION NETWORKS</td>
<td></td>
</tr>
<tr>
<td>ELEC 442</td>
<td>INTRODUCTION TO ANALOG INTEGRATED CIRCUITS</td>
<td></td>
</tr>
<tr>
<td>ELEC 450 / COMP 450 / MECH 450</td>
<td>ALGORITHMIC ROBOTICS</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 course from any Area of Specialization outside Computer Engineering (from Data Science/Systems, Neuroengineering, or Photonics, Electronics, and Nano-devices)  
Select 1 course from any Area of Specialization (including Computer Engineering)

Total Credit Hours 12

Footnotes and Additional Information

The sequence of COMP 140, COMP 182, and COMP 215 is recommended in addition for the Computer Engineering specialization as these courses are prerequisites for many of the Computer Science courses.

Area of Specialization: Data Science/Systems

To fulfill the remaining Electrical Engineering major requirements, students pursuing the Data Science/Systems area of specialization must complete:

- a minimum of 2 courses (6 credit hours) from the Data Science/Systems area of specialization
- 1 course (3 credit hours) from any area of specialization outside Data Science/Systems (from Computer Engineering, Neuroengineering, or Photonics, Electronics, and Nano-devices)
- 1 course (3 credit hours) from any area of specialization (including Data Science/Systems)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 330</td>
<td>TOOLS AND MODELS FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>DSCI 302</td>
<td>INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS</td>
<td></td>
</tr>
<tr>
<td>DSCI 303</td>
<td>MACHINE LEARNING FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>ELEC 301</td>
<td>SIGNALS, SYSTEMS, AND LEARNING</td>
<td></td>
</tr>
<tr>
<td>ELEC 430</td>
<td>MODERN COMMUNICATION THEORY AND PRACTICE</td>
<td></td>
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<tr>
<td>ELEC 431</td>
<td>DIGITAL SIGNAL PROCESSING</td>
<td></td>
</tr>
<tr>
<td>ELEC 432</td>
<td>MOBILE BIO-BEHAVIORAL SENSING</td>
<td></td>
</tr>
<tr>
<td>ELEC 433</td>
<td>ARCHITECTURE FOR WIRELESS COMMUNICATIONS</td>
<td></td>
</tr>
<tr>
<td>ELEC 434</td>
<td>ADVANCED HIGH-SPEED SYSTEM DESIGN</td>
<td></td>
</tr>
<tr>
<td>ELEC 435 / MECH 435</td>
<td>INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS</td>
<td></td>
</tr>
<tr>
<td>ELEC 436 / MECH 420</td>
<td>FUNDAMENTALS OF CONTROL SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>ELEC 437</td>
<td>INTRODUCTION TO COMMUNICATION NETWORKS</td>
<td></td>
</tr>
<tr>
<td>ELEC 438</td>
<td>WIRELESS NETWORKING FOR UNDER-RESOURCED URBAN COMMUNITIES</td>
<td></td>
</tr>
<tr>
<td>ELEC 439</td>
<td>DATA SCIENCE AND DYNAMICAL SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>ELEC 447 / COMP 447</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
<td></td>
</tr>
<tr>
<td>ELEC 475</td>
<td>LEARNING FROM SENSOR DATA</td>
<td></td>
</tr>
<tr>
<td>ELEC 478</td>
<td>INTRODUCTION TO MACHINE LEARNING</td>
<td></td>
</tr>
<tr>
<td>ELEC 498 / COMP 498 / MECH 498</td>
<td>INTRODUCTION TO ROBOTICS</td>
<td></td>
</tr>
<tr>
<td>MECH 488</td>
<td>DESIGN OF MECHATRONIC SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>STAT 413</td>
<td>INTRODUCTION TO STATISTICAL MACHINE LEARNING</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 course from any Area of Specialization outside Data Science/Systems (from Computer Engineering, Neuroengineering, or Photonics, Electronics, and Nano-devices)  
Select 1 course from any Area of Specialization (including Data Science/Systems)

Total Credit Hours 12

Area of Specialization: Neuroengineering

To fulfill the remaining Electrical Engineering major requirements, students pursuing the Neuroengineering area of specialization must complete:

- a minimum of 2 courses (6 credit hours) from the Neuroengineering area of specialization
- 1 course (3 credit hours) from any area of specialization outside Neuroengineering (from Computer Engineering, Data Science/Systems, or Photonics, Electronics, and Nano-devices)
- 1 course (3 credit hours) from any area of specialization (including Neuroengineering)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 380 / BIOE 380 / NEUR 383</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY</td>
<td></td>
</tr>
<tr>
<td>ELEC 382 / NEUR 382</td>
<td>INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>ELEC 483</td>
<td>MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ELEC 485 / COMP 485</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING I</td>
<td></td>
</tr>
<tr>
<td>ELEC 486 / COMP 486</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING II</td>
<td></td>
</tr>
<tr>
<td>ELEC 487</td>
<td>IMAGING OPTICS</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 course from any Area of Specialization outside Neuroengineering (from Computer Engineering, Data Science/Systems, or Photonics, Electronics, and Nano-devices)  
Select 1 course from any Area of Specialization (including Neuroengineering)
ELEC 488 / CAAM 415 / NEUR 415
THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS

ELEC 489 / CAAM 416 / NEUR 416
NEURAL COMPUTATION

Select 1 course from any Area of Specialization outside Photonics, Electronics, and Nano-devices

Neuroengineering (from Computer Engineering, Data Science/Systems, or Photonics, Electronics, and Nano-devices)

Select 1 course from any Area of Specialization (including Neuroengineering)

Total Credit Hours 12

Area of Specialization: Photonics, Electronics, and Nano-devices

To fulfill the remaining Electrical Engineering major requirements, students pursuing the Photonics, Electronics, and Nano-devices area of specialization must complete:

- a minimum of 2 courses (6 credit hours) from the Photonics, Electronics, and Nano-devices area of specialization
- 1 course (3 credit hours) from any area of specialization outside Photonics, Electronics, and Nano-devices (from Computer Engineering, Data Science/Systems, or Neuroengineering)
- 1 course (3 credit hours) from any area of specialization (including Photonics, Electronics, and Nano-devices)

Code Title Credit Hours

Select a minimum of 2 from the following: 6

ELEC 262 INTRODUCTION TO WAVES AND PHOTONICS

ELEC 361 QUANTUM MECHANICS FOR ENGINEERS or PHYS 311 INTRODUCTION TO QUANTUM PHYSICS I

ELEC 365 / MSNE 365 NANOMATERIALS FOR ENERGY

ELEC 460 PHYSICS OF SENSOR MATERIALS AND NANOSENSOR TECHNOLOGY

ELEC 461 SOLID STATE PHYSICS or PHYS 412 SOLID STATE PHYSICS

ELEC 462 OPTOELECTRONIC DEVICES

PHYS 302 INTERMEDIATE ELECTRODYNAMICS

PHYS 416 COMPUTATIONAL PHYSICS

Select 1 course from any Area of Specialization outside Photonics, Electronics, and Nano-devices (from Computer Engineering, Data Science/Systems, or Neuroengineering)

Select 1 course from any Area of Specialization (including Photonics, Electronics, and Nano-devices)

Total Credit Hours 12

Policies for the BA Degree with a Major in Electrical Engineering

Advising

Rice University provides multiple avenues for undergraduate advising through the Office of Academic Advising, the Rice Residential College system, and academic departments. Although students may consult with their Divisional Advisors in their College during the first and second years, they are welcome and encouraged to meet with a major advisor in the Electrical and Computer Engineering Department. In particular, ECE students are required to meet with a major advisor in ECE at least during their junior and senior years to discuss their ECE Specialization Area course selection and Design Courses. The ECE Undergraduate Committee currently has five faculty members who serve as major advisors.

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Electrical Engineering should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Electrical Engineering may not additionally pursue the Bachelor of Science in Electrical Engineering (BSEE) Degree.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Electrical Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/.

Opportunities for the BA Degree with a Major in Electrical Engineering

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master's degree program director.
As part of this option and opportunity, Rice undergraduate students:

1. must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
2. should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
3. more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Electrical and Computer Engineering (MECE) degree. For additional information, students should contact their undergraduate major advisor and the MECE program director.

Independent Research

The ECE Department encourages our undergraduates to pursue research projects with the faculty. The ECE Department has several opportunities including the multi-year, team-oriented Vertically Integrated Projects (VIP) program through the ELEC 491 course and individual independent research with a faculty member through the ELEC 490 course. For information on taking an undergraduate summer research course tuition free, see: https://registrar.rice.edu/students/summersessions (https://registrar.rice.edu/students/summersessions/). Also, there are often summer research opportunities through the NSF funded Research Experience for Undergraduates (REU) program, through individual ECE faculty grants, or through the Smalley-Curl Institute REU Sites program.

Study Abroad

A semester of study abroad is a valuable experience to enhance an individual's perspective on engineering and technology. The ECE Department encourages students to explore this option particularly for the spring semester of the sophomore or junior year. The ECE Department and the University Study Abroad office coordinate to review programs and courses appropriate for Rice engineering students.

Additional Information

For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/.

Bachelor of Science in Electrical Engineering (BSEE) Degree

The program leading to the BSEE degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, https://www.abet.org (https://www.abet.org/).

Program Learning Outcomes (Student Outcomes) for the BSEE Degree

Upon completing the BSEE degree, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program Educational Objectives for the BSEE Degree

The Bachelor of Science in Electrical Engineering's (BSEE) degree program strives to provide a high quality degree that emphasizes fundamental principles, responds to the changing demands and opportunities of technology, challenges the exceptional abilities of Rice students, and prepares these students for roles of leadership in their chosen careers. In support of this goal, the Bachelor of Science in Electrical Engineering's (BSEE) degree Program Educational Objectives (PEOs) are to produce graduates who:

1. Practice electrical and computer engineering, and related fields, and/or obtain an advanced degree in electrical and computer engineering, and related fields.
2. Use mathematical modeling and problem solving skills in electrical and computer engineering and other technical applications.
3. Analyze, incorporate, and adapt to new technical and scientific developments.
4. Assume increasing professional responsibility and enhance communication and teamwork abilities.

Requirements for the BSEE Degree

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BSEE degree must complete:

1. A minimum of 29-31 courses (85-86 credit hours), depending on course selection, to satisfy major requirements.
2. A minimum of 134 credit hours to satisfy degree requirements.
3. A minimum of 13 courses (39 credit hours) taken at the 300-level or above.
4. The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Electrical Engineering (associated with the BSEE degree), students must additionally identify and declare one of four areas of specialization, either in:
   • Computer Engineering (p. 914): provides a broad background in computer systems engineering, including computer architecture, digital hardware engineering, software engineering, and computer systems performance analysis, or
   • Data Science/Systems (p. 915): integrates the foundations, tools and techniques involving data acquisition, data analytics, data storage and computing
infrastructure in order to enable meaningful extraction of actionable information from diverse and potentially massive data sources. Applications include wireless communication systems, digital signal processing, image processing, and networking, or...

- **Neuroengineering** (p. 915): exploits engineering techniques to understand, repair, manipulate, or treat the diseases of human neural systems and networks, or...

- **Photonics, Electronics, and Nano-devices** (p. 916): encompasses studies of electronic materials, including nanomaterials, semiconductor and optoelectronic devices, lasers and their applications.

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The specialization electives provide the flexibility to create a focus that crosses traditional areas. Ultimately each student's program must contain a course sequence that provides depth in one area and courses from at least two areas to provide breadth. Because of the number of options, students should consult early with departmental advisors to plan a program that meets their needs. Planning sheets and degree plan forms can be found on the Electrical and Computer Engineering (http://www.ece.rice.edu/) website.

The BSEE degree is the usual degree taken by those students planning a career in engineering practice. The BSEE requires more hours and greater depth than the BA degree; however, it still provides considerable flexibility and can reduce the time required to become a licensed professional engineer. In the final year, BSEE students undertake a capstone design project.

Students considering a major offered by the Electrical and Computer Engineering department should take physics (PHYS 101, PHYS 102) and calculus (MATH 101 or MATH 105, MATH 102 or MATH 106) in their first year, along with CHEM 121 (or CHEM 111) and COMP 140. The first core courses in the department, ELEC 220, ELEC 241 (lecture) with ELEC 240 (lab), and ELEC 261 are usually taken during the second year, along with more math and science. A course can satisfy only one program requirement. Students entering with advanced placement may have more scheduling options and may take some of these core courses in their first year. Students who place out of required courses without transcript credit must substitute other approved courses in the same area. Students should consult with one of the department's undergraduate advisors in these situations.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Credit Hours Required for the Major in Electrical Engineering</strong></td>
<td>85-86</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours Required for the BSEE Degree</strong></td>
<td>134</td>
</tr>
</tbody>
</table>

### Degree Requirements

#### Core Requirements

<table>
<thead>
<tr>
<th>Mathematics and Science Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121 GENERAL CHEMISTRY I</td>
</tr>
<tr>
<td>or CHEM 111 AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
</tr>
<tr>
<td>CHEM 123 GENERAL CHEMISTRY LABORATORY I</td>
</tr>
<tr>
<td>or CHEM 113 AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
</tr>
<tr>
<td>ELEC 261 INTRODUCTION TO PHYSICAL ELECTRONICS I</td>
</tr>
<tr>
<td>ELEC 303 RANDOM SIGNALS IN ELECTRICAL ENGINEERING SYSTEMS</td>
</tr>
<tr>
<td>MATH 101 SINGLE VARIABLE CALCULUS I</td>
</tr>
<tr>
<td>or MATH 105 AP/OTH CREDIT IN CALCULUS I</td>
</tr>
<tr>
<td>MATH 102 SINGLE VARIABLE CALCULUS II</td>
</tr>
<tr>
<td>or MATH 106 AP/OTH CREDIT IN CALCULUS II</td>
</tr>
<tr>
<td>MATH 212 MULTIVARIABLE CALCULUS</td>
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<tr>
<td>or MATH 221 HONORS CALCULUS III</td>
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Select 1 course from the following:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>CAAM 334</td>
<td>MATRIX ANALYSIS FOR DATA SCIENCE</td>
<td>3</td>
</tr>
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<td>CAAM 335</td>
<td>MATRIX ANALYSIS</td>
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</tr>
<tr>
<td>MATH 354</td>
<td>HONORS LINEAR ALGEBRA</td>
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<tr>
<td>MATH 355</td>
<td>LINEAR ALGEBRA</td>
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Select 1 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>MECHANICS (WITH LAB) &amp; MECHANICS DISCUSSION</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 1 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) &amp; ELECTRICITY AND MAGNETISM DISCUSSION</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved Electives in Mathematics and Science

Select 3-4 credit hours from the following typically approved courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
<td>3-4</td>
</tr>
<tr>
<td>CAAM 336</td>
<td>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</td>
<td>3-4</td>
</tr>
<tr>
<td>CAAM 378</td>
<td>INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION</td>
<td>3-4</td>
</tr>
<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II</td>
<td>3-4</td>
</tr>
<tr>
<td>CHEM 124</td>
<td>GENERAL CHEMISTRY LABORATORY II</td>
<td>3-4</td>
</tr>
<tr>
<td>CHEM 125</td>
<td>GENERAL CHEMISTRY LABORATORY II</td>
<td>3-4</td>
</tr>
<tr>
<td>CHEM 126</td>
<td>GENERAL CHEMISTRY LABORATORY II</td>
<td>3-4</td>
</tr>
</tbody>
</table>
Electrical and Computer Engineering (ECE) Core Courses:

- ELEC 220: FUNDAMENTALS OF COMPUTER ENGINEERING (4)
- ELEC 241: FUNDAMENTALS OF ELECTRICAL ENGINEERING I (4)
- ELEC 242: SIGNALS, SYSTEMS, AND TRANSFORMS and ANALOG CIRCUITS LABORATORY (4)
- ELEC 301: SIGNALS, SYSTEMS, AND LEARNING (3)
- ELEC 305: INTRODUCTION TO PHYSICAL ELECTRONICS II (3)
- ELEC 357/COMP 326: DIGITAL LOGIC DESIGN (3)
- COMP 140: COMPUTATIONAL THINKING (4) or COMP 130: ELEMENTS OF ALGORITHMS AND COMPUTATION

**Design Requirements**

- Design Laboratory 2
- ELEC 327: IMPLEMENTATION OF DIGITAL SYSTEMS
- ELEC 332: ELECTRONIC SYSTEMS PRINCIPLES AND PRACTICE
- ELEC 364: PHOTONICS MEASUREMENTS: PRINCIPLES AND PRACTICE

**Area of Specialization**

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

- Computer Engineering
- Data Science / Systems
- Neuroengineering
- Photonics, Electronics, and Nano-devices

**Total Credit Hours Required for the Major in Electrical Engineering**: 85-86

**Additional Credit Hours to Complete Degree Requirements**: 17-18

**University Graduation Requirements (p. 29)**: 31

**Total Credit Hours**: 134

**Footnotes and Additional Information**

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 The design requirements (Design Laboratory and Senior Design) are typically taken during the junior and senior years.

2 Design Laboratory is typically taken in the junior year. The required Design Laboratory does not count as a specialization course. It is important to consult a departmental advisor when choosing the Design Laboratory course or if interested in taking a second one. Any Design Laboratory course taken above the one required course will count as a General Elective, not as a specialization course.

3 Students must complete the ELEC 494 during both the fall and spring semesters of their senior year. Within the senior design sequence, professional issues and project management for electrical engineers provide instruction in professional engineering topics and the nontechnical aspects of the design process, including ethics, design methodology, project planning, technical presentations, and documentation. Both semesters of the senior year are devoted to the team design project using the resources of the Oshman Engineering Design Kitchen (OEDK) through the ELEC 494 course. In the fall semester of the senior year, students finalize their project topics in coordination with the faculty and begin the design project. In the spring semester, students continue in the laboratory to complete their design project. Several presentations and design contests within the ECE department and the School of Engineering occur in the spring in which to showcase the projects.

**Areas of Specialization**

Students must complete the requirements as listed for one of the following areas of specialization as offered by the BSEE degree program. A total of 6 courses (minimum of 18 credit hours) must be taken from at least two areas of specialization, including a minimum of 3 courses from one area of specialization, 1 course from an area of specialization outside of the student’s chosen specialization, and 2 courses from any area of specialization. In addition, ELEC graduate coursework at the 500-level may be used to satisfy specialization area requirements with permission. Consult departmental advisors and the Electrical and Computer Engineering (https://www.ece.rice.edu/) website for the latest information.

**Area of Specialization: Computer Engineering**

To fulfill the remaining BSEE degree requirements, students pursuing the Computer Engineering area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Computer Engineering area of specialization
- 1 course (3 credit hours) from any area of specialization outside of the student’s chosen specialization
- 2 courses (6 credit hours) from any area of specialization outside of the student’s chosen specialization (including Computer Engineering)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 321</td>
<td>INTRODUCTION TO COMPUTER SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>COMP 382</td>
<td>REASONING ABOUT ALGORITHMS</td>
<td>3</td>
</tr>
<tr>
<td>COMP 430</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 323/</td>
<td>PRINCIPLES OF PARALLEL</td>
<td>4</td>
</tr>
<tr>
<td>COMP 322</td>
<td>PROGRAMMING</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 410</td>
<td>SECURE AND CLOUD COMPUTING</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 411</td>
<td>MICROWAVE ENGINEERING</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 414</td>
<td>WIRELESS INTEGRATED CIRCUITS AND SYSTEMS</td>
<td>4</td>
</tr>
</tbody>
</table>
**Area of Specialization: Data Science/Systems**

To fulfill the remaining BSEE degree requirements, students pursuing the Data Science/Systems area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Data Science/Systems area of specialization
- 1 course (3 credit hours) from any area of specialization **outside** Data Science/Systems (from Computer Engineering, Neuroengineering, or Photonics, Electronics, and Nano-devices)
- 2 courses (6 credit hours) from any area of specialization (including Data Science/Systems)

**Code** | **Title** | **Credit Hours**
---|---|---
COMP 330 | TOOLS AND MODELS FOR DATA SCIENCE | 9
DSCI 302 | INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS | 3
DSCI 303 | MACHINE LEARNING FOR DATA SCIENCE | 3
ELEC 430 | MODERN COMMUNICATION THEORY AND PRACTICE | 3
ELEC 431 | DIGITAL SIGNAL PROCESSING | 3
ELEC 432 | MOBILE BIO-BEHAVIORAL SENSING | 3
ELEC 433 | ARCHITECTURE FOR WIRELESS COMMUNICATIONS | 3
ELEC 434 | ADVANCED HIGH-SPEED SYSTEM DESIGN | 3
ELEC 435 / MECH 435 | INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS | 3
ELEC 436 / MECH 420 | FUNDAMENTALS OF CONTROL SYSTEMS | 3
ELEC 437 | INTRODUCTION TO COMMUNICATION NETWORKS | 3
ELEC 438 | WIRELESS NETWORKING FOR UNDER-RESOURCED URBAN COMMUNITIES | 3
ELEC 439 | DATA SCIENCE AND DYNAMICAL SYSTEMS | 3
ELEC 440 / COMP 440 | ARTIFICIAL INTELLIGENCE | 3
ELEC 441 | COMPUTATIONAL IMAGING | 3
ELEC 445 | INTRODUCTION TO DIGITAL IMAGE AND VIDEO PROCESSING | 3
ELEC 447 / COMP 447 | INTRODUCTION TO COMPUTER VISION | 3
ELEC 475 | LEARNING FROM SENSOR DATA | 3
ELEC 478 | INTRODUCTION TO MACHINE LEARNING | 3
ELEC 498 / COMP 498 / MECH 498 | INTRODUCTION TO ROBOTICS | 3
MECH 488 | DESIGN OF MECHATRONIC SYSTEMS | 3
STAT 413 | INTRODUCTION TO STATISTICAL MACHINE LEARNING | 3

**Select 1 course from any Area of Specialization outside Data Science/Systems (from Computer Engineering, Neuroengineering, or Photonics, Electronics, and Nano-devices)**

**Select 2 courses from any Area of Specialization (including Data Science/Systems)**

**Total Credit Hours**

18

**Footnotes and Additional Information**

1. The sequence of COMP 140, COMP 182, and COMP 215 is recommended in addition for the Computer Engineering area of specialization as these courses are prerequisites for many of the Computer Science courses.

**Area of Specialization: Neuroengineering**

To fulfill the remaining BSEE degree requirements, students pursuing the Neuroengineering area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Neuroengineering area of specialization
- 1 course (3 credit hours) from any area of specialization **outside** Neuroengineering (from Computer Engineering, Data Science/Systems, or Photonics, Electronics, and Nano-devices)
- 2 courses (6 credit hours) from any area of specialization (including Neuroengineering)

**Code** | **Title** | **Credit Hours**
---|---|---
ELEC 380 / BIOE 380 / NEUR 383 | MEASURING AND MANIPULATING NEURAL ACTIVITY | 3
ELEC 382 / NEUR 382 | INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE | 3
ELEC 483 | MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING | 3
ELEC 485 / BIOE 485 / COMP 485 | FUNDAMENTALS OF MEDICAL IMAGING | 3

**Select 1 course from any Area of Specialization outside Data Science/Systems (from Computer Engineering, Neuroengineering, or Photonics, Electronics, and Nano-devices)**

**Select 2 courses from any Area of Specialization (including Data Science/Systems)**

**Total Credit Hours**

18
Bachelor of Science in Electrical Engineering (BSEE) Degree

Policies for the BSEE Degree

Advising

Rice University provides multiple avenues for undergraduate advising through the Office of Academic Advising, the Rice Residential College system, and academic departments. Although students may consult with their Divisional Advisors in their College during the first and second years, they are welcome and encouraged to meet with a major advisor in the Electrical and Computer Engineering Department. In particular, ECE students are required to meet with a major advisor in ECE at least during their junior and senior years to discuss their ECE Specialization Area course selection and Design Courses. The ECE Undergraduate Committee currently has five faculty members who serve as major advisors.

Program Restrictions and Exclusions

Students pursuing the BSEE Degree should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the Bachelor of Science in Electrical Engineering (BSEE) Degree may not additionally pursue the BA Degree with a Major in Electrical Engineering.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the BSEE degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/.

Opportunities for the BSEE Degree

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be

### Table: Area of Specialization: Photonics, Electronics, and Nano-devices

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 486 /</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING II</td>
<td></td>
</tr>
<tr>
<td>BIOE 486 /</td>
<td>IMAGING OPTICS</td>
<td></td>
</tr>
<tr>
<td>COMP 486</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 487</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>ELEC 488 /</td>
<td>NEURAL COMPUTATION</td>
<td></td>
</tr>
<tr>
<td>CAAM 415 /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEUR 415</td>
<td>Select 2 courses from any Area of Specialization outside Neuroengineering (from Computer Engineering, Data Science/Systems, or Photonics, Electronics, and Nano-devices)</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credit Hours 18

Area of Specialization: Photonics, Electronics, and Nano-devices

To fulfill the remaining BSEE degree requirements, students pursuing the Photonics, Electronics, and Nano-devices area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Photonics, Electronics, and Nano-devices area of specialization
- 1 course (3 credit hours) from any area of specialization outside Photonics, Electronics, and Nano-devices (from Computer Engineering, Data Science/Systems, or Neuroengineering)
- 2 courses (6 credit hours) from any area of specialization (including Photonics, Electronics, and Nano-devices)

Select a minimum of 3 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 262</td>
<td>INTRODUCTION TO WAVES AND PHOTONICS</td>
<td>9</td>
</tr>
<tr>
<td>ELEC 361</td>
<td>QUANTUM MECHANICS FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>or PHYS 311 INTRODUCTION TO QUANTUM PHYSICS I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 365 / MSNE 365</td>
<td>NANOMATERIALS FOR ENERGY</td>
<td></td>
</tr>
<tr>
<td>ELEC 460</td>
<td>PHYSICS OF SENSOR MATERIALS AND NANOSENSOR TECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>ELEC 461</td>
<td>SOLID STATE PHYSICS</td>
<td></td>
</tr>
<tr>
<td>or PHYS 412 SOLID STATE PHYSICS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEC 462</td>
<td>OPTOELECTRONIC DEVICES</td>
<td></td>
</tr>
<tr>
<td>PHYS 302</td>
<td>INTERMEDIATE ELECTRODYNAMICS</td>
<td></td>
</tr>
<tr>
<td>PHYS 416</td>
<td>COMPUTATIONAL PHYSICS</td>
<td></td>
</tr>
</tbody>
</table>

Select 1 course from any Area of Specialization outside Photonics, Electronics, and Nano-devices (from Computer Engineering, Data Science/Systems, or Neuroengineering) 3 credit hours

Select 2 courses from any Area of Specialization (including Photonics, Electronics, and Nano-devices) 6 credit hours

Total Credit Hours 18
approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate-Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Electrical and Computer Engineering (MECE) degree. For additional information, students should contact their undergraduate major advisor and the MECE program director.

**Independent Research**

The ECE Department encourages our undergraduates to pursue research projects with the faculty. The ECE Department has several opportunities including the multi-year, team-oriented Vertically Integrated Projects (VIP) program through the ELEC 491 course and individual independent research with a faculty member through the ELEC 490 course. For information on taking an undergraduate summer research course tuition free, see: https://registrar.rice.edu/students/summersessions [https://registrar.rice.edu/students/summersessions](https://registrar.rice.edu/students/summersessions). Also, there are often summer research opportunities through the NSF funded Research Experience for Undergraduates (REU) program, through individual ECE faculty grants, or through the Smalley-Curl Institute REU Sites program.

**Study Abroad**

A semester of study abroad is a valuable experience to enhance an individual’s perspective on engineering and technology. The ECE Department encourages students to explore this option particularly for the spring semester of the sophomore or junior year. The ECE Department and the University Study Abroad office coordinate to review programs and courses appropriate for Rice engineering students.

**Additional Information**

For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/.

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1. Identify and define relevant research topics in Electrical and Computer Engineering and conduct independent research with results that advance the state of the art in the field.
2. Lead research and design groups by communicating innovative ideas effectively.
3. Solve real-world problems by integrating knowledge gained in courses and through independent study.

**Requirements for the MS and PhD Degrees in the field of Electrical and Computer Engineering**

**PhD Degree Program**

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Students are admitted to the PhD program only in the fall semester. Electrical and Computer Engineering PhD students move through the program in stages, starting as a first-year student, advancing to MS candidate, PhD-qualified student, and PhD candidate; each advancement requires the approval of the Electrical and Computer Engineering Graduate Committee. The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

The ECE Department offers a stand-alone thesis MS degree on a case-by-case basis. Otherwise, the MS degree is a precursor to the PhD degree for students who were not admitted to the program with a previous MS degree.

Students entering the PhD program with previous graduate work may follow a hybrid program developed in consultation with the faculty and the Graduate Committee. The first academic year concentrates on foundation coursework and developing a research area. Each student must successfully complete a project, ELEC 599, in the student’s chosen area of research in lieu of an oral or written qualifying exam. In addition to enabling the faculty to evaluate the student’s research potential, the project encourages timely completion of the MS degree. The student must complete a master’s thesis and successfully defend it in an oral examination. Students who have already acquired a master’s degree elsewhere must also complete the ELEC 599 project, after which acceptance of their previous master’s degree will be determined by the Graduate Committee. No course in which the student earned a grade lower than a B- (2.67 grade points) may count toward an MS or PhD.

A candidate for the PhD degree must demonstrate independent, original research in Electrical and Computer Engineering. After successful completion of all coursework, a student is eligible for PhD candidacy. The student then engages in full-time research, culminating in presentation of the PhD research proposal and then the completion and public defense of the PhD thesis. Details of the PhD program requirements, the phases of study, and a timetable may be found on the Electrical and Computer Engineering website (http://www.ece.rice.edu/).
Policies for the PhD Degree in the field of Electrical and Computer Engineering

Department of Electrical and Computer Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Electrical and Computer Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Electrical_Computer_Engineering_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Electrical and Computer Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/.

Opportunities for the PhD Degree in the field of Electrical and Computer Engineering

Additional Information

For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/.

Master of Electrical and Computer Engineering (MECE) Degree

Program Learning Outcomes for the MECE Degree

Upon completing the MECE degree, students will be able to:

1. Design and implement technical solutions to real-world problems that reflect an advanced command of principles in mathematics and science.
2. Communicate effectively expert analysis of technical problems and features of proposed solutions to stakeholders.
3. Practice as an expert specialist in at least one of the major sub-fields of electrical and computer engineering.

Requirements for the MECE Degree

The MECE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MECE degree must complete:

- A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 27 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A minimum of 3 courses (9 credit hours) from the Capstone Requirement.
  - 1 course (3 credit hours) to fulfill the Capstone Foundations requirement.
  - 2 courses (6 credit hours) to fulfill the Capstone Experience Project requirement.
- A minimum of 1 course (3 credit hours) from the Engineering Communications Requirement.
- A minimum of 2 courses (6 credit hours) from the Engineering Software Development Requirement.
- A minimum of 2 courses (6 credit hours) in one area of specialization (see below for areas of specialization). The MECE degree program offers five areas of specialization:
  - Computer Engineering (p. 919), or
  - Data Science (p. 919), or
  - Neuroengineering (p. 920), or
  - Photonics, Electronics, and Nano-devices (p. 920), or
  - Systems (p. 920).
- A minimum of 2 courses (6 credit hours) from the Elective Requirements.
- ELEC 698 each semester in residence at Rice University.
- A maximum of 1 course (3 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 920) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of C (2.00 grade points) in each course.

Students are admitted to the MECE degree program in the fall semester. MECE students are to consult with an academic advisor on the MECE Committee each semester in order to identify and clearly document their individual curricular requirements or degree plan to be followed.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://
Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Credit Hours Required for the MECE Degree</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Capstone Requirement (Foundations and Experience Project)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select 1 of the following Capstone topical areas: Computer Engineering, Machine Learning, or Wireless Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 course selected with a faculty advisor to fulfill the Capstone Foundations requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 courses selected with a faculty advisor to fulfill the Capstone Experience Project requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering Communications Requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 course selected with a faculty advisor to fulfill the Engineering Communications requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering Software Development Requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 courses selected with a faculty advisor to fulfill the Engineering Software Development requirement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Area of Specialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Select 1 of the following Areas of Specialization (see Areas of Specialization below):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computer Engineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Science</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neuroengineering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Photonics, Electronics, and Nano-devices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elective Requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Free Elective Requirement: select 2 additional courses as free electives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professional Master’s Seminar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 698</td>
</tr>
</tbody>
</table>

Total Credit Hours | 30 |

Footnotes and Additional Information

1 Prior to enrolling, students must meet with a faculty advisor (or the MECE program director) to select coursework to fulfill the Capstone Requirement (Foundations and Experience Project), the Engineering Communications Requirement, and the Software Development Requirement. Upon approval, courses chosen to fulfill these requirements must be formally applied and entered into Degree Works by the department or program’s Official Certifier. Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

2 The Free Elective Requirement may be fulfilled by any 2 courses (6 credit hours) selected from the following:
   - Departmental (ELEC) course offerings taught by ECE faculty.
   - Research coursework, such as ELEC 590 or ELEC 591, when either are taken for at least 3 credit hours.
   - Any of the following courses: ENGI 528, ENGI 529, ENGI 610, ENGI 615, or NSCI 511.
   - Any other course approved by the student’s MECE academic advisor.

3 ELEC 698 is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As a S/U course it does not apply to the requirement of a minimum grade of C (2.00 grade points) in each required course.

Areas of Specialization

Students must complete a minimum of 2 courses (6 credit hours) from one Area of Specialization.

Area of Specialization: Computer Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Select 2 courses (6 credit hours) from the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 515</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 516</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 517</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 521</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 522</td>
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<tr>
<td></td>
<td></td>
<td>ELEC 523</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 526 / COMP 526</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 527</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 543</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 554 / COMP 554</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 574</td>
</tr>
</tbody>
</table>

Total Credit Hours | 6 |

Area of Specialization: Data Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Select 2 courses (6 credit hours) from the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 502 / COMP 502 / STAT 502</td>
</tr>
<tr>
<td></td>
<td></td>
<td>or COMP 54 / STATISTICAL MACHINE LEARNING</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 515</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 519</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 531</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 533 / CAAM 583 / STAT 583</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 535</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELEC 546 / COMP 546</td>
</tr>
</tbody>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
ELEC 558  DIGITAL SIGNAL PROCESSING
ELEC 575  LEARNING FROM SENSOR DATA
ELEC 576 / COMP 576  A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING
ELEC 578  INTRODUCTION TO MACHINE LEARNING
ELEC 631  ADVANCED MACHINE LEARNING

Total Credit Hours  6

Area of Specialization: Neuroengineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 502 / COMP 502 / STAT 502</td>
<td>NEURAL MACHINE LEARNING I</td>
</tr>
<tr>
<td>ELEC 523</td>
<td>INTRODUCTION TO MICROFABRICATION</td>
</tr>
<tr>
<td>ELEC 533 / CAAM 583 / STAT 583</td>
<td>INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS</td>
</tr>
<tr>
<td>ELEC 548 / BIOE 548</td>
<td>MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING</td>
</tr>
<tr>
<td>ELEC 584</td>
<td>FUNDAMENTALS OF HUMAN NEUROIMAGING</td>
</tr>
<tr>
<td>ELEC 585 / BIOE 591</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING I</td>
</tr>
<tr>
<td>ELEC 587</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY</td>
</tr>
<tr>
<td>ELEC 588 / CAAM 615 / NEUR 615</td>
<td>THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS</td>
</tr>
<tr>
<td>ELEC 589</td>
<td>NEURAL COMPUTATION</td>
</tr>
<tr>
<td>ELEC 680 / BIOE 680</td>
<td>NANO-NEUROTECHNOLOGY</td>
</tr>
<tr>
<td>ELEC 682</td>
<td>SPOTLIGHT ON LATEST NEUROTECHNOLOGY</td>
</tr>
<tr>
<td>NEUR 582</td>
<td>INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE</td>
</tr>
</tbody>
</table>

Total Credit Hours  6

Area of Specialization: Photonics, Electronics, and Nano-devices

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 517</td>
<td>MICROWAVE ENGINEERING</td>
</tr>
<tr>
<td>ELEC 523</td>
<td>INTRODUCTION TO MICROFABRICATION</td>
</tr>
<tr>
<td>ELEC 560</td>
<td>PHYSICS OF SENSOR MATERIALS AND NANOSensor TECHNOLOGY</td>
</tr>
<tr>
<td>ELEC 562</td>
<td>OPTOELECTRONIC DEVICES</td>
</tr>
<tr>
<td>ELEC 563 / PHYS 563</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS I</td>
</tr>
<tr>
<td>ELEC 566</td>
<td>NANOPHOTONICS AND METAMATERIALS</td>
</tr>
<tr>
<td>ELEC 567</td>
<td>NANO-OPTICS</td>
</tr>
<tr>
<td>ELEC 569 / PHYS 569</td>
<td>ULTRAFAST OPTICAL PHENOMENA</td>
</tr>
<tr>
<td>ELEC 571</td>
<td>IMAGING AT THE NANOSCALE</td>
</tr>
<tr>
<td>ELEC 572</td>
<td>FINITE ELEMENT METHOD FOR MULTIPHYSICS MODELING</td>
</tr>
<tr>
<td>ELEC 603</td>
<td>TOPICS IN NANOPHOTONICS</td>
</tr>
<tr>
<td>ELEC 605 / PHYS 605</td>
<td>COMPUTATIONAL ELECTRODYNAMICS AND NANOPHOTONICS</td>
</tr>
<tr>
<td>ELEC 660</td>
<td>QUANTUM INFORMATION SCIENCE AND TECHNOLOGY</td>
</tr>
</tbody>
</table>

Total Credit Hours  6

Policies for the MECE Degree

Department of Electrical and Computer Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Electrical and Computer Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Electrical_Computer_Engineering_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.
Departmental Transfer Credit Guidelines
Students pursuing the MECE degree should be aware of the following departmental transfer credit guidelines:

- No more than 1 course (3 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/

Opportunities for the MECE Degree
Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Electrical and Computer Engineering (MECE) degree. For additional information, students should contact their undergraduate major advisor and the MECE program director.

Additional Information
For additional information, please see the Electrical and Computer Engineering website: https://www.ece.rice.edu/

Energy and Water Sustainability
Contact Information
Energy and Water Sustainability
https://ceve.rice.edu/
713-348-4949
Jorge Loyo Rosales

Program Director
jorge.loyo@rice.edu

The interdisciplinary program in Energy and Water Sustainability is offered by the Civil and Environmental Engineering Department in collaboration with several other Rice University departments.

Sustainable development is a societal goal that challenges traditional ways of thinking and requires alternative approaches and solutions to balance environmental, economic, and social interests. Carbon management strategies and renewable resources will be key elements of energy policy for the coming decades. Similarly, the long-term viability of existing water use and human settlement patterns must be reconsidered given the effect of climate change in freshwater availability, as well as increasing competing demands for this limited resource. More generally, the dedication of materials, energy, and ecological resources will become more important in economic decision-making, while more and more members of society will demand equity in decision-making processes.

Students studying Energy and Water Sustainability will gain knowledge of both the science and policy issues associated with the evaluation of sustainable energy and water strategies that will form a cornerstone of 21st century social systems. Students completing this program will be better prepared for a global society that is attempting to understand and address the challenge of meeting basic human needs today and in the future while maintaining a functional natural system and social order.

Minor

- Minor in Energy and Water Sustainability (p. 922)

Energy and Water Sustainability does not currently offer an academic program at the graduate level.

Director
Jorge Loyo Rosales, Civil and Environmental Engineering

Undergraduate Advisors
Pedro J.I. Alvarez, Civil and Environmental Engineering
Jorge Loyo Rosales, Civil and Environmental Engineering

Steering Committee
Philip B. Bedient, Civil and Environmental Engineering
Walter G. Chapman, Chemical and Biomolecular Engineering
Daniel S. Cohan, Civil and Environmental Engineering
Kenneth R. Cox, Chemical and Biomolecular Engineering
Leonardo A. Dueñas-Osorio, Civil and Environmental Engineering
Peter Reginald Hartley, Economics
George J. Hirasaki, Chemical and Biomolecular Engineering
Qilin Li, Civil and Environmental Engineering
Caroline A. Masiello, Earth, Environmental, and Planetary Sciences
Ka-Yiu San, Bioengineering
Edmund Segner, III, Civil and Environmental Engineering
Robert M. Stein, Political Science
William W. Symes, Computational and Applied Mathematics
Mason B. Tomson, Civil and Environmental Engineering
Rick K. Wilson, Political Science
Kyriacos Zygiourakis, Chemical and Biomolecular Engineering

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend

**Note:** Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: Courses from various subjects may apply towards this program

Program Description and Code
- Energy and Water Sustainability: EWSU

Undergraduate Minor Description and Code
- Minor in Energy and Water Sustainability: EWSU

CIP Code and Description
1. **EWSU Minor: CIP Code/Title: 40.0605 - Hydrology and Water Resources Science**

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Energy and Water Sustainability

Program Learning Outcomes for the Minor in Energy and Water Sustainability

Upon completing the minor in Energy and Water Sustainability, students will be able to:

1. Apply basic economic concepts of energy and water sustainability including aspects of environmental economics and project-scale economic issues.
2. Understand basic environmental issues applicable to energy and water sustainability.
3. Conduct evaluations of social aspects from a sustainability perspective.
4. Evaluate projects and political systems from the standpoint of energy and water issues as well as more general sustainability issues.
5. Apply sustainability concepts at varying scales and viewpoints, including project level, corporate level, and municipal, state, national, and international levels.
6. Understand the role of climate change on future projects and societies.

Requirements for the Minor in Energy and Water Sustainability

Students pursuing the minor in Energy and Water Sustainability must complete:

- A minimum of 7 courses (19 credit hours) to satisfy minor requirements.
- A minimum of 6 courses (16 credit hours) taken at the 300-level or above.
- A Design Practicum.¹
- A maximum of 2 courses (6 credit hours) applied towards the minor’s Elective Requirements can be used to fulfill a student’s major requirements.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

**Total Credit Hours Required for the Minor in Energy and Water Sustainability**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

**Minor Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 301</td>
<td>ENGINEERING ECONOMICS AND PROJECT MANAGEMENT</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 480 / ENST 480</td>
<td>ENVIRONMENTAL ECONOMICS</td>
<td></td>
</tr>
<tr>
<td>CEVE 302 / ENGI 302</td>
<td>SUSTAINABLE DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>or CEVE 406 / ENST 406</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
<td></td>
</tr>
<tr>
<td>CEVE 307 / EEPS 307 / ENST 307</td>
<td>ENERGY AND THE ENVIRONMENT</td>
<td>3</td>
</tr>
</tbody>
</table>

**Design Practicum¹**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 499</td>
<td>SPECIAL PROBLEMS (at least 1 credit hour)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Elective Requirements²**

Select a total of 3 elective courses (minimum of 9 credit hours) from at least 2 of the following 3 categories:

**Energy**

Select up to 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 437 / ENST 437</td>
<td>ENERGY ECONOMICS</td>
<td></td>
</tr>
<tr>
<td>EEPS 484</td>
<td>DECISION MAKING AND ECONOMICS IN THE ENERGY INDUSTRY</td>
<td></td>
</tr>
<tr>
<td>EEPS 486</td>
<td>PETROLEUM INDUSTRY ECONOMICS AND MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>EEPS 581</td>
<td>MODERN EXPLORATION TECHNOLOGY</td>
<td></td>
</tr>
<tr>
<td>SOCI 367 / ENST 367</td>
<td>ENVIRONMENTAL SOCIOLOGY</td>
<td></td>
</tr>
</tbody>
</table>

**Water**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
Select up to 2 courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 314 / BIOE 365 / GLHT 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
</tr>
<tr>
<td>CEVE 412</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
</tr>
<tr>
<td>CEVE 444</td>
<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
</tr>
</tbody>
</table>

Sustainability

Select up to 2 courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 313 / ENST 313</td>
<td>CASE STUDIES IN SUSTAINABLE DESIGN</td>
</tr>
<tr>
<td>CEVE 406 / ENST 406</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
</tr>
<tr>
<td>CEVE 492</td>
<td>MODELING AND ANALYSIS OF NETWORKED SYSTEMS</td>
</tr>
<tr>
<td>CHBE 281 / ENST 281</td>
<td>ENGINEERING SUSTAINABLE COMMUNITIES</td>
</tr>
<tr>
<td>ENST 302 / SOCI 304</td>
<td>ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE</td>
</tr>
<tr>
<td>POLI 432</td>
<td>URBAN POLITICS</td>
</tr>
<tr>
<td>POLI 441 / ENST 441</td>
<td>GOVERNING THE ENVIRONMENTAL COMMONS</td>
</tr>
<tr>
<td>STAT 485</td>
<td>ENVIRONMENTAL STATISTICS AND DECISION MAKING</td>
</tr>
</tbody>
</table>

Total Credit Hours 19

Footnotes and Additional Information

1 Students are required to complete 1 special topics course (CEVE 499), typically during the fall semester of their senior year. Students in engineering and architecture will fulfill this requirement by preparing a report that describes the incorporation of sustainability concepts into their design effort in consultation with their senior (capstone) design course instructor. Students not engaged in a suitable design project will either consult with an extant design group or pursue a project related to their own area of study in consultation with the EWSU advisors.

2 No more than 2 electives courses can be drawn from any of the 3 electives categories. At least 1 elective course must be taken from a different school than the school hosting the student’s major. No more than 2 of the 3 electives can be used to also fulfill a student’s major requirements. Course offerings of interest that are not listed above can be approved via contacting the minor’s Official Certifier, Jim Blackburn (blackbur@rice.edu).

Energy Economics

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in Energy and Water Sustainability should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Energy and Water Sustainability website: https://ceve.rice.edu/sustainability-minor (https://ceve.rice.edu/sustainability-minor/).

Opportunities for the Minor in Energy and Water Sustainability

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Energy and Water Sustainability website: https://ceve.rice.edu/sustainability-minor (https://ceve.rice.edu/sustainability-minor/).

Energy Economics

Contact Information

Economics

https://economics.rice.edu/
408 Kraft Hall
713-348-3563

George Zodrow
Department Chair
zodrow@rice.edu

Peter Reginald Hartley
Co-Director of MEEcon Program
hartley@rice.edu

Kenneth Medlock
Co-Director of MEEcon Program
medlock@rice.edu
The Master of Energy Economics (MEEcon) is a professional master's program emphasizing applying economic theory, economic and financial modeling and analysis, and quantitative and statistical methods to provide insightful analysis of issues and policies affecting the energy industry. The program provides rigorous training in various areas including microeconomics, econometrics, economic and financial modeling, risk management, economic forecasting, geopolitics, and political economy. Students will enhance their analytical and quantitative skills and acquire the necessary energy industry knowledge to understand challenges related to technology, business, investment and regulation, and economic forecasting.

The MEEcon degree is designed to educate future leaders and strategic thinkers in the energy sector. Students develop skills to provide insightful analysis of energy markets in order to inform future market orientation, capital asset decisions and firm strategic direction. Built upon programs in the Economics Department and the Baker Institute's Center for Energy Studies (CES), the MEEcon degree provides a new avenue for energy professionals to develop human capital relevant for business development and/or strategic planning roles.

Energy Economics does not currently offer an academic program at the undergraduate level.

**Master's Program**

- *Master of Energy Economics (MEEcon) Degree* (p. 941)

**Chair, Department of Economics**

George Zodrow

**Co-Directors**

Peter Reginald Hartley
Kenneth Medlock

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata).

To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat).

**Economics (ECON)**

**ECON 100 - PRINCIPLES OF ECONOMICS**

*Short Title:* PRINCIPLES OF ECONOMICS  
*Department:* Economics  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Distribution Group:* Distribution Group II  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Introduction to the basic concepts of microeconomics and macroeconomics. Microeconomics component includes analysis of supply and demand, consumer and producer behavior, and competitive and noncompetitive market equilibria, with applications to current policy issues. Macroeconomics component provides an overview of the determination of national output, employment, interest rates, and inflation, and analyzes monetary fiscal policies and international trade. Designed for both non-majors and majors.

**ECON 101 - INTRODUCTION TO MICROECONOMICS**

*Short Title:* INTRODUCTION TO MICROECONOMICS  
*Department:* Economics  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Distribution Group:* Distribution Group II  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Introduction to microeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 111. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 111.

**ECON 103 - INTRODUCTION TO MACROECONOMICS**

*Short Title:* INTRODUCTION TO MACROECONOMICS  
*Department:* Economics  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Distribution Group:* Distribution Group II  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Introduction to macroeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 112/ECON 113. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 112/ECON 113.

**ECON 111 - AP/OTH CREDIT IN MICROECONOMICS**

*Short Title:* AP/OTH CREDIT MICROECONOMICS  
*Department:* Economics  
*Grade Mode:* Standard Letter  
*Course Type:* Transfer  
*Credit Hours:* 1-6  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Provides transfer credit based on student performance on approved examinations in microeconomics, such as the Advanced Placement microeconomics exam, the International Baccalaureate higher-level economics exams, or the A-Level economics exam, or for an approved introductory microeconomics course. Approved credit counts toward total credit hours required for graduation, but does not count for distribution or toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 101. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 101.
ECON 205 - INTRODUCTION TO GAME THEORY
Short Title: INTRODUCTION TO GAME THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides an introduction to game theory, a branch of mathematics that studies decision-making by agents in situations where the outcome for each depends on the actions taken by all. Students will develop a familiarity with analytical tools that have found applications in, for example, economics and other social sciences, biology, computer science, and philosophy. Designed for students who do not wish to major in ECON or MTEC and does not apply to ECON or MTEC major requirements. Mutually Exclusive: Cannot register for ECON 205 if student has credit for ECON 300.

ECON 209 - APPLIED ECONOMETRICS
Short Title: APPLIED ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200 (ECON 100 or ECON 200) and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Applied econometric methods: econometric theory with practical emphasis on modeling, estimation, and hypothesis testing. A computer lab one day a week focuses on empirical implementation of econometric methods using STATA software. Mutually Exclusive: Cannot register for ECON 209 if student has credit for ECON 309/ECON 446.

ECON 210 - BEHAVIORAL ECONOMICS
Short Title: BEHAVIORAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Examines behavioral economics, which seeks to insert more behavioral realism into economic theory by incorporating into economic models insights based on empirical observations from psychology, sociology, and neuroscience. Emphasizes attempts by behavioral economists to explain anomalies that depart from the predictions of standard economic theory. Topics include temptation and self-control, fairness and reciprocity, reference dependence, bounded rationality and choice under risk and uncertainty.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Restrictions</th>
<th>Credit Hours</th>
<th>Distribution Group</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 238</td>
<td>SPECIAL TOPICS</td>
<td>SPECIAL TOPICS</td>
<td>Economics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study</td>
<td>1-4</td>
<td>Distribution Group II</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 100 or ECON 200, ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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<tr>
<td>ECON 239</td>
<td>LAW AND ECONOMICS</td>
<td>LAW AND ECONOMICS</td>
<td>Economics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Distribution Group II</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 100 or ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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<tr>
<td>ECON 260</td>
<td>MICROECONOMICS AND PUBLIC POLICY</td>
<td>MICROECONOMICS &amp; PUBLIC POLICY</td>
<td>Economics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Distribution Group II</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 100 or ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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<tr>
<td>ECON 270</td>
<td>MACROECONOMICS AND PUBLIC POLICY</td>
<td>MACROECONOMICS &amp; PUBLIC POLICY</td>
<td>Economics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Distribution Group II</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 100 or ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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<tr>
<td>ECON 275</td>
<td>INTERNATIONAL MACROECONOMICS AND PUBLIC POLICY</td>
<td>INT MACRO &amp; PUBLIC POLICY</td>
<td>Economics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Distribution Group II</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 100 or ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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<tr>
<td>ECON 280</td>
<td>TRANSPORTATION, INFRASTRUCTURE AND LOGISTICS</td>
<td>TRANSPORT, INFRASTRU &amp; LOGISTS</td>
<td>Economics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Internship/Practicum</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 100 or ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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<tr>
<td>ECON 299</td>
<td>EXPERIENTIAL EDUCATION IN ECONOMICS</td>
<td>EXPERIENTIAL EDUC IN ECONOMICS</td>
<td>Economics</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Internship/Practicum</td>
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<td>1</td>
<td>Internship/Practicum</td>
<td>Undergraduate Lower-Level</td>
<td>ECON 200</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
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</table>

2021-2022 General Announcements PDF Generated 09/22/21
ECON 307 - PROBABILITY AND STATISTICS
Short Title: PROBABILITY & STATISTICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102 or MATH 106
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Cross-list: STAT 310. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for ECON 307 if student has credit for BUSI 395.

ECON 308 - MATHEMATICAL ECONOMICS
Short Title: MATHEMATICAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 209 and ECON 308
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: STAT 376. Mutually Exclusive: Cannot register for ECON 308 if student has credit for ECON 409/STAT 401.

ECON 310 - ECONOMETRICS
Short Title: ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 209 and ECON 308
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: STAT 376. Mutually Exclusive: Cannot register for ECON 310 if student has credit for ECON 409/STAT 400.

ECON 320 - PUBLIC POLICY AND SOCIAL PROGRAM EVALUATION
Short Title: EVALUATION OF SOCIAL PROGRAMS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 307 or STAT 310 or STAT 315 or SOSC 302
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: STAT 376. Mutually Exclusive: Cannot register for ECON 310 if student has credit for ECON 409/STAT 400.
ECON 343 - CORPORATE FINANCE
Short Title: CORPORATE FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 100 or ECON 200) and (STAT 280 or STAT 305 or STAT 310 or STAT 315 or ECON 307 or STAT 312 or PSOC 305 or PSYC 339 or SOSC 302) and BUSI 305
Description: Corporate financial management including tools used to evaluate and select investment projects and the method of financing those investments. The influence of corporate control on investment decisions. The valuation of stocks, bonds and options using the time value of money, the trade-off between risk and return, and arbitrage. Mutually Exclusive: Cannot register for ECON 343 if student has credit for BUSI 343.

ECON 355 - FINANCIAL MARKETS
Short Title: FINANCIAL MARKETS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Principles governing U.S. and international equity and debt markets, and the interactions between such markets and national monetary and exchange rate policies. Focuses on the role of financial markets and institutions in the allocation and transfer of credit and risk, and examines various existing and suggested regulatory frameworks.

ECON 365 - WORLD ECONOMIC HISTORY
Short Title: WORLD ECONOMIC HISTORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 100 and ECON 200 and ECON 203
Description: Study and analysis of world economy focusing on the economic expansion of Western countries between the 14th and 21st centuries. Emphasis on contextual changes in economy, geography, history, society, culture, religion and politics in determining economic leadership of certain economies, such as Italy, Portugal, Spain, the United Kingdom, Belgium, the Netherlands, France, Germany, Sweden, the United States and Japan. Cross-list: HIST 365.

ECON 399 - INDEPENDENT RESEARCH
Short Title: INDEPENDENT RESEARCH
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and ECON 209 and (ECON 300 or ECON 305)
Description: Independent research project under the supervision of a faculty member who must approve the topic. Consult the department website under "Independent Research" for additional details. Students must have a GPA of 3.0 or higher in the prerequisite courses and must have taken the 400-level course or courses most relevant to the research topic. Faculty advisors may require additional prerequisites. Instructor and department permission required. Not offered during the summer. Instructor Permission Required.

ECON 415 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and "hedonic" equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 515. Mutually Exclusive: Cannot register for ECON 415 if student has credit for ECON 515.

ECON 418 - ECONOMIC FORECASTING
Short Title: ECONOMIC FORECASTING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and ECON 209
Description: Application of econometric techniques to problems in macroeconomics and financial economics. The course focuses on macroeconomic forecasting and test of economic theories using stationary and non-stationary time-series data. Methods include predictive regressions, vector autoregressions, impulse response functions, and variance decomposition. Tests and comparisons of forecast accuracy are also included. Projects will be completed in STATA.
ECON 419 - ADVANCED TOPICS IN ECONOMETRICS  
**Short Title:** ADV TOPICS IN ECONOMETRICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 310 or STAT 376  
**Description:** Introduction to advanced econometrics, with an emphasis on methods used in microeconomic applications. Methods covered are used in the estimation of the demand for goods and services, production functions, and for analyzing the impact of social programs.  

ECON 422 - INTERNATIONAL ECONOMICS AND FINANCE  
**Short Title:** INTERNATIONAL ECON & FINANCE  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200 and ECON 203  
**Description:** Studies the economic relationships among countries. Explores the sources of comparative advantage and reasons for trade policies. Examines foreign exchange and international capital markets and linkages between exchange rates, interest rates, and prices. Includes trade theory, tariffs, and other trade restrictions, an overview of historical and institutional developments, and current policy issues. Mutually Exclusive: Cannot register for ECON 422 if student has credit for ECON 420/ECON 421.  

ECON 423 - ADVANCED TOPICS IN LAW AND ECONOMICS  
**Short Title:** ADV TOPICS IN LAW AND ECON  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200  
**Description:** Addresses the role of economics in understanding the legal system, in particular how the law allocates entitlements and risk in property, tort and contract law. Intended primarily for students who are considering attending law school and uses instruction methods appropriate for that goal.  

ECON 437 - ENERGY ECONOMICS  
**Short Title:** ENERGY ECONOMICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200  
**Description:** Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Cross-list: ENST 437. Graduate/Undergraduate Equivalency: ECON 601. Mutually Exclusive: Cannot register for ECON 437 if student has credit for ECON 601.  

ECON 439 - ADVANCED TOPICS IN LAW AND ECONOMICS  
**Short Title:** ADV TOPICS IN LAW AND ECON  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200  
**Description:** Addresses the role of economics in understanding the legal system, in particular how the law allocates entitlements and risk in property, tort and contract law. Intended primarily for students who are considering attending law school and uses instruction methods appropriate for that goal.  

ECON 441 - EMPIRICAL METHODS FOR INDUSTRIAL ORGANIZATION  
**Short Title:** EMPIRICAL METHODS FOR IO  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200 and ECON 209  
**Description:** Covers empirical methods for the analysis of markets and industries. Focuses on various topics related to incomplete information in industrial organization. Topics include markets, strategy, interactions among firms, and the pricing of products, including non-linear pricing.

ECON 450 - INDUSTRIAL ORGANIZATION  
**Short Title:** INDUSTRIAL ORGANIZATION  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 300 or ECON 305 and (ECON 209 or ECON 310)  
**Description:** A mathematical approach to topics in industrial organization and market design, including price discrimination, oligopoly, collusion, and auctions.
ECON 443 - FINANCIAL ECONOMICS
Short Title: FINANCIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 305 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Economic analysis of the operation of financial markets from a mathematical and theoretical perspective. Topics include asset pricing, risk management, portfolio theory, arbitrage theory, and market efficiency. Emphasizes the application of the financial concepts to decisions faced by households and firms.

ECON 444 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Application of economics to the determination of the profitability of the firm. Includes organization theory and problems of control. A student may not receive credit for ECON 445 and ECON 245/POLI 245.

ECON 449 - PRINCIPLES OF FINANCIAL ENGINEERING
Short Title: FINANCIAL ENGINEERING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 308 or MATH 211) and MATH 212 and (ECON 310 or STAT 376)
Description: Covers the use of financial securities and derivatives to take or hedge financial risk positions, including most commonly used instruments, from simple forwards and futures to exotic options and swaptions. Studies the pricing of derivative securities with emphasis on the mechanics and uses of financial engineering methods. Mutually Exclusive: Cannot register for ECON 449 if student has credit for STAT 449.

ECON 450 - ECONOMIC DEVELOPMENT
Short Title: ECONOMIC DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: This course covers different dimensions of economic development, focusing on poverty, inequality, demography, and health. It provides an overview of the economies of less developed countries, the lives of the poor, and the theories for why some countries are rich and others are poor. It also describes how labor and credit markets function in poor countries, the consequences for health and education, and the role of institutions.

ECON 452 - RELIGION, ETHICS, AND ECONOMICS
Short Title: RELIGION, ETHICS, & ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Reviews economic models of the demand, supply, and markets for religion, including the effects of economic conditions on religious choice and vice versa. Students will write a term paper on topics of their choosing, subject to professor’s approval. Recommended Prerequisite(s): ECON 209 or ECON 310 or STAT 376.

ECON 455 - MONEY AND BANKING
Short Title: MONEY AND BANKING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: Micro-foundations of monetary, fiscal and financial theory. Examines the unique roles of money and of banking in providing the transactions mechanism and in the functioning of financial markets. Explains the use of valued fiat, unbacked money which appears to violate basic microeconomics, in the context of Samuelson’s overlapping generations model, including the implications for monetary and fiscal policy and for inflation. Discusses bank runs and financial instability.
ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 470 - MARKET DESIGN
Short Title: MARKET DESIGN
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Regulators, entrepreneurs and economists have recently been involved in the design of novel markets for radio spectrum, kidneys, on-line advertising, school choice, etc. This course utilizes game theory to provide the theoretical underpinning of such markets via real world examples, including the study of institutional details that can determine the success or failure of a market.

ECON 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture, Laboratory, Internship/Practicum, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ECON 479 - ECONOMIC MODELING AND PUBLIC POLICY
Short Title: ECONOMIC MODLG & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Examines the use of computational dynamic models to analyze the effects of economic policy reforms. Introduces computer programming methods to simulate household and firm behavior in partial and general equilibrium frameworks. Policy evaluation includes personal and corporate income taxes, Social Security, retirement savings incentives, and social insurance programs.

ECON 480 - ENVIRONMENTAL ECONOMICS
Short Title: ENVIRONMENTAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Uses economic theories of externalities and common property resources to analyze how markets, legal institutions, regulations, taxes and subsidies, and voluntary activity can affect the supply of environmental amenities, such as clean air, clean water, and wilderness areas. Also discusses methods for determining the demand for environmental amenities. Cross-list: ENST 480.

ECON 481 - HEALTH ECONOMICS
Short Title: HEALTH ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 209 or ECON 310 or STAT 376)
Description: Study of determinants of health, including behavioral, economic and social factors and access to health care. Application of economics to understand health insurance, the hospital and physician markets, pharmaceuticals, and the health care system. Effects of regulation and methods of payment. Graduate/Undergraduate Equivalency: ECON 565. Mutually Exclusive: Cannot register for ECON 481 if student has credit for ECON 565.
ECON 483 - PUBLIC FINANCE  
Short Title: PUBLIC FINANCE  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: Provides an economic analysis of tax policy, focusing on the current national debate regarding the relative merits of income and consumption-based taxes in terms of equity, efficiency, and simplicity. Analyzes tax effects on individual and business behavior and discusses general equilibrium modeling of the economic and distributional effects of alternative tax reforms. Special topics include optimal taxation, taxation of the family, estate taxation, taxation of electronic commerce, and state and local public finance.

ECON 484 - PUBLIC ECONOMICS  
Short Title: PUBLIC ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and MATH 212  
Description: Theory and evidence on government expenditure policy. Topics include the theory of public goods, education, state and local public goods, redistribution and welfare policy, cost-benefit analysis, social insurance programs such as social security and unemployment insurance, and health care policy.

ECON 485 - THE ECONOMICS OF SUSTAINABILITY, CONSERVATION, AND PANDEMICS  
Short Title: ECON, CONSERVATION & PANDEMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: This course will cover issues related to conservation, sustainability and pandemics from an economics point of view. Topics will include the need for conservation policies and planning, how science informs conservation strategies, incentives and the design of conservation agreements, and the role of deforestation and wildlife markets in pandemic emergence. Policies to reduce the likelihood of pandemic emergence, as well as the effects of pandemics like influenza, HIV, and COVID-19 on the global economy will also be discussed. Recommended Prerequisite(s): MATH 212

ECON 489 - ECONOMICS OF SOCIAL NETWORKS  
Short Title: ECONOMICS OF SOCIAL NETWORKS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and ECON 209  
Description: This course introduces research on social networks and analyzes how these networks affect our choices: the products we buy, the careers we follow, whom we marry, how we raise our children. Students will learn about network measurement and formation and the influence of social networks on our decisions.

ECON 496 - RESEARCH IN ECONOMIC THEORY  
Short Title: RESEARCH IN ECONOMIC THEORY  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305  
Description: Capstone course for MTEC majors whose primary interest is in economic theory. Review and analysis of seminal and current research in economic theory, including independent analysis by the student. Topics vary from year to year.

ECON 497 - RESEARCH IN ECONOMETRICS  
Short Title: RESEARCH IN ECONOMETRICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305  
Description: Capstone course for MTEC majors whose primary interest is in econometrics. Review and analysis of seminal and current research in econometrics, including independent analysis by the student. Topics vary from year to year.
ECON 498 - HONORS PROGRAM IN ECONOMICS-I
Short Title: HONORS PROGRAM IN ECONOMICS-I
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 203 and (ECON 209 or ECON 310) and (ECON 300 or ECON 305)
Description: Research workshop open to ECON and MTEC majors. Students must have a GPA of at least 3.67 in all courses taken toward satisfying major requirements, and must have taken all ECON courses directly related to the topic of their research. Students develop a research idea, construct an economic model with testable hypotheses, test those hypotheses, and write and present an academic quality paper. Econometrics prerequisite is ECON 209 for ECON majors and ECON 310 for MTEC majors.

ECON 499 - HONORS PROGRAM IN ECONOMICS-II
Short Title: HONORS PROGRAM IN ECONOMICS-II
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 498
Description: Continuation of ECON 498. University credit only.

ECON 501 - MICROECONOMICS I
Short Title: MICROECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal mathematical treatments of the classic topics in microeconomics: consumer and producer theory, choice under risk and uncertainty, revealed preference theory and general equilibrium theory. Introduces and uses mathematical tools that are the workhorses of economic theory: real analysis, constrained optimization, monotone comparative statics and fixed point theorems.

ECON 502 - MACROECONOMICS
Short Title: MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of static general equilibrium theory; elements of functional analysis for optimization; deterministic and stochastic difference equations, local stability analysis; introduction to Markov processes; dynamic optimization techniques, including stochastic optimal control theory, dynamic programing, and robust control; applications to growth theory, search, industrial organization, and monetary economics; dynamic stochastic general equilibrium modeling.

ECON 504 - COMPUTATIONAL ECONOMICS
Short Title: COMPUTATIONAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 505 and ECON 508 and ECON 510 and ECON 511 and MATH 321
Description: Numerical methods most commonly used in economics and their application to frontier research projects in economic modeling. Topics include optimization theory and numerical integration. Cross-list: STAT 604.

ECON 505 - FINANCIAL ECONOMICS I
Short Title: FINANCIAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502
Description: Introduction to asset pricing and portfolio choice theory. Covers mathematical analysis of single-period and dynamic models, including pricing by arbitrage, mean-variance analysis, factor models, dynamic optimization, recursive utility, and an introduction to continuous-time finance. Cross-list: BUSI 521.

ECON 507 - MATHEMATICAL ECONOMICS I
Short Title: MATHEMATICAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to provide the first-year PhD students in Economics with the essential mathematical tools. The course covers topics in real analysis, topology, linear algebra, etc. Aside from providing the mathematical tools, a primary aim of this course is to develop the level of mathematical sophistication necessary to conduct research in modern economics. The course will therefore emphasize logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs.

ECON 508 - MICROECONOMICS II
Short Title: MICROECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and MATH 321
Description: Two modules: (1) Introduces students to the mathematical tools of game theory and the modeling of economic settings as games. Covers normal form games, extensive form games with perfect information, Bayesian games, and extensive form games with imperfect information; (2) introduces students to information economics and the theory of mechanism design. Applies tools from game theory and linear and non-linear
ECON 509 - TOPICS IN MICROECONOMICS
Short Title: TOPICS IN MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Discussion of selected topics in microeconomic theory. Repeatable for credit. The Spring 2021 topic was Psychology and Economics, especially individual choice under risk and uncertainty, reference-dependent preferences, temptation and self-control, other-regarding preferences, behavioral game theory, and bounded rationality. Repeatable for Credit.

ECON 510 - ECONOMETRICS I
Short Title: ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on critical analysis of the literature. Cross-list: STAT 610.

ECON 511 - ECONOMETRICS II
Short Title: ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: STAT 611.

ECON 512 - INTERNATIONAL TRADE THEORY
Short Title: INTERNATIONAL TRADE THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 511 or STAT 610
Description: Examination of classical, neoclassical, and modern trade theory. Includes welfare aspects of trade such as the theory of commercial policy, with emphasis on applications.

ECON 514 - EMPIRICAL INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL INDUSTRIAL ORGANIZAT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include structural analysis of auction, nonlinear pricing, insurance and bargaining data. Emphasizes the use of advanced econometric methods (nonparametric and semiparametric) to estimate and test models under incomplete information.

ECON 515 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Mathematical and statistical analysis of empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and “hedonic” equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 415. Mutually Exclusive: Cannot register for ECON 515 if student has credit for ECON 415.

ECON 516 - EMPIRICAL MICROECONOMICS
Short Title: EMPIRICAL MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 516
Description: Overview of methods used in empirical microeconomic research. Examples are drawn from health economics, law and economics, and business economics. Emphasis is placed on designing econometric and statistical analyses to test economic hypotheses. Class projects will expand on analyses from previously published studies.

ECON 517 - EMPIRICAL INDUSTRIAL ORGANIZATION II
Short Title: EMPIRICAL INDUSTRIAL ORG II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 509
Description: Examines economic models of competition and industry structure. These include models of demand, supply, investment and entry. Special attention is paid to economic statistical modeling of industries and the use of price and game theory in industrial organization. Matching and market design are also covered.
ECON 518 - INTERNATIONAL MACROECONOMICS
Short Title: INTERNATIONAL MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Effects of fiscal and monetary policies on exchange rates and the current account and balance of payments. Includes exchange market efficiency, exchange rates and prices, LDC debt, and policy coordination.

ECON 519 - ECONOMIC GROWTH AND DEVELOPMENT
Short Title: ECONOMIC GROWTH & DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511
Description: Mathematical and statistical analysis of topics in microeconomic development and introduction to some frequently used applied econometric methods. Topics covered include poverty and inequality, health, education, fertility, marriage markets, and other gender issues. Special focus is given to intra-household bargaining models and their applications.

ECON 521 - MATCHING AND MARKET DESIGN
Short Title: MATCHING AND MARKET DESIGN
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511
Description: This course begins with an overview of different matching markets (e.g., one-to-one or many-to-one AND with or without transfers AND centralized or decentralized) and the common empirical models; it then provides a relatively in-depth discussion of market design, both theoretical and empirical, for school choice and kidney transplants.

ECON 522 - PUBLIC ECONOMICS: TAX POLICY
Short Title: PUBLIC ECONOMICS: TAX POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the effects of taxation on individual and firm behavior, general equilibrium tax incidence analysis, optimal taxation theory, optimal implementation of tax reform, analysis of comprehensive income, and consumption taxes.

ECON 523 - DYNAMIC OPTIMIZATION
Short Title: DYNAMIC OPTIMIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of dynamic optimization in discrete and continuous time, including numerical methods and applications to macroeconomics, finance and resource and energy economics.

ECON 547 - ADVANCED TOPICS IN ENERGY ECONOMICS
Short Title: ADV TOPICS IN ENERGY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ECON 301 or ECON 370) and (ECON 309 or ECON 446 or ECON 409 or ECON 400 or STAT 400) and ECON 437
Description: A detailed development and analysis of topics in energy modeling. Topics include optimal extraction of depletable resources, models of storable energy commodities, energy demand by end-use sector, models of non-competitive behavior, energy security and the relationship between energy and commodity prices. ECON 547 requires an additional assignment in addition to the assignments of ECON 447. Recommended Prerequisite(s): ECON 477 or ECON 401. Mutually Exclusive: Cannot register for ECON 547 if student has credit for ECON 447/ECON 604.

ECON 556 - HEALTH ECONOMICS
Short Title: HEALTH ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Application of empirical and theoretical economic models to health and healthcare. Includes production, cost, demand and supply factors; methods of payment and effects of regulation. Topics include optimal design of health insurance markets, cost-benefit analysis of healthcare technologies, econometric evaluation of government regulations and reimbursement in the healthcare sector, and testing of hypothesis that explain rising prices and costs of healthcare. Graduate/Undergraduate Equivalency: ECON 481. Mutually Exclusive: Cannot register for ECON 556 if student has credit for ECON 481.
ECON 575 - TOPICS IN FINANCIAL ECONOMICS
Short Title: TOPICS IN FINANCIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 505
Description: Topics in asset pricing, corporate financial theory, and market microstructure, including asymmetric information, learning, heterogeneous priors, market frictions, nonstandard preferences, production models, q theory, real options, dynamic capital structure, quote-driven markets, order-driven markets, and dealer markets. Repeatable for Credit.

ECON 576 - TOPICS IN MACROECONOMICS
Short Title: TOPICS IN MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion topics in macroeconomics. Repeatable for Credit.

ECON 577 - TOPICS IN ECONOMIC THEORY I
Short Title: TOPICS IN ECONOMIC THEORY I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of topics in advanced economic theory. Repeatable for Credit.

ECON 578 - TOPICS IN ECONOMETRICS I
Short Title: TOPICS IN ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics in advanced econometrics. Repeatable for Credit.

ECON 579 - TOPICS IN ECONOMETRICS II
Short Title: TOPICS IN ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 511
Description: Discussion of selected topics in advanced econometrics that focus on the mathematical and statistical modeling of such phenomena as (1) extended panel data methods; (2) spatial econometrics; (3) bootstrapping; (4) factor models, wavelets, smoothing-splines, sieves; (5) model averaging; (6) continuous and discrete dynamic programming models; (7) econometrics of auctions; (8) BLP methods of demand estimation; (9) structural and non-structural models of producer behavior; (10) point and set identification; (11) Bayesian Econometrics/Metropolis-Hastings MCMC algorithms. Repeatable for Credit.

ECON 592 - TOPICS IN POLICY AND APPLIED ECONOMICS
Short Title: TOP-POLICY&APPL'D ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics and applied economics. Repeatable for Credit.

ECON 593 - WORKSHOP IN MICROECONOMICS
Short Title: WORKSHOP IN ECONOMICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 510 and ECON 505 and ECON 508 and ECON 511
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit. Repeatable for Credit.

ECON 594 - WORKSHOP IN ECONOMICS II
Short Title: WORKSHOP IN ECONOMICS II
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508 and ECON 510
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit. Repeatable for Credit.
ECON 596 - RESEARCH SEMINAR
Short Title: RESEARCH SEMINAR
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervises fourth-year and fifth-year Ph.D. students in their quantitative dissertation research in preparation for graduation. Students must present their own research at least once during the semester. Repeatable for Credit.

ECON 597 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Workshop prepares graduate students for completing innovative and original research. All second year graduate students must attend the workshop. Each week, a faculty member will give a brief lecture about their experience with research. Possible topics include how they came up with ideas, how those ideas evolved and became papers, how these papers proceeded through the publication process, etc. Alternatively, faculty members can present a broad overview of particular research areas and discuss outstanding questions in those areas. Instructor Permission Required. Repeatable for Credit.

ECON 598 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Prepares second-year Ph.D. students to conduct quantitative research. After a critical review of existing economic models, statistical analysis of data and economic evaluations, students develop their own research agenda. Repeatable for Credit.

ECON 599 - SEMINAR WORKSHOP
Short Title: SEMINAR WORKSHOP
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Promotes graduate students’ attendance and active participation in the Econ 593 and Econ 594 seminar workshops. Each student is required to attend at least fifteen ECON 593/594 seminars per semester, write a brief report on each seminar presentation they attend, prepare to present a background paper for three of the seminars they plan to attend, and participate in post seminar discussions. Repeatable for Credit.

ECON 601 - ENERGY ECONOMICS I
Short Title: ENERGY ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces the energy sector to students, discusses key aspects of energy supply, demand and pricing, and is foundational for the MEECON degree. Topics include optimal extraction of depletable resources, investment in energy-using capital, trade of energy commodities, storage, end-use demand and energy efficiency, and the relationship between economic activity, energy and the environment. Students learn to apply dynamic optimization, linear programming and econometric techniques in addressing the course topics. Graduate/Undergraduate Equivalency: ECON 437. Mutually Exclusive: Cannot register for ECON 601 if student has credit for ECON 437.

ECON 602 - MICROECONOMICS OF THE ENERGY SECTOR
Short Title: MICROECONOMICS - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Covers basic microeconomic concepts and applies them to contemporary issues in the energy sector. Topics covered include demand and supply analysis, market equilibrium and different market structures, international trade, investment and capacity expansion, risk and investment finance, and economic analysis of energy policy including environmental policy. This course enables students to apply quantitative microeconomic theory in order to make data-driven recommendations to case studies presented by industry partners.

ECON 603 - APPLIED ECONOMETRICS FOR ENERGY MARKETS
Short Title: APPLIED ECONOMETRICS ENGY MKTS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Students will be introduced to basic concepts in statistical analysis and how to use statistical tools to analyze economic data and test economic theories. The course includes a laboratory session where students practice using the tools discussed in lectures with data that is particularly relevant to the energy industry.
ECON 602 - ENERGY ECONOMICS II
Short Title: ENERGY ECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Examines the investment decisions of corporations, the valuation of stock, bonds and options investments by individual investors. The implications of investor decisions for corporations, and specifically the manner in which they evaluate investment projects and finance investments are a core focus. Examples and case studies focus on the energy sector. Students will increase their understanding of financing and investment decision as the relate to energy companies and energy related projects using analytical and mathematical techniques to make data-driven recommendation to real-world problems.

ECON 603 - THE ECONOMICS OF ENERGY AND THE ENVIRONMENT
Short Title: ECON OF ENERGY & ENVIRONMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course introduces quantitative risk management techniques often employed in the energy industry. It covers topics such as real options, value at risk, conditional value at risk, and expected shortfall, as well as the use of derivatives for trading and hedging various risk exposures. The course is methodologically self-contained and provides students with hands-on experience with state-of-the-art software to measure and manage risk-adjusted returns of heterogeneous asset portfolios.

ECON 604 - ENERGY ECONOMICS II
Short Title: Energy Economics II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Examines a variety of topics in energy modeling and energy data analysis. Topics include optimal extraction of depletable resources, game theoretic approaches to OPEC behavior, national oil company behavior, models of storable energy commodities and energy demand by end-use sector, energy security and fundamental drivers of commodity prices. This course tasks students to expand on the dynamic optimization problems and econometric techniques applied to energy economics. Mutually Exclusive: Cannot register for ECON 604 if student has credit for ECON 547.

ECON 605 - TAXATION IN THE ENERGY SECTOR
Short Title: TAXATION IN THE ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces basic principles of taxation, and general equilibrium modeling of the economic effects of taxes, and applies them to federal and state taxes on the energy sector. Topics include royalties resource rent taxes, corporate income taxes including international tax issues such as transfer pricing and income shifting, excess profit taxes, production-sharing agreements, and environmental taxes. Students will formulate, implement, and use quantitative models to solve problems related to private and public decision making in the context of taxes applied to U.S. energy systems.

ECON 606 - CORPORATE FINANCE FOR THE ENERGY SECTOR
Short Title: CORP FINANCE - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Examines a variety of topics in energy modeling and energy data analysis. Topics include optimal extraction of depletable resources, game theoretic approaches to OPEC behavior, national oil company behavior, models of storable energy commodities and energy demand by end-use sector, energy security and fundamental drivers of commodity prices. This course tasks students to expand on the dynamic optimization problems and econometric techniques applied to energy economics. Mutually Exclusive: Cannot register for ECON 604 if student has credit for ECON 547.

ECON 607 - THE ECONOMICS OF ENERGY AND THE ENVIRONMENT
Short Title: ECON OF ENERGY & ENVIRONMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses connections between energy and economic activity at the regional, national, and international level, and especially the role of energy shocks in economic fluctuations, innovations in energy supply as drivers of regional economic growth, and the role of energy commodities in transportation and international trade.
ECON 611 - GEOPOLITICS OF ENERGY
Short Title: GEOPOLITICS OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Explores the geopolitical issues around energy security and trade by focusing on role of energy as the world's largest business and a strategic requirement of the modern nation-state, a source of power in international relations, and a major influence on national politics and institutions. This course equips students with the analytical skills to inform policy debates, advocate for the interests of principals, and advise policy makers and firms amid rapid changes in energy markets. Students learn both to produce sound empirical analysis by employing state of the art econometric techniques and to be discerning consumers of empirical research.

ECON 612 - ENERGY PROJECT DEVELOPMENT
Short Title: ENERGY PROJECT DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course will cover the development of energy projects, especially electric power projects, from inception through to financing. It examines key issues such as: siting/permitting, including compliance with federal, state and local environmental and regulatory issues; fuel supply agreements; capital cost pricing; off-take agreements; and the various methods of project financing. Microsoft Excel is used for project financial analysis, including revenue and cost modeling, debt management, project net cash flow, project internal rate of return and net present value. The course also will cover strategies to monetize the project including development fees, carried equity, and private and public sale of equity, including initial public offerings ("IPOs").

ECON 613 - INTERNATIONAL TRADE IN ENERGY
Short Title: INTERNATIONAL TRADE IN ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course explores the effects of international trade and the determinants of the amount of trade between countries in energy commodities, and the role of international capital flows in financing energy projects, in particular. It will also discuss the many ways that governments can alter international trade through various policies.

ECON 614 - POLITICAL ECONOMY OF OIL IN DEVELOPING COUNTRIES
Short Title: POLITICAL ECONOMY OF OIL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course evaluates the political and economic determinants of oil and gas policies in developing countries and their impact on world markets, the interaction between states and oil companies, the challenges of oil wealth management, and the causal links between resource dependency, development, institutions, and political regimes. Although the main focus is on oil production, natural gas is also analyzed, and both are compared to other natural resources. Emphasis is on the analysis of institutional change and the functions of institutional change in the energy industry using data-driven methods to examine case studies.

ECON 615 - SOCIAL STUDIES OF ENERGY
Short Title: SOCIAL STUDIES OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Investigate the ways in which energy production and consumption impacts social life. By studying the implementation and use of renewable and non-renewable energy infrastructures in different parts of the world, the students will develop a contextual, self-reflexive and critical lens that will help them make decisions in later stages of their careers.

ECON 620 - INDUSTRIAL ORG & THE ENERGY SECTOR
Short Title: INDUSTRIAL ORG & ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: The course will discuss monopoly, oligopoly, and the underlying sources of monopoly power in energy industries and how the industries can be restructured to isolate the monopoly elements from the more competitive ones. Other topics include price discrimination, vertical control, mergers and acquisitions, and strategic behavior between firms.
ECON 621 - THE ECONOMICS OF THE ELECTRICITY INDUSTRY
Short Title: ELECTRICITY INDUSTRY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses the determinants of the cost of electricity, the effects of organizing the industry in different ways, the need to encourage sufficient investment in reserve capacity, and the use of information technology to allow for new ways of pricing electricity, operating the network and coordinating supply and demand. Students will learn to analyze the behavior of power markets, the effect of different policies, and draw empirical solutions to the real-world issues.

ECON 622 - TRANSPORTATION ECONOMICS
Short Title: TRANSPORTATION ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses transportation as a major source of energy demand in modern post-industrial economies and of future demands in emerging economies. Emphasizes that the demand for energy use in the transportation sector involves modeling household choices, economic growth and demographic transition, government decisions to support transportation infrastructure development, and the introduction of new technologies. Students will apply problem solving and analytical skills to perform calculations related to transportation energy and its environmental impact.

ECON 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ECON 699 - PRACTICUM
Short Title: PRACTICUM
Department: Economics
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Projects developed by an industry advisory group to be researched and presented to participating industry at completion of all course work. Internships with an approved employer may be substituted. Emphasis on skill building components may include: analyzing data for accuracy and reconciliation across different sources, quantitative analysis and risk assessment of a firm's portfolio of assets and capital investment opportunities, and briefing expert and non-expert audiences.

ECON 700 - DEPARTMENTAL SERVICE COURSE
Short Title: DEPARTMENTAL SERVICE COURSE
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In each semester in which students perform departmental service, they need to register in the departmental service course Econ 700. Students must meet their faculty supervisors as early as possible before the semester starts and regularly during the semester to ensure there is a mutual understanding of the job responsibilities.

ECON 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assists students in the dissertation writing process. Students must write an independent and original piece of quantitative research that is of sufficient quality to merit publication in an academic economics journal. Towards this objective, faculty mentor evaluate and critique the research of PhD students who are either preparing research before formally selecting a dissertation topic or actively engaged in dissertation research. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: ECON

Department Description and Code
• Economics: ECON

Graduate Degree Description and Code
• Master of Energy Economics degree: MEEcon
Graduate Degree Program Description and Code

- Degree Program in Energy Economics: ENEC

CIP Code and Description ¹

- ENEC Major/Program: CIP Code/Title: 45.0603 - Econometrics and Quantitative Economics

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Energy Economics (MEEcon) Degree

Program Learning Outcomes for the MEEcon Degree

Upon completing the MEEcon degree, students will be able to:

1. Understand and apply basic economic, scientific, political, and statistical principles useful for analyzing and understanding energy markets.
2. Apply quantitative skills, including econometric models and statistical software, to better utilize data to critique, analyze, and report results of industry-related issues and inform strategic decisions.
3. Be better able to communicate insights arising from the economics perspective on issues affecting the energy sector.

Requirements for the MEEcon Degree

The MEEcon degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MEEcon degree must complete:

- A minimum of 40 credit hours to satisfy degree requirements.
- A minimum of 40 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 40 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum residency enrollment of 2 semesters of full-time graduate study at Rice University.
- A minimum of 2 semesters of full-time graduate study at Rice University.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Credit Hours Required for the MEEcon Degree</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 601</td>
<td>ENERGY ECONOMICS I</td>
<td>4</td>
</tr>
<tr>
<td>ECON 602</td>
<td>MICROECONOMICS OF THE ENERGY SECTOR</td>
<td>4</td>
</tr>
<tr>
<td>ECON 603</td>
<td>APPLIED ECONOMETRICS FOR ENERGY MARKETS</td>
<td>4</td>
</tr>
<tr>
<td>ECON 604</td>
<td>ENERGY ECONOMICS II</td>
<td>4</td>
</tr>
<tr>
<td>ECON 606</td>
<td>CORPORATE FINANCE FOR THE ENERGY SECTOR</td>
<td>4</td>
</tr>
<tr>
<td>ECON 610</td>
<td>ENERGY AND THE MACROECONOMY</td>
<td>4</td>
</tr>
<tr>
<td>ECON 699</td>
<td>PRACTICUM ²</td>
<td>4</td>
</tr>
</tbody>
</table>

Elective Requirements ³

Select 3 courses as electives from departmental (ECON) course offerings selected from any course between ECON 605 and ECON 622 (except ECON 606 and ECON 610, which are required)

Total Credit Hours | 40

Footnotes and Additional Information

¹ The summer prior to the student’s first fall semester, an online "Math and Statistics Camp" (hosted by the Economics department and Rice Online Learning) must be successfully completed as a required prerequisite to Core Requirements.

² A practicum or internship is required for completion of the MEEcon professional master’s degree. It can be taken in either the Spring or Summer Session. The practicum will provide students with practical experience relative to the degree. Students will work on projects developed by an industry advisory group. The research will be presented to participating industry advisors at the completion of the degree program. The projects will provide prospective employers with an opportunity to evaluate new talent effectively. As an alternative to the practicum, students may complete an internship with an approved special project with an employer. The internship is meant to last a minimum of 7 weeks and should be directly related to the student’s core area of study in the MEEcon degree program. Spring internships start on the first day of Spring classes.

³ See Proposed Plan-of-Study below. Students may complete either 2 electives in Session II, or complete 1 elective each in both Sessions II and III.

Proposed Plan-of-Study

The MEEcon degree program is completed in 12 months and is organized in four sessions. Sessions I and II correspond to the Fall and Spring semesters, respectively, and follow the standard Rice Academic Calendar (https://registrar.rice.edu/calendars/). Sessions III and IV are two...
consecutive 7-week long sessions that take place during the subsequent summer semester. All courses (including required courses and electives) are graduate-level courses, numbered 500-level and above.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session I (Fall Semester)</td>
<td>ECON 601 ENERGY ECONOMICS I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ECON 602 MICROECONOMICS OF THE ENERGY SECTOR</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ECON 603 APPLIED ECONOMETRICS FOR ENERGY MARKETS</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ECON 606 CORPORATE FINANCE FOR THE ENERGY SECTOR</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>16</strong></td>
</tr>
<tr>
<td>Session II (Spring Semester)</td>
<td>ECON 604 ENERGY ECONOMICS II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ECON 610 ENERGY AND THE MACROECONOMY</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ECON 699 PRACTICUM</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Elective one</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective one</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>16</strong></td>
</tr>
<tr>
<td>Session III (Summer I)</td>
<td>Elective two</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>Session IV (Summer II)</td>
<td>ECON 699 PRACTICUM</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Elective three</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. A practicum or internship is required for completion of the MEEcon professional master’s degree. It can be taken in either Session II (Spring Semester) or Session IV (Summer II). The practicum will provide students with practical experience relative to the degree. Students will work on projects developed by an industry advisory group. The research will be presented to participating industry advisors at the completion of the degree program. The projects will provide prospective employers with an opportunity to evaluate new talent effectively. As an alternative to the practicum, students may complete an internship with an approved special project with an employer. The internship is meant to last a minimum of 7 weeks and should be directly related to the student’s core area of study in the MEEcon degree program. Spring internships start on the first day of Spring classes.

2. Students may select ECON 699 during one session - either Session II (Spring Semester) or Session IV (Summer II). Because the course is worth 4 credit hours and is only taken once, the total credit hours needed to complete the MEEcon degree is 40 hours.

3. Students must complete a total of 3 courses as electives from departmental (ECON) course offerings selected from any course between ECON 605 and ECON 622 (except ECON 606 and ECON 610, which are required). Students may complete either 2 electives in Session II, or complete 1 elective each in both Sessions II and IV.

Policies for the MEEcon Degree

Department of Economics Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of Economics publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Economics_MEECON_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Economics_MEECON_Graduate_Handbook.pdf)

Admission

Information on admission to the MEEcon program is available on the Economics website ([https://economics.rice.edu/graduate-program/meecon/admissions/](https://economics.rice.edu/graduate-program/meecon/admissions/)). For general university requirements, see Graduate Degrees (p. 57) and Admission to Graduate Study (p. 59).

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MEEcon degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Economics website: [https://economics.rice.edu/](https://economics.rice.edu/)

Opportunities for the MEEcon Degree

Byron Pope Award

The Byron Pope Award is given to the student who best exemplifies the benefits provided by participation in the Masters in Energy Economics Program.

MEEcon Award for Scholarly Excellence

This award is for superior demonstrated academic excellence in the Master of Energy Economics program courses. This award is supported by a gift from BP.

Additional Information

For additional information, please see the Economics website: [https://economics.rice.edu/](https://economics.rice.edu/)

Engineering Design

Contact Information

Engineering Design
http://oedk.rice.edu/minor ([http://oedk.rice.edu/minor/](http://oedk.rice.edu/minor/))
Oshman Engineering Design Kitchen
713-348-OEDK
Z. Maria Oden
Program Co-Chair
Defined simply, Engineering Design is the process of creating a new product or process to meet a defined need while taking into account constraints such as cost, practicality, and safety. The design process begins with creating an open-ended problem statement to address an unmet need. Through careful consideration of existing solutions and other research, students establish goals that the design should meet. Following a period of brainstorming, students select ideas that best meet the design goals. Building and testing technologies is challenging and forces students to apply their ‘book knowledge’ (e.g., equations) to develop a physical or computational solution. A proof-of-concept prototype usually needs extensive revision and testing before it can be manufactured at scale. Throughout the design process, project planning and communication are essential. Because solving engineering challenges is often open-ended, it is very important to give students many opportunities to experience the steps in the process.

The minor in Engineering Design capitalizes on strengths in engineering design at Rice- both innovative and successful engineering design courses and unsurpassed facilities that are available for undergraduate engineering students starting in their freshman year. Students may begin the minor in their freshman year and take courses throughout their duration of undergraduate studies. The skills they gain will complement their academic major and provide a deep understanding and skill set to embark successfully in engineering design careers.

Minors

- Minor in Engineering Design (p. 943)

Engineering Design does not currently offer an academic program at the graduate level.

Co-Chairs

Z. Maria Oden, Bioengineering
Joseph R. Cavallaro, Electrical and Computer Engineering

Executive Committee

Joseph R. Cavallaro, Electrical and Computer Engineering
Deirdre Hunter, Oshman Engineering Design Kitchen
Z. Maria Oden, Bioengineering
Matthew Wettergreen, Oshman Engineering Design Kitchen
Gary L. Woods, Electrical and Computer Engineering

Minor Advisors

Joseph R. Cavallaro, Electrical and Computer Engineering
Deirdre Hunter, Oshman Engineering Design Kitchen
Z. Maria Oden, Bioengineering
Matthew Wettergreen, Oshman Engineering Design Kitchen
Gary L. Woods, Electrical and Computer Engineering

Faculty Advisory Board

Joseph R. Cavallaro, Electrical and Computer Engineering
Deirdre Hunter, Oshman Engineering Design Kitchen
Jordan Miller, Bioengineering

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject codes: Courses from various subjects may apply towards this program.

Program Description and Code

- Engineering Design: EDES

Undergraduate Minor Description and Code

- Minor in Engineering Design: EDES

CIP Code and Description

1 EDES Minor: CIP Code/Title: 15.1502 - Engineering Design

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Engineering Design

Program Learning Outcomes for the Minor in Engineering Design

Upon completing the minor in Engineering Design, students will be able to:

1. Execute steps of the engineering design process including problem identification, needs assessment, context review, defining design criteria, idea generation, solution selection, iterative prototyping, and testing.

2. Become familiar with other steps of the engineering design process including market assessment, design for manufacturing, field testing, and implementation.

3. Apply technical knowledge from their major within the School of Engineering to solve a design challenge.

4. Develop breadth in design by working on at least two different design projects.

5. Work in multiple teams, filling the role of a team member and a team leader.

6. Apply project planning tools to guide design projects.

7. Communicate effectively their design problems and solutions through written, oral, and visual communication tools to a wide variety of audiences.
8. Become proficient in low and high fidelity physical and digital-based prototyping.

**Requirements for the Minor in Engineering Design**

Students pursuing the minor in Engineering Design must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.

Students are encouraged to begin taking courses in the minor during their freshman year, and are encouraged to declare the minor no later than the beginning of their fifth semester.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Engineering Design</td>
<td>18</td>
</tr>
</tbody>
</table>

### Minor Requirements

#### Core Requirements

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGI 120</td>
<td>INTRODUCTION TO ENGINEERING DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 220</td>
<td>INTRODUCTION TO ENGINEERING DESIGN II</td>
<td>3</td>
</tr>
<tr>
<td>FWIS 188</td>
<td>INTRODUCTION TO ENGINEERING DESIGN AND COMMUNICATION</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 200</td>
<td>ENGINEERING DESIGN STUDIO</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 210</td>
<td>PROTOTYPING AND FABRICATION</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 350</td>
<td>NEEDS IDENTIFICATION AND DESIGN IMPLEMENTATION</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Elective Requirements

Select 2 courses (and a minimum of 6 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 360 / GLHT 360</td>
<td>APPROPRIATE DESIGN FOR GLOBAL HEALTH</td>
<td></td>
</tr>
<tr>
<td>BUSI 221 / ENGI 221</td>
<td>NEW ENTERPRISES</td>
<td></td>
</tr>
<tr>
<td>BUSI 463</td>
<td>ENTREPRENEURIAL STRATEGY</td>
<td></td>
</tr>
<tr>
<td>CEVE 314 / BIOE 365 / GLHT 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
<td></td>
</tr>
<tr>
<td>CHBE 490</td>
<td>CHEMICAL CAR ENGINEERING AND DESIGN</td>
<td></td>
</tr>
<tr>
<td>ELEC 327</td>
<td>IMPLEMENTATION OF DIGITAL SYSTEMS</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Requirement

Students must participate in at least two different design projects during their undergraduate experience.

#### Footnotes and Additional Information

1. With minor advisor approval, students may also complete departmental design courses or project-based courses, excluding capstone or final-year design coursework, to satisfy the Electives Requirement.
2. With minor advisor approval, students may receive a maximum of 3 credit hours for ELEC 491.
3. The design projects requirement is in place to ensure that students have some breadth in their practice of design. This can be satisfied by a project completed while taking the courses listed in the Electives Requirement and/or a capstone design course. Note that while a capstone design course may be required by the student’s major (e.g., BIOE 451 and BIOE 452, MECH 407 and MECH 408, ELEC 494, etc.) that capstone design course may NOT count as an elective in the Engineering Design minor. However, a project completed in these major-required courses may count as a second design project for this minor. For example, a student may work on one project in ENGI 120 and ENGI 200 and then a second project in the major-required capstone course, such as CHBE 404. ENGI 120 and ENGI 200 may be used to count toward minor requirements, whereas CHBE 404 would not count toward the minor requirements. However, the projects completed in ENGI 120, ENGI 200, and CHBE 404 could be used to fulfill the design projects requirement. Please see the minor advisor regarding the design projects requirement.

### Policies for the Minor in Engineering Design

#### Admission

Rice students who are pursuing a B.A. or B.S. degree in the School of Engineering are best prepared to pursue the minor in Engineering Design. Many courses that can be applied towards the minor requirements are open to all Rice students, including those not pursuing the minor in Engineering Design. For ENGI 200 and ENGI 300, students must explain their interest and reasons for taking the course in order to gain instructor permission. Preferential admission will be given to students who indicate they are seeking to complete the minor in Engineering Design.
Program Restrictions and Exclusions
Students pursuing the minor in Engineering Design should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the minor in Engineering Design should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Engineering Design website: http://oedk.rice.edu/minor (http://oedk.rice.edu/minor/)

Opportunities for the Minor in Engineering Design
Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Engineering Design website: http://oedk.rice.edu/minor (http://oedk.rice.edu/minor/)

Engineering Management and Leadership
Contact Information
Engineering Leadership
https://www.rcelconnect.org/
Abercrombie Lab
713-348-3181

C. Fred Higgs, III
Faculty Director
higgs@rice.edu

Kazimir I. Karwowski
Executive Director

kazimir.i.karwowski@rice.edu

The mission of the Rice Center for Engineering Leadership (RCEL) is to educate and develop and inspire Rice Engineers to become ethical leaders in technology who will excel in research, industry, enabling (non-engineering) career paths, or bold entrepreneurship. RCEL programming enhances traditional undergraduate education by developing skills that are not expressly covered by the traditional curricula from the School of Engineering. Ultimately, the goal of the Certificate in Engineering Leadership is to equip engineering students with the critical technical, communication, and leadership skills necessary to succeed and excel professionally.

The Certificate in Engineering Leadership is designed to familiarize undergraduate students with key leadership concepts and allow them to practice the skills necessary to function effectively in a variety of leadership roles in a global and national economy within a workplace, which is often increasingly diverse and multi-cultural. Through coursework, extracurricular activities, internship support, and community events, the Certificate in Engineering Leadership lays a foundation for leadership advancement within 3-5 years of graduation while also teaching students to envision their career impact beyond the 10-year horizon. RCEL programming covers a range of important competency domains, including such topics as creative problem solving, conflict resolution, developing self-awareness, setting goals, project management, oral/written communication, teamwork, and ethics.

At the graduate level the Professional Master's in Engineering Management and Leadership (MEML) allows engineers to plan their career path within a company along the engineering management and leadership track helping fulfill both organizational and personal goals. MEML programming covers a range of important competency domains, including such topics as creative problem solving, conflict resolution, engineering project management, oral/written communication, and advanced technical teamwork. Engineering management covers the gap between engineering and management, namely the combination of technical decision making with analytical skills, optimization capabilities, and technical product development.

Certificate
- Certificate in Engineering Leadership (p. 950)

Master's Program
- Master of Engineering Management and Leadership (MEML) Degree (p. 952)
- Master of Engineering Management and Leadership (MEML) Degree Online Program (p. 955)

Faculty Director
C. Fred Higgs, III, John and Ann Doerr Professor of Mechanical Engineering

Executive Director
Kazimir I. Karwowski

Professors in the Practice
James P. Hennessy
Sergio D. Kapusta
Tom Phalen
Lecturers
Kazimir I. Karwowski
Jerlyn Mardis
Gayle M. Moran
Elizabeth O’Sullivan
Germaine Porche
George Webb
Ebony Wiley

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Rice Center for Engineering Leadership (RCEL)
RCEL 100 - SELF-AWARENESS AND THE ENGINEERING LEADER
Short Title: SELF-AWARENESS & THE ENGINEER
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this course is to prepare students to become future leaders. Engineering leadership is an emerging innovation in both education and practice and our course will prepare students to begin their development journey toward this goal. Mutually Exclusive: Cannot register for RCEL 100 if student has credit for ENGI 140/ENGI 218.

RCEL 200 - PERSONAL DEVELOPMENT FOR THE ENGINEERING LEADER
Short Title: PERSONAL DEVELOPMENT ENG LEADR
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this course is to prepare students to be future leaders. Engineering leadership is an emerging innovation in both education and practice and our course will prepare students to begin their development journey toward this goal. Mutually Exclusive: Cannot register for RCEL 100 if student has credit for ENGI 140/ENGI 218.

RCEL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

RCEL 241 - INTERNSHIP PRACTICUM FOR ENGINEERING LEADERSHIP
Short Title: INTERNSHIP PRACTICUM FOR ENGI
Department: Center Engineering Leadership
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 0-1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: RCEL 241 is an applied practicum and internship course that provides guided career and professional development for engineering students in a real-world industrial, academic, research, or other professional context. It prepares students to assimilate quickly and to exceed employer expectations during their internships. This course offers variable credit (0 or 1 credit). If you choose to take the course for 1 credit, you must indicate your intent with the instructor upon registration. Mutually Exclusive: Cannot register for RCEL 241 if student has credit for ENGI 241. Repeatable for Credit.

RCEL 300 - DEVELOPMENT OF HIGH PERFORMING ENGINEERING TEAMS
Short Title: DEVELOPMENT OF HIGH PERFORMING
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RCEL 200
Description: The purpose of this course is to prepare students for engineering leadership and followership roles in engineering contexts. This course is required for our school's certificate engineering leadership and includes a focus on practical skills and how these skills can be learned, developed, and applied in team situations. Mutually Exclusive: Cannot register for RCEL 300 if student has credit for ENGI 219/ENGI 315.
RCEL 400 - LEADING HIGH PERFORMING ENGINEERING TEAMS

Short Title: LEADING HIGH PERFORMING ENGINE

Department: Center Engineering Leadership

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 2

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): RCEL 300

Description: This course develops skills that are required for enterprise wide leadership positions. Topics include: managing and leveraging diversity, creative problem solving through intersectional thinking, ethical issue identification and resolution, risk management, performance management, development and communication of an enterprise wide vision, and development of a change management plan. Mutually Exclusive: Cannot register for RCEL 400 if student has credit for ENGI 219/ENGI 315.

RCEL 410 - ENGINEERING LAUNCH PAD-RESEARCH

Short Title: ENG LAUNCH PAD-RESEARCH

Department: Center Engineering Leadership

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): ENGI 100

Description: RCEL 410 is one of four RCEL courses intended to jump-start the next steps for aspiring engineering leaders. The other courses deal with industry, Alternative Pathways, and Entrepreneurship, while RCEL 410 is focused on developing an understanding of leadership principles applicable in a Research environment. Students will gain insights into managing ethical dilemmas, developing communication strategies, creating a vision and goals, and project management in either an undergraduate or graduate student level engineering discipline. Research in academia, government labs, and industry will be compared and contrasted.

RCEL 420 - ENGINEERING LAUNCH PAD-INDUSTRY

Short Title: ENGINEERING LAUNCH PAD-INDUST

Department: Center Engineering Leadership

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): RCEL 300

Description: The purpose of this course is to prepare students for engineering leadership and followership roles in an industry context. This course is required for our school's certificate in engineering leadership and includes a focus on the practical skills needed to thrive in an industry environment.

RCEL 430 - ENGINEERING LAUNCH PAD-NON-ENGINEERING PATHWAYS

Short Title: ENGINEERING LAUNCH PAD-PATHWAY

Department: Center Engineering Leadership

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: Engineering students explore alternative professional paths, including policy, law, medicine, industry consulting, and other viable career options beyond industry and research. Students will identify a focus career track and complete a series of assignments designed to increase familiarity and competency in that discipline. Graduate/Undergraduate Equivalency: RCEL 530.

RCEL 436 - INTRODUCTION TO PATENTS AND INTELLECTUAL PROPERTY FOR FUTURE ENGINEERING LEADERS

Short Title: INTRO TO PATENTS & INTELL PROP

Department: Center Engineering Leadership

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: RCEL 436 introduces undergraduate students to the fundamentals of intellectual property. Through class discussion, assignments, and guest speakers, the course provides a foundation for recognizing, evaluating, and leveraging IP opportunities and limitations in both research and industry, and thus equips students for the many encounters with IP that are likely to occur in their careers. Graduate/Undergraduate Equivalency: RCEL 536.

RCEL 440 - ENGINEERING LAUNCH PAD-ENTREPRENEURSHIP

Short Title: ENGINEERING LAUNCH PAD-ENTREPR

Department: Center Engineering Leadership

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hour: 1

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: This course will focus on identifying the value proposition a potential venture has for a specific customer segment, and who those customers are and why. Students will be forced to “get out of the building” and interview potential customers to help refine their assumptions based on data. The goal is to help the teams create a scalable and repeatable business model for their venture.
RCEL 450 - ENGINEERING PROJECT MANAGEMENT AND LEADERSHIP
ACTION LEARNING
Short Title: PROJECT MANAGEMENT AND LEADERSHIP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: RCEL 450 combines project management and a practicum experience allowing students to practice leadership skills in an applied context utilizing a project. During the semester, each student will serve in a primary leadership capacity for a project. In addition to facilitating the project management of the project, each student will participate in an individualized action learning based model of leadership. Mutually Exclusive: Cannot register for RCEL 450 if student has credit for ENGI 317.

RCEL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

RCEL 501 - ENGINEERING MANAGEMENT & LEADERSHIP THEORY AND
APPLICATION
Short Title: ENGINEERING MGMT & LEADERSHIP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Technology-based innovation is the grand driver of economic progress, which hinges on strong technical leadership guiding engineering teams in mid-to-large corporate organizations and startup to small companies. By surveying and learning about the different type of EML approaches, this course outlines a framework for engineering professionals to progress from engineering manager to engineering executive (e.g., Vice President of Engineering, Chief Technology Officer). Practical methods from the engineering management literature that addresses technology-based innovation issues that have engineering management implications will be introduced. Seminal technology management principles, such as disruptive innovation, leaderless technology development, and digital platform strategy, found in companies ranging in size from start-up to large, will be examined.

RCEL 502 - ENGINEERING PROJECT MANAGEMENT
Short Title: ENGINEERING PROJECT MANAGEMENT
Department: Center Engineering Leadership
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Engineering Project Management is targeted for young professionals with 0 to 5 years experience. Content will provide instruction on the tools, techniques, and leadership characteristics required to successfully execute a project. The course will address the phases of project execution—initiating, planning, executing, monitoring and controlling, and closing. The course is designed to use a combination of video presentations, case studies, and project related exercises.

RCEL 503 - ENGINEERING PRODUCT MANAGEMENT IN INDUSTRY 4.0
Short Title: ENGINEERING PRODUCT MANAGEMENT
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The fourth and latest industrial revolution, Industry 4.0, is comprised of intelligent automated machines and devices being developed by unconstrained manufacturing technologies (e.g., 3D printing), which can give them unprecedented sensing and communication capabilities. The internet of things (machines and sensors and the 'big data' they output) is creating new avenues for the remote collection of data from these new products. Engineering leaders will have a unique opportunity to guide engineering teams to create products that can leverage and evolve based on data from the supply chain to customer usage.

RCEL 504 - ETHICAL-TECHNICAL LEADERSHIP
Short Title: ETHICAL-TECHNICAL LEADERSHIP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Technology-based companies are powered by teams of engineers who create products and services that create value and competitive advantages for organizations that can turn into profits. However, the matrices of technical and user related decision paths that engineering leaders make to guide the team are not always constrained by ethics in a formal way. This course will help students understand the impact of ethics on engineering and technology in order to apply ethics concepts to decision making on issues that emerge in the workplace during one's career.
RCEL 505 - ENGINEERING ECONOMICS FOR LEADERS
Short Title: LEADING ENGINEERING ECONOMICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore economic analysis of capital expenditure decisions, financial mathematics, microeconomics, and decision-making under risk and uncertainty. Topics covered in this course include time value of money, analysis of alternatives using net present value and internal rate of return, depreciation, taxes, and inflation. Computational approaches, such as probabilistic design in engineering designs, which connect randomly varying design parameters to economic impact, will sometimes be considered based on course composition. Engineering ethics case studies that involve engineering economics will be explored as well. Mutually Exclusive: Cannot register for RCEL 505 if student has credit for CEVE 322/CEVE 528/ENGI 303/ENGI 528.

RCEL 506 - APPLIED STATISTICS AND DATA SCIENCE FOR ENGINEERING LEADERS
Short Title: STATS & DATA FOR ENGINEERS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Modern engineering leaders face myriad projects and problems that involve the generation, collection, analysis, visualization and interpretation of data, much of which is now known as big data (upwards of millions of observations) and/or high-dimensional (upwards of millions of variables). In turn, engineering leaders must be able to leverage the abundance of data to generate new knowledge and be proficient in data-driven decision making. This course will provide a foundation in statistics and data science with a view toward preparing engineering leaders to engage and direct teams in data based solutions to engineering problems.

RCEL 507 - MASTER’S IN ENGINEERING MANAGEMENT AND LEADERSHIP CAPSTONE
Short Title: MEML CAPSTONE
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course represents the capstone of the MEML program. It is a project-based and discussion-based course where students develop economically-sustainable, technological solutions to society’s most complex grand challenges using the methods and competencies taught in the MEML program. Students are expected to devise Industry 4.0 relevant solutions, with mechanisms for continuous learning and improving the solution from end-user data, while bounding all approaches with a demonstrable ethical-technical framework.

RCEL 530 - ENGINEERING LAUNCH PAD-NON-ENGINEERING PATHWAYS
Short Title: ENGINEERING LAUNCH PAD-PATHWAY
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Engineering students explore alternative professional paths, including policy, law, medicine, industry consulting, and other viable career options beyond industry and research. Students will identify a focus career track and complete a series of assignments designed to increase familiarity and competency in that discipline. Graduate/Undergraduate Equivalency: RCEL 430.

RCEL 536 - INTRODUCTION TO PATENTS AND INTELLECTUAL PROPERTY FOR FUTURE ENGINEERING LEADERS
Short Title: INTRO TO PATENTS & INTELL PROP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: RCEL 536 introduces graduate (non-law) students to the fundamentals of intellectual property. Through class discussion, assignments, and guest speakers, the course provides a foundation for recognizing, evaluating, and leveraging IP opportunities and limitations in both research and industry, and thus equips students for the many encounters with IP that are likely to occur in their careers. Graduate/Undergraduate Equivalency: RCEL 436.

RCEL 610 - ETHICS FOR ENGINEERS
Short Title: ETHICS FOR ENGINEERS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Course Level: Graduate
Description: Engineers can encounter a variety of ethical issues and dilemmas in fulfilling their professional responsibilities. Ethical problems can be considered somewhat analogous to engineering design problems: both involve significant complexities, high degrees of uncertainty, a number of boundary conditions and constraints, conformance with criteria, identification and evaluation of alternatives responses, and deciding on the best solution or action. This course will prepare engineering students to understand the ethical issues related to their profession, analyze the various options and alternative course of actions, and implement the solutions to their ethical problems.
Certificate in Engineering Leadership

Program Learning Outcomes for the Certificate in Engineering Leadership

Upon completing the certificate in Engineering Leadership, students will be able to:

1. Communicate Effectively: Apply effective oral, written, and interpersonal communication strategies.
2. Make Timely Decisions: Apply analytical and creative problem solving to deliver timely solutions based on the information at hand.
3. Work on Teams: Understand and analyze team dynamics to empower those around them to be successful in accomplishing team goals.
4. Manage Projects: Demonstrate knowledge of the basic tools and techniques to deliver projects on-time, on budget and within scope.
6. Create a Vision: Develop a clear vision that sets future personal and team direction.
7. Apply Ethics and Analyze Values: Analyze personal and organizational values and apply ethics concepts to their own decision-making.

Requirements for the Certificate in Engineering Leadership

Students pursuing the certificate in Engineering Leadership must complete:

- A minimum of 7 courses (11-13 credit hours, depending on course selection) to satisfy certificate requirements.
- A Leadership Development Plan.
- An Engineering Internship.
- An Engineering Launch Pad Requirement.
- A Senior Leadership Portfolio and Presentation.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

No credit hours counted toward the student's major or minor degree requirements can be applied toward the certificate. Only declared Engineering majors are eligible for the certificate and are required to formally declare their intention to pursue the certificate within their first two years at Rice.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Certificate Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>RCEL 100</td>
<td>SELF-AWARENESS AND THE ENGINEERING LEADER</td>
<td>2</td>
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Summary

Total Credit Hours Required for the Certificate in Engineering Leadership

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Certificate in Engineering Leadership</td>
<td>11-13</td>
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</table>
RCEL 200  PERSONAL DEVELOPMENT FOR THE ENGINEERING LEADER  2
RCEL 300  DEVELOPMENT OF HIGH PERFORMING ENGINEERING TEAMS  2
RCEL 400  LEADING HIGH PERFORMING ENGINEERING TEAMS  2

Leadership Development Plan  
Engineering Internship  
RCEL 241  INTERNSHIP PRACTICUM FOR ENGINEERING LEADERSHIP  0-1

Engineering Launch Pad Requirement  
Select 1 course from the following:  1-2
RCEL 410  ENGINEERING LAUNCH PAD-RESEARCH
RCEL 420  ENGINEERING LAUNCH PAD-INDUSTRY
RCEL 430  ENGINEERING LAUNCH PAD-NON-ENGINEERING PATHWAYS
RCEL 440  ENGINEERING LAUNCH PAD-entrepreneurship

Leadership Action Learning  
RCEL 450  ENGINEERING PROJECT MANAGEMENT AND LEADERSHIP ACTION LEARNING  2

Senior Leadership Portfolio and Presentation  
Total Credit Hours  11-13

Footnotes and Additional Information
1 The purpose of the Development Plan is to understand one’s personal leadership capabilities, synthesize the “lessons learned” from experiences, and use experience to manage the development of the capabilities needed to become an engineering leader.
2 The certificate in Engineering Leadership requires all students to participate in a qualifying summer internship, ideally after the sophomore year. To receive credit for the internship experience, students enroll in RCEL 241 Internship Practicum for Engineering Leadership.
3 The certificate program culminates in the creation of a comprehensive Leadership Portfolio, which documents the personal, academic, and professional growth of the student over the course of their time in the program. Each student must also deliver a final Senior Leadership Presentation that synthesizes and expands upon the information included in the Leadership Portfolio.

Additional Recommended Courses  
The following courses are not required to complete the certificate in Engineering Leadership, but are highly recommended:  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 310</td>
<td>LEADING PEOPLE IN ORGANIZATIONS</td>
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</tr>
<tr>
<td>ENGI 120</td>
<td>INTRODUCTION TO ENGINEERING DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 128</td>
<td>INTRODUCTION TO ENGINEERING SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 242</td>
<td>PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 303 / CEVE 322</td>
<td>ENGINEERING ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>ENGI 320 / CEVE 320</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td>3</td>
</tr>
</tbody>
</table>

Policies for the Certificate in Engineering Leadership  
Program Restrictions and Exclusions  
Students pursuing the certificate in Engineering Leadership should be aware of the following program restriction:
- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.
- No credit hours counted toward a student’s major or minor degree requirements can be applied toward the certificate in Engineering Leadership.
- Only declared Engineering majors are eligible for the certificate and are required to declare formally their intention to pursue the certificate within their first two years at Rice.

Transfer Credit  
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines  
Students pursuing the certificate in Engineering Leadership should be aware of the following program-specific transfer credit guidelines:
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information  
For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/

Opportunities for the Certificate in Engineering Leadership  
Academic Honors  
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information  
For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/
Master of Engineering Management and Leadership (MEML) Degree

Program Learning Outcomes for the MEML Degree

Upon completing the MEML degree, students will be able to:

1. Employ ethical-technical decision making; understand the susceptibility of engineering teams and organizations to ethical failure and devise creative technical solutions that are constrained by ethics-based boundaries.
2. Lead and manage engineering teams; excel at hybrid communications (i.e. to both technical and non-technical persons), managing projects, leading engineering teams, and inspiring people.
3. Evaluate the economic viability of technology products and ideas; apply key principles of engineering entrepreneurship to determine if a technical product or idea is valuable and economically viable.
4. Solve advanced engineering problems; have a graduate-level understanding of key disciplinary engineering courses. Engineering leaders will lead teams of engineers in a way that leverages the varying degrees of engineering training, from the undergraduate to graduate level. They should have a fundamental understanding and appreciation for the deeper technical skills that graduate-level engineers add to a team.

Requirements for the MEML Degree

The MEML degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MEML degree must complete:

- A minimum of 10 courses (30-32 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 6 credit hours from graduate semester credit hours as transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab.
- The requirements for one area of specialization (see below for areas of specialization). The MEML degree program offers ten areas of specialization:
  - Bioengineering (p. 953), or
  - Chemical and Biomolecular Engineering (p. ), or
  - Civil and Environmental Engineering (p. ), or
  - Computational and Applied Mathematics (p. ), or
  - Computer Science (p. ), or
  - Data Science (p. ), or
  - Electrical and Computer Engineering (p. ), or
  - Materials Science and Engineering (p. ), or
  - Mechanical Engineering (p. ), or
  - Statistics (p. 954).

Students in the MEML degree program and in either of the two cohorts (on-campus or online) will be allowed to take up to 3 courses (9 credit hours) in the other modality (online or on-campus) with permission from the Engineering Management and Leadership Program Advisor.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the MEML Degree</td>
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Degree Requirements

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<td>Core Requirements</td>
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<tr>
<td>RCEL 501</td>
<td>ENGINEERING MANAGEMENT &amp; LEADERSHIP THEORY AND APPLICATION</td>
<td>3</td>
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<tr>
<td>RCEL 502</td>
<td>ENGINEERING PROJECT MANAGEMENT</td>
<td>3</td>
</tr>
<tr>
<td>RCEL 503</td>
<td>ENGINEERING PRODUCT MANAGEMENT IN INDUSTRY 4.0</td>
<td>3</td>
</tr>
<tr>
<td>RCEL 504</td>
<td>ETHICAL-TECHNICAL LEADERSHIP</td>
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<td>RCEL 505</td>
<td>ENGINEERING ECONOMICS FOR LEADERS</td>
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<tr>
<td>RCEL 506 / STAT 550</td>
<td>APPLIED STATISTICS AND DATA SCIENCE FOR ENGINEERING LEADERS</td>
<td>3</td>
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</table>

Area of Specialization

Select 1 from the following Areas of Specialization (see Areas of Specialization below): 1

- Bioengineering
- Chemical and Biomolecular Engineering
- Civil and Environmental Engineering
- Computational and Applied Mathematics
- Computer Science
- Data Science
- Electrical and Computer Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Statistics

Capstone Requirement
RICE UNIVERSITY
RCEL 507
MASTER'S IN ENGINEERING MANAGEMENT AND LEADERSHIP CAPSTONE

Total Credit Hours 30-32

Footnotes and Additional Information
1 Select 3 courses (9-11 credit hours, depending on course selection) from courses offered by the George R. Brown School of Engineering (or from an engineering-centered focus area) as an Area of Specialization to provide technical depth. Courses offered by the George R. Brown School of Engineering include the following: BIOE, CAAM, CEVE, CHBE, COMP, DSCI, ELEC, ENGI, GLHT, INDE, MECH, MSNE, RCEL, SSPB, or STAT. Engineering-centered focus areas (such as Data Science) or student-designed areas of specialization may also be approved. Departmental approval is required for areas of specialization. See below for typically approved areas of specialization.

Areas of Specialization
Students must complete a minimum of 3 courses (9-11 credit hours, depending on course selection) from one of the following typically approved Areas of Specialization or from a student-designed Area of Specialization. Department approval is required for areas of specialization.

Area of Specialization: Bioengineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>BIOE 508 / SSPB 503</td>
<td>SYNTHETIC BIOLOGY</td>
<td>3</td>
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<td>BIOE 536</td>
<td>FRONTIERS IN IMMUNOENGINEERING</td>
<td>3</td>
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<td>BIOE 539</td>
<td>APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY</td>
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Total Credit Hours 9

Area of Specialization: Chemical and Biomolecular Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHBE 501</td>
<td>FLUID MECHANICS AND TRANSPORT PROCESSES</td>
<td>3</td>
</tr>
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<td>CHBE 560 / MSNE 560</td>
<td>COLLOIDAL AND INTERFACIAL PHENOMENA</td>
<td>3</td>
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<tr>
<td>CHBE 590</td>
<td>KINETICS, CATALYSIS, AND REACTION ENGINEERING</td>
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Total Credit Hours 9

Area of Specialization: Civil and Environmental Engineering

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>CEVE 500 / MECH 500</td>
<td>ADVANCED MECHANICS OF MATERIALS</td>
<td>3</td>
</tr>
<tr>
<td>CEVE 503 / MECH 520</td>
<td>NONLINEAR FINITE ELEMENT ANALYSIS</td>
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<tr>
<td>CEVE 527 / MECH 527</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
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Total Credit Hours 9

Area of Specialization: Computational and Applied Mathematics

<table>
<thead>
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<tbody>
<tr>
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<td>COMPUTATIONAL SCIENCE I</td>
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<td>CAAM 550</td>
<td>NUMERICAL ANALYSIS I</td>
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<td>CAAM 554</td>
<td>ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION</td>
<td>3</td>
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</table>

Total Credit Hours 9

Area of Specialization: Computer Science

<table>
<thead>
<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>COMP 502 / ELEC 502 / STAT 502</td>
<td>NEURAL MACHINE LEARNING I</td>
<td>3</td>
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<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
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<td>COMP 542</td>
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Total Credit Hours 10

Area of Specialization: Data Science

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<tr>
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<tbody>
<tr>
<td>COMP 614</td>
<td>COMPUTER PROGRAMMING FOR DATA SCIENCE</td>
<td>3</td>
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<tr>
<td>COMP 665</td>
<td>DATA VISUALIZATION</td>
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</tr>
<tr>
<td>STAT 613</td>
<td>STATISTICAL MACHINE LEARNING</td>
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Total Credit Hours 9

Area of Specialization: Electrical and Computer Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>ELEC 519</td>
<td>DATA SCIENCE AND DYNAMICAL SYSTEMS</td>
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<tr>
<td>ELEC 520 / COMP 520</td>
<td>DISTRIBUTED SYSTEMS</td>
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<td>ELEC 524 / COMP 524</td>
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Total Credit Hours 11

Area of Specialization: Materials Science and Nanoengineering

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>MSNE 510</td>
<td>SCALING CONCEPTS IN 2D MATERIALS AND POLYMER PHYSICS</td>
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<td>MSNE 513</td>
<td>3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS</td>
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</table>

Total Credit Hours 9
Committee by each program’s deadline outlined above. When completing the online application, candidates will be asked to due by October 30 for spring admission and April 30 for fall admission. Applications for the Engineering Management and Leadership degree are both programs.

program cohort or the other. The admission standards are the same for campus or online MEML degree program and are admitted into one an on-campus and online option. Students must apply to either the on-

committees will evaluate the previous academic record and credentials of each applicant individually, and will make all admissions decisions.

Admission to graduate study in Engineering Management and Leadership is open to qualified students holding a BS or a BA degree in a quantitative field from an accredited institution. The MEML degree governing committee will evaluate the previous academic record and credentials of each applicant individually, and will make all admissions decisions.

The MEML degree program exists as two distinct offerings, with both an on-campus and online option. Students must apply to either the on-campus or online MEML degree program and are admitted into one program cohort or the other. The admission standards are the same for both programs.

Applications for the Engineering Management and Leadership degree are due by October 30 for spring admission and April 30 for fall admission. When completing the online application, candidates will be asked to submit the following items electronically to the Graduate Admissions Committee by each program’s deadline outlined above.

- Transcripts from all undergraduate and graduate schools attended.
- All student applicants must upload an unofficial transcript to the application and also send an official copy of their transcripts.
- A Statement of Purpose is required for all applicants. This statement should clearly and succinctly summarize the applicant’s past academic and professional experience and achievements, discuss their motivation for seeking the MEML degree, and explain or articulate their future goals. The applicant should also briefly discuss any other factors they might want the Admission Committee to consider while reviewing their application (e.g., personal background, work experience, leadership roles, etc.).
- At least three letters of recommendation should be requested from at least three individuals, preferably professors, research advisors, or direct supervisors, who are familiar with the applicant’s technical skills in engineering, science, or computer science. An applicant may submit more than three letters of recommendation, but no less than three must be submitted with their application.
- Graduate Record Examination (GRE) scores are optional for all applicants. If an applicant has relevant industrial experience, the Admissions Committee will factor in work experience and the recommendation of the applicant’s current supervisor in lieu of any GRE scores when evaluating the application. Furthermore, at least one of the recommendation letters must be from a supervisor and should speak to the applicant’s technical and communication proficiency/ability and any relevant industrial experience should be highlighted in the applicant’s resume. If taking the GRE, applicants should have their scores sent directly to Rice University using code: 6609 (GRE subject tests are not required).
- TOEFL/IELTS scores are required for all international students that have not conferred a degree from an English-speaking University. The code to send the electronic scores is: 6609
  - TOEFL score, the minimum is 90 on the iBT and 600 on the paper-based TOEFL.
  - IELTS score, the minimum is 7.
- This requirement is automatically waived for eligible applicants who upload their transcript from an English-speaking University into this application showing a degree in-progress or conferred.
- CV/Resume - applicants should upload their most current Curriculum Vitae or Resume.
- The application fee of $85. The fee can be paid either by credit card or electronic check. At this time, the Rice Center for Engineering Leadership is not considering application fee waivers. Payment of the application fee cannot be deferred until time of enrollment. The application will be processed only when the application fee has been received.

Financial Aid
- No financial aid is available from Rice University for students in the MEML degree program.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MEML degree should be aware of the following program-specific transfer credit guidelines:

- No more than 6 credit hours from another U.S. or international universities of similar standing as Rice may apply towards the degree. Transfer coursework must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
- Requests for transfer credit will be considered by the Engineering Management and Leadership Graduate Committee Chair and the instructor of the equivalent Rice course.

Additional Information
- For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/

Opportunities for the MEML Degree
Additional Information
For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/

Policies for the MEML Degree

Admission

Area of Specialization: Mechanical Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MECH 505</td>
<td>NUMERICAL METHODS FOR ENGINEERS</td>
<td>3</td>
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<tr>
<td>MECH 517 / CEVE 517</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 554 / BIOE 554 / CEVE 554</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td>3</td>
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Total Credit Hours 9

Area of Specialization: Statistics

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<tr>
<th>Code</th>
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<tr>
<td>STAT 518</td>
<td>PROBABILITY</td>
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<td>STAT 519</td>
<td>STATISTICAL INference</td>
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<tr>
<td>STAT 542</td>
<td>SIMULATION</td>
<td>3</td>
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</tbody>
</table>

Total Credit Hours 9

Program Transfer Credit Guidelines

For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/
Master of Engineering Management and Leadership (MEML) Degree, Online Program

Program Learning Outcomes for the MEML Degree
Upon completing the MEML degree, students will be able to:

1. Employ ethical-technical decision making; understand the susceptibility of engineering teams and organizations to ethical failure and devise creative technical solutions that are constrained by ethics-based boundaries.
2. Lead and manage engineering teams; excel at hybrid communications (i.e. to both technical and non-technical persons), managing projects, leading engineering teams, and inspiring people.
3. Evaluate the economic viability of technology products and ideas; apply key principles of engineering entrepreneurship to determine if a technical product or idea is valuable and economically viable.
4. Solve advanced engineering problems; have a graduate-level understanding of key disciplinary engineering courses. Engineering leaders will lead teams of engineers in a way that leverages the varying degrees of engineering training, from the undergraduate to graduate level. They should have a fundamental understanding and appreciation for the deeper technical skills that graduate-level engineers add to a team.

Requirements for the MEML Degree, Online Program

Requirements for the MEML Degree
The MEML degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate requirements, please see All Graduate Students (p. 60). Students pursuing the MEML degree must complete:

- A minimum of 10 courses (30-32 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 6 credit hours from graduate semester credit hours as transfer credit. For additional program guidelines regarding transfer credit, see the Policies tab.
- The requirements for one area of specialization (see below for areas of specialization). The MEML degree program offers ten areas of specialization:
  - Bioengineering (p. 956), or
  - Chemical and Biomolecular Engineering (p. 957), or
  - Civil and Environmental Engineering (p. 958), or
  - Computational and Applied Mathematics (p. 959), or
  - Computer Science (p. 960), or
  - Data Science (p. 961), or
  - Electrical and Computer Engineering (p. 962), or
  - Materials Science and Nanoengineering (p. 963), or
  - Mechanical Engineering (p. 964), or
  - Statistics (p. 957).

- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students in the MEML degree program and in either of the two cohorts (on-campus or online) will be allowed to take up to 3 courses (9 credit hours) in the other modality (online or on-campus) with permission from the Engineering Management and Leadership Program Advisor.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCEL 501</td>
<td><strong>ENGINEERING MANAGEMENT &amp; LEADERSHIP THEORY AND APPLICATION</strong></td>
<td>3</td>
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<tr>
<td>RCEL 502</td>
<td><strong>ENGINEERING PROJECT MANAGEMENT</strong></td>
<td>3</td>
</tr>
<tr>
<td>RCEL 503</td>
<td><strong>ENGINEERING PRODUCT MANAGEMENT IN INDUSTRY 4.0</strong></td>
<td>3</td>
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<td>RCEL 504</td>
<td><strong>ETHICAL-TECHNICAL LEADERSHIP</strong></td>
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<td><strong>ENGINEERING ECONOMICS FOR LEADERS</strong></td>
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<td>RCEL 506 / STAT 550</td>
<td><strong>APPLIED STATISTICS AND DATA SCIENCE FOR ENGINEERING LEADERS</strong></td>
<td>3</td>
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**Degree Requirements**

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<th>Core Requirements</th>
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<td>3</td>
</tr>
<tr>
<td>RCEL 506 / STAT 550</td>
<td>3</td>
</tr>
</tbody>
</table>

**Area of Specialization**

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

- Bioengineering
- Chemical and Biomolecular Engineering
- Civil and Environmental Engineering
- Computational and Applied Mathematics
- Computer Science
- Data Science
- Electrical and Computer Engineering
- Materials Science and Engineering
- Mechanical Engineering

2021-2022 General Announcements PDF Generated 09/22/21
Area of Specialization: Computational and Applied Mathematics

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<tr>
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<tbody>
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<tr>
<td>CAAM 550</td>
<td>NUMERICAL ANALYSIS I</td>
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<tr>
<td>CAAM 554</td>
<td>ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION</td>
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</table>

Total Credit Hours: 9

Area of Specialization: Computer Science

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>COMP 502 / ELEC 502 / STAT 502</td>
<td>NEURAL MACHINE LEARNING I</td>
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<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
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<td>COMP 542</td>
<td>LARGE-SCALE MACHINE LEARNING</td>
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Total Credit Hours: 10

Area of Specialization: Data Science

<table>
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<tr>
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<tbody>
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<td>COMPUTER PROGRAMMING FOR DATA SCIENCE</td>
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<td>COMP 665</td>
<td>DATA VISUALIZATION</td>
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<td>STATISTICAL MACHINE LEARNING</td>
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Total Credit Hours: 9

Area of Specialization: Electrical and Computer Engineering

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<tbody>
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<td>DATA SCIENCE AND DYNAMICAL SYSTEMS</td>
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<td>ELEC 520 / COMP 520</td>
<td>DISTRIBUTED SYSTEMS</td>
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<td>ELEC 524 / COMP 524</td>
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Total Credit Hours: 11

Area of Specialization: Materials Science and Nanoengineering

<table>
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<th>Credit Hours</th>
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<tbody>
<tr>
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<td>3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS</td>
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</table>

Total Credit Hours: 9

Footnotes and Additional Information

1. Select 3 courses (9-11 credit hours, depending on course selection) from courses offered by the George R. Brown School of Engineering (or from an engineering-centered focus area) as an Area of Specialization to provide technical depth. Courses offered by the George R. Brown School of Engineering include the following: BIOE, CAAM, CEVE, COMP, DSCI, ELEC, ENGI, GLHT, INDE, MECH, MSNE, RCEL, SSPB, or STAT. Engineering-centered focus areas (such as Data Science) or student-designed areas of specialization may also be approved. Departmental approval is required for areas of specialization. See below for typically approved areas of specialization.

Areas of Specialization

Students must complete a minimum of 3 courses (9-11 credit hours, depending on course selection) from one of the following typically approved Areas of Specialization or from a student-designed Area of Specialization. Department approval is required for areas of specialization.

Area of Specialization: Bioengineering

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<tr>
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<tbody>
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Total Credit Hours: 9

Area of Specialization: Chemical and Biomolecular Engineering

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Total Credit Hours: 9

Area of Specialization: Civil and Environmental Engineering

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Total Credit Hours: 9
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Financial Aid

- No financial aid is available from Rice University for students in the MEML degree program.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MEML degree should be aware of the following program-specific transfer credit guidelines:

- No more than 6 credit hours from another U.S. or international universities of similar standing as Rice may apply towards the degree. Transfer coursework must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
- Requests for transfer credit will be considered by the Engineering Management and Leadership Graduate Committee Chair and the instructor of the equivalent Rice course.

Additional Information

For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/
Opportunities for the MEML Degree, Online Program

Additional Information
For additional information, please see the Engineering Leadership website: https://www.rcelconnect.org/

English

Contact Information

English
https://english.rice.edu/
225 Herring Hall
713-348-4840

Kirsten Ostherr
Department Chair
kostherr@rice.edu

Rice English integrates creative and critical practice through training in close reading, analytical writing, cultural history and theory, and craft/form. Our faculty research and pedagogy cover the breadth of the study of British and American literatures and cultures ranging from the medieval era to the present. The curriculum emphasizes literature and literary history, race and ethnicity studies, feminist and gender studies, queer theory and the history of sexuality, visual culture and comparative media studies, and the Anglophone literature of the postcolonial world. Faculty have particular strengths in the newer interdisciplinary areas of medical humanities, ecocriticism, post-humanism, and environmental humanities. Recent research and writing in the public humanities innovates the departmental mission as faculty and students engage new audiences. Rice English is also home to a vibrant creative writing concentration offering a range of courses in fiction, poetry, and creative non-fiction.

Bachelor’s Programs
• Bachelor of Arts (BA) Degree with a Major in English (p. 983)
  • and a Major Concentration in Creative Writing (p. 988)

Master’s Program
• Master of Arts (MA) Degree in the field of English*

Doctoral Program
• Doctor of Philosophy (PhD) Degree in the field of English (p. 992)
  * Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair
Kirsten Ostherr

Director of Undergraduate Studies
Krista Comer

Director of Graduate Studies
José F. Aranda, Jr.

Professors
José F. Aranda, Jr.
Joseph A. Campana, Jr.
Krista Comer
Rosemary Hennessy
Betty Joseph
Kiese Laymon
Caroline F. Levander
Helena Michie
Timothy Morton
Kirsten Ostherr
Alexender T. Regier
Edward A. Snow
Cary E. Wolfe

Associate Professors
Amber Dermont
Scott S. Derrick
Sarah Ellenzweig
Lacy Johnson
Colleen R. Lamos
Susan Lurie
Nicole Waligora-Davis

Assistant Professors
Margarita Castroman
Emily Houlih-Ritchey
Alden Marte-Wood
Tomás Q. Morín

Professor in the Practice
Logan D. Browning

Writer in Residence
Justin C. Cronin

Senior Lecturer
Ian Schimmel

Lecturers
Amanda L. Johnson
Bryan Washington

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p.action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
ENGL 100 - INTRODUCTION TO LITERATURE
Short Title: INTRODUCTION TO LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to introduce students from a variety of academic backgrounds to the major literary genres of fiction, poetry, drama, and creative non-fiction. Students will learn and practice the skills of close reading, interpretation, and literary analysis through discussion and critical writing about literature and language. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 121 - AP/OTH CREDIT IN ENGLISH
Short Title: AP/OTH CREDIT IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 175 - GLOBAL LITERATURES IN ENGLISH
Short Title: GLOBAL LITERATURES IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to global literary studies and critical writing in which students study a range of literatures in English. The subject is twentieth-century modernism and its successors; postmodernism; and postcolonialism.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 200 - GATEWAYS TO LITERARY STUDY
Short Title: GATEWAYS TO LITERARY STUDY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course designed for and required of all prospective English majors. Emphasis is on close reading, literary interpretation, and critical writing. Attention is paid to the major genres (poetry, drama, and fiction) across a range of historical periods.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 201 - INTRODUCTION TO CREATIVE WRITING
Short Title: INTRO TO CREATIVE WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course dedicated to the study and craft of fiction, nonfiction, and poetry. Through engaged reading and creative exercises, students will analyze the use of various elements of creative writing - including image, voice, tension, character, setting, and story. Students will develop a writing portfolio as well as a sense of the possibilities inherent in and unique to each genre. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 203 - TOPICS IN CREATIVE WRITING  
Short Title: TOPICS IN CREATIVE WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An introductory, variable topics workshop in creative writing that asks students to work in multiple genres (fiction, non-fiction, poetry, reviewing, etc.). Topics will vary from semester to semester and may include "Food Writing," "Writing Green," "Persona," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.  
Course URL: english.rice.edu (http://english.rice.edu)

ENGL 204 - FORMS OF POETRY  
Short Title: FORMS OF POETRY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course examines the fundamental architecture of poetry. How do poets create a sense of shape? What are the nuts and bolts of a poem? Students will read widely in the history of poetry from traditional meters and historical forms to contemporary free verse and experimental or open forms. Part workshop and part seminar, this course will feature critical and creative assignments and is designed for majors and non-majors, writers and non-writers alike. Course counts toward the English Creative Writing Concentration (ECRW).  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 210 - BEGINNINGS: BRITISH LITERATURE TO 1800  
Short Title: BEGINNINGS: BRIT LIT TO 1800  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: A survey of representative British authors of the Middle Ages, the Renaissance, and the 18th century for both majors and non-majors.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 211 - BRITISH LITERATURE: ROMANTICISM TO THE 20TH CENTURY  
Short Title: BRIT LIT ROMANTICISM TO 20TH C  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: A survey of representative British authors of the 19th and 20th centuries for both majors and non-majors.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 213 - THE RICE REVIEW: INTRODUCTION TO LITERARY EDITING & PUBLISHING  
Short Title: R2:LITERARY EDITING/PUBLISHING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1.5  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course will explore the contemporary means and methods of literary publishing. The class will involve students in the real-world issues of producing Rice's own nationally award-winning undergraduate literary journal, R2: The Rice Review. The course will explore the methods and best-practices required to produce and sustain a high-quality literary journal on both print and digital platforms. Assignments will include: promotions, blog posts, book reviews, interviews, articles for web, editing, layout and graphic design. Course counts toward the English Creative Writing Concentration (ECRW). Two instances of ENGL 213 (1.5 credit hours) will be eligible to be counted toward the English Creative Writing Concentration/ECRW. Repeatable for credit. Instructor Permission Required. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 222 - THE WORLD AND SOUTH ASIA  
Short Title: WORLD AND SOUTH ASIA  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Introduction to important 20th and 21st-century writers in English from South Asia - the region that includes India, Pakistan, Bangladesh and Sri Lanka. Readings include award-winning and bestselling works (fiction and non-fiction) by writers who address a wide range of issues including national and cultural identity, colonialism, sexuality, religion, globalization and political violence. Cross-list: ASIA 222.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
ENGL 245 - INTERDISCIPLINARY APPROACHES  
Short Title: INTERDISCIPLINARY APPROACHES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Interdisciplinary study of cultural forms as diverse as poetry, advertisement, and film as well as topical interdisciplinary courses on literature and the arts, psychology, cultural studies, film media, anthropology, social theory, philosophy, law, and ethics. Topics vary each semester. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 250 - HISTORY OF THE NOVEL  
Short Title: HISTORY OF THE NOVEL  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Course designed to introduce students to the intellectual, historical and aesthetic importance of the novelistic tradition. Selection of works from the 19th century to the present may include Austen, Dickens, Flaubert, James, Woolf, Ellison, Nabokov, Rushdie, and Franzen, and others.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 251 - READING POETRY  
Short Title: READING POETRY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Course designed to introduce students to significant works of the poetic tradition, from ancient to contemporary, and from American and English masterworks to world poetry in translation.  

ENGL 252 - HOW TO READ TEXTS  
Short Title: HOW TO READ TEXTS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: In this course we will study a wide range of texts with a view to understanding how to read them attentively: newspaper articles, Facebook posts, tweets, poems, narratives, dramas.  

ENGL 255 - THE IDEA OF SHAKESPEARE  
Short Title: THE IDEA OF SHAKESPEARE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Who was Shakespeare? How do we understand the global multimedia icon that is "Shakespeare"? Designed for non-majors or for potential English majors, this course offers an introductory approach to the works of William Shakespeare and to the Shakespeare "phenomenon" through close attention to his poems, play texts, and after effects.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 260 - WHAT IS AMERICAN LITERATURE  
Short Title: WHAT IS AMERICAN LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: A survey of representative U.S. authors from the 18th century to the present designed for both majors and non-majors.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 265 - JEWISH-AMERICAN LITERATURE AND CULTURE  
Short Title: JEWISH-AMERICAN LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: A survey of Jewish-American literature from the early 20th century to the present designed for both majors and non-majors.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 267 - INTRODUCTION TO AFRICAN AMERICAN LITERATURE  
Short Title: INTRO TO AFRICAN AMER LIT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An introduction to the history and traditions of African American literature. Course will examine the poetry, essays, and fiction by people of African descent from the 18th to the 21st centuries.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 268 - INTRODUCTION TO NATIVE AMERICAN LITERATURE  
Short Title: NATIVE AMERICAN LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This multi-genre course introduces students to Native American literature through the contemporary novel, autobiography, critical essays, poetry, and film. An awareness of historical, cultural, and political movements important to American Indian peoples will supplement literary analysis. The class will address issues of sovereignty, land claims, activism, and identity.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 269 - SCIENCE FICTION AND THE ENVIRONMENT  
Short Title: SCI FI AND THE ENVIRONMENT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Examines the ways that science fiction has expressed and challenged ideas about nature, culture, society, and politics. Cross-list: ENST 265.

ENGL 270 - ASPECTS OF MODERN LITERATURE  
Short Title: ASPECTS OF MODERN LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An introduction to modern/postmodern culture that may include readings of novels, plays, short stories, poems, psychoanalytic theory, and art criticism/philosophy. The emphasis is on reading and interpreting different kinds of texts in broad cultural contexts.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 272 - LITERATURE AND MEDICINE  
Short Title: LITERATURE AND MEDICINE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Designed for, but not limited to, students interested in the medical profession, this course introduces the study of medicine through reading imaginative literature—novels, plays, essays, poems—by and about doctors and patients, focusing on understanding ethical issues and on developing critical and interpretive skills.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course URL</th>
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<tbody>
<tr>
<td>ENGL 278</td>
<td>MEDICINE IN THE AGE OF NETWORKED INTELLIGENCE</td>
<td>MED IN AGE OF NETWORKED INTELL</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
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<tr>
<td>ENGL 286</td>
<td>CLASSICAL AND CONTEMPORARY FILM AND THEORY</td>
<td>CLASSICAL &amp; CONTEMPORARY FILM</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
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<tr>
<td>ENGL 290</td>
<td>TOPICS IN LITERARY AND CULTURAL ANALYSIS</td>
<td>LITERARY CULTURAL ANALYSIS</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
</tr>
<tr>
<td>ENGL 289</td>
<td>ENGLISH LITERATURE AND THE PUBLIC HUMANITIES</td>
<td>LITERATURE/PUBLIC HUMANITIES</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
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<tr>
<td>ENGL 300</td>
<td>PRACTICES OF LITERARY STUDY: READING METHODS</td>
<td>PRACTICES OF LITERARY STUDY</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
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<tr>
<td>ENGL 301</td>
<td>INTRODUCTION TO FICTION WRITING</td>
<td>INTRO TO FICTION WRITING</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
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<tr>
<td>ENGL 302</td>
<td>SCREENWRITING</td>
<td>SCREENWRITING</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">www.english.rice.edu</a></td>
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</tbody>
</table>
ENGL 303 - PLAYWRITING  
Short Title: PLAYWRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Playwriting will explore and engage in various rudiments, skills, practices, stagings and performances of stage plays. Course counts toward the English Creative Writing Concentration (ECRW).  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 304 - INTRODUCTION TO POETRY WRITING  
Short Title: INTRO TO POETRY WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An introduction to poetry writing through the study of contemporary poets and the writing of poems. The class will pay extensive attention to such elements of poetry as imagery, figurative language, tone, syntax, and form in order to create a vocabulary for students to discuss their own poems. Students' poems will be critiqued by the class in a workshop setting. Course counts toward the English Creative Writing Concentration (ECRW). Registration for odd-numbered sections is restricted to English Majors (ENGL, ECRW); registration for even numbered sections is open to all undergraduate students.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 305 - INTRODUCTION TO CREATIVE NONFICTION WRITING  
Short Title: INTRO CREATIVE NONFICT WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course in reading and writing creative nonfiction prose for the beginning writer. Sections may focus on a range of nonfiction genres or one specific form, e.g. personal essay/memoir, travel narratives, literary journalism, science and nature writing. Course counts toward the English Creative Writing Concentration (ECRW). Registration for odd-numbered sections is restricted to English Majors (ENGL, ECRW); registration for even numbered sections is open to all undergraduate students.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 306 - TOPICS IN FICTION WRITING  
Short Title: TOPICS IN FICTION WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics workshop in the writing of fiction. Topics will vary from semester to semester and may include "Persona," "Experiments in Fiction," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 307 - TOPICS IN POETRY WRITING  
Short Title: TOPICS IN POETRY WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics workshop in the writing of poetry. Topics will vary from semester to semester and may include "Sonnet, Elegy, Ode," "Writing Green," "The Art of the Archive," "Poems and Paintings," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 308 - INTRODUCTION TO PODCASTING  
Short Title: INTRODUCTION TO PODCASTING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This project-based course will lead us through an introduction to the ever-expanding medium of podcasting, specifically radio storytelling. We will unpack and discuss the techniques of practiced podcasters and use those elements in our own attempts at radio reportage: arts & culture shorts, vox pops, sonic ID's, and short and long-form interviews. We will become proficient in capturing sound, interviewing strangers, writing scripts, pitching ideas for stories, and using GarageBand software to edit and shape that content. NOTE: If a student previously enrolled in ENGL 309 Special Topics - Podcasting, the student cannot take ENGL 308.
ENGL 309 - TOPICS IN CREATIVE NONFICTION WRITING
Short Title: CREATIVE NONFICT WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics workshop in the writing of creative nonfiction. Topics will vary from semester to semester and may include "Nature Writing," "Life Writing," "History of the Essay," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 310 - NONFICTION NATURE WRITING
Short Title: NONFICTION NATURE WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this creative writing seminar, students will explore some of the ways that creative nonfiction can become a vehicle for questions about how to imagine our place in the world, as well as the relationships between memory and landscape, politics and place, and inclusion and exile. NOTE: If a student previously enrolled in ENGL 309 Special Topics - Topics in Nonfiction Writing, the student cannot take ENGL 310. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 311 - TOPICS IN MEDIEVAL LITERATURE AND/OR CULTURE
Short Title: MEDIEVAL TOPICS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A special course in Medieval literature and/or culture. Topics will vary.

ENGL 312 - OLD ENGLISH LITERATURE AND LANGUAGE
Short Title: OLD ENGL LIT AND LANGUAGE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey course in Old English literature and language. Cross-list: MDEM 312. Repeatable for Credit.

ENGL 314 - MEDIEVAL ROMANCE
Short Title: MEDIEVAL ROMANCE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines the development of romance as a genre during the medieval period. Cross-list: MDEM 319.

ENGL 316 - CHAUCER
Short Title: CHAUCER
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Geoffrey Chaucer’s The Canterbury Tales, Middle English, and the political and cultural climate of the fourteenth century. Cross-list: MDEM 316, SWGS 305.

ENGL 317 - ARTHURIAN LITERATURE
Short Title: ARTHURIAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Cross-list: MDEM 317, SWGS 301.

ENGL 318 - FAIRY TALES AND FEAR TALES
Short Title: FAIRY TALES AND FEAR TALES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this class students will read, discuss and analyze a variety of classical and contemporary genres in order to compose and revise adaptations and original versions of classical fairy tales and horror stories. NOTE: If a student previously enrolled in ENGL 306 Special Topics - "Fairy Tales/ Fantasy and Fright", the student cannot take ENGL 318. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 319 - FANTASY AND SCIENCE FICTION
Short Title: FANTASY AND SCIENCE FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this class students will read, discuss and analyze a variety of classical and contemporary genres in order to compose and revise adaptations and original versions of fantasy and science fiction stories. NOTE: If a student previously enrolled in ENGL 306 Special Topics - "Fantasy and Fright", the student cannot take ENGL 319. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 320 - SHAKESPEARE ON FILM
Short Title: SHAKESPEARE ON FILM
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines both the text of selected Shakespearean plays and films based on them, focusing on the difference between film and drama.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 321 - SHAKESPEARE
Short Title: SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of representative Shakespearean plays, from the early modern period. Topics vary and have recently included "Love, Sex and Death in the Renaissance" and "Heaven and Hell."
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 322 - TOPICS IN SHAKESPEARE
Short Title: TOPICS IN SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A topics course in Shakespeare's works. Topics will vary semester to semester. See the English Department website for more information. This course will be repeatable for credit. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 323 - RENAISSANCE DRAMA
Short Title: RENAISSANCE DRAMA
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course focusing on selected plays of Elizabethan and Jacobean England, read both for their literary significance and for the way they were part of the period's social, economic, and political forces. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 325 - STUDY ABROAD: RICE ENGL MAJORS AT THE UNIVERSITY OF EXETER
Short Title: STUDY ABROAD: RICE AT EXETER
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: Special course for the transfer credit of pre-approved coursework taken at the University of Exeter, as part of the English department's study abroad program for English majors at the University of Exeter. Department Permission Required. Repeatable for Credit.

ENGL 326 - TOPICS IN RENAISSANCE LITERATURE AND CULTURE
Short Title: TOPICS IN REN. LIT. AND CULT.
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course focusing on various genres of English literature from the early modern period. Topics vary and have recently included "Love, Sex and Death in the Renaissance" and "Heaven and Hell." Repeatable for Credit.

ENGL 327 - GRAPHIC NOVEL
Short Title: GRAPHIC NOVEL
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course students will use the study of the Graphic Novel as an opportunity to explore imagination both analytically and creatively (and to recognize that the two modes are not at odds). Students shall read widely and deeply and with great pleasure and intensity. NOTE: If a student previously enrolled in ENGL 306 Special Topics "Graphic Novel", the student cannot take ENGL 327. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 328 - JOHN MILTON: RADICAL THOUGHT THEN AND NOW
Short Title: JOHN MILTON: RADICAL
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course on the major poems of John Milton, with an emphasis on “Paradise Lost” and the theological and philosophical issues that it engages (then and now). Mutually Exclusive: Cannot register for ENGL 328 if student has credit for ENGL 528.

ENGL 330 - ORIGINS OF THE ENGLISH NOVEL
Short Title: ORIGINS OF THE ENGLISH NOVEL
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course focusing on the most important literary innovation of the 18th-century: the birth of the novel. We will examine the modern social and cultural forces crucial to and inextricable from this watershed development: the emergence of liberalism, conservatism, feminism, class, secular culture, the sex/gender system, individualism, and the separation of public and private spheres.
Course URL: www.english.rice.edu

ENGL 332 - LITERATURE OF THE BRITISH ENLIGHTENMENT
Short Title: LIT OF BRITISH ENLIGHTENMENT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course on the major poems of John Milton, with an emphasis on “Paradise Lost” and the theological and philosophical issues that it engages (then and now). Mutually Exclusive: Cannot register for ENGL 328 if student has credit for ENGL 528.

ENGL 333 - 18TH CENTURY BRITISH FICTION
Short Title: 18TH CENTURY BRITISH FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the emergence and consolidation of the English novel and its dynamic relationship to many other 18th-century legacies: the modern individual, capitalism, civil society, the middle class, democracy, and colonialism. Grad/Undergraduate Equivalency: ENGL 532. Mutually Exclusive: Cannot register for ENGL 333 if student has credit for ENGL 532.
Course URL: www.english.rice.edu

ENGL 336 - IRISH LITERATURE
Short Title: IRISH LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that surveys Irish Literature since the 19th century and includes poetry, drama, and fiction. It focuses upon the political turmoil preceding and following the War of independence as well as debates concerning the ideological operations of literature. Some authors covered may be, Yeats, Joyce, Beckett, O’Brien, Bowen, Heaney and Boland. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 337 - GOTHIC AMERICAN LITERATURE: TERROR, HORROR, THE GROTESQUE, AND THE SUBLIME IN AMERICAN CULTURE
Short Title: GOTHIC AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines a representative range of British prose and poetry from 1660-1790, the period known as the Enlightenment. This was a volatile age of plots, revolution, philosophical and scientific innovation, and literary transformation. Our readings will cover poems of several genres, short prose narratives, essays and philosophical treatises.

ENGL 337 - GOTHIC AMERICAN LITERATURE: TERROR, HORROR, THE GROTESQUE, AND THE SUBLIME IN AMERICAN CULTURE
Short Title: GOTHIC AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Gothic America concerns the many instances of terror, horror, the grotesque, and the sublime in American literature, from the Republic’s troubled birth in the late 1700s to the onset of industrial modernity in the early 1900s. In surveying the theoretical underpinnings of the Gothic, this course will discuss race, sexuality, religion, science, and philosophy. In short, this course explores why America remains a haunted nation.
ENGL 338 - BRITISH ROMANTICISM  
Short Title: BRITISH ROMANTICISM  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A multi-genre course on the Romantic period. This course will explore the excesses, extremes, and diversities of British Romanticism across a variety of media: plays, tales, confessions, novels, and satires (including illustrations, paintings, and visual spectacles).  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 339 - ROMANTICISM IN RUINS  
Short Title: ROMANTICISM IN RUINS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The incomplete ruins - fragments - fascinate us. The course examines how this concern forms in the Romantic Period and how it remains relevant today. It focuses on texts (novels, poems, philosophy, history) and visual art; most sources will be Romantic, some contemporary (e.g. Wordsworth, Volney, Schlegel, Piranesi, Shelley, Burke, Sebald).  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 340 - CALDERWOOD SEMINAR IN PUBLIC WRITING  
Short Title: THE LINE OF LOVE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200  
Description: Take a step back from your English major and learn how to transfer your expertise to the public. The Calderwood Seminars in Public Writing challenge junior and senior majors in an intimate workshop setting to grow as critics and writers. Topics will vary semester to semester. Throughout the semester, students build a writing portfolio that might include op-eds, book reviews, journal article reviews, coverage of public talks, and interviews with poets and critics. Classes will include collaborative editing workshops, guest lectures from experts in the writing field, and activities to build a strong writing foundation. You have learned how to write for college, now learn how to write for life. Open to junior and senior English majors or by permission of instructor. Recommended Prerequisite(s): ENGL 300

ENGL 341 - VICTORIAN LITERATURE AND CULTURE  
Short Title: VICTORIAN LITERATURE & CULTURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A multi-genre course that explores the array of creative works that examine the Victorian period through poetry, non-fiction prose, fiction, art and material culture. Repeatable for Credit.

ENGL 342 - SURVEY OF VICTORIAN FICTION  
Short Title: VICTORIAN FICTION  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of the many genres of the nineteenth-century novel, this course will try to come to terms with some of the insistent questions posed by and through the fiction of the period. Cross-list: SWGS 372.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 343 - JANE AUSTEN'S WORLDS  
Short Title: JANE AUSTEN'S WORLDS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An exploration of Jane Austen as Regency writer and contemporary icon. The course will focus both on Austen's writing her novels, her juvenilia and her letters and on visual and textual adaptations of her work. Cross-list: SWGS 343.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 344 - ACCOUNTING FOR DICKENS  
Short Title: DICKENS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: How do we account for the extraordinary popularity and influence of Charles Dickens from his own time till now? How did he and how have his audiences assigned and extracted value from his writing and his life more generally? The course will focus on Dickens's journalism, novels, shorter fiction, and letters, as well as on visual and verbal adaptations of his work. Readings will include selections of texts from throughout Dickens's career such as Sketches by Boz, Oliver Twist, A Christmas Carol, David Copperfield, and A Tale of Two Cities.
ENGL 345 - MODERN SHORT STORY: TOWARDS AN ETHICS OF FICTION
Short Title: MODERN SHORT STORY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of great modern short fiction with emphasis on reading as an ethical enterprise. Selected critical essays complement works from Melville to Maupassant, Flaubert to Kafka to O'Connor as we talk about alienation and solitude, death and violence and the vicissitudes of family. Taught in English. Cross-list: FREN 355. Recommended Prerequisite(s): Any 200-level course or above in English or French Studies, or EURO 101 or EURO 102
Course URL: www.english.rice.edu

ENGL 355 - MODERNISMS
Short Title: MODERNISMS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of modernist work from the late 19th century to World War II. Course includes fiction, poetry, film, painting, theatre, music and theories of art.
Course URL: www.english.rice.edu

ENGL 356 - MODERNISMS
Short Title: MODERNISMS
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of modernist work from the late 19th century to World War II. Course includes fiction, poetry, film, painting, theatre, music and theories of art.
Course URL: www.english.rice.edu

ENGL 357 - ORIGINS OF THE POSTMODERN
Short Title: ORIGINS OF THE POSTMODERN
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of diverse cultural manifestations of the "postmodern" through the last half of the twentieth century. Popular music, novels, plays, film, art, and fairy tales may be discussed.
Course URL: www.english.rice.edu

ENGL 358 - CONSUMPTION AND CONSUMERISM
Short Title: CONSUMPTION & CONSUMERISM
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of the history, philosophy and culture of eating, drinking, shopping and other forms of consuming. Featuring detailed analysis of literatures in English, visual art, music, film and food.
Course URL: www.english.rice.edu
ENGL 359 - WRITING ON/WRITING OFF NEW ORLEANS  
Short Title: WRITING ON/OFF NEW ORLEANS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group 1  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An examination of the relation between New Orleans and the writing in and about it. Works by Kate Chopin, William Faulkner, Tennessee Williams, Walker Percy, Eudora Welty, John Kennedy Toole, Michael Ondaatje, and others will be studied. Students will create their own New Orleans text in a final paper.  
Course URL: english.rice.edu (http://english.rice.edu)  

ENGL 360 - AMERICAN LITERATURE BEFORE THE CIVIL WAR  
Short Title: AMER LIT BEFORE THE CIVIL WAR  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group 1  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of American literatures spanning the Age of Discovery, Atlantic Revolutions, and onset of the U.S. Civil War.  

ENGL 361 - US LITERATURE FROM THE CIVIL WAR TO WWI  
Short Title: US LITERATURE CIVIL WAR TO WWI  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group 1  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: From Mark Twain to T.S. Elliot, a survey of authors commenting on the American North, South, and West from Reconstruction to WWI.  

ENGL 362 - MODERN AMERICAN FICTION  
Short Title: MODERN AMERICAN FICTION  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group 1  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of the fiction of the first half of the 20th century, one of the great periods of social turmoil and intense artistic experimentation. Authors may include Chopin, Hemingway, Fitzgerald, Toomer, Faulkner, Hurston, Barnes.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 363 - THE US NOVEL POST-WORLD WAR II  
Short Title: US NOVEL POST-WORLD WAR II  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group 1  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An examination of the narrative experiments and trends of the period, from 1950 to the present.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 364 - MODERN AMERICAN POETRY  
Short Title: MODERN AMERICAN POETRY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of representative American poets of the period. These may include Gertrude Stein, Amy Lowell, Robert Frost, Wallace Stevens, William Carlos Williams, Ezra Pound, Marianne Moore, T.S. Eliot.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 365 - AMERICAN POETRY 1960-PRESENT  
Short Title: AMERICAN POETRY 1960-PRESENT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of 20th - 21st century U.S. poetry: poets studied may include Elizabeth Bishop, Robert Hayden, Randall Jarell, John Berryman, Robert Lowell, Gwendolyn Brooks, Denise Levertov, James Merrill, John Ashbury, Philip Levine, Anne Sexton, and others.  

ENGL 366 - TOPICS IN AMERICAN LITERATURE  
Short Title: TOPICS IN AMERICAN LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics course focusing on themes, movements or genres across several periods of American literature. Previous topics include Sea Stories, American Gothic, Bob Dylan and the '60s and Utopia. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Distribution Group</th>
<th>Restrictions</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 369</td>
<td>THE AMERICAN WEST AND ITS OTHERS</td>
<td>THE AMERICAN WEST &amp; ITS OTHERS</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>A mixed-genre course focusing on the Chicano movement, and the American West. Special attention is given to theories and critiques of the American West and the concept of regionalism. Explores region in relation to the nation and its borders, global media, coloniality, indigeneity and race, gender, and an ethics of place. Cross-list: ENST 368.</td>
</tr>
<tr>
<td>ENGL 370</td>
<td>AFRICAN AMERICAN LITERATURE</td>
<td>AFRICAN AMERICAN LITERATURE</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>A course that traces, through various genres and themes, African American literary history from the late eighteenth century to the present. Attention is given to theories and critiques of African American literature and culture. Cross-list: SWGS 370.</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>CHICANO/A LITERATURE</td>
<td>CHICANO/A LITERATURE</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: SPPO 354, SWGS 354. Repeatable for Credit.</td>
</tr>
<tr>
<td>ENGL 372</td>
<td>ASIAN AMERICAN LITERATURE</td>
<td>ASIAN AMERICAN LITERATURE</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>A course that asks the question: How does literature express or shape environmental values? In this class we will read American fiction and nonfiction exploring the relationship between human and nonhuman nature. Cross-list: ENST 368.</td>
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<tr>
<td>ENGL 373</td>
<td>SURVEY OF AMERICAN FILM AND CULTURE</td>
<td>SURVEY OF AMER FILM &amp; CULTURE</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>A course that examines the various themes of the Asian American experience through literary and cultural forms. Special attention is given to the representational histories of Asian/American immigration, racial formation, and social movements.</td>
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<tr>
<td>ENGL 374</td>
<td>CINEMA STUDIES</td>
<td>CINEMA STUDIES</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>ENGL 375</td>
<td>FILM AND LITERATURE</td>
<td>FILM AND LITERATURE</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>A course that examines the various themes of the Asian American experience through literary and cultural forms. Special attention is given to the representational histories of Asian/American immigration, racial formation, and social movements.</td>
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</tbody>
</table>
ENGL 376 - SOUTHEAST ASIAN LITERATURE IN ENGLISH  
Short Title: SE ASIAN LITERATURE IN ENGLISH  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An introductory course that surveys the literary history of English-language writing in Southeast Asia. This course examines twentieth- and twenty-first-century novels, short stories, and poetry from across the region, with a primary focus on literature from former colonies of the British and American empires—namely, Singapore, Malaysia, and the Philippines. Attention will also be given to Vietnamese literature grappling with the legacies of American military intervention in the region. Situating this dynamic writing within the historical, cultural, and sociopolitical contexts of Southeast Asia, this course will introduce students to shared thematic engagements with anticolonial nationalism, the aftermath of war, modernization, urbanization, and globalization.  
Course URL: english.rice.edu (http://english.rice.edu)

ENGL 377 - ART AND LITERATURE  
Short Title: ART AND LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course that explores how the languages of text and image can interrogate as well as clarify each other. We will focus on three key bodies of work: the paintings of Vermeer; a massive graphic novel by Charlotte Salomon, a 22 year old woman who died at Auschwitz; and Alfred Hitchcock’s revision of his novelistic source for “Psycho”.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 379 - THIRD WORLD LITERATURE  
Short Title: THIRD WORLD LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course that primarily surveys fiction, poetry, drama, film (in English) from postcolonial contexts, especially those of Africa, the Caribbean, and the Indian subcontinent. Authors discussed may include Rushdie, Narayan, Roy, Wolcott, Ngugi, Coetzee, and Achebe.

ENGL 380 - CONTEMPORARY ANGLOPHONE LITERATURES  
Short Title: CONTEMPORARY ANGLOPHONE LIT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course that focuses on literatures in English that emerge in the wake of European colonialism, except those from the United States. Writers might include those from Africa, Australia, Canada, India, or the Caribbean. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 381 - TOPICS IN WOMEN WRITERS  
Short Title: TOPICS IN WOMEN WRITERS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics course that focuses on women writers from various traditions. Cross-list: SWGS 327. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 382 - FEMINIST THEORY  
Short Title: FEMINIST THEORY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course focusing on concepts that drive and divide social movements centered on gender equality, women's issues, and sexual identity in the two-thirds and one-third world, among them feminism; the body; race; labor; rights, needs, and desires. Cross-list: SWGS 380. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 383 - GLOBAL FICTIONS  
Short Title: GLOBAL FICTIONS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course that has two components: one, it looks at recent fiction in English by U.S., British, and international writers that deal with global and transnational issues; and two, it studies the work of recent cultural critics who provide new understandings of an increasingly networked world as well as the imaginative and narrative tools—fictional, artistic, cinematic, electronic and visual—that we use to process the fast-paced realities of contemporary globalization.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 384 - AMERICAN INDEPENDENT CINEMA
Short Title: AMERICAN INDEPENDENT CINEMA
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the history of filmmaking outside of Hollywood in the United States throughout the 20th century, emphasizing the period from 1959 to the present. Special attention to the contributions of marginalized communities and the art world, innovative film styles, and the interdependence of alternative and mainstream media cultures. Cross-list: FILM 384.

ENGL 385 - FILM STUDIES
Short Title: FILM STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that may focus on such areas as film genres, national cinemas, world cinema, directors or other thematically organized topics. Cross-list: FILM 385. Mutually Exclusive: Cannot register for ENGL 385 if student has credit for ENGL 589. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 386 - MEDICAL MEDIA ARTS LAB
Short Title: MEDICAL MEDIA ARTS LAB
Department: English
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will collaborate with health professionals to create solutions to real-world medical communication, visualization and design problems. Working individually and in teams, students will apply critical thinking and theory to hands-on design. Projects may include production of short videos, infographics, app development, 3-D virtual models, creative writing, and other media arts. Cross-list: FILM 381.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 387 - TOPICS IN CULTURAL STUDIES
Short Title: CULTURAL STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that may focus on one or more theorist, on a genre or theme, or on debates within the field of cultural studies. Recent topics have included mass culture and film; Marx; Science in Fiction and Film; contemporary ethnic studies; and more. Not limited in period, scope, or geography. Repeatable for Credit.

ENGL 388 - MEDIA STUDIES
Short Title: MEDIA STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that addresses interdisciplinary approaches to studying the relationships between film, photography, television, and digital technologies such as the internet and computer-generated imaging. Cross-list: FILM 386. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 389 - YOUTH STUDIES
Short Title: YOUTH STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course exploring the cultural productions of youth, their social geographies, and youth as a critical field important to the theorization of activism, technology, law and incarceration, reproductive politics, sexuality, consumerism, citizenship, environment. Previous topics: Generation X, Third Wave Feminism, Obama and the Youth Vote, Harry Potter & Gen Y, Power, Politics, and Reading Issues of Access. Cross-list: SWGS 389.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

2021-2022 General Announcements PDF Generated 09/22/21
ENGL 390 - INTRODUCTION TO THEATRE
Short Title: INTRODUCTION TO THEATRE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 392 - CONTEMPORARY POETRY
Short Title: CONTEMPORARY POETRY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An in-depth analysis of contemporary poetry and poetics. Readings will focus on the rich variety of work written in English between the last decades of the twentieth century and to present. Topics will vary from semester to semester. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 397 - TOPICS IN LITERATURE AND CULTURE
Short Title: TOPICS IN LITERATURE & CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 398 - SLAVERY IN 20TH CENTURY FILM AND FICTION
Short Title: SLAVERY IN 20TH C. FILM & FICT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies how twentieth century reconstructions of slavery in American literature and film engage contemporary anxieties regarding race, gender, sexuality, and national identity. These neo-slave narratives often critique modernity; challenge how we think about history, evidence, memory, and trauma; and trouble narrative conventions.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 399 - THE BLACK IMAGINARY: 1775-PRESENT
Short Title: THE BLACK IMAGINARY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course addresses some of the leading questions that shaped black writings and expressive culture in the United States from the late 18th century forward. Our readings will include Wheatley, Walker, Delany, Douglass, Du Bois, Ellison, Baldwin, King, Malcolm X, Morrison, Percival Everett, and early and contemporary films and music.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 401 - ADVANCED FICTION WRITING
Short Title: ADVANCED FICTION WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 301
Description: A course conducted mostly as a workshop for advanced fiction writers. It will include assigned writing exercises and weekly readings of published stories to deepen students' understanding of narrative technique. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 402 - WRITING LONGER FICTION: NARRATIVE DESIGN  
Short Title: WRITING LONGER FICTION  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 301 or ENGL 306  
Description: A course in writing of longer narrative forms for advanced fiction writers. At the start of the semester, students will write a proposal for an original novel in the genre of their choosing and complete no fewer than 100 pages by the end. The class will be a mixture of discussion of assigned reading, workshop, and one-on-one tutorial. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 404 - ADVANCED POETRY WRITING  
Short Title: ADV POETRY WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 304  
Description: An in-depth study of contemporary poetry, this course emphasizes the careful analysis of books by six to eight contemporary poets, the reading of selected essays on poetic technique, and the writing of poems with a view toward finding a personal voice. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 405 - ADVANCED CREATIVE NONFICTION WRITING  
Short Title: ADV CREATIVE NONFICT WRITING  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An advanced reading and writing workshop for writers who have some familiarity with the nonfiction genre. Published works will be read as blueprints for the construction of student work. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)  

ENGL 410 - SENIOR SEMINAR  
Short Title: SENIOR SEMINAR  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in English. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200 and ENGL 300  
Description: The Senior Seminar is the first course in a 2 part sequence, required of all senior English majors. An immersive, research and writing methods course, the Senior Seminar prepares students to produce a significant piece of critical or creative work, guiding each year’s senior cohort through the methods and best-practices that invigorate longer-forms of creative inquiry and research. Similar to other senior design and research courses throughout the university, the Senior Seminar engages students in the deeper and more rewarding processes of sustained writing and research, and offers all students the opportunity to prepare and build an independent research project with sustained faculty support.  

ENGL 411 - RESEARCH WORKSHOP  
Short Title: RESEARCH WORKSHOP  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in English. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200 and ENGL 300  
Description: Taught in the Spring, the Research Workshop is the 2nd course required of senior English majors. It follows from the Fall Senior Seminar. The course is co-taught by three faculty members from different areas of expertise, including one creative writer. The Spring Research Workshop guides the cohort of senior majors from the Fall Senior Seminar through the writing stage of their senior projects. In this course, the students will complete their in-depth critical or creative project, begun in the Fall semester. Recommended Prerequisite(s): ENGL 200 and ENGL 300 and ENGL 410  

ENGL 418 - STUDIES IN RENAISSANCE DRAMA  
Short Title: STUDIES IN RENAISSANCE DRAMA  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200 and ENGL 300  
Description: A variable topics course designed to build on student knowledge gained earlier in the curriculum. Repeatable for Credit.
ENGL 419 - STUDIES IN SHAKESPEARE
Short Title: STUDIES IN SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that provides an opportunity to explore some dimension of Shakespeare's work with specialized focus. Please consult English department for specific details. Repeatable for Credit.

ENGL 430 - EMPIRE AND BRITISH LITERATURE 1700-1950
Short Title: EMPIRE & BRITISH LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: This course provides detailed knowledge of a diverse range of eighteenth and nineteenth-century texts that engaged the realities, possibilities, fantasies and pitfalls of the British Empire. Course also includes historical and archival material as well as recent critical and historical approaches to the study of empire and its relationship to cultural identity. Repeatable for Credit.
Course URL: english.rice.edu (http://english.rice.edu)

ENGL 438 - THE GROTESQUE
Short Title: THE GROTESQUE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the grotesque in literature and art. It covers a variety of textual and visual sources across periods; theoretical materials will include works from literary studies, visual culture, art history, critical theory and aesthetics. Cross-list: HART 430.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 441 - VICTORIAN STUDIES
Short Title: VICTORIAN STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: A variable topics course designed to build on student knowledge of Victorian literature and/or culture gained earlier in the curriculum. Recent topics have included the family, "The Pre-Raphaelites", "Around 1900" the "Long Victorian Novel", and "Victorian Legacies". Graduate/Undergraduate Equivalency: ENGL 541. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 459 - STUDIES IN LITERATURE AND ECOLOGY
Short Title: STUDIES IN LIT. AND ECOLOGY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A special topics course that addresses literature and culture from 1750 to the present, with a view to understanding the new geological era that humans have created, and its ecological implications. Repeatable for Credit.

ENGL 461 - 19TH-CENTURY AMERICAN STUDIES
Short Title: 19TH-CENTURY AMER STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course designed to build on student knowledge of 19th-century American literature and/or culture gained earlier in the curriculum. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 466 - STUDIES IN AMERICAN/U.S. LITERATURE AND CULTURE
Short Title: STUDIES IN AMER/ US LIT, CULT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: A special topics course in American/U.S. literature and culture that transcends historical periods. Repeatable for Credit.
ENGL 470 - STUDIES IN AFRICAN AMERICAN LITERATURE  
**Short Title:** AFRICAN AMERICAN STUDIES  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable topics course designed to build on student knowledge of African American literature gained earlier in the curriculum. Past topics include Black Women Writers. Cross-list: SWGS 453. Graduate/Undergraduate Equivalency: ENGL 570. Repeatable for Credit.

ENGL 477 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ENGL 481 - FEMINIST STUDIES  
**Short Title:** FEMINIST STUDIES  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable topics course designed to build on student knowledge of feminist theory gained earlier in the curriculum. Recent topics have included sexualities, Marriage and Its Others, and Third Wave Feminism. Cross-list: SWGS 407. Repeatable for Credit.

ENGL 485 - STUDIES IN MODERN LITERATURE  
**Short Title:** STUDIES IN MODERN LITERATURE  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable topics course designed to build on student knowledge of modern literature gained earlier in the curriculum. Repeatable for Credit.  
**Course URL:** www.english.rice.edu (http://www.english.rice.edu)

ENGL 493 - INDEPENDENT STUDY/DIRECTED READING  
**Short Title:** INDEPENDENT STUDY/DIR READING  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable-credit course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval of an English department faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.  
**Course URL:** www.english.rice.edu (http://www.english.rice.edu)

ENGL 494 - SENIOR THESIS PREPARATION  
**Short Title:** SENIOR THESIS PREPARATION  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Special work, research and preliminary preparation of a substantive research project for advanced English majors under the supervision of a member of the English department. Prerequisites: ENGL 200 and ENGL 300. Consult English department website for procedures and application. Instructor and department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.  
**Course URL:** www.english.rice.edu (http://www.english.rice.edu)
ENGL 495 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300 or (ENGL 493 or ENGL 494)
Description: Writing and completion of a substantive research project under the supervision of a member of the English department. Prior approval of instructor and department approval must be granted prior to registration. Consult English department website for procedures and application. Instructor and department approval must be granted prior to registration. Prerequisites: ENGL 200; ENGL 300; ENGL 493 or 494. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 497 - STUDIES IN LITERATURE AND CULTURE
Short Title: LITERATURE AND CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: A variable topics course in a variety of fields and genres, such as City in Literature; Writing On/Writing Off New Orleans; and Literatures of Environmental Justice. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 509 - MASTER'S THESIS
Short Title: MASTER'S THESIS
Department: English
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 510 - PEDAGOGY SEMINAR
Short Title: PEDAGOGY SEMINAR
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For third-year graduate students preparing to teach their own classes in their fourth year. This course will help students put together syllabi and other teaching materials, address various pedagogical issues and problems, formulate their teaching philosophies.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 513 - THEORY AND MEDIEVAL LITERATURE
Short Title: THEORY AND MEDIEVAL LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course in Literary and/or Critical Theory’s engagement with Medieval Literature. Topics may include, “Gender Theory and Chaucer,” “The Neighbor in Medieval Romance,” “Medieval Ecologies,” “Postcolonial Medieval,” “Imagining Medieval Geographies/ Cartographies.” Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 521 - SHAKESPEARE
Short Title: SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Graduate/Undergraduate Equivalency: ENGL 321. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 522 - SHAKESPEARE AND THEORY
Short Title: SHAKESPEARE AND THEORY
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 525 - LITERATURE AND VISUAL ART
Short Title: LITERATURE AND VISUAL ART
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 527 - STUDIES IN RENAISSANCE LITERATURE
Short Title: RENAISSANCE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variables topics course. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 532 - 18TH CENTURY BRITISH STUDIES  
Short Title: 18TH CENTURY BRITISH STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Please consult the English department website for additional information. Recent topics include Enlightenment Institutions, Origins of British Novel, Eighteenth-century Emergences, and Libertinism. Graduate/Undergraduate Equivalency: ENGL 333. Mutually Exclusive: Cannot register for ENGL 532 if student has credit for ENGL 333. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 536 - ENLIGHTENMENT IN CONTEXT  
Short Title: ENLIGHTENMENT IN CONTEXT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Topics may include: British and European Enlightenment literature and culture broadly conceived (such as philosophy, science, religion, visual art, aesthetics, questions of gender etc.). Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 537 - 19TH CENTURY STUDIES  
Short Title: 19TH CENTURY STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included "The Serialization of the Novel," Victorian Nonhumans," and "Genealogy of Geopolitics." Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 538 - ROMANTICISM IN CONTEXTS  
Short Title: ROMANTICISM IN CONTEXTS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Topics might include: Wordsworth; Blake; Keats & Shelley; Romanticism and Visual Cultures: Romantic Poetics; Aesthetics. For additional information consult the English department website. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 541 - VICTORIAN STUDIES  
Short Title: VICTORIAN STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included "Material Constructions, or What Things Have to Do With Us", and "On or About 1860". Graduate/Undergraduate Equivalency: ENGL 441. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 542 - VICTORIAN FICTION  
Short Title: VICTORIAN FICTION  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included "The Victorian Marriage Plot", "The History of the Novel, Part II"; and "Victorian and Modern Sexualities". Cross-list: SWGS 542. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 546 - SPECIAL TOPICS: 20TH CENTURY BRITISH LITERATURE  
Short Title: SP 20TH CENTURY BRITISH LIT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Please consult the English department website for additional course information. Cross-list: SWGS 546. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 560 - 19TH CENTURY AMERICAN/US LITERATURE  
Short Title: 19TH C. AMERICAN/US LITERATURE  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included Dickinson and Crane; Hawthorne and Stowe; Male Subjectivities; Howells and Wharton; 19th-century Women Writers; Slavery and the sentiment Novel; Liberalism; and Agency, Class and Anxiety in 19th-century American Literature and Criticism. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 564 - Faulkner and Contemporary Theory
Short Title: Faulkner & Contemp Theory
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An intensive examination of four or five of Faulkner’s major novels in the context of a broad range of twentieth-century interpretive strategies. The class will consider issues of narrative form, social context, gender, race, and modern and postmodern aesthetics. Consult the English department website for additional information.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 569 - Transnational American Studies
Short Title: Transnational American Studies
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course introduces the major critical voices in the transnational turn that has been underway in American literary studies for the last decade. Further, it focuses on a series of literary texts and case studies that have occasioned reanalysis of the critical tools and assumptions governing American studies.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 570 - African American Studies
Short Title: African American Studies
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Visual Cultures 1550-1800; Problems of Close Reading in literature and film; and Ecology & Philosophy.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 573 - Black Histories Lab: Digital Humanities & Black Studies
Short Title: Black Histories Lab
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Combining the elements of a research practicum and traditional graduate seminar, the Black Histories Lab focuses on the study, preservation, histories, and cultures of African Americans. This research intensive graduate seminar combines African American literary and expressive culture, black feminist and critical race theory, and histories of American race relations with opportunities to participate in engaged research projects in digital humanities.

ENGL 577 - Emergent Media: Technologies, Networks, Culture
Short Title: Emergent Media: Tech, Net, Cult
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will delve deeply into media theory, examining the complex interplay between the emergence of new media technologies in different historical periods (past, present and future), the networks of commerce and creativity that fuel and arise from these innovations, and the cultural productions that result.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 581 - Cultural Studies: Contemporary Literature, Culture and Politics
Short Title: Contemplit., Culture & Poli
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Contemporary Issues in U.S. Culture and Studies in Sexuality. Thinking Sex Under Neo-Liberalism. Cross-list: SWGS 581. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 585 - Postcolonialism and Beyond
Short Title: Postcolonialism and Beyond
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course that serves both as an introduction to postcolonial theory and as a reevaluation of its political and ethical ends vis-a-vis recent debates around globalization and cosmopolitanism. For additional course information please consult the English department website. Cross-list: SWGS 585.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 591 - Studies in Literature and Other Disciplines
Short Title: Studies in Lit & Other Discipl
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included Visual Cultures 1550-1800; Problems of Close Reading in Literature and Film; and Ecology & Philosophy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 592 - STUDIES IN MODERNISM
Short Title: STUDIES IN MODERNISM
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included What Was Modernism; and Joyce and Modernism. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 596 - STUDIES IN MAJOR AMERICAN AUTHORS
Short Title: CONTEMP. LIT AND CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Emerson and Posthumanism. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 594 - STUDIES IN CONTEMPORARY LITERATURE AND CULTURE
Short Title: STUDIES IN CONTEMPORARY LITERATURE AND CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Global English, Globalization and its Discontents; and Critical Regionalisms. Cross-list: HART 594. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 604 - SPRING TEACHING OF LITERATURE AND COMPOSITION
Short Title: SPRING TEACHING OF LITERATURE AND COMPOSITION
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to those graduate students teaching independent courses in the English department in the fall semester. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 602 - SPRING TEACHING PRACTICUM
Short Title: SPRING TEACHING PRACTICUM
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to those graduate students serving as teaching assistants for courses in English. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 600 - TOPICS IN LITERARY STUDIES
Short Title: TOPICS IN LITERARY STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The first in a two-semester sequence of courses designed to introduce first-year graduate students to different methods and theoretical approaches, to the history and culture of the university as an institution, and to professional genres. Restricted to first-semester graduate students in the English Department.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 601 - FALL TEACHING PRACTICUM
Short Title: FALL TEACHING PRACTICUM
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to those graduate students serving as teaching assistants for courses in English. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 603 - FALL TEACHING OF LITERATURE AND COMPOSITION
Short Title: FALL TEACHING OF LITERATURE AND COMPOSITION
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to graduate students teaching independent courses in the English department in the fall semester. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 605 - SPRING TEACHING OF LITERATURE AND COMPOSITION
Short Title: SPRING TEACHING OF LITERATURE AND COMPOSITION
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to graduate students teaching independent courses in the English department in the spring semester. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)
ENGL 605 - THIRD-YEAR WRITING WORKSHOP
Short Title: THIRD-YEAR WRITING WORKSHOP
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval on an English department faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 610 - TOPICS IN LITERARY STUDIES PART 2
Short Title: TOPICS IN LITERARY STUDIES 2
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ENGL 600
Description: The second in a two-semester sequence of courses designed to introduce first-year graduate students to different methods and theoretical approaches, to the history and culture of the university as an institution, and to professional genres.
Course URL: english@rice.edu (http://english@rice.edu)

ENGL 621 - FALL DIRECTED READING
Short Title: FALL DIRECTED READING
Department: English
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval on an English department faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: English
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students. 
Course Level: Graduate
Description: A course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval on an English department faculty member. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 600 - PHD RESEARCH AND THESIS
Short Title: PHD RESEARCH AND THESIS
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Dissertation research for PhD candidates. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 603 - RESEARCH LEADING TO CANDIDACY YEAR 3
Short Title: RESEARCH LEADING TO CANDIDACY YEAR 3
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Year 3 research leading to PhD candidacy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 604 - RESEARCH LEADING TO CANDIDACY YEAR 4
Short Title: RESEARCH LEADING TO CANDIDACY YEAR 4
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Year 4 research leading to PhD candidacy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 705 - SUMMER RESEARCH LEADING TO CANDIDACY
Short Title: SUMMER CANDIDACY RESEARCH
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Summer research leading to PhD candidacy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 706 - PHD RESEARCH AND THESIS
Short Title: PHD RESEARCH AND THESIS
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Dissertation research for PhD candidates. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:
Upon completing the BA degree with a major in English, students will be able to demonstrate:

1. Competence in literary analysis.
2. Understanding of literature in relation to its historical and socio-cultural contexts.
3. Disciplinary-specific methodological, critical, and theoretical training.
4. Critical writing skills in papers of varying length.
5. Disciplinary-specific research knowledge.

**Requirements for the BA Degree with a Major in English**

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in English must complete:

- A minimum of 11 courses (33-36 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 7 courses (21 credit hours) taken at the 300-level or above.
- The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in English, students must additionally identify and declare one of four areas of specialization, either in:
  - Culture and Social Change (p. 985), or
  - Literature and Literary History (p. 986), or
  - Science, Medicine, and the Environment (p. 987), or
  - Visual and Comparative Media (p. 987).

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

AP course credit is not permitted to count towards the major. The department recommends that all English majors take courses in British and American history and, if they plan to do graduate work, at least 6 credit hours of upper-level coursework in a foreign language.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier].) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Major in English</td>
<td>33-36</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in English</td>
<td>120</td>
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**Degree Requirements**

<table>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td><strong>Core Requirements</strong> 1</td>
<td></td>
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<tr>
<td>ENGL 200</td>
<td>GATEWAYS TO LITERARY STUDY</td>
<td>3</td>
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</tbody>
</table>

**Course Catalog/Schedule**

- Course offerings/subject code: ENGL

**Department Description and Code**

- English: ENGL

**Undergraduate Degree Description and Code**

- Bachelor of Arts degree: BA

**Undergraduate Major Description and Code**

- Major in English: ENGL

**Undergraduate Major Concentration Description and Code**

- Major Concentration in Creative Writing: ECRW

**Undergraduate Major Areas of Specialization Descriptions and Attribute Codes**

- Area of Specialization in Culture and Social Change: ECSC
- Area of Specialization in Literature and Literary History: ELLH
- Area of Specialization in Science, Medicine, and the Environment: ESME
- Area of Specialization in Visual and Comparative Media: EVCM

**Please Note:** Areas of Specialization are department/program-specific and are not formally recognized academic credentials. Unlike Major Concentrations, Areas of Specialization do not appear on the student’s official academic transcript, etc.

**Graduate Degree Descriptions and Codes**

- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD

**Graduate Degree Program Description and Code**

- Degree Program in English: ENGL

**CIP Code and Description**

<table>
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<tr>
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<th>Title</th>
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<tr>
<td>ENGL</td>
<td>Major/Program: CIP Code/Title: 23.0101 - English Language and Literature, General</td>
</tr>
<tr>
<td>ENGL</td>
<td>ECRW Major Concentration: CIP Code/Title: 23.1302 - Creative Writing</td>
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</tbody>
</table>

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

**Bachelor of Arts (BA) Degree with a Major in English**

**Program Learning Outcomes for the BA Degree with a Major in English**

Upon completing the BA degree with a major in English, students will be able to demonstrate:
ENGL 300  PRACTICES OF LITERARY STUDY: READING METHODS  3

Pre-1900 and Pre-1800

Select 3 courses from Pre-1900 and Pre-1800 courses (see course list below). At least 2 of the 3 selected courses must be in fields designated as Pre-1800.

Critical Race, Postcolonial, and Gender Studies Requirement

Select 1 course from Critical Race, Postcolonial, and Gender Studies courses (see course list below).

Area of Specialization

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

- Culture and Social Change
- Literature and Literary History
- Science, Medicine, and the Environment
- Visual and Comparative Media

Senior Seminar and Research Workshop Requirement 2

ENGL 410  SENIOR SEMINAR  3
ENGL 411  RESEARCH WORKSHOP  3

Total Credit Hours Required for the Major in English  33-36

Additional Credit Hours to Complete Degree Requirements *  53-56

University Graduation Requirements (p. 29) *  31

Total Credit Hours  120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Specific course offerings will vary from semester to semester.

2 The Senior Seminar and Research Workshop requirement consists of the year-long, 6 credit hour senior seminar (ENGL 410) and research workshop (ENGL 411).

Course Lists to Satisfy Requirements

The following lists of courses can be used to satisfy the requirements of the major when available. Specific course offerings will vary from semester to semester. Courses not on the list may be taken upon approval of the department's Director of Undergraduate Studies. Requirements fulfilled by special topics field courses can vary.

Pre-1900 and Pre-1800 Requirement

Students must complete a total of 3 courses (9 credit hours) at the 200-level or above in periods before 1900. Of the 3 courses, 2 courses (6 credit hours) must be from the approved Pre-1800 coursework, but only one may be a Shakespeare course. The third required course may be an additional course from the Pre-1800 coursework or an approved Pre-1900 course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>ENGL 210</td>
<td>BEGINNINGS: BRITISH LITERATURE TO 1800</td>
<td>3</td>
</tr>
</tbody>
</table>
Critical Race, Postcolonial, and Gender Studies Requirement
Students must complete 1 course (3 credit hours) at the 200-level or above that focuses on African American, Chicano/a, Asian American, ethnic, global, postcolonial, diasporic or gender and sexuality studies.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
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<tr>
<td>ENGL 222 / ASIA 222</td>
<td>THE WORLD AND SOUTH ASIA</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 265</td>
<td>JEWISH-AMERICAN LITERATURE AND CULTURE</td>
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Areas of Specialization
Students must complete the requirements as listed for one of the following areas of specialization as offered by the English major. A total of 3 courses (9-12 credit hours, depending on course selection) must be taken in the area of specialization.

Please note: When applicable, students may count one course from Core Requirements (the Pre-1900 and Pre-1800 Requirement or the Critical Race, Postcolonial, and Gender Studies Requirement) toward their chosen area of specialization. Additional coursework would then be required in order to complete a minimum of 11 courses (33-36 credit hours, depending on course selection) to satisfy major requirements. Please see an advisor for more information.

Area of Specialization: Culture and Social Change
To fulfill the remaining English major requirements, students pursuing the Culture and Social Change area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Culture and Social Change area of specialization

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## Area of Specialization: Literature and Literary History

To fulfill the remaining English major requirements, students pursuing the Literature and Literary History area of specialization must complete:

- a minimum of 3 courses (9 credit hours) from the Literature and Literary History area of specialization

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**Area of Specialization: Science, Medicine, and the Environment**

To fulfill the remaining English major requirements, students pursuing the Science, Medicine, and the Environment area of specialization must complete:

- a minimum of 3 courses (9-10 credit hours, depending on course selection) from the Science, Medicine, and the Environment area of specialization

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**Area of Specialization: Visual and Comparative Media**

To fulfill the remaining English major requirements, students pursuing the Visual and Comparative Media area of specialization must complete:

- a minimum of 3 courses (9-12 credit hours, depending on course selection) from the Visual and Comparative Media area of specialization

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**Area of Specialization: Science, Medicine, and the Environment**

To fulfill the remaining English major requirements, students pursuing the Science, Medicine, and the Environment area of specialization must complete:

- a minimum of 3 courses (9-10 credit hours, depending on course selection) from the Science, Medicine, and the Environment area of specialization

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**Area of Specialization: Visual and Comparative Media**

To fulfill the remaining English major requirements, students pursuing the Visual and Comparative Media area of specialization must complete:

- a minimum of 3 courses (9-12 credit hours, depending on course selection) from the Visual and Comparative Media area of specialization

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<td>MEDICINE IN THE AGE OF NETWORKED INTELLIGENCE</td>
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<tr>
<td>ENGL 302</td>
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<td>GRAPHIC NOVEL</td>
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<td>ENGL 330</td>
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<td>VICTORIAN STUDIES</td>
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<td>ENGL 345</td>
<td>LITERARY GENRES</td>
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<td>ENGL 346</td>
<td>STUDIES IN AMERICAN/U.S. LITERATURE AND CULTURE</td>
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<td>ENGL 372</td>
<td>ASIAN AMERICAN LITERATURE</td>
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<td>ENGL 373</td>
<td>MEDICINE IN THE AGE OF NETWORKED INTELLIGENCE</td>
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<tr>
<td>ENGL 374</td>
<td>CINEMA STUDIES</td>
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<tr>
<td>ENGL 376</td>
<td>LITERATURE AND MEDICINE</td>
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<td>ENGL 378</td>
<td>SCIENCE FICTION AND THE ENVIRONMENT</td>
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<td>ENGL 379</td>
<td>THIRD WORLD LITERATURE</td>
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<td>ENGL 380</td>
<td>CONTEMPORARY ANGLOPHONE LITERATURES</td>
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<td>ENGL 381</td>
<td>TOPICS IN WOMEN WRITERS</td>
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<td>ENGL 388</td>
<td>MEDICAL MEDIA ARTS LAB</td>
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<tr>
<td>ENGL 389</td>
<td>SLAVERY IN 20TH CENTURY FILM AND FICTION</td>
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</tr>
</tbody>
</table>
Policies for the BA Degree with a Major in English

Transfer Credit

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Study Abroad Program for English Majors at the University of Exeter

English majors may opt to spend the spring semester of their junior year at the University of Exeter in the U.K. Students planning to do so should complete ENGL 200 and ENGL 300 by the fall semester of their junior year (the semester preceding study abroad). At Exeter, students will take 2 courses or modules (each worth 30 Exeter credits) from Rice's approved list of Exeter Courses.

The approved courses taken abroad will be articulated on the Rice transcript as ENGL 325 (two instances of 3 credit hours each) with the remaining credit hours articulated as general TRAN credit. Final Exeter grades will also appear on the Rice transcript and be counted in the student's overall Rice GPA. With pre-approval from the Department, ENGL 325 may additionally count toward major field requirements (Pre-1800, Pre-1900, or Critical Race, Postcolonial, and Gender Studies).

For more information, please consult the Director of Undergraduate Studies in English and the Rice Study Abroad office.

Additional Information

For additional information, please see the English website: https://english.rice.edu/.

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Bachelor of Arts (BA) Degree with a Major in English and a Major Concentration in Creative Writing

Program Learning Outcomes for the BA Degree with a Major in English and a Major Concentration in Creative Writing

Upon completing the BA degree with a major in English, students will be able to demonstrate:

1. Competence in literary analysis.
2. Understanding of literature in relation to its historical and socio-cultural contexts.
3. Disciplinary-specific methodological, critical, and theoretical training.
4. Critical writing skills in papers of varying length.
5. Disciplinary-specific research knowledge.
Requirements for the BA Degree with a Major in English and a Major Concentration in Creative Writing

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in English, and a major concentration in Creative Writing, must complete:

- A minimum of 11 courses (33-34 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 7 courses (21 credit hours) taken at the 300-level or above.
- The requirements for the major concentration in Creative Writing.

The department recommends that all English majors take courses in British and American history and, if they plan to do graduate work, at least 6 hours of upper-level courses in a foreign language. AP course credit is not permitted to count toward the major.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 200</td>
<td>GATEWAYS TO LITERARY STUDY</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 300</td>
<td>PRACTICES OF LITERARY STUDY: READING METHODS</td>
<td>3</td>
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</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 210</td>
<td>BEGINNINGS: BRITISH LITERATURE TO 1800</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 255</td>
<td>THE IDEA OF SHAKESPEARE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 274</td>
<td>LITERATURE AND RELIGION</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 311</td>
<td>TOPICS IN MEDIEVAL LITERATURE AND/ OR CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 312 / MDEM 312</td>
<td>OLD ENGLISH LITERATURE AND LANGUAGE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 314 / MDEM 319</td>
<td>MEDIEVAL ROMANCE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 316 / MDEM 316 / SWGS 305</td>
<td>CHAUCER</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Specific course offerings will vary from semester to semester.

2 The Senior Seminar and Research Workshop requirement consists of the year-long, 6 credit hour senior seminar (ENGL 410) and research workshop (ENGL 411).

Course Lists to Satisfy Requirements

The following lists of courses can be used to satisfy the requirements of the major when available. Specific course offerings will vary from semester to semester. Courses not on the list may be taken upon approval of the department’s Director of Undergraduate Studies. Requirements fulfilled by special topics field courses can vary.

Pre-1900 and Pre-1800 Requirement

Students must complete a total of 2 courses (6 credit hours) at the 200-level or above in periods before 1900. Of the 2 courses, 1 course (3 credit hours) must be from the approved Pre-1800 coursework, but only one may be a Shakespeare course. The second required course may be an additional course from the Pre-1800 coursework or an approved Pre-1900 course.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL 210</td>
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<td>LITERATURE AND RELIGION</td>
<td>3</td>
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<tr>
<td>ENGL 311</td>
<td>TOPICS IN MEDIEVAL LITERATURE AND/ OR CULTURE</td>
<td>3</td>
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<tr>
<td>ENGL 312 / MDEM 312</td>
<td>OLD ENGLISH LITERATURE AND LANGUAGE</td>
<td>3</td>
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<tr>
<td>ENGL 314 / MDEM 319</td>
<td>MEDIEVAL ROMANCE</td>
<td>3</td>
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<tr>
<td>ENGL 316 / MDEM 316 / SWGS 305</td>
<td>CHAUCER</td>
<td>3</td>
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</tbody>
</table>

Additionally, upon completing the BA degree with a major in English and a major concentration in Creative Writing, students will be able to:

1. Demonstrate skills in producing original works of fictional prose, literary essays, poetry, plays, and/or screenplays in English.
Bachelor of Arts (BA) Degree with a Major in English and a Major Concentration in Creative Writing

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 317 / MDEM 317 / SWGS 301</td>
<td>ARTHURIAN LITERATURE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 320</td>
<td>SHAKESPEARE ON FILM</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 321</td>
<td>SHAKESPEARE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 322</td>
<td>TOPICS IN SHAKESPEARE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 323</td>
<td>RENAISSANCE DRAMA</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 326</td>
<td>TOPICS IN RENAISSANCE LITERATURE AND CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 328</td>
<td>JOHN MILTON: RADICAL THOUGHT THEN AND NOW</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 330</td>
<td>ORIGINS OF THE ENGLISH NOVEL</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 332</td>
<td>LITERATURE OF THE BRITISH ENLIGHTENMENT</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 333</td>
<td>18TH CENTURY BRITISH FICTION</td>
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<tr>
<td>ENGL 360</td>
<td>AMERICAN LITERATURE BEFORE THE CIVIL WAR</td>
<td>3</td>
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<tr>
<td>ENGL 418</td>
<td>STUDIES IN RENAISSANCE DRAMA</td>
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<tr>
<td>ENGL 419</td>
<td>STUDIES IN SHAKESPEARE</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 430</td>
<td>EMPIRE AND BRITISH LITERATURE 1700-1950</td>
<td>3</td>
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<tr>
<td>ENGL 211</td>
<td>BRITISH LITERATURE: ROMANTICISM TO THE 20TH CENTURY</td>
<td>3</td>
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<tr>
<td>ENGL 250</td>
<td>HISTORY OF THE NOVEL</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 251</td>
<td>READING POETRY</td>
<td>3</td>
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<tr>
<td>ENGL 260</td>
<td>WHAT IS AMERICAN LITERATURE</td>
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<tr>
<td>ENGL 337</td>
<td>GOTHIC AMERICAN LITERATURE: TERROR, HORROR, THE GROTESQUE, AND THE SUBLIME IN AMERICAN CULTURE</td>
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<tr>
<td>ENGL 338</td>
<td>BRITISH ROMANTICISM</td>
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<tr>
<td>ENGL 339</td>
<td>ROMANTICISM IN RUINS</td>
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<tr>
<td>ENGL 341</td>
<td>VICTORIAN LITERATURE AND CULTURE</td>
<td>3</td>
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<tr>
<td>ENGL 342 / SWGS 372</td>
<td>SURVEY OF VICTORIAN FICTION</td>
<td>3</td>
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<tr>
<td>ENGL 343 / SWGS 343</td>
<td>JANE AUSTEN'S WORLDS</td>
<td>3</td>
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<tr>
<td>ENGL 344</td>
<td>ACCOUNTING FOR DICKENS</td>
<td>3</td>
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<tr>
<td>ENGL 361</td>
<td>US LITERATURE FROM THE CIVIL WAR TO WWI</td>
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<tr>
<td>ENGL 441</td>
<td>VICTORIAN STUDIES</td>
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<tr>
<td>ENGL 459</td>
<td>STUDIES IN LITERATURE AND ECOLOGY</td>
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<tr>
<td>ENGL 461</td>
<td>19TH-CENTURY AMERICAN STUDIES</td>
<td>3</td>
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</table>

**Critical Race, Postcolonial, and Gender Studies Requirement**

Students must complete 1 course (3 credit hours) at the 200-level or above that focuses on African American, Chicano/a, Asian American, ethnic, global, postcolonial, diasporic or gender and sexuality studies.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>ENGL 222 / ASIA 222</td>
<td>THE WORLD AND SOUTH ASIA</td>
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<tr>
<td>ENGL 265</td>
<td>JEWISH-AMERICAN LITERATURE AND CULTURE</td>
<td>3</td>
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</table>

**ENGL 267** INTRODUCTION TO AFRICAN AMERICAN LITERATURE 3

**ENGL 268** INTRODUCTION TO NATIVE AMERICAN LITERATURE 3

**ENGL 354 / SWGS 364** QUEER LITERARY CULTURES 3

**ENGL 369 / SWGS 329** THE AMERICAN WEST AND ITS OTHERS 3

**ENGL 370 / SWGS 370** AFRICAN AMERICAN LITERATURE 3

**ENGL 371 / SPIPO 354 / SWGS 354** CHICANO/A LITERATURE 3

**ENGL 372** ASIAN AMERICAN LITERATURE 3

**ENGL 376** SOUTHEAST ASIAN LITERATURE IN ENGLISH 3

**ENGL 379** THIRD WORLD LITERATURE 3

**ENGL 380** CONTEMPORARY ANGLOPHONE LITERATURES 3

**ENGL 381 / SWGS 327** TOPICS IN WOMEN WRITERS 3

**ENGL 382 / SWGS 380** FEMINIST THEORY 3

**ENGL 383** GLOBAL FICTIONS 3

**ENGL 389 / SWGS 389** YOUTH STUDIES 3

**ENGL 393** BLACK MANHATTAN: 1915-1940 3

**ENGL 398** SLAVERY IN 20TH CENTURY FILM AND FICTION 3

**ENGL 399** THE BLACK IMAGINARY: 1775-PRESENT 3

**ENGL 430** EMPIRE AND BRITISH LITERATURE 1700-1950 3

**ENGL 460** STUDIES IN AFRICAN AMERICAN LITERATURE 3

**ENGL 481 / SWGS 407** FEMINIST STUDIES 3

**Major Concentration: Creative Writing**

Students must complete a minimum of 4 courses (12-13 credit hours, depending on course selection) from departmental (ENGL) course offerings with the creative writing designation. Of these 4 courses, students must complete at least 2 courses (6-7 credit hours, depending on course selection) at the 300-level or above, and at least 1 course (3-4 credit hours, depending on course selection) at the 400-level or above. The remaining required course can be selected from any of the approved Creative Writing coursework.

**Code** | **Title** | **Credit Hours**
---|---|---
ENGL 201 | INTRODUCTION TO CREATIVE WRITING | 3
ENGL 203 | TOPICS IN CREATIVE WRITING | 3
ENGL 204 | FORMS OF POETRY | 3
ENGL 213 | THE RICE REVIEW: INTRODUCTION TO LITERARY EDITING & PUBLISHING | 3

**200-level Electives**

Select up to 1 course from the following (or select additional coursework at the 300-level or 400-level as listed below):
300-level (or above) Electives

Select a minimum of 2 courses from the following: 6-7

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGL 301</td>
<td>INTRODUCTION TO FICTION WRITING</td>
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<tr>
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<td>SCREENWRITING</td>
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<td>PLAYWRITING</td>
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<td>INTRODUCTION TO CREATIVE NONFICTION WRITING</td>
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<td>ENGL 306</td>
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<td>INTRODUCTION TO PODCASTING</td>
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</tr>
<tr>
<td>ENGL 318</td>
<td>FAIRY TALES AND FEAR TALES</td>
</tr>
<tr>
<td>ENGL 319</td>
<td>FANTASY AND SCIENCE FICTION</td>
</tr>
<tr>
<td>ENGL 327</td>
<td>GRAPHIC NOVEL</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>ADVANCED FICTION WRITING</td>
</tr>
<tr>
<td>ENGL 402</td>
<td>WRITING LONGER FICTION: NARRATIVE DESIGN</td>
</tr>
<tr>
<td>ENGL 404</td>
<td>ADVANCED POETRY WRITING</td>
</tr>
<tr>
<td>ENGL 405</td>
<td>ADVANCED CREATIVE NONFICTION WRITING</td>
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</table>

400-level Elective

Select a minimum of 1 course from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>ADVANCED FICTION WRITING</td>
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<tr>
<td>ENGL 402</td>
<td>WRITING LONGER FICTION: NARRATIVE DESIGN</td>
</tr>
<tr>
<td>ENGL 404</td>
<td>ADVANCED POETRY WRITING</td>
</tr>
<tr>
<td>ENGL 405</td>
<td>ADVANCED CREATIVE NONFICTION WRITING</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 In order to fulfill the 200-level Elective category for the major concentration in Creative Writing, ENGL 213 must be taken twice (for a total of 3 credit hours).

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Study Abroad Program for English Majors at the University of Exeter

English majors may opt to spend the spring semester of their junior year at the University of Exeter in the U.K. Students planning to do so should complete ENGL 200 and ENGL 300 by the fall semester of their junior year (the semester preceding study abroad). At Exeter, students will take 2 courses or modules (each worth 30 Exeter credits) from Rice's approved list of Exeter Courses.

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For more information, please consult the Director of Undergraduate Studies in English and the Rice Study Abroad office.

Additional Information
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Doctor of Philosophy (PhD) Degree in the field of English

Program Learning Outcomes for the MA and PhD Degrees in the field of English

Upon completing the MA and PhD degrees in the field of English, students will be able to:

1. Apply advanced knowledge of literary, cultural, and critical studies, including: critical reading, thinking, and writing; professional methodologies; literary and cultural histories, and theoretical and interdisciplinary perspectives.
2. Demonstrate breadth and depth of knowledge in fields of specialization for research and teaching.
3. Demonstrate the ability to teach literature and culture at the university level.
4. Demonstrate professional level skills in public and oral presentation through participation in symposia, work-in-progress groups, conferences, and in-course presentations.
5. Demonstrate the capacity to create professional-level and ultimately publishable research that makes original contributions to scholarly debates.

Requirements for the MA and PhD Degrees in the field of English

MA Degree Program

The MA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The English department does not have an MA program, but offers the MA degree to those PhD students who have achieved candidacy and are in the process of completing the doctorate, and to qualified PhD students who leave the program before completing the doctorate. To receive an MA students must:

- Satisfactorily complete at least 33 hours of graduate work in English at Rice University. Courses must be those that count towards the PhD in English. Students must satisfactorily complete ENGL 600 and ENGL 610 as well as distribution requirements for the PhD (see above).

- Satisfactorily complete two teaching assistantships (ENGL 601/ENGL 602) and two research assistantships. These do not count toward the 33-hour requirement.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 510</td>
<td>PEDAGOGY SEMINAR</td>
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<tr>
<td>ENGL 600</td>
<td>TOPICS IN LITERARY STUDIES</td>
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<td>ENGL 605</td>
<td>THIRD-YEAR WRITING WORKSHOP</td>
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<tr>
<td>ENGL 610</td>
<td>TOPICS IN LITERARY STUDIES PART 2</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>ENGL 510</td>
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<tr>
<td>ENGL 600</td>
<td>TOPICS IN LITERARY STUDIES</td>
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<td>ENGL 605</td>
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<tr>
<td>ENGL 610</td>
<td>TOPICS IN LITERARY STUDIES PART 2</td>
<td>3</td>
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</table>

Distribution Requirements

Select 7 additional courses as Electives at the 500-level or above

Footnotes and Additional Information

1. The distribution requirements consist of two courses before 1800 and two courses after 1800. These four courses count toward the 13-course requirement.

Requirements for the PhD Degree in the field of English

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). As part of their training, graduate students participate in both the teaching and research activities of the department. Upon entering, students will be assigned to a Program Advisory Committee (PAC), consisting of two faculty members. In consultation with their PAC, students will design their own individualized program structured by the requirements listed below. For more detailed information, please see the department’s Graduate Handbook found under the Policies (p. 993) tab.

PhD Degree Program

To gain admission to PhD candidacy, students must satisfy the first six of the following requirements. To earn a PhD in English, candidates also must complete the last two requirements. Students must:

1. Satisfactorily complete a minimum of 13 graduate courses, of which at least 10 must be graduate seminars. With the approval of the PAC, students may enroll in ENGL 621, either as a traditional directed reading course or in conjunction with a 400-level English course to which a graduate component has been added. ENGL 621 counts toward the 13 required graduate courses but does not count as a graduate seminar. Students also are encouraged to take graduate courses in other departments related to their areas of interest. These will count toward the 13-course requirement but not usually for distribution.
2. Satisfactorily complete the following three required courses:
ENGL 600, ENGL 610, and ENGL 605. These count toward the 13-course requirement.
3. Satisfactorily complete the distribution requirement, which consists of two courses before 1800 and two after 1800. These count toward the 13-course requirement.
4. Satisfactorily complete the teaching requirement by serving twice as a teaching assistant, completing ENGL 510, and teaching at least one lower-level course designed in conjunction with the instructor of ENGL 510. ENGL 510 counts toward the 13-course requirement.
5. Pass a qualifying exam that consists of two qualifying papers, and an oral exam. Refer to the department's Graduate Handbook found under the Policies (p. 993) tab.
6. Complete a thesis prospectus that defines the topic of the thesis, the particular argument that the doctoral document hopes to develop about the topic, and the relevance and importance of the thesis' argument to debate in the student's chosen field(s). The thesis prospectus and a satisfactory draft of a chapter must be approved for the student to advance to candidacy. Refer to the department's Graduate Handbook found under the Policies (p. 993) tab.
7. Complete a thesis that demonstrates independent and original academic work of high quality.

Summary

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<th>Credit Hours</th>
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Degree Requirements

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<tr>
<td>ENGL 600</td>
<td>TOPICS IN LITERARY STUDIES</td>
<td>3</td>
</tr>
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<td>ENGL 605</td>
<td>THIRD-YEAR WRITING WORKSHOP</td>
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<tr>
<td>ENGL 610</td>
<td>TOPICS IN LITERARY STUDIES PART 2</td>
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<tr>
<td>ENGL 800</td>
<td>PHD RESEARCH AND THESIS</td>
<td>1-9</td>
</tr>
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</table>

Distribution Requirements

Select 5 additional courses as Electives at the 500-level or above 15

**Footnotes and Additional Information**

1 The distribution requirements consist of two courses before 1800 and two courses after 1800. These four courses count toward the 13-course requirement.

**Policies for the PhD Degree in the field of English**

**Department of English Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of English publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/English_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/English_Graduate_Handbook.pdf)

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the PhD degree in the field of English should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the English website: [https://english.rice.edu](https://english.rice.edu)

**Opportunities for the PhD Degree in the field of English**

Information regarding resources and opportunities for Department of English graduate students, including the graduate symposium, funding and award opportunities, certificate and special seminar information, as well as job market resources, is available on the Graduate section of the department website, and can be accessed here: [https://english.rice.edu/](https://english.rice.edu/)

**Entrepreneurship**

**Contact Information**

[Entrepreneurship](https://entrepreneurship.rice.edu/entrepreneurship-minor)

Liu Idea Lab for Innovation and Entrepreneurship (Lilie) 130 Cambridge Office Building

Yael Hochberg
Program Director
hochberg@rice.edu

Hesam Panahi
Minor Advisor
hpanahi@rice.edu

Micaela McGlone
Senior Associate Director
Micaela.McGlone@rice.edu

The Entrepreneurship minor provides Rice students with a pathway to pursue rigorous and interdisciplinary study in the field of innovation and entrepreneurship, enabling students to understand the theory and
frameworks behind different disciplinary aspects of entrepreneurship and how to apply these theories to develop and scale innovative solutions to societal problems.

At the heart of the Entrepreneurship minor is the entrepreneurial process and mindset. This structured process has its origins in decades of research exploring the process for commercialization of new technologies and the launching of new ventures. The process includes identifying an unmet user and customer need, articulating a value proposition, developing a strategy to bring new concepts to market, designing a sustainable business model, assessing market traction, communicating a vision to key stakeholders, and building and managing appropriate teams. The process involves the mastery of theory-driven frameworks, tools and competencies, and, as in engineering and the sciences, the practical application of these theories.

As a joint offering with the George R. Brown School of Engineering, the Entrepreneurship minor is an interdisciplinary course of study drawing on multiple disciplines, with oversight from the Jones Graduate School of Business. The campus-wide, multi-disciplinary Liu Idea Lab for Innovation and Entrepreneurship (Lilie), serves as a home for the minor. Working out of Lilie, students will demonstrate their mastery in a final capstone project to be completed in the final year of study.

Entrepreneurship does not currently offer an academic program at the graduate level.

Program Director
Yael Hochberg

Senior Associate Director
Micaela McGlone

Advisory Committee
Yael Hochberg
Hesam Panahi
Moshe Vardi

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: Courses from various subjects may apply towards this program

Program Description and Code
• Entrepreneurship: ENTR

Undergraduate Minor Description and Code
• Minor in Entrepreneurship: ENTR

CIP Code and Description

<table>
<thead>
<tr>
<th>CIP Code and Description</th>
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<tbody>
<tr>
<td>• ENTR: Minor: CIP Code/Title: 52.0701 - Entrepreneurship/Entrepreneurial Studies</td>
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</table>

Minor in Entrepreneurship

Program Learning Outcomes for the Minor in Entrepreneurship

Upon completing the minor in Entrepreneurship, students will be able to:
1. Execute the steps of the entrepreneurial process.
2. Demonstrate knowledge of the entrepreneurial mindset.
3. Communicate effectively the value of an entrepreneurial venture.

Requirements for the Minor in Entrepreneurship

Students pursuing the minor in Entrepreneurship must complete:

• A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
• A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
• 4 courses (12 credit hours) to satisfy the Core Requirements.
• 1-2 courses, depending on course selection, (3 credit hours) to satisfy the Elective Requirement.
• 1 course (3 credit hours) to satisfy the Capstone Requirement.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BUSI 220</td>
<td>LILIE DESIGN THINKING</td>
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<tr>
<td>BUSI 221 / ENGI 221</td>
<td>NEW ENTERPRISES</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 223</td>
<td>BUSINESS MODELING FOR ENTREPRENEURS</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the Minor in Entrepreneurship 18
Entrepreneurship Minor

Opportunities for the Minor in Entrepreneurship

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Liu Idea Lab for Innovation and Entrepreneurship website: https://entrepreneurship.rice.edu (https://entrepreneurship.rice.edu)/

Environmental Analysis

Contact Information

Environmental Analysis
https://profms.rice.edu/
203 Keck Hall
713-348-3188
Evan Siemann
Faculty Director
siemann@rice.edu
Dagmar Beck
PSM Program Director
dkbeck@rice.edu

The professional master’s degree in Environmental Analysis teaches students rigorous methods that are needed by business and governmental organizations to deal with environmental issues. As an interdisciplinary program, the MS in Environmental Analysis degree aims to give students the ability to not only remediate and solve environmental problems, but also to predict possible environmental impacts to enable avoidance and mitigation of consequences. The Environmental Analysis curriculum not only emphasizes core quantitative topics such as statistics, remote sensing, data analysis, and modeling, but also expands students’ knowledge in environmental engineering and science, and broadens their understanding of management and business including communication and leadership training and the flexibility to tailor their interest area by taking electives in relevant fields.

The MS in Environmental Analysis (MSEA) degree is part of the professional science master’s (PSM) program at Rice housed in the Wiess School of Natural Sciences. These master’s degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communications skills. They instill a level of scholastic proficiency that exceeds that of the bachelor’s level, and create the cross-functional aptitudes needed in modern industry. Skills acquired in this program will allow students to move more easily into management careers in consulting or research and development, design, and marketing of new science-based products.

A coordinated MBA/MSEA degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.
Environmental Analysis does not currently offer an academic program at the undergraduate level.

**Master’s Program**
- Master of Science in Environmental Analysis (MSEA) Degree (p. 996)

**Coordinated Program**
- Master of Science in Environmental Analysis (MSEA) Degree / Master of Business Administration (MBA) Degree (p. 999)

**Director**
Evan Siemann

**Advising Committee**
Daniel Cohan
Scott Egan
Loren Hopkins

**Professors**
Pedro J.J. Alvarez
Philip B. Bedient
Janet Braam
Evan Siemann

**Associate Professors**
Daniel Cohan
Scott Egan

**Professors in the Practice**
James B. Blackburn
Loren Hopkins

*For Rice University degree-granting programs:*
To view the list of official course offerings, please see [Rice’s Course Catalog](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=catal)
To view the most recent semester’s course schedule, please see [Rice’s Course Schedule](https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Description and Code Legend**
*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:*

**Course Catalog/Schedule**
- Course offerings/subject codes: Courses from various subjects may apply toward the graduate program.

**Department Description and Code**
- Biosciences: BIOS

**Graduate Degree Description and Code**
- Master of Science in Environmental Analysis: MSEA

**Graduate Degree Program Description and Code**
- Degree Program in Environmental Analysis: ENVA

**CIP Code and Description**
- **ENVA** Major/Program: CIP Code/Title: 03.0103 - Environmental Studies

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

**Master of Science in Environmental Analysis (MSEA) Degree**

**Program Learning Outcomes for the MSEA Degree**
Upon completing the MSEA Degree, students will be able to:

1. Apply technical and analytical skills and scientific evaluation methods to help solve problems affecting the environment.
2. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.
3. Possess business and management skills and professional ethics to be effective in a business environment.

**Requirements for the MSEA Degree**
The MSEA degree is a non-thesis master's degree. For general university requirements, please see [Non-Thesis Master's Degrees](p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](p. 60). Students pursuing the MSEA degree must complete:

- A minimum of 14 courses (minimum of 39 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 4 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory, etc.).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 998) tab.
- A 3-6 month internship. Instead of a thesis, at the conclusion of their internship, students must present their internship project in both oral and written form as part of the Professional Master’s Project (NSCI 512). Part-time students who already work in their area of study may request approval to fulfill the internship requirement by working on a specific, pre-approved project with their current employer.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

*Note: Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission.*

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may
be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

#### Core Requirements

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<td>BIOS 571</td>
<td>ECOSYSTEM MANAGEMENT</td>
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<tr>
<td>CEVE 501</td>
<td>CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE</td>
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<tr>
<td>or CEVE 510</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
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<tr>
<td>STAT 685</td>
<td>ENVIRONMENTAL STATISTICS AND DECISION MAKING</td>
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#### Cohort Courses

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<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 1st semester)</td>
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<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 2nd semester)</td>
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<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
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<td>NSCI 512</td>
<td>PROFESSIONAL MASTER'S PROJECT</td>
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<tr>
<td>NSCI 610 / ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
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#### Three to Six Month Internship

A three to six month internship is required.¹

### Elective Requirements

Select a minimum of 7 courses (minimum of 21 credit hours) as electives from courses listed below.²³

#### Environmental Sustainability

<table>
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<tr>
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<tr>
<td>BIOS 523</td>
<td>CONSERVATION BIOLOGY</td>
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<td>BIOS 563</td>
<td>TOPICS IN ECOLOGY (FALL)</td>
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<td>BIOS 568</td>
<td>TOPICS IN ECOLOGY (SPRING)</td>
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<td>BIOS 569</td>
<td>CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
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<td>BIOS 573</td>
<td>CORAL REEF ECOSYSTEMS</td>
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<td>BIOS 580</td>
<td>SUSTAINABLE DEVELOPMENT AND REPORTING</td>
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<tr>
<td>CEVE 501</td>
<td>CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE</td>
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<tr>
<td>CEVE 502</td>
<td>SUSTAINABLE DESIGN</td>
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<tr>
<td>CEVE 507</td>
<td>ENERGY AND THE ENVIRONMENT</td>
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<tr>
<td>CEVE 508</td>
<td>INTRODUCTION TO AIR POLLUTION CONTROL</td>
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<tr>
<td>CEVE 509</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
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#### Quantitative Decision-Making

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<td>CEVE 511</td>
<td>ATMOSPHERIC CHEMISTRY AND CLIMATE</td>
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<td>CEVE 518</td>
<td>ENVIRONMENTAL HYDROGEOLOGY</td>
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<td>CEVE 520</td>
<td>ENVIRONMENTAL REMEDIATION RESTORATION</td>
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<td>CEVE 523</td>
<td>APPLIED SUSTAINABLE PLANNING AND DESIGN</td>
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<td>CEVE 526</td>
<td>SMART MATERIALS FOR THE ENVIRONMENT</td>
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<td>CEVE 534</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
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<tr>
<td>CEVE 535</td>
<td>PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL</td>
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<td>CEVE 536</td>
<td>ENVIRONMENTAL BIOTECHNOLOGY AND BIOREMEDIATION</td>
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<td>CEVE 544</td>
<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
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<td>CEVE 550</td>
<td>ENVIRONMENTAL ORGANIC CHEMISTRY</td>
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<td>DSCI 535 / COMP 549</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
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<tr>
<td>EEPS 592</td>
<td>SPECIAL TOPICS IN EARTH, ENVIRONMENTAL &amp; PLANETARY SCIENCES</td>
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<td>EEPS 632</td>
<td>QUANTITATIVE HYDROGEOLOGY</td>
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<td>EEPS 635</td>
<td>REMOTE SENSING</td>
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<td>EEPS 645</td>
<td>EARTH AND PLANETARY INTERIORS</td>
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<td>EEPS 699</td>
<td>GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS</td>
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<td>MGMT 658</td>
<td>APPLIED RISK MANAGEMENT</td>
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<td>MGMT 758</td>
<td>ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ISSUES IN STRATEGY</td>
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#### Management and Policy

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<tbody>
<tr>
<td>CEVE 506</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
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<tr>
<td>CEVE 528 / ENGI 528</td>
<td>ENGINEERING ECONOMICS</td>
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<tr>
<td>CEVE 529 / ENGI 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
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<tr>
<td>ECON 611</td>
<td>GEOPOLITICS OF ENERGY</td>
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<tr>
<td>or MGMT 61</td>
<td>GEOPOLITICS OF ENERGY</td>
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<td>GLBL 543</td>
<td>ENERGY POLICY</td>
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<td>MGMT 609</td>
<td>MANAGING ENERGY TRANSITIONS</td>
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<td>FUNDAMENTALS OF THE ENERGY INDUSTRY</td>
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<td>MGMT 661</td>
<td>INTERNATIONAL BUSINESS LAW</td>
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<tr>
<td>MGMT 670</td>
<td>OPERATIONS STRATEGY</td>
<td></td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td></td>
</tr>
<tr>
<td>MGMT 721</td>
<td>BUSINESS LAW</td>
<td></td>
</tr>
<tr>
<td>MGMT 747</td>
<td>REGULATORY ENVIRONMENT OF BUSINESS</td>
<td></td>
</tr>
<tr>
<td>MGMT 758</td>
<td>ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ISSUES IN STRATEGY</td>
<td></td>
</tr>
<tr>
<td>NSCI 515</td>
<td>FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT</td>
<td></td>
</tr>
</tbody>
</table>

¹ Students and their academic advisors should identify and clearly document the courses to be taken.
² Select a minimum of 7 courses (minimum of 21 credit hours) as electives from courses listed below.
³ The following courses may be taken as electives: BIOS 523, BIOS 563, BIOS 568, BIOS 569, BIOS 573, BIOS 580, CEVE 501, CEVE 502, CEVE 507, CEVE 508, CEVE 509, CEVE 511, CEVE 518, CEVE 520, CEVE 523, CEVE 526, CEVE 534, CEVE 535, CEVE 536, CEVE 544, CEVE 550, DSCI 535 / COMP 549, EEPS 592, EEPS 632, EEPS 635, EEPS 645, EEPS 699, MGMT 658, MGMT 758, ECON 611 or MGMT 61, GLBL 543, MGMT 609, MGMT 610, MGMT 661, MGMT 670, MGMT 676, MGMT 721, MGMT 747, MGMT 758, NSCI 515.
CEVE 528 / ENGINEERING ECONOMICS
ENG 528
DSCI 535 / APPLIED MACHINE LEARNING AND DATA
COMP 549 SCIENCE PROJECTS
EEPS 635 REMOTE SENSING
EEPS 645 EARTH AND PLANETARY INTERIORS
EEPS 699 GRAPHIC AND VISUAL DESIGN FOR
SCIENTISTS
NSCI 515 FOUNDATIONS OF PROJECT AND
PROGRAM MANAGEMENT
STAT 553 BIOSTATISTICS
STAT 605 R FOR DATA SCIENCE
or STAT 606 SAS STATISTICAL PROGRAMMING
STAT 615 REGRESSION AND LINEAR MODELS

Total Credit Hours 39

Footnotes and Additional Information
1 Practical experience is offered via a three to six month immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form as part of the cohort course Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer.

2 The 21 credit hours of electives must include at least 3 credit hours from Management and Policy, 9 credit hours from one focus area, and one course each from the following subject codes: Biosciences (BIOS), Civil and Environmental Engineering (CEVE), and Statistics (STAT).

3 Note: Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program's academic advisor. Students should consult with their academic advisors before enrolling.

Policies for the MSEA Degree

Professional Science Master’s Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Professional Science Master's Program publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/ Professional_Science_Masters_Handbook.pdf

Admission
Admission to graduate study in Environmental Analysis is open to qualified students holding a bachelor's degree in a related field that includes general biology, chemistry, calculus, differential equations, and linear algebra. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MSEA degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Environmental Analysis website: https://profs.rice.edu/

Opportunities for the MSEA Degree

Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science may have the option to pursue the Master of Science in Environmental Analysis (MSEA) degree. For additional information, students should contact their undergraduate major advisor, the faculty MSEA program director, and the Professional Science Master's (PSM) program director.

Additional Information
For additional information, please see the Environmental Analysis website: https://profs.rice.edu/
Master of Science in Environmental Analysis (MSEA) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MSEA Degree

Upon completing the MSEA Degree, students will be able to:

1. Apply technical and analytical skills and scientific evaluation methods to help solve problems affecting the environment.
2. Demonstrate written, oral, and visual communication strategies required to work effectively across science, business, and government.
3. Possess business and management skills and professional ethics to be effective in a business environment.

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MSEA/MBA Coordinated Degrees Program

Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master's (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSSpS)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) program, students must complete:

- A minimum of 75 credit hours in approved coursework, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master's (PSM) degree requirements
  - A minimum of 30 credit hours in the corresponding science discipline
  - All PSM degree-specific requirements
  - A three to six month internship
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements

- A minimum of 45 credit hours of business coursework
- All MBA core requirements, the global field coursework, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Wiess School of Natural Sciences PSM program director and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master's (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Science Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MSEA Degree Requirements

Students in the coordinated MBA/MSEA degrees program must complete the Core Requirements and Three to Six Month Internship of the MSEA degree program (p. 996) and the Coordinated MSEA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSEA Core Requirements</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>MSEA Three to Six Month Internship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coordinated MSEA Elective Requirements</td>
<td>21</td>
</tr>
</tbody>
</table>

Select a minimum of 15 credit hours from approved departmental (CEVE, EBI0, ESC1, or STAT) course offerings at the 500-level or above

Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above

Total Credit Hours

Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must
Environmental Science

Contact Information
Environmental Science

Caroline A. Masiello
Undergraduate Advisor, major concentration in Earth Science

masiello@rice.edu

Julia K. Morgan
Undergraduate Advisor, major concentration in Earth Science
morganj@rice.edu

Amy Dunham
Undergraduate Advisor, major concentration in Ecology and Evolutionary Biology
aed4@rice.edu

Evan Siemann
Undergraduate Advisor, major concentration in Ecology and Evolutionary Biology
siemann@rice.edu

Environmental Science is an interdisciplinary field that explores the interconnection between humans and the natural environment. Modern environmental issues reflect the complex interactions of natural and social systems at global and local scales, and the resulting impacts on the Earth have led many to ask whether humankind has entered into a new epoch in the planet’s history, one in which humans are now a key driver in the change of Earth systems. The Environmental Science program fosters the critical, integrative thinking required to better understand the complexities of this human-nature relationship and the resultant scales of impact, and to assess and develop solutions that meet intergenerational human needs without compromising the natural systems upon which humans depend.

The Environmental Science program offers a major in Environmental Science for both the BA and BS degrees, along with two paths, a major concentration in Earth Science, or a major concentration in Ecology and Evolutionary Biology. The program includes a number of interdisciplinary courses for students interested in broadening their understanding of environmental issues. These courses often are team-taught by faculty from various areas of study.

Students desiring a major with an environmental emphasis have multiple options:

- environmental science (the aforementioned major, earned through the pursuit of the BA or BS degree)
- environmental engineering (an area of specialization within the Bachelor of Science in Chemical Engineering (BSChE) degree)
- environmental engineering (a major concentration within the Bachelor of Arts (BA) degree with a major in Civil and Environmental Engineering)
- environmental engineering (an area of specialization within the Bachelor of Science in Civil Engineering (BSCE) degree)
- environmental earth science (an area of specialization within the Bachelor of Science (BS) degree with a major in Earth, Environmental, and Planetary Sciences)

Students seeking information or advice on the Environmental Science major should contact:

- Dr. Caroline A. Masiello (masiello@rice.edu) for the major concentration in Earth Science, or
- Dr. Evan Siemann (siemann@rice.edu) for the major concentration in Ecology and Evolutionary Biology.
Bachelor’s Programs

- Bachelor of Arts (BA) Degree with a Major in Environmental Science
  - and a Major Concentration in Earth Science (p. 1001)
  - and a Major Concentration in Ecology and Evolutionary Biology (p. 1005)
- Bachelor of Science (BS) Degree with a Major in Environmental Science
  - and a Major Concentration in Earth Science (p. 1008)
  - and a Major Concentration in Ecology and Evolutionary Biology (p. 1011)

Environmental Science does not currently offer an academic program at the graduate level.

Environmental Science Major Advisors

Caroline A. Masiello, Earth, Environmental and Planetary Sciences
Julia K. Morgan, Earth, Environmental and Planetary Sciences
Amy E. Dunham, Ecology and Evolutionary Biology
Evan Siemann, Ecology and Evolutionary Biology

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)

To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Descriptions and Codes Legend

Note: Internally the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule

- Course offerings/subject code: Courses from various subjects may apply toward the degree

Department Description and Code

- Environmental Studies: ENST

Undergraduate Degree Descriptions and Codes

- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS

Undergraduate Major Description and Code

- Major in Environmental Science (both the BA and BS Degrees): ENVS

Undergraduate Major Concentration Descriptions and Codes

- Major concentration in Earth Science (both the BA and BS Degrees): ESEA
- Major concentration in Ecology and Evolutionary Biology (both the BA and BS Degrees): ESEC

CIP Code and Description

- ENVS Major/Program: CIP Code/Title: 03.0104 - Environmental Science
- ESEA Major Concentration: CIP Code/Title: 40.0601 - Geology/Earth Science, General
- ESEC Major Concentration: CIP Code/Title: 26.1310 - Ecology and Evolutionary Biology

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Earth Science

Program Learning Outcomes for the BA Degree with a Major in Environmental Science

Upon completing the BA degree with a major in Environmental Science, students will be able to:

1. Demonstrate foundational knowledge in the natural sciences that is fundamental to the environmental sciences or application of the environmental sciences to other fields.
2. Integrate knowledge of natural and applied sciences to understand complex natural systems and cycles.
3. Synthesize knowledge from natural sciences and engineering and understand how it applies to the study of the environment.
4. Understand environmental issues from a scientific perspective and be able to solve issues using a variety of interdisciplinary perspectives (e.g., social sciences, economics, humanities, and/or architecture).

Requirements for the BA Degree with a Major in Environmental Science

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BA degree with a major in Environmental Science must complete:

- A minimum of 23-24 courses (66-71 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 4-6 courses (12-21 credit hours), depending on declared major concentration, taken at the 300-level or above.
- A capstone senior seminar requirement.
- The requirements of a major concentration. When students declare the major (p. 17) in Environmental Science, students must additionally identify and declare one of two major concentrations, either in:
  - Earth Science (p. 1003), or
  - Ecology and Evolutionary Biology (p. 1007).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Environmental science is an interdisciplinary major that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted.
upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (link to registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Environmental Science</td>
<td>66-71</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Environmental Science</td>
<td>120</td>
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### Degree Requirements

#### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI0S 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>BI0S 202</td>
<td>INTRODUCTORY BIOLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>BI0S 332</td>
<td>ECOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 111</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 113</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 112</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY II</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 124</td>
<td>GENERAL CHEMISTRY LABORATORY II</td>
<td>1</td>
</tr>
<tr>
<td>or CHEM 114</td>
<td>AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II</td>
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</tr>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 280</td>
<td>ELEMENTARY APPLIED STATISTICS</td>
<td>4</td>
</tr>
<tr>
<td>or STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
<td>4</td>
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#### Foundation Coursework

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI0S 213</td>
<td>INTRODUCTORY LAB IN ECOLOGY &amp; EVOLUTION</td>
<td>2</td>
</tr>
<tr>
<td>ENST 100 / ARCH 105</td>
<td>ENVIRONMENT, CULTURE AND SOCIETY</td>
<td>3</td>
</tr>
<tr>
<td>Any course from Earth, Environmental, and Planetary Sciences (EEPS) courses offerings at the 100-level (any course offerings between course numbers EEPS 100 and EEPS 199)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
<td>4</td>
</tr>
<tr>
<td>EEPS 325</td>
<td>OCEANS, ATMOSPHERES AND CLIMATE</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Major Concentration

Select 1 from the following Major Concentrations (see below for Major Concentration requirements):

- Earth Science
- Ecology and Evolutionary Biology

#### Advanced Electives 3

**Social Sciences**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 348</td>
<td>ANTHROPOLOGIES OF NATURE</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ENST 301</td>
<td>ENVIRONMENTAL JUSTICE</td>
<td>3</td>
</tr>
<tr>
<td>ENST 302 / SOCI 304</td>
<td>ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE</td>
<td>3</td>
</tr>
<tr>
<td>ENST 332 / ANTH 332</td>
<td>THE SOCIAL LIFE OF CLEAN ENERGY</td>
<td>3</td>
</tr>
<tr>
<td>ENST 367 / SOCI 367</td>
<td>ENVIRONMENTAL SOCIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ENST 437 / ECON 437</td>
<td>ENERGY ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>ENST 480 / ECON 480</td>
<td>ENVIRONMENTAL AND ENERGY ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>POLI 332</td>
<td>URBAN POLITICS</td>
<td>3</td>
</tr>
<tr>
<td>POLI 362</td>
<td>COMPARATIVE URBAN POLITICS AND POLICY</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 313</td>
<td>DEMOGRAPHY</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 368</td>
<td>SOCIOLOGY OF DISASTER</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 423</td>
<td>SOCIOLOGY OF FOOD</td>
<td>3</td>
</tr>
</tbody>
</table>

**Humanities and Architecture**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 269 / ENST 265</td>
<td>SCIENCE FICTION AND THE ENVIRONMENT</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>NONFICTION NATURE WRITING</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 358</td>
<td>CONSUMPTION AND CONSUMERISM</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 459</td>
<td>STUDIES IN LITERATURE AND ECOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>ENST 202 / HUMA 202</td>
<td>CULTURE, ENERGY, AND THE ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES</td>
<td>3</td>
</tr>
<tr>
<td>ENST 313 / ARCH 313</td>
<td>CASE STUDIES IN SUSTAINABLE DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>ENST 322 / ARCH 322</td>
<td>CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS</td>
<td>3</td>
</tr>
<tr>
<td>ENST 368 / ENGL 368</td>
<td>LITERATURE AND THE ENVIRONMENT</td>
<td>3</td>
</tr>
</tbody>
</table>
## Natural Sciences and Engineering

Select 1 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 280</td>
<td>SUSTAINABLE DEVELOPMENT AND REPORTING</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOS 559</td>
<td>SUSTAINABILITY IMPACT ASSESSMENTS</td>
<td></td>
</tr>
<tr>
<td>CEVE 302 / ENGI 302</td>
<td>SUSTAINABLE DESIGN</td>
<td></td>
</tr>
<tr>
<td>CEVE 308</td>
<td>INTRODUCTION TO AIR POLLUTION CONTROL</td>
<td></td>
</tr>
<tr>
<td>CEVE 310</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>CEVE 314 / BIOE 365 / GLHT 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
<td></td>
</tr>
<tr>
<td>CEVE 401</td>
<td>CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE</td>
<td></td>
</tr>
<tr>
<td>CEVE 404</td>
<td>ATMOSPHERIC PARTICULATE MATTER</td>
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<tr>
<td>CEVE 411</td>
<td>ATMOSPHERIC CHEMISTRY AND CLIMATE</td>
<td></td>
</tr>
<tr>
<td>CEVE 412</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>CEVE 420</td>
<td>ENVIRONMENTAL REMEDIATION RESTORATION</td>
<td></td>
</tr>
<tr>
<td>CEVE 434</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
<td></td>
</tr>
<tr>
<td>CEVE 484 / STAT 484</td>
<td>ENVIRONMENTAL RISK ASSESSMENT &amp; HUMAN HEALTH</td>
<td></td>
</tr>
<tr>
<td>CHBE 382</td>
<td>INNOVATION AND SUSTAINABILITY</td>
<td></td>
</tr>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>ORGANIC CHEMISTRY I AND ORGANIC CHEMISTRY DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>ENST 250</td>
<td>UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS</td>
<td></td>
</tr>
<tr>
<td>ENST 307 / CEVE 307 / EEPS 307</td>
<td>ENERGY AND THE ENVIRONMENT</td>
<td></td>
</tr>
<tr>
<td>ENST 406 / CEVE 406</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
<td></td>
</tr>
<tr>
<td>PHYS 101 &amp; PHYS 103</td>
<td>MECHANICS (WITH LAB) AND MECHANICS DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>PHYS 102 &amp; PHYS 104</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) AND ELECTRICITY AND MAGNETISM DISCUSSION</td>
<td></td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113; CHEM 152 may be substituted for CHEM 122 or CHEM 112, and CHEM 154 may be substituted for CHEM 124 or CHEM 114.
2. The Core Courses acquaint students with a range of environmental topics encountered by scientists, engineers, managers, and policy makers. Core Courses stress the components of the global environment and their interactions, culminating with a tropical seminar that integrates across the field.
3. Students may also petition to complete alternative courses to be applied toward the Advanced Electives requirement.
4. In addition to the courses in the Natural Sciences and Engineering Advanced Electives list, students may complete 1 course listed in the major concentration requirements outside of the student’s declared major concentration.

### Major Concentration: Earth Science

Students must complete a total of 3 courses (minimum of 10-12 credit hours, depending on course selection) as listed below to satisfy the requirements for the major concentration in Earth Science.

#### Code | Title                                            | Credit Hours |
--- | --- | --- |
EEPS 321 | EARTH AND PLANETARY SURFACE ENVIRONMENTS | 7-8 |
EEPS 322 | EARTH AND PLANETARY CHEMISTRY AND MATERIALS | |
EEPS 323 | EARTH AND PLANETARY STRUCTURE AND DYNAMICS | |
EEPS 340 | GLOBAL BIOGEOCHEMICAL CYCLES | |

### Elective Requirement

Select at least 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 309 / FOTO 390</td>
<td>VISUALIZING NATURE</td>
</tr>
<tr>
<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
</tr>
<tr>
<td>EEPS 322</td>
<td>EARTH AND PLANETARY CHEMISTRY AND MATERIALS</td>
</tr>
</tbody>
</table>
Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Earth Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 323</td>
<td>EARTH AND PLANETARY STRUCTURE AND DYNAMICS</td>
</tr>
<tr>
<td>EEPS 340</td>
<td>GLOBAL BIOGEOCHEMICAL CYCLES</td>
</tr>
<tr>
<td>EEPS 417</td>
<td>TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE</td>
</tr>
<tr>
<td>EEPS 420</td>
<td>ORGANIC GEOCHEMISTRY</td>
</tr>
<tr>
<td>EEPS 426</td>
<td>GEOMORPHOLOGY</td>
</tr>
<tr>
<td>EEPS 427</td>
<td>MECHANICS OF SEDIMENT TRANSPORT</td>
</tr>
<tr>
<td>EEPS 429</td>
<td>PALEOCEANOGRAPHY</td>
</tr>
<tr>
<td>EEPS 432</td>
<td>QUANTITATIVE HYDROGEOLOGY</td>
</tr>
<tr>
<td>EEPS 436</td>
<td>GIS FOR SCIENTISTS AND ENGINEERS</td>
</tr>
<tr>
<td>EEPS 467</td>
<td>GEOMECHANICS</td>
</tr>
</tbody>
</table>

Total Credit Hours: 10-12

Footnotes and Additional Information
1. Note that the course not completed in the Core Requirements list for the major concentration in Earth Science may be completed and applied towards the major concentration's Elective Requirement.

Policies for the BA Degree with a Major in Environmental Science and a Major Concentration in Earth Science

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Environmental Science and a Major Concentration in Earth Science should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Environmental Science and a Major Concentration in Earth Science may not additionally pursue the BS Degree with a major in Environmental Science.
- Students pursuing the major in Environmental Science may pursue only one major concentration within the major.
- Students pursuing the major in Environmental Science may not additionally declare the major in Earth, Environmental, and Planetary Sciences.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the major in Environmental Science should be aware of the following program transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the following websites:

- https://biosciences.rice.edu/
- https://earthscience.rice.edu/academics/undergraduate-program/

Opportunities for the BA Degree with a Major in Environmental Science and a Major Concentration in Earth Science

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Independent Research
Students are encouraged to undertake independent research on environmentally related topics as part of their degree programs, in cooperation with one or more faculty. Course options for independent research, repeatable for credit, include: BIOS 401, BIOS 402, and EEPS 481.

Students also can enroll in senior honors thesis programs within their major concentrations, or by arrangement with other departments, and/or through the Rice Undergraduate Scholars Program. Students completing a thesis will also be eligible for the Distinction in Research and Creative Work, a university honor. Details for each program can be found here:

- BIOS Honors Research (https://biosciences.rice.edu/research-overview (https://biosciences.rice.edu/research-overview/))
- Rice Undergraduate Scholars Program (https://ouri.rice.edu/rusp (https://ouri.rice.edu/rusp/))

Additional Information
For additional information, please see the following websites:

- https://biosciences.rice.edu/
- https://earthscience.rice.edu/academics/undergraduate-program/
Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

Program Learning Outcomes for the BA Degree with a Major in Environmental Science

Upon completing the BA degree with a major in Environmental Science, students will be able to:

1. Demonstrate foundational knowledge in the natural sciences that is fundamental to the environmental sciences or application of the environmental sciences to other fields.
2. Integrate knowledge of natural and applied sciences to understand complex natural systems and cycles.
3. Synthesize knowledge from natural sciences and engineering and understand how it applies to the study of the environment.
4. Understand environmental issues from a scientific perspective and be able to solve issues using a variety of interdisciplinary perspectives (e.g., social sciences, economics, humanities, and/or architecture).

Requirements for the BA Degree with a Major in Environmental Science

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Environmental Science must complete:

- A minimum of 23-24 courses (66-71 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 4-6 courses (12-21 credit hours), depending on declared major concentration, taken at the 300-level or above.
- A capstone senior seminar requirement.
- The requirements of a major concentration. When students declare the major (p. 17) in Environmental Science, students must additionally identify and declare one of two major concentrations, either in:
  - Earth Science (p. 1003), or
  - Ecology and Evolutionary Biology (p. 1007).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Environmental science is an interdisciplinary major that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Environmental Science</td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Environmental Science</td>
<td>120</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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</tr>
<tr>
<td></td>
<td>Core Courses 2</td>
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<tr>
<td>BIOS 213</td>
<td>INTRODUCTORY LAB IN ECOLOGY &amp; EVOLUTION</td>
<td>2</td>
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<tr>
<td>ENST 100</td>
<td>ENVIRONMENT, CULTURE AND SOCIETY</td>
<td>3</td>
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<tr>
<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
<td>4</td>
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<tr>
<td>EEPS 325</td>
<td>OCEANS, ATMOSPHERES AND CLIMATE</td>
<td>4</td>
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<td></td>
<td>Selected 2-3 courses from the following</td>
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</tr>
<tr>
<td>BIOS 316</td>
<td>LAB MODULE IN ECOLOGY</td>
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</tr>
<tr>
<td>BIOS 317</td>
<td>LAB MODULE IN BEHAVIOR</td>
<td></td>
</tr>
<tr>
<td>BIOS 319</td>
<td>TROPICAL FIELD BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 320</td>
<td>ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY</td>
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</tr>
<tr>
<td>BIOS 327</td>
<td>BIOLOGICAL DIVERSITY</td>
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</table>
Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOS 330</td>
<td>INSECT BIOLOGY LAB</td>
</tr>
<tr>
<td>BIOS 337</td>
<td>FIELD BIRD BIOLOGY LAB</td>
</tr>
<tr>
<td>EEPS 103</td>
<td>FIELD TRIPS FOR THE EARTH</td>
</tr>
<tr>
<td>EEPS 309 /</td>
<td>VISUALIZING NATURE</td>
</tr>
<tr>
<td>FOTO 390</td>
<td></td>
</tr>
<tr>
<td>EEPS 334</td>
<td>THE EARTH LABORATORY</td>
</tr>
<tr>
<td>EEPS 390</td>
<td>GEOLOGY FIELD CAMP</td>
</tr>
<tr>
<td>EEPS 391</td>
<td>EARTH SCIENCE FIELD EXPERIENCE</td>
</tr>
</tbody>
</table>

**Major Concentration**

Select 1 from the following Major Concentrations (see below for Major Concentration requirements):

- Earth Science
- Ecology and Evolutionary Biology

**Advanced Electives**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 280</td>
<td>SUSTAINABLE DEVELOPMENT AND REPORTING</td>
</tr>
<tr>
<td>BIOS 559</td>
<td>SUSTAINABILITY IMPACT ASSESSMENTS</td>
</tr>
<tr>
<td>CEVE 302 /</td>
<td>SUSTAINABLE DESIGN</td>
</tr>
<tr>
<td>ENGI 302</td>
<td></td>
</tr>
<tr>
<td>CEVE 308</td>
<td>INTRODUCTION TO AIR POLLUTION CONTROL</td>
</tr>
<tr>
<td>CEVE 310</td>
<td>PRINCIPLES OF ENVIRONMENT ENGINEERING</td>
</tr>
<tr>
<td>CEVE 314 /</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
</tr>
<tr>
<td>BIOE 365 /</td>
<td></td>
</tr>
<tr>
<td>GLHT 314</td>
<td></td>
</tr>
<tr>
<td>CEVE 401</td>
<td>CHEMISTRY FOR ENVIRONMENT ENGINEERING AND SCIENCE</td>
</tr>
<tr>
<td>CEVE 404</td>
<td>ATMOSPHERIC PARTICULATE MATTER</td>
</tr>
<tr>
<td>CEVE 411</td>
<td>ATMOSPHERIC CHEMISTRY AND CLIMATE ENGINEERING</td>
</tr>
<tr>
<td>CEVE 412</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
</tr>
<tr>
<td>CEVE 420</td>
<td>ENVIRONMENTAL REMEDIATION RESTORATION</td>
</tr>
<tr>
<td>CEVE 434</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
</tr>
<tr>
<td>CEVE 484 /</td>
<td>ENVIRONMENTAL RISK ASSESSMENT &amp; HUMAN HEALTH</td>
</tr>
<tr>
<td>STAT 484</td>
<td></td>
</tr>
<tr>
<td>CHBE 382</td>
<td>INNOVATION AND SUSTAINABILITY</td>
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<td>CHEM 211 &amp;</td>
<td>ORGANIC CHEMISTRY I &amp; ORGANIC CHEMISTRY DISCUSSION</td>
</tr>
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<td>CHEM 213</td>
<td></td>
</tr>
<tr>
<td>ENST 250</td>
<td>UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS</td>
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<tr>
<td>ENST 307 /</td>
<td>ENERGY AND THE ENVIRONMENT</td>
</tr>
<tr>
<td>CEVE 307 /</td>
<td></td>
</tr>
<tr>
<td>EEPS 307</td>
<td></td>
</tr>
<tr>
<td>ENST 406 /</td>
<td>INTRODUCTION TO ENVIRONMENT LAW</td>
</tr>
<tr>
<td>CEVE 406</td>
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<tr>
<td>PHYS 101 &amp;</td>
<td>MECHANICS (WITH LAB) &amp; MECHANICS DISCUSSION</td>
</tr>
<tr>
<td>PHYS 103</td>
<td></td>
</tr>
<tr>
<td>PHYS 102 &amp;</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) &amp; ELECTRICITY AND MAGNETISM DISCUSSION</td>
</tr>
<tr>
<td>PHYS 104</td>
<td></td>
</tr>
</tbody>
</table>

**Capstone Senior Seminar Requirement**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOS 495</td>
<td>SEMINAR: TOPICS IN ENVIRONMENTAL SCIENCE</td>
</tr>
</tbody>
</table>

**Total Credit Hours Required for the Major in Environmental Science**

| Total Credit Hours Required for the Major in Environmental Science | 66-71 |

Additional Credit Hours to Complete Degree Requirements

* | 18-23 |
Footnotes and Additional Information

Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113; CHEM 152 may be substituted for CHEM 122 or CHEM 112, and CHEM 154 may be substituted for CHEM 124 or CHEM 114.

2 The Core Courses acquaint students with a range of environmental topics encountered by scientists, engineers, managers, and policy makers. Core Courses stress the components of the global environment and their interactions, culminating with a tropical seminar that integrates across the field.

3 Students may also petition to complete alternative courses to be applied toward the Advanced Electives requirement.

4 In addition to the courses in the Natural Sciences and Engineering Advanced Electives list, students may complete 1 course listed in the major concentration requirements outside of the student’s declared major concentration.

Major Concentration: Ecology and Evolutionary Biology

Students must complete a total of 3 courses (minimum of 9 credit hours) as listed below to satisfy the requirements for the major concentration in Ecology and Evolutionary Biology.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 2 courses from the following:</td>
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</tr>
<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
<td></td>
</tr>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>Elective Requirements</td>
<td></td>
<td></td>
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<tr>
<td>Select at least 1 course from the following:</td>
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<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
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</tr>
<tr>
<td>BIOS 326</td>
<td>INSECT BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
<td></td>
</tr>
<tr>
<td>BIOS 336</td>
<td>PLANT DIVERSITY</td>
<td></td>
</tr>
<tr>
<td>BIOS 338</td>
<td>ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA</td>
<td></td>
</tr>
<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
<td></td>
</tr>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
<td></td>
</tr>
<tr>
<td>EEPS 340</td>
<td>GLOBAL BIOGEOCHEMICAL CYCLES</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 31

Footnotes and Additional Information

1 Please note that the course not completed in the Core Requirements list for the major concentration in Ecology and Evolutionary Biology may be completed and applied towards the major concentration's Elective Requirements.

Policies for the BA Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology may not additionally pursue the BS Degree with a Major in Environmental Science.
- Students pursuing the major in Environmental Science may pursue only one major concentration within the major.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the major in Environmental Science should be aware of the following program transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the following websites:

- https://biosciences.rice.edu/
- https://earthscience.rice.edu/academics/undergraduate-program/

Opportunities for the BA Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work.
Students will be able to:

Upon completing the BS degree with a major in Environmental Science, students also can enroll in senior honors thesis programs within their major concentrations, or by arrangement with other departments, and/or through the Rice Undergraduate Scholars Program. Students completing a thesis will also be eligible for the Distinction in Research and Creative Work, a university honor. Details for each program can be found here:

- **BIOS Honors Research** ([https://biosciences.rice.edu/research-overview](https://biosciences.rice.edu/research-overview/))
- **Rice Undergraduate Scholars Program** ([https://ouri.rice.edu/rusp](https://ouri.rice.edu/rusp))

**Independent Research**

Students are encouraged to undertake independent research on environmentally related topics as part of their degree programs, in cooperation with one or more faculty. Course options for independent research, repeatable for credit, include: BIOS 401, BIOS 402, and EEPS 481.

Additional Information

For additional information, please see the following websites:

- [https://biosciences.rice.edu/](https://biosciences.rice.edu/)
- [https://earthscience.rice.edu/academics/undergraduate-program/](https://earthscience.rice.edu/academics/undergraduate-program/)

**Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Earth Science**

**Program Learning Outcomes for the BS Degree with a Major in Environmental Science**

Upon completing the BS degree with a major in Environmental Science, students will be able to:

1. Demonstrate foundational knowledge in the natural sciences that is fundamental to the environmental sciences or application of the environmental sciences to other fields.
2. Integrate knowledge of natural and applied sciences to understand complex natural systems and cycles.
3. Synthesize knowledge from natural sciences and engineering and apply it to the study of the environment.
4. Understand environmental issues from a scientific perspective and be able to solve issues using a variety of interdisciplinary perspectives (e.g., social sciences, economics, humanities, and/or architecture).
5. Demonstrate knowledge and skills suitable for doing research and/or field studies in environmental science.

**Requirements for the BS Degree with a Major in Environmental Science**

For graduation requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Environmental Science must complete:

- A minimum of 26-29 courses (77-82 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5-7 courses (15-24 credit hours), depending on declared major concentration, taken at the 300-level or above.
- An advanced field or research experience requirement.
- A capstone senior seminar requirement.
- The requirements of a major concentration. When students declare the major (p. 17) in Environmental Science, students must additionally identify and declare one of two major concentrations, either in:
  
  - **Earth Science (p. 1010), or**
  - **Ecology and Evolutionary Biology (p. 1014).**

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar ([registrar@rice.edu](mailto:registrar@rice.edu)).

Environmental Science is an interdisciplinary major that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s [Official Certifier](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Environmental Science</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BS Degree with a Major in Environmental Science</td>
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</table>

**Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
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</tbody>
</table>

**Foundation Coursework**

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<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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<td>ENVIRONMENT, CULTURE AND SOCIETY</td>
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<td>OCEANS, ATMOSPHERES AND CLIMATE</td>
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<td>BIOS 317</td>
<td>LAB MODULE IN BEHAVIOR</td>
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<td>BIOS 319</td>
<td>TROPICAL FIELD BIOLOGY</td>
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<td>BIOS 320</td>
<td>ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY</td>
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<tr>
<td>BIOS 327</td>
<td>BIOLOGICAL DIVERSITY</td>
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<td>BIOS 330</td>
<td>INSECT BIOLOGY LAB</td>
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<tr>
<td>EEPS 309</td>
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<td>/ FOTO 390</td>
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<td>EEPS 334</td>
<td>THE EARTH LABORATORY</td>
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<td>BIOS 280</td>
<td>SUSTAINABLE DEVELOPMENT AND REPORTING</td>
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**Ecology and Evolutionary Biology**

**Advanced Electives**

**Social Sciences**

Select 1 course from the following:

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<td>ANTHROPOLOGIES OF NATURE</td>
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<tr>
<td>ANTH 381</td>
<td>MEDICAL ANTHROLOGY</td>
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<td>ENST 301</td>
<td>ENVIRONMENTAL JUSTICE</td>
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<tr>
<td>ENST 302</td>
<td>ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE</td>
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<tr>
<td>ENST 332</td>
<td>THE SOCIAL LIFE OF CLEAN ENERGY</td>
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<tr>
<td>ANTH 332</td>
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<td>ENST 367</td>
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<td>ENST 437</td>
<td>ENERGY ECONOMICS</td>
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<td>ECON 437</td>
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<td>ENST 480</td>
<td>ENVIRONMENTAL AND ENERGY</td>
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<td>ECON 480</td>
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<td>POLI 332</td>
<td>URBAN POLITICS</td>
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<td>SOCI 313</td>
<td>DEMOGRAPHY</td>
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<td>SOCI 368</td>
<td>SOCIOLOGY OF DISASTER</td>
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<td>SOCI 423</td>
<td>SOCIOLOGY OF FOOD</td>
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**Humanities and Architecture**

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<td>SCIENCE FICTION AND THE</td>
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<td>/ ENST 256</td>
<td>ENVIRONMENT</td>
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<td>ENGL 310</td>
<td>NONFICTION NATURE WRITING</td>
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<td>ENGL 358</td>
<td>CONSUMPTION AND CONSUMERISM</td>
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<tr>
<td>ENGL 459</td>
<td>STUDIES IN LITERATURE AND ECOLOGY</td>
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<td>ENST 202</td>
<td>CULTURE, ENERGY, AND THE</td>
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<td>/ HUMA 202</td>
<td>ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES</td>
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</tr>
<tr>
<td>ENST 313</td>
<td>CASE STUDIES IN SUSTAINABLE DESIGN</td>
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<tr>
<td>ENST 322</td>
<td>CASE STUDIES IN SUSTAINABILITY: THE</td>
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<td>/ ARCH 322</td>
<td>REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS</td>
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<td>ENST 368</td>
<td>LITERATURE AND THE ENVIRONMENT</td>
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<td>/ ENGL 368</td>
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<td>ENST 445</td>
<td>SEMINAR IN URBAN SUSTAINABILITY AND LIVABILITY RESEARCH METHODS AND APPLICATIONS</td>
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<td>ENST 446</td>
<td>LAB IN ENGAGED URBAN SUSTAINABILITY AND LIVABILITY RESEARCH</td>
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<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
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<td>HIST 321</td>
<td>US ENVIRONMENTAL HISTORY</td>
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<td>SPPO 411</td>
<td>LITERATURE AND THE ENVIRONMENT IN LATIN AMERICA</td>
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**Natural Sciences and Engineering**

Select 1 course from the following:

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOS 316</td>
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<tr>
<td>BIOS 317</td>
<td>LAB MODULE IN BEHAVIOR</td>
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<td>BIOS 319</td>
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<td>EEPS 103</td>
<td>FIELD TRIPS FOR THE EARTH</td>
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<tr>
<td>EEPS 334</td>
<td>THE EARTH LABORATORY</td>
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**Major Concentration**

Select 1 from the following Major Concentrations (see below for Major Concentration requirements):

<table>
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<tr>
<th>Concentration</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>Earth Science</td>
<td>9-12</td>
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</table>
Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Earth Science

BIOS 559  SUSTAINABILITY IMPACT ASSESSMENTS
CEVE 302  SUSTAINABLE DESIGN
CEVE 308  INTRODUCTION TO AIR POLLUTION CONTROL
CEVE 310  PRINCIPLES OF ENVIRONMENTAL ENGINEERING
CEVE 314 / BIOE 365 / GLHT 314  SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
CEVE 401  CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
CEVE 404  ATMOSPHERIC PARTICULATE MATTER
CEVE 411  ATMOSPHERIC CHEMISTRY AND CLIMATE
CEVE 412  HYDROLOGY AND WATER RESOURCES ENGINEERING
CEVE 420  ENVIRONMENTAL REMEDIATION RESTORATION
CEVE 434  FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
CEVE 484 / STAT 484  ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
CHBE 382  INNOVATION AND SUSTAINABILITY
CHEM 211 & CHEM 213  ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY DISCUSSION
ENST 250  UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS
ENST 281 / CHBE 281  SUSTAINABLE COMMUNITIES
ENST 307 / CEVE 307 / EEPS 307  ENERGY AND THE ENVIRONMENT
ENST 406 / CEVE 406  INTRODUCTION TO ENVIRONMENTAL LAW

Advanced Field or Research Experience Requirement

Independent Research (see the Opportunities tab for additional information).

Select 1 course from the following:

- BIOS 401  UNDERGRADUATE HONORS RESEARCH
- EEPS 390  GEOLOGY FIELD CAMP
- EEPS 391  EARTH SCIENCE FIELD EXPERIENCE
- EEPS 481  UNDERGRADUATE RESEARCH IN EARTH SCIENCE

Capstone Senior Seminar Requirement

BIOS 495  SEMINAR: TOPICS IN ENVIRONMENTAL SCIENCE

Total Credit Hours Required for the Major in Environmental Science

77-82

Additional Credit Hours to Complete Degree Requirements

7-12

University Graduation Requirements (p. 29)

31

Total Credit Hours

120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113; CHEM 152 may be substituted for CHEM 122 or CHEM 112, and CHEM 154 may be substituted for CHEM 124 or CHEM 114.

2 The Core Courses acquaint students with a range of environmental topics encountered by scientists, engineers, managers, and policy makers. Core Courses stress the components of the global environment and their interactions, culminating with a tropical seminar that integrates across the field.

3 Students may also petition to complete alternative courses to be applied toward the Advanced Electives requirement.

4 In addition to the courses in the Natural Sciences and Engineering Advanced Electives list, students may complete 1 course listed in the major concentration requirements outside of the student’s declared major concentration.

5 Students are encouraged, but not required, to undertake independent research on environmentally related topics.

Major Concentration: Earth Science

Students must complete a total of 3 courses (minimum of 10-12 credit hours, depending on course selection) as listed below to satisfy requirements for the major concentration in Earth Science.

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<tr>
<td>EEPS 322</td>
<td>EARTH AND PLANETARY CHEMISTRY AND MATERIALS</td>
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<tr>
<td>EEPS 323</td>
<td>EARTH AND PLANETARY STRUCTURE AND DYNAMICS</td>
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<tr>
<td>EEPS 340</td>
<td>GLOBAL BIOGEOCHEMICAL CYCLES</td>
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Elective Requirement

Select at least 1 course from the following: 1

Any course from Earth, Environmental, and Planetary Sciences (EEPS) courses offerings at the 300-level (or above) designated as Lecture in the course catalog

<table>
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<tr>
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<td>EEPS 322</td>
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<td>EEPS 417</td>
<td>TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE</td>
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</table>
For additional information, please see the following websites:

- https://biosciences.rice.edu/
- https://earthscience.rice.edu/academics/undergraduate-program/

Opportunities for the BS Degree with a Major in Environmental Science and a Major Concentration in Earth Science

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Independent Research

Students are encouraged to undertake independent research on environmentally related topics as part of their degree programs, in cooperation with one or more faculty. Course options for independent research, repeatable for credit, include: BIOS 401, BIOS 402, and EEPS 481.

Students also can enroll in senior honors thesis programs within their major concentrations, or by arrangement with other departments, and/or through the Rice Undergraduate Scholars Program. Students completing a thesis will also be eligible for the Distinction in Research and Creative Work, a university honor. Details for each program can be found here:

- BIOS Honors Research (https://biosciences.rice.edu/research-overview (https://biosciences.rice.edu/research-overview/))
- Rice Undergraduate Scholars Program (https://ouri.rice.edu/rusp (https://ouri.rice.edu/rusp/))

Additional Information

For additional information, please see the following websites:

- https://biosciences.rice.edu/
- https://earthscience.rice.edu/academics/undergraduate-program/

Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

Program Learning Outcomes for the BS Degree with a Major in Environmental Science

Upon completing the BS degree with a major in Environmental Science, students will be able to:

1. Demonstrate foundational knowledge in the natural sciences that is fundamental to the environmental sciences or application of the environmental sciences to other fields.
2. Integrate knowledge of natural and applied sciences to understand complex natural systems and cycles.
3. Synthesize knowledge from natural sciences and engineering and apply it to the study of the environment.
4. Understand environmental issues from a scientific perspective and be able to solve issues using a variety of interdisciplinary perspectives (e.g., social sciences, economics, humanities, and/or architecture).
5. Demonstrate knowledge and skills suitable for doing research and/or field studies in environmental science.

Requirements for the BS Degree with a Major in Environmental Science

For graduation requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Environmental Science must complete:

- A minimum of 26-29 courses (77-82 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5-7 courses (15-24 credit hours), depending on declared major concentration, taken at the 300-level or above.
- An advanced field or research experience requirement.
- A capstone senior seminar requirement.
- The requirements of a major concentration. When students declare the major (p. 17) in Environmental Science, students must additionally identify and declare one of two major concentrations, either in:
  - Earth Science (p. 1010), or
  - Ecology and Evolutionary Biology (p. 1014).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Environmental Science is an interdisciplinary major that addresses environmental issues in the context of what we know about earth, ecology, and society. In addition to its science core, the major also seeks to provide students with some appreciation of social, cultural, and policy dimensions of environmental issues.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally approved and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<tbody>
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<td>Select 1 course from the following:</td>
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<tr>
<td>PHYS 101 and PHYS 103</td>
<td>MECHANICS (WITH LAB) and MECHANICS DISCUSSION</td>
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</tr>
<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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<tr>
<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
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<td>Select 1 course from the following:</td>
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<tr>
<td>PHYS 102 and PHYS 104</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<tr>
<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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<td>PHYS 126</td>
<td>GENERAL PHYSICS II (WITH LAB)</td>
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<td>Core Courses</td>
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<tr>
<td>BIOS 213</td>
<td>INTRODUCTORY LAB IN ECOLOGY &amp; EVOLUTION</td>
<td>2</td>
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<tr>
<td>ENST 100 / ARCH 105</td>
<td>ENVIRONMENT, CULTURE AND SOCIETY</td>
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<tr>
<td>Any course from Earth, Environmental, and Planetary Sciences (EEPS) courses offerings at the 100-level (any course offerings between course numbers EEPS 100 and EEPS 199)</td>
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<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
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<td>EEPS 325</td>
<td>OCEANS, ATMOSPHERES AND CLIMATE</td>
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<td>Field Experience</td>
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<td>BIOS 316</td>
<td>LAB MODULE IN ECOLOGY</td>
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<tr>
<td>BIOS 317</td>
<td>LAB MODULE IN BEHAVIOR</td>
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<tr>
<td>BIOS 319</td>
<td>TROPICAL FIELD BIOLOGY</td>
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<tr>
<td>BIOS 320</td>
<td>ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY</td>
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<tr>
<td>BIOS 327</td>
<td>BIOLOGICAL DIVERSITY</td>
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<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>BIOS 330</td>
<td>INSECT BIOLOGY LAB</td>
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<tr>
<td>BIOS 337</td>
<td>FIELD BIRD BIOLOGY LAB</td>
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</tr>
<tr>
<td>EEPS 103</td>
<td>FIELD TRIPS FOR THE EARTH</td>
<td></td>
</tr>
<tr>
<td>EEPS 309 /</td>
<td>VISUALIZING NATURE</td>
<td></td>
</tr>
<tr>
<td>FOTO 390</td>
<td>THE EARTH LABORATORY</td>
<td></td>
</tr>
</tbody>
</table>

**Major Concentration**

Select 1 from the following Major Concentrations (see below for Major Concentration requirements):

- Earth Science
- Ecology and Evolutionary Biology

**Advanced Electives**

**Social Sciences**

Select 1 course from the following: 3

- ANTH 348  ANTHROPOLOGIES OF NATURE
- ANTH 381  MEDICAL ANTHROPOLOGY
- ENST 301  ENVIRONMENTAL JUSTICE
- ENST 302 / SOCI 304  ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE
- ENST 332  THE SOCIAL LIFE OF CLEAN ENERGY
- ENST 367  ENVIRONMENTAL SOCIOLOGY
- ENST 437  ENERGY ECONOMICS
- ECON 437  ECONOMICS
- ENST 480  ENVIRONMENTAL AND ENERGY ECONOMICS
- ENST 367  URBAN POLITICS
- ENST 367  COMPARE URBAN POLITICS AND POLICY
- SOCIO 313  DEMOGRAPHY
- SOCIO 368  SOCIOLOGY OF DISASTER
- SOCIO 423  SOCIOLOGY OF FOOD

**Humanities and Architecture**

Select 1 course from the following: 3

- ENGL 269 / ENST 265  SCIENCE FICTION AND THE ENVIRONMENT
- ENST 310  NONFICTION NATURE WRITING
- ENGL 358  CONSUMPTION AND CONSUMERISM
- ENGL 459  STUDIES IN LITERATURE AND ECOLOGY
- ENST 202 / HUMA 202  CULTURE, ENERGY, AND THE ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES
- ENST 313 / ARCH 313  CASE STUDIES IN SUSTAINABLE DESIGN
- ENST 322 / ARCH 322  CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS
- ENST 368 / ENGL 368  LITERATURE AND THE ENVIRONMENT
- ENST 445  SEMINAR IN URBAN SUSTAINABILITY AND LIVABILITY RESEARCH METHODS AND APPLICATIONS
- ENST 446  LAB IN ENGAGED URBAN SUSTAINABILITY AND LIVABILITY RESEARCH

**Natural Sciences and Engineering**

Select 1 course from the following: 3

- BIOS 280  SUSTAINABLE DEVELOPMENT AND REPORTING
- BIOS 559  SUSTAINABILITY IMPACT ASSESSMENTS
- CEVE 302 / ENGI 302  SUSTAINABLE DESIGN
- CEVE 308  INTRODUCTION TO AIR POLLUTION CONTROL
- CEVE 310  PRINCIPLES OF ENVIRONMENTAL ENGINEERING
- CEVE 314 / BIOE 365 / GLHT 314  SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
- CEVE 401  CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
- CEVE 404  ATMOSPHERIC PARTICULATE MATTER
- CEVE 411  ATMOSPHERIC CHEMISTRY AND CLIMATE
- CEVE 412  HYDROLOGY AND WATER RESOURCES ENGINEERING
- CEVE 420  ENVIRONMENTAL REMEDIATION RESTORATION
- CEVE 434  FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
- CEVE 484 / STAT 484  ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
- CHBE 382  INNOVATION AND SUSTAINABILITY
- CHEM 211 / & CHEM 213 and ORGANIC CHEMISTRY DISCUSSION
- ENST 250  UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS
- ENST 281 / CHBE 281  ENGINEERING SOLUTIONS FOR SUSTAINABLE COMMUNITIES
- ENST 307 / CEVE 307 / EEPS 307  ENERGY AND THE ENVIRONMENT
- ENST 406 / CEVE 406  INTRODUCTION TO ENVIRONMENTAL LAW

**Advanced Field or Research Experience Requirement**

Independent Research (see the Opportunities tab for additional information). 5

Select 1 course from the following: 3

- BIOS 401  UNDERGRADUATE HONORS RESEARCH
- EEPS 390  GEOLOGY FIELD CAMP
- EEPS 391  EARTH SCIENCE FIELD EXPERIENCE
- EEPS 481  UNDERGRADUATE RESEARCH IN EARTH SCIENCE

**Capstone Senior Seminar Requirement**

- BIOS 495  SEMINAR: TOPICS IN ENVIRONMENTAL SCIENCE 3
Major Concentration: Ecology and Evolutionary Biology

Students must complete a total of 3 courses (9 credit hours) as listed below to satisfy the requirements for the major concentration in Ecology and Evolutionary Biology.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Core Requirements</td>
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<td>Select 2 courses from the following:</td>
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<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
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<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
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<td>Elective Requirement</td>
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<tr>
<td>Select at least 1 course from the following:</td>
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<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
<td></td>
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<tr>
<td>BIOS 326</td>
<td>INSECT BIOLOGY</td>
<td></td>
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<tr>
<td>BIOS 334</td>
<td>EVOLUTION</td>
<td></td>
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<tr>
<td>BIOS 336</td>
<td>PLANT DIVERSITY</td>
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</tr>
<tr>
<td>BIOS 338</td>
<td>ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA</td>
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<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
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<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
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<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
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<tr>
<td>EEPS 340</td>
<td>GLOBAL BIOGEOCHEMICAL CYCLES</td>
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</tbody>
</table>

Total Credit Hours 9

Footnotes and Additional Information

1 Please note that the course not completed in the Core Requirements list for the major concentration in Ecology and Evolutionary Biology may be completed and applied towards the major concentration’s Elective Requirement.

Policies for the BS Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

Program Restrictions and Exclusions

Students pursuing the BS Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology may not additionally pursue the BA Degree with a Major in Environmental Science.
- Students pursuing the major in Environmental Science may pursue only one major concentration within the major.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the major in Environmental Science should be aware of the following program transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the following websites:

- https://biosciences.rice.edu/
- https://earthscience.rice.edu/academics/undergraduate-program/

Opportunities for the BS Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work.
Some departments have department-specific Honors awards or designations.

**Independent Research**

Students are encouraged to undertake independent research on environmentally related topics as part of their degree programs, in cooperation with one or more faculty. Course options for independent research, repeatable for credit, include: BIOS 401, BIOS 402, and EEPS 481.

Students also can enroll in senior honors thesis programs within their major concentrations, or by arrangement with other departments, and/or through the Rice Undergraduate Scholars Program. Students completing a thesis will also be eligible for the Distinction in Research and Creative Work, a university honor. Details for each program can be found here:

- **BIOS Honors Research**  
  [https://biosciences.rice.edu/research-overview](https://biosciences.rice.edu/research-overview)

- **ESCI Senior Honors Thesis**  
  [https://earthscience.rice.edu/academics/undergraduate-program/honors-thesis](https://earthscience.rice.edu/academics/undergraduate-program/honors-thesis)

- **Rice Undergraduate Scholars Program**  
  [https://ouri.rice.edu/rusp](https://ouri.rice.edu/rusp)

**Additional Information**

For additional information, please see the following websites:

- [https://biosciences.rice.edu/](https://biosciences.rice.edu/)
- [https://earthscience.rice.edu/academics/undergraduate-program/](https://earthscience.rice.edu/academics/undergraduate-program/)

**Environmental Studies**

**Contact Information**

**Environmental Studies**  
https://enst.rice.edu/  
116 Humanities Building  
713-348-4548

**Joseph A. Campana, Jr.**  
Program Co-Director  
[Joseph.A.Campana@rice.edu](mailto:Joseph.A.Campana@rice.edu)

**Richard R. Johnson**  
Program Co-Director  
rrj@rice.edu

Environmental Studies is an interdisciplinary field that explores the interconnection between humans and the natural environment. Modern environmental issues reflect the complex interactions of natural and social systems at global and local scales, and the resulting impacts on the Earth have led many to ask whether humankind has entered into a new epoch in the planet's history, one in which humans are now a key driver in the change of Earth systems.

The Environmental Studies program fosters the critical, integrative thinking required to better understand the complexities of this human-nature relationship and the resultant scales of impact, and to assess and develop solutions that meet intergenerational human needs without compromising the natural systems upon which humans depend.

The Environmental Studies program offers an undergraduate minor in Environmental Studies and several interdisciplinary courses for students interested in broadening their understanding of environmental issues. These courses often are team-taught by faculty from various areas of study.

The program in Environmental Studies, along with the Center for Environmental Studies, are administered jointly by the School of Humanities and the School of Architecture, with staff support and first point of contact in the School of Humanities.

**Minor**

- **Minor in Environmental Studies** (p. 1022)

Environmental Studies does not currently offer an academic program at the graduate level.

**Co-Directors and Co-Advisors**

Joseph A. Campana, Jr.  
Richard R. Johnson

**Steering Committee**

James B. Blackburn  
Dominic C. Boyer  
Joseph A. Campana, Jr.  
Richard R. Johnson  
Julia K. Morgan  
Timothy Morton  
Evan Siemann  
Albert H. Pope

For Rice University degree-granting programs:

- To view the list of official course offerings, please see Rice's Course Catalog  
  [https://courses.rice.edu/admweb/ISWKSCAT.cat?action=cata](https://courses.rice.edu/admweb/ISWKSCAT.cat?action=cata)
- To view the most recent semester's course schedule, please see Rice's Course Schedule  
  [https://courses.rice.edu/admweb/ISWKSCAT.cat](https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Environmental Studies (ENST)**

**ENST 100 - ENVIRONMENT, CULTURE & SOCIETY**

**Short Title:** ENVIRONMENT, CULTURE & SOCIETY  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**Course Level:** Undergraduate Lower-Level  
**Description:** This introductory course in environmental studies helps students to better understand the complex interrelationship between human cultures and their social and physical environments. Lectures and assignments draw upon the methods and expertise of architecture, the humanities and the social sciences. This is a core course of Rice's Environmental Studies minor. Cross-list: ARCH 105.
ENST 117 - FRESHMAN SEMINAR IN LOCAL ENVIRONMENTAL SCIENCE RESEARCH
Short Title: FRESHMAN ENVIRONMENTAL SEMINAR
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: A 7-week seminar course to introduce freshmen perspective environmental science researches to the excitement of research at Rice and in the broader Houston area, and to provide context with which to think about facts presented in textbooks. Small groups will meet weekly with a graduate student or postdoctoral researcher to explore a published research article by a local team of researchers, gaining background information about the subject and exposure to the research techniques. In the final session, the group will tour the lab that produced the feature article. Additional tours and activities TBA. All first year non-transfer students are eligible to enroll in ENST 117 regardless of AP credit. This course meets in the second half of the semester and features research in the Environmental Science Major. Distribution Credit for ENST 117 no longer eligible beginning Fall 2019.

ENST 201 - THE SCIENCE OF CLIMATE CHANGE
Short Title: SCIENCE OF CLIMATE CHANGE
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: This undergraduate course will introduce students to the fundamentals of natural and anthropogenic climate change. After briefly reviewing Earth’s composition and its fluid envelopes, we will cover the basic physics of the climate system, providing tools to understand weather and climate phenomena (e.g. monsoons, El Niño), the greenhouse effect, and climate feedbacks. Building on this understanding, a succinct tour of geologic history will help us paint a more complete picture of Earth’s climate variations and how they affected human evolution and history. With this context, we will be able to judge the anomalous character of recent climate change, establish its anthropogenic nature, and discuss solutions to the current climate crisis. Students from any major are encouraged to enroll and engage on important topic. Mutually Exclusive: Cannot register for ENST 201 if student has credit for EEPS 107.

ENST 202 - CULTURE, ENERGY, AND THE ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES
Short Title: CULTURE ENERGY & ENVIRONMENT
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: Humanity faces extraordinary challenges in an era of climate change and energy transition. These challenges are not only technological but also questions of value, power, behavior, and understanding. This course draws upon new research across the arts, humanities and social sciences to help students better understand the cultural and social dimensions of our current patterns of energy use, their environmental impacts, and the possibility of new energy futures. Intended for both STEM majors and humanities and social science students. Cross-list: HUMA 202.

ENST 210 - SUSTAINABLE FUTURES: AN EXPLORATION OF GLOBAL SUSTAINABILITY CHALLENGES AND SOLUTIONS
Short Title: SUSTAINABLE FUTURES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: Sustainable Futures will explore a wide array of global sustainability challenges and solutions alongside significant trends and disruptive technologies that are shaping the future. Throughout the journey, discussions will be enhanced by drawing upon lessons from human exploration of analogous extreme environments in space – like Mars, the Moon, and low-earth orbit – as well as from terrestrial locales known as extreme environments. Sustainable Futures may feature an optional spring break trip to further enrich course content, for which an additional fee will be necessary.

ENST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
ENST 250 - UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS  
**Short Title:** UNDERSTANDING ENERGY  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ENGRG SUSTAINABLE COMMUNITIES  
**Description:** Energy is a foundational driver of human development. Energy impacts our economy, politics, culture, and environment. In this course, students will learn the fundamentals of energy in the context of broader systems and will be asked to think critically about how and why we rely on particular energy resources. The course structure will be comprised of lectures and class discussions along with field trips to power plants, chemical plants, and/or refineries. This class is vital for students interested in the environment and/or the energy industry. First year Rice students may not enroll in this course. Formerly offered as HURC 302. Mutually Exclusive: Cannot register for ENST 250 if student has credit for HURC 302.  
**Course URL:** [understandingenergy.rice.edu](http://understandingenergy.rice.edu)  

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ENST 265 - SCIENCE FICTION AND THE ENVIRONMENT  
**Short Title:** SCI FI AND THE ENVIRONMENT  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Examines the ways that science fiction has expressed and challenged ideas about nature, culture, society, and politics. Cross-list: ENGL 269.  

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ENST 281 - ENGINEERING SOLUTIONS FOR SUSTAINABLE COMMUNITIES  
**Short Title:** ENGRG SUSTAINABLE COMMUNITIES  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Students will work in teams to develop sustainable solutions for energy or environmental problems affecting our Houston and Rice communities. Emphasis will be placed on the integration of engineering fundamentals with societal issues, environmental and safety considerations, sustainability and professional communications. Prerequisites: introductory engineering courses, or permission of instructor. Cross-list: CHBE 281.  

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ENST 301 - ENVIRONMENTAL JUSTICE  
**Short Title:** ENVIRONMENTAL JUSTICE  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The impacts of environmental turmoil, climate change, toxicity, pollution, biodiversity loss, and more increasingly impact all but rarely equally. To consider environmental justice in this course is to consider these differential impacts (and their relationship to race, gender, ethnicity, economics, region, and other factors) and possible responses and remedies to these inequities with respect to a range of communities and regions through a range of arts, media, cultural documents, and social phenomena.  

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ENST 302 - ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE  
**Short Title:** ENVIRON ISSUES: RICE IN FUTURE  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Students use the campus as a laboratory for learning about sustainability through group projects to reduce Rice’s environmental impact or resolve environmental issues. Cross-list: SOCI 304.  

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ENST 307 - ENERGY AND THE ENVIRONMENT  
**Short Title:** ENERGY AND THE ENVIRONMENT  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course explores the physical principles of energy use and its impacts on Earth’s environment and climate. Topics will include energy mechanics, climate change, and the environmental impacts and future prospects of various fossil fuel and alternative energy sources. Cross-list: CEVE 307, EEPS 307.  

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ENST 311 - TOPICS IN ENVIRONMENTAL JUSTICE  
**Short Title:** TOPICS ENVIRONMENTAL JUSTICE  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable topics seminar that takes an in depth approach to questions of environmental justice. Topics will vary from semester to semester and may include "Black and Green: Environmental Justice in the Afro-Americas" and others. Repeatable for Credit.
ENST 313 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: CASE STUDIES IN SUSTAINABLE DESIGN
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore sustainable design from initial sustainable facility concepts and team organizations, to enlisting community support and process assessment. The course will develop into details about sustainable design, lessons learned, processes and outcomes. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: ARCH 313. Graduate/Undergraduate Equivalency: ENST 613. Mutually Exclusive: Cannot register for ENST 313 if student has credit for ENST 613.
Course URL: www.arch.rice.edu/academics/current-courses/ (http://www.arch.rice.edu/academics/current-courses/)

ENST 314 - CULTURES AND MEDIA OF ENVIRONMENTAL HEALTH
Short Title: CULTURE/MEDIA OF ENVIRO HEALTH
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cultures and Media of Environmental Health is a discussion based seminar that addresses the uncertainty of our ecological future and the changing environment’s impact on human and nonhuman health from an interdisciplinary point of view. This course pays particular attention to cultural and media representation at the intersection of health and the environment. This course will consider a broad array of media to stage important questions about how scientific and cultural systems can respond to the growing pressures of "environmental health."

ENST 315 - ENVIRONMENTAL HEALTH
Short Title: ENVIRONMENTAL HEALTH
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 201 or BIOC 201) and (BIOS 202 or EBIO 202)
Description: An overview of environmental health issues including discussion of epidemiologic methods, illnesses caused or exacerbated by environmental exposures, and the role of research in driving effective policies to protect and promote public health. The class includes numerous guest lectures by area experts (physicians, researchers, community activists, policymakers and others); a bus tour featuring disproportionately affected neighborhoods as well as cutting-edge “green” initiatives; original student research projects; and an opportunity to address the Houston City Council. The dynamic between research and action, i.e., “making a difference,” is stressed. FORMERLY ENST 314.

ENST 316 - ENVIRONMENTAL FILM
Short Title: ENVIRONMENTAL FILM
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ways film represents the environment and environmental issues (food, water, energy, waste, environmental justice, sustainability), and both expresses and shapes environmental values. We will view and analyze a variety of genres, as well as reading supplementary material.

ENST 321 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore application of high performance, sustainable design to specific Rice University campus and facility targets. In partnership with Rice University leadership, the team effort will develop "regenerative redesign" approaches based on investigation of other campuses' case study. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Cross-list: ARCH 321. Graduate/Undergraduate Equivalency: ENST 621. Mutually Exclusive: Cannot register for ENST 321 if student has credit for ENST 621.

ENST 322 - CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS
Short Title: CASE STUDIES IN SUSTAINABILITY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore application of high performance, sustainable design to specific Rice University campus and facility targets. In partnership with Rice University leadership, the team effort will develop "regenerative redesign" approaches based on investigation of other campuses' case study. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Cross-list: ARCH 322. Mutually Exclusive: Cannot register for ENST 322 if student has credit for ENST 622.
Course URL: www.arch.rice.edu/academics/current-courses/ (http://www.arch.rice.edu/academics/current-courses/)
ENST 332 - THE SOCIAL LIFE OF CLEAN ENERGY
Short Title: SOCIAL LIFE OF CLEAN ENERGY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course considers the phenomenon of renewable energy, using a social scientific approach to analyze the various forces and interests involved in the development of renewable energy projects (such as hydropower, solar and wind) in both the global North and South. No prerequisites required. Cross-list: ANTH 332.

ENST 350 - ENVIRONMENTAL INTERNSHIP
Short Title: ENVIRONMENTAL INTERNSHIP
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides enrollment credit for approved internships with environmental organizations or agencies. Students must seek approval prior to beginning the internship. Weekly progress reports and a final paper are required. Instructor Permission Required.

ENST 367 - ENVIRONMENTAL SOCIOLOGY
Short Title: ENVIRONMENTAL SOCIOLOGY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the foundations of environmental sociology and takes a social and historical approach to examine how humans affect the environment and the environment affects humans. Topics include: agricultural sustainability, resource extraction and climate change, assimilative capacity and other similar issues. Cross-list: CEVE 406.

ENST 391 - SPECULATIVE FUTURES
Short Title: SPECULATIVE FUTURES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Drawing from "CliFi," "Speculative Fiction," and global anthropological case studies, this course analyzes a series of potential futures as earthly conditions continue to be altered by human activity. Students will develop speculative future models through assessing climate conditions, population displacement, ethics, ecological transformations and human practices and values. Cross-list: ANTH 391.

ENST 400 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level

ENST 406 - INTRODUCTION TO ENVIRONMENTAL LAW
Short Title: INTRO TO ENVIRONMENTAL LAW
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Environmental Law is intended to introduce the student to the methods used by the United States and the international community to regulate and/or allocate air, water and land resources. A key focus of this course will be the emerging area of the law of sustainable development, including the implementation of full price costing, life cycle analysis, carbon cycle analysis, allocation of assimilative capacity and other similar issues. Cross-list: CEVE 406.

ENST 415 - THE ENVIRONMENTAL MOVEMENT
Short Title: THE ENVIRONMENTAL MOVEMENT
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the environmental movement in the U.S. and globally. After a historical overview, we will use a social movement perspective to examine mobilization, organizations and tactics, ideologies and identities, as well as exploring aspects of contemporary environmentalism (e.g. green building and slow food, wildlife management/biodiversity, sustainable development, environmental justice). Cross-list: SOCI 415.

Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENST 437 - ENERGY ECONOMICS
Short Title: ENERGY ECONOMICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 301 or ECON 370
Description: Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Cross-list: ECON 437.

ENST 441 - GOVERNING THE ENVIRONMENTAL COMMONS
Short Title: GOVERNING ENVIRONMNTL COMMONS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Common Property Resources (CPRs), such as fisheries, aquifers, and the Internet, appear in many guises and pose a fundamental problem for governing. Exploration of theoretical underpinnings for CPRs, their growing literature, and the political and economic institutions mediating CPR dilemmas. Included is an original research project in conjunction with the instructor. Cross-list: POLI 441.

ENST 445 - SEMINAR IN URBAN SUSTAINABILITY AND LIVABILITY RESEARCH METHODS AND APPLICATIONS
Short Title: URBAN SUSTAINABILITY SEMINAR
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: ENST 446
Description: Seminar in the practice and techniques for student-led engaged research in urban sustainability and livability. Techniques and methods applied in actual urban settings, including an understanding of intentional design, the use of psycho-geographic mapping, human geography, and derives to understand urban communities. Content includes multifaceted exploration of sustainability. Instructor Permission Required. Repeatable for Credit.
Course URL: culturesofenergy.com/enst-minor/ (http://culturesofenergy.com/enst-minor/)

ENST 446 - LAB IN ENGAGED URBAN SUSTAINABILITY AND LIVABILITY RESEARCH
Short Title: ENGAGED URBAN RESEARCH LAB
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: ENST 445
Description: Lab in the practice and techniques for student-led engaged research in urban sustainability and livability. Techniques and methods applied in actual urban settings, including an understanding of intentional design, the use of psycho-geographic mapping, human geography, and derives to understand urban communities. Content includes multifaceted exploration of sustainability. Instructor Permission Required. Repeatable for Credit.
Course URL: culturesofenergy.com/enst-minor/ (http://culturesofenergy.com/enst-minor/)

ENST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Laboratory, Lecture, Internship/Practicum, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact Department for current semester's topic. Repeatable for Credit.

ENST 480 - ENVIRONMENTAL AND ENERGY ECONOMICS
Short Title: ENVIRONMENTAL ECONOMICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 or ECON 301 or ECON 370
Description: Uses economic theories of externalities and common property resources to analyze how markets, legal institutions, regulations, taxes and subsidies, and voluntary activity can affect the supply of environmental amenities, such as clean air, clean water, and wilderness areas. Also discusses methods for determining the demand for environmental amenities. Cross-list: ECON 480.
ENST 500 - INTRODUCTION TO THE ENVIRONMENTAL HUMANITIES
Short Title: INTRO TO ENVIRO HUMANITIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the “environmental humanities,” a wide range of approaches to the cultural, social, historical, and aesthetic dimensions of pressing ecological questions. Topics may include studies of plants, animals, and other creatures; biodiversity and extinction; energy humanities; environmental justice and environmental racism; climate and environmental histories; theories and philosophies of disaster; waste, toxicity, pollution; marine or blue humanities; religion and ecology; and many others. We will consider representative recent publications in the field as well as the research of scholars working here at Rice and far beyond. We will consider how to write about the environmental humanities, from scholarly publications in a range of fields to forms of public-facing writing on the subject. We'll consider strategies for teaching of the environmental humanities, from individual assignments to the design of courses in the home disciplines of the participants. Coursework will include opportunities through the Center for Environmental Studies, the Environmental Studies minor (ENST), and the Mellon Foundation funded Diluvial Houston project at the Humanities Research Center. These opportunities may include: observing classes in the ENST minor; working on Cultures of Energy, a public facing platform for writing and activity about energy and the environment; and spring events at the Center for Environmental Studies, including a symposium.

ENST 513 - SEMINAR: TOPICS RELATED TO THE EARTH'S DEEP INTERIOR
Short Title: SEM: EARTH'S DEEP INTERIOR
Department: Environmental Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Readings and discussions about current topics related to the processes governing the Earth’s deep interior. General themes include mantle convection, thermal evolution, and volatiles. Repeatable for Credit.

ENST 599 - DIRECTED READING IN ENVIRONMENTAL HUMANITIES
Short Title: DIRECTED READING
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate students pursuing intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval of a faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit. Instructor Permission Required. Repeatable for Credit.

ENST 601 - ENVIRONMENTAL HUMANITIES RESEARCH FORUM
Short Title: ENVIRO HUMA RESEARCH FORUM
Department: Environmental Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Environmental Humanities Research Forum meets regularly to share research, teaching, and other activities in the environmental humanities with both members of the Rice community and invited guests. Evaluation is based on student participation, research and presentations. Repeatable for Credit. Department Permission Required. Repeatable for Credit.

ENST 613 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cross-list: ARCH 613. Graduate/Undergraduate Equivalency: ENST 313. Mutually Exclusive: Cannot register for ENST 613 if student has credit for ENST 313.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ENST 621 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via “repositioning” or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufactures, contractors, developers, owners, and Rice campus facility managers. Cross-list: ARCH 621. Graduate/Undergraduate Equivalency: ENST 321. Mutually Exclusive: Cannot register for ENST 621 if student has credit for ENST 321.
ENST 646 - ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY
Short Title: ADV BIOMEDICAL ANTHROPOLOGY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Cross-list: ANTH 646. Recommended Prerequisite(s): ANTH 381 or ANTH 581.

ENST 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Descriptions and Codes Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: ENST

Program Description and Code
- Environmental Studies: ENST

Undergraduate Minor Description and Code
- Minor in Environmental Studies: ENST

CIP Code and Description ¹
- ENST Minor: CIP Code/Title: 03.0103 - Environmental Studies

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Environmental Studies

Program Learning Outcomes for the Minor in Environmental Studies
Upon completing the minor in Environmental Studies, students will be able to:

1. Understand the fundamental science that drives earth/natural systems, and that frames and makes comprehensible current environmental issues.
2. Evaluate the nexus of human activity with environmental processes to examine and understand sustainable (or unsustainable) practices.
3. Develop a cross-disciplinary perspective to better understand environmental issues and solutions through a focus within the natural sciences and/or engineering and a focus within the humanities, social sciences, and/or architecture.

Requirements for the Minor in Environmental Studies
Students pursuing the minor in Environmental Studies must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.

The Environmental Studies minor was specifically created to provide undergraduates from a broad range of academic backgrounds with a cohesive program offering foundational literacy in the social, cultural, and scientific dimensions of environmental issues, and a cross-disciplinary holistic understanding of the challenges and solutions for creating a sustainable world. Students completing the minor will be able to synthesize frameworks, tools, and perspectives from multiple disciplines; master sustainability terminology; understand major environmental issues from multiple perspectives; develop and assess environmental solutions in an informed and logical manner; and convey knowledge and insights about environmental issues in multiple formats.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Environmental Studies</td>
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Minor Requirements

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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Core Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENST 100 / ARCH 105</td>
<td>ENVIRONMENT, CULTURE AND SOCIETY</td>
<td>3</td>
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</table>

Introductory Course

Select 1 course from the following: ¹

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIOS 124</td>
<td>INTRODUCTION TO ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
<td>3</td>
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<tr>
<td>EEPS 101</td>
<td>THE EARTH</td>
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<tr>
<td>EEPS 107</td>
<td>THE SCIENCE OF CLIMATE CHANGE</td>
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</tr>
<tr>
<td>EEPS 109</td>
<td>OCEANOGRAPHY</td>
<td></td>
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<tr>
<td>EEPS 110</td>
<td>THE EARTH SYSTEM, ENVIRONMENT, AND SOCIETY</td>
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<tr>
<td>EEPS 111</td>
<td>INHABITING PLANET EARTH</td>
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Elective Requirements ²

Schools of Architecture, Humanities, and Social Sciences
Select 2 courses from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ANTH 320</td>
<td>CLIMATE CHANGE AND SOCIAL INEQUALITY</td>
</tr>
<tr>
<td>ANTH 332 / ENST 332</td>
<td>THE SOCIAL LIFE OF CLEAN ENERGY</td>
</tr>
<tr>
<td>ANTH 348</td>
<td>ANTHROPOLOGIES OF NATURE</td>
</tr>
<tr>
<td>ANTH 391 / ENST 391</td>
<td>SPECULATIVE FUTURES</td>
</tr>
<tr>
<td>ARCH 313 / ENST 313</td>
<td>CASE STUDIES IN SUSTAINABLE DESIGN</td>
</tr>
<tr>
<td>ARCH 322 / ENST 322</td>
<td>CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS</td>
</tr>
<tr>
<td>ECON 437 / ENST 437</td>
<td>ENERGY ECONOMICS</td>
</tr>
<tr>
<td>ECON 480 / ENST 480</td>
<td>ENVIRONMENTAL ECONOMICS</td>
</tr>
<tr>
<td>ECON 485</td>
<td>THE ECONOMICS OF SUSTAINABILITY, CONSERVATION, AND PANDEMICS</td>
</tr>
<tr>
<td>ENGL 269 / ENST 265</td>
<td>SCIENCE FICTION AND THE ENVIRONMENT</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>NONFICTION NATURE WRITING</td>
</tr>
<tr>
<td>ENGL 358</td>
<td>CONSUMPTION AND CONSUMERISM</td>
</tr>
<tr>
<td>ENGL 368 / ENST 368</td>
<td>LITERATURE AND THE ENVIRONMENT</td>
</tr>
<tr>
<td>ENGL 459</td>
<td>STUDIES IN LITERATURE AND ECOLOGY</td>
</tr>
<tr>
<td>ENST 210</td>
<td>SUSTAINABLE FUTURES: AN EXPLORATION OF GLOBAL SUSTAINABILITY CHALLENGES AND SOLUTIONS</td>
</tr>
<tr>
<td>ENST 250</td>
<td>UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS</td>
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<tr>
<td>ENST 301</td>
<td>ENVIRONMENTAL JUSTICE</td>
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<tr>
<td>ENST 311</td>
<td>TOPICS IN ENVIRONMENTAL JUSTICE</td>
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<tr>
<td>ENST 314</td>
<td>CULTURES AND MEDIA OF ENVIRONMENTAL HEALTH</td>
</tr>
<tr>
<td>ENST 316 / SOCI 316</td>
<td>ENVIRONMENTAL FILM</td>
</tr>
<tr>
<td>ENST 445</td>
<td>SEMINAR IN URBAN SUSTAINABILITY AND LIVABILITY RESEARCH METHODS AND APPLICATIONS</td>
</tr>
<tr>
<td>ENST 446</td>
<td>LAB IN ENGAGED URBAN SUSTAINABILITY AND LIVABILITY RESEARCH</td>
</tr>
<tr>
<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
</tr>
<tr>
<td>HIST 312</td>
<td>ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA</td>
</tr>
<tr>
<td>HIST 321</td>
<td>US ENVIRONMENTAL HISTORY</td>
</tr>
<tr>
<td>HUMA 202 / ENST 202</td>
<td>CULTURE, ENERGY AND THE ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES</td>
</tr>
<tr>
<td>POLI 441 / ENST 441</td>
<td>GOVERNING THE ENVIRONMENTAL COMMONS</td>
</tr>
<tr>
<td>SOCI 304 / ENST 302</td>
<td>ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE</td>
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Schools of Engineering and Natural Sciences

Select 2 courses from the following: 6

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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOS 204</td>
<td>ENVIRONMENTAL SUSTAINABILITY: THE DESIGN &amp; PRACTICE OF COMMUNITY AGRICULTURE</td>
</tr>
<tr>
<td>BIOS 271</td>
<td>ECOSYSTEM MANAGEMENT</td>
</tr>
<tr>
<td>BIOS 280</td>
<td>SUSTAINABLE DEVELOPMENT AND REPORTING</td>
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<tr>
<td>BIOS 319</td>
<td>TROPICAL FIELD BIOLOGY</td>
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<tr>
<td>BIOS 320</td>
<td>ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY</td>
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<tr>
<td>BIOS 322</td>
<td>CONSERVATION BIOLOGY LAB</td>
</tr>
<tr>
<td>BIOS 327</td>
<td>BIOLOGICAL DIVERSITY</td>
</tr>
<tr>
<td>BIOS 332</td>
<td>ECOLOGY 1</td>
</tr>
<tr>
<td>BIOS 336</td>
<td>PLANT DIVERSITY</td>
</tr>
<tr>
<td>BIOS 373</td>
<td>CORAL REEF ECOSYSTEMS</td>
</tr>
<tr>
<td>BIOS 423</td>
<td>CONSERVATION BIOLOGY</td>
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<tr>
<td>CEVE 302 / ENGI 302</td>
<td>SUSTAINABLE DESIGN</td>
</tr>
<tr>
<td>CEVE 307 / EEPS 307 / ENST 307</td>
<td>ENERGY AND THE ENVIRONMENT</td>
</tr>
<tr>
<td>CEVE 310</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
</tr>
<tr>
<td>CEVE 314 / BIOE 365 / GLHT 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
</tr>
<tr>
<td>CEVE 406 / ENST 406</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
</tr>
<tr>
<td>CEVE 415</td>
<td>URBAN INFRASTRUCTURE, ENVIRONMENT AND SUSTAINABILITY</td>
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<td>CHBE 281 / ENST 281</td>
<td>ENGINEERING SUSTAINABLE COMMUNITIES</td>
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<tr>
<td>CHBE 382</td>
<td>INNOVATION AND SUSTAINABILITY</td>
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<tr>
<td>EEPS 309 / FOTO 390</td>
<td>VISUALIZING NATURE</td>
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<tr>
<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
</tr>
<tr>
<td>EEPS 325</td>
<td>OCEANS, ATMOSPHERES AND CLIMATE</td>
</tr>
<tr>
<td>EEPS 415</td>
<td>GEOCHEMISTRY OF EARTH’S SURFACE</td>
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<td>EEPS 433</td>
<td>CLIMATE DYNAMICS</td>
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<td>EEPS 434</td>
<td>CLIMATE OF THE COMMON ERA</td>
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<td>EEPS 435</td>
<td>REMOTE SENSING</td>
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<td>EEPS 436</td>
<td>GIS FOR SCIENTISTS AND ENGINEERS</td>
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<tr>
<td>EEPS 450</td>
<td>GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING</td>
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<tr>
<td>EEPS 471</td>
<td>EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS</td>
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<tr>
<td>ELEC 365 / MSNE 365</td>
<td>NANOMATERIALS FOR ENERGY</td>
</tr>
<tr>
<td>HEAL 375</td>
<td>THE BUILT ENVIRONMENT AND PUBLIC HEALTH</td>
</tr>
</tbody>
</table>

Total Credit Hours 18
Footnotes and Additional Information

1 Current/former Biosciences majors (or Ecology and Evolutionary Biology majors) are eligible to substitute BIOS 332 (formerly EBIO 325) in place of BIOS 124 (formerly EBIO 124) to meet the introductory course requirement from the natural sciences.

2 Given the wide range of courses at Rice related to Environmental Studies, students are encouraged to contact the Minor Director to suggest courses to include on the list of approved electives.

Policies for the Minor in Environmental Studies

Program Restrictions and Exclusions

Students pursuing the minor in Environmental Studies should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in Environmental Studies should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Environmental Studies (ENST) are broadly scoped and thematically diverse and prompt students to explore the cultural, social, and political dimensions of human-environmental relations and environmental systems. They present students with an interdisciplinary spectrum of relevant methods and skills and help students to develop analytical, expressive, and critical knowledge of the relationship of environment, culture, and society across the world.

They are introductions to the study of human-environment relations and environmental systems.

Additional Information

For additional information, please see the Environmental Studies website: https://enst.rice.edu/

Opportunities for the Minor in Environmental Studies

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Environmental Studies website: https://enst.rice.edu/

See https://humanities.rice.edu/student-life/ for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

European Studies

Contact Information

Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
emden@rice.edu

European Studies is an interdisciplinary undergraduate major offered by the Modern and Classical Literatures and Cultures (MCLC) Department. The major includes courses and faculty from the departments of Art History, English, History, Philosophy, and Religion.

The focus of the major in European Studies is a critical understanding of European cultures and societies in a global context that combines the study of literature, philosophy, history, the visual arts, and media.

Bachelor’s Program

• Bachelor of Arts (BA) Degree with a Major in European Studies (p. 1026)

European Studies does not currently offer an academic program at the graduate level.

Chair

Christian J. Emden
Program Advisor
Philip R. Wood

Professors
Peter C. Caldwell
Jacqueline Couti
Steven G. Crowell
Christian J. Emden
Betty Joseph
Michael R. Maas
Joseph Manca
Helena Michie
Scott McGill
Donald Ray Morrison
Deborah Nelson-Campbell
Alexander T. Regier
Uwe Steiner
Lora Wildenthal
Diane Wolfthal
Harvey E. Yunis

Associate Professors
Graham Bader
Martin Blumenthal-Barby
G. Daniel Cohen
Leo Costello
Sarah Ellenzweig
Esther Fernández
Julie Fette
Deborah A. Harter
Hilary S. Mackie
Astrid Oesmann
Lida Oukaderova
Aysha Pollnitz
Philip R. Wood

Assistant Professor
Sophie Crawford-Brown

Lecturer
Ted Somerville

Writer-in-Residence
Andrea Bajani

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's
Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?
p_action=cata)
To view the most recent semester's course schedule, please see Rice's
Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

European Studies (EURO)

EURO 101 - INTRODUCTION TO EUROPEAN LITERATURE AND CULTURE I
Short Title: INTRO TO EURO LIT & CULTURE I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Antiquity to Renaissance. An introduction to major literary texts and other cultural artifacts of Europe dating from antiquity to the Renaissance. The course will contextualize texts and artifacts historically and culturally, and teach students to analyze them critically, both in relation to their original context and to present-day Europe.

EURO 102 - INTRODUCTION TO EUROPEAN LITERATURE AND CULTURE II
Short Title: INTRO TO EURO LIT & CULTURE II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Antiquity to Renaissance. An introduction to major literary texts and other cultural artifacts of Europe dating from Renaissance to the present day. The course will contextualize the aforementioned texts and artifacts historically and culturally and will teach students to analyze them critically, both in relation to their original context and to present-day Europe.

EURO 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
**EURO 320 - TELL-ALL: SAYING "I" IN CONTEMPORARY LITERATURE**

**Short Title:** TELL-ALL CONTEMPORARY LIT

**Department:** Modrn & Classicl Lit & Culture

**Grade Mode:** Standard Letter

**Course Type:** Seminar

**Distribution Group:** Distribution Group I

**Credit Hours:** 3

**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**Course Level:** Undergraduate Upper-Level

**Description:** Why do contemporary writers want to "tell all" in their novels, memoirs, exposés? This hybrid literary studies/creative writing course explores "I" genres in contemporary literature, asking why authors risk their lives, their reputations, and their families in the name of literature, truth and freedom of speech.

**EURO 401 - CONSTRUCTING EUROPE: CONTESTED IDENTITIES**

**Short Title:** CONSTRUCTING EUROPE

**Department:** Modrn & Classicl Lit & Culture

**Grade Mode:** Standard Letter

**Course Type:** Seminar

**Credit Hours:** 3

**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**Course Level:** Undergraduate Upper-Level

**Description:** This capstone course offers a critical investigation of European cultural narratives and social imaginaries. Central topics include reason (science, humanism, secularism); freedom (individualism, capitalism, democracy, nation-states, revolution); universalism (Greek, Roman, and Christian origins, religious toleration, imperialism, globalization, the EU, resurgent nationalism).

**EURO 477 - SPECIAL TOPICS**

**Short Title:** SPECIAL TOPICS

**Department:** Modrn & Classicl Lit & Culture

**Grade Mode:** Standard Letter

**Course Type:** Laboratory, Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory

**Credit Hours:** 1-4

**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**Course Level:** Undergraduate Upper-Level

**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**EURO 499 - EUROPEAN STUDIES HONORS THESIS**

**Short Title:** EUROPEAN STUDIES HONOR THESIS

**Department:** Modrn & Classicl Lit & Culture

**Grade Mode:** Standard Letter

**Course Type:** Research

**Credit Hours:** 3

**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

**Course Level:** Undergraduate Upper-Level

**Prerequisite(s):** EURO 101 and EURO 102

**Description:** Two-semester honors thesis in European Studies. Independent research projects by outstanding European Studies majors lead to honors theses. Undertaken in close cooperation with a departmental faculty member. This is 3-credit course which will be repeated in sequential semesters for a total of 6 credits. Permission of instructor only. Department Permission Required. Repeatable for Credit.

---

**Regarding course descriptions:**

- **Description and Code Legend**
  
  **Note:** Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

- **Course Catalog/Schedule**
  - Course offerings/subject code for European Studies: EURO

- **Department Description and Code**
  - Modern and Classical Literatures and Cultures: MCLC

- **Undergraduate Degree Description and Code**
  - Bachelor of Arts degree: BA

- **Undergraduate Major Description and Code**
  - Major in European Studies: EURO

- **CIP Code and Description**
  - EURO Major/Program: CIP Code/Title: 05.0106 - European Studies/Civilization

1. Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

---

**Bachelor of Arts (BA) Degree with a Major in European Studies**

**Program Learning Outcomes for the BA Degree with a Major in European Studies**

Upon completing the BA degree with a major in European Studies, students will be able to:

1. Demonstrate a synthetic understanding of European history and identity over a wide period, from antiquity to the modern era.
2. Identify, contextualize, and analyze key aspects of European history and identity—e.g., texts, artifacts, institutions, ideas, events, personalities, and places.
3. Demonstrate successful command of research skills and methodologies appropriate to the major.
4. Communicate orally in clear, informed, and critical terms about European history and identity.
5. Produce papers in analytical and persuasive prose following the conventions of humanities scholarship.

**Requirements for the BA Degree with a Major in European Studies**

For general university requirements, see *Graduation Requirements* (p. 29). Students pursuing the BA degree with a major in European Studies must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.

A Capstone Requirement.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in European Studies</td>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in European Studies</td>
<td>120</td>
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</table>

### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in European Studies</td>
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</tr>
<tr>
<td></td>
<td>Additional Credit Hours to Complete Degree Requirements</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>University Graduation Requirements (p. 29)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>120</td>
</tr>
</tbody>
</table>

### Course Lists to Satisfy Requirements

#### Elective Requirements

Students must complete a total of 7 courses (21 credit hours), of which 5 courses (15 credit hours) must be at the 300-level or above. Student must take 3 elective courses (9 credit hours) from Elective Group A. Students must take 4 elective courses (12 credit hours) from Elective Group B. Within Elective Group B, a maximum of 2 courses (6 credit hours) can come from any one subject code.

#### Elective Group A Course List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in European Studies</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Additional Credit Hours to Complete Degree Requirements</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>University Graduation Requirements (p. 29)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>120</td>
</tr>
</tbody>
</table>

#### Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 A minimum of 6 courses (18 credit hours), including the Core Requirements (EURO 101 and EURO 102) and the Capstone Requirement (EURO 401), must be taken at Rice.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERM 309</td>
<td>GERMAN POETRY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 311</td>
<td>BERLIN: PAST AND PRESENT</td>
<td>3</td>
</tr>
<tr>
<td>GERM 322 / HUMA 322</td>
<td>MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 324 / HUMA 324</td>
<td>BERLIN: RESIDENCE, METROPOLIS, CAPITAL</td>
<td>3</td>
</tr>
<tr>
<td>GERM 325 / HUMA 325</td>
<td>MODERN GERMAN WRITERS: KAFKA</td>
<td>3</td>
</tr>
<tr>
<td>GERM 326 / HUMA 372</td>
<td>THE GERMAN FAIRY TALE: OLD AND NEW</td>
<td>3</td>
</tr>
<tr>
<td>GERM 327</td>
<td>GERMAN EXPRESSIONISM IN EUROPEAN CONTEXT: HISTORY, LITERATURE AND FINE ARTS</td>
<td>3</td>
</tr>
<tr>
<td>GERM 329 / HUMA 398</td>
<td>LITERATURE OF THE HOLOCAUST AND EXILE</td>
<td>3</td>
</tr>
<tr>
<td>GERM 330</td>
<td>LITERATURE AND FILM IN EAST GERMANY: BEHIND THE IRON CURTAIN</td>
<td>3</td>
</tr>
<tr>
<td>GERM 333</td>
<td>NIETZSCHE: PHILOSOPHY, POLITICS, HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 334</td>
<td>NATIONALISM AND CITIZENSHIP</td>
<td>3</td>
</tr>
<tr>
<td>GERM 338 / HUMA 373 / SWGS 361</td>
<td>NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN</td>
<td>3</td>
</tr>
<tr>
<td>GERM 339 / HART 398</td>
<td>FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 340 / HUMA 340</td>
<td>WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS</td>
<td>3</td>
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<tr>
<td>GERM 345 / HIST 355</td>
<td>FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945</td>
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<td>GERM 351 / HART 387</td>
<td>HOLOCAUST MEMORY IN MODERN GERMANY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 352</td>
<td>POLITICS OF THE FLES IN GERMAN LITERATURE, THOUGHT AND FILM</td>
<td>3</td>
</tr>
<tr>
<td>GERM 363</td>
<td>THE WEIMAR REPUBLIC, 1919-1933</td>
<td>3</td>
</tr>
<tr>
<td>GERM 401</td>
<td>TOPICS IN GERMAN LITERATURE AND CULTURE</td>
<td>1-3</td>
</tr>
<tr>
<td>GERM 420</td>
<td>GERMAN POLITICS/CULTURE AFTER 1945</td>
<td>3</td>
</tr>
<tr>
<td>GERM 430</td>
<td>GERMAN INTELLECTUAL HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>Latin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LATI 316</td>
<td>READINGS IN VIRGIL'S AENEID</td>
<td>3</td>
</tr>
<tr>
<td>LATI 317</td>
<td>READINGS IN IVY</td>
<td>3</td>
</tr>
<tr>
<td>LATI 318</td>
<td>READINGS IN CICERO</td>
<td>3</td>
</tr>
<tr>
<td>Politics, Law, and Social Thought</td>
<td></td>
<td></td>
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<tr>
<td>PLST 301</td>
<td>MODERN POLITICAL THOUGHT: MACHIAVELLI TO RAWLS</td>
<td>3</td>
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<tr>
<td>PLST 302</td>
<td>CONTEMPORARY POLITICAL THEORY</td>
<td>3</td>
</tr>
<tr>
<td>Elective Group B Course List</td>
<td></td>
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</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credit Hours</td>
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<tr>
<td>Select 4 courses from the following:¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 314 / MDEM 319</td>
<td>MEDIEVAL ROMANCE</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ Students may select courses from the lists above that are not listed under the elective group B course list.
HIST 344  EUROPEAN REFORMATIONS  3
HIST 356  AFTER NAZISM: GERMAN HISTORY, 1945-PRESENT  3
HIST 357 / MDEM 357  JEWS AND CHRISTIANS IN MEDIEVAL EUROPE  3
HIST 370  EUROPEAN INTELLECTUAL HISTORY: BACON TO HEGEL  3
HIST 371  HISTORY OF MODERN FRANCE  3
HIST 375  EUROPEAN ROMANTICISM, 1750-1850  3
HIST 392  PRE-MODERN POLITICAL THOUGHT FROM CICERO TO LOCKE  3
HIST 409  MUSLIMS, JEWS, CHRISTIANS, HERETICS, AND PAGANS IN THE AGE OF THE CRUSADES  3
HIST 434  ISLAM AND THE WEST  3
HIST 448  WESTERN EUROPEAN WELFARE STATE, 1880-1980: ORIGINS, CONSOLIDATIONS, CRISIS  3
HIST 457  FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989  3
HIST 459  NAZISM AND THE HOLOCAUST  3

Philosophy
PHIL 362  HISTORY OF ETHICS  3
PHIL 372  HISTORY OF SOCIAL AND POLITICAL PHILOSOPHY  3
PHIL 383  MODERN PHILOSOPHY  3
PHIL 386  CONTINENTAL PHILOSOPHY  3

Religion
RELI 363  JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT  3
RELI 384  PILGRIMAGE AND CRUSADE  3
RELI 406  CHRISTIANITY AND LATE ANTIQUITY  3
RELI 449  EARLY CHRISTIAN CONTROVERSIES  3

Spanish, Portuguese, and Latin American Studies
SPPO 347  INTRODUCTION TO MEDIEVAL AND EARLY MODERN SPANISH LITERATURE AND CULTURE  3
SPPO 380  SOCIAL ISSUES IN SPAIN  3
SPPO 381  SPANISH CINEMA  3
SPPO 462  DON QUIJOTE  3
SPPO 466  THE SPANISH CIVIL WAR  3

Footnotes and Additional Information
1 A maximum of 2 courses (6 credit hours) can come from any one subject code in the Elective Group B course list.

Additional Information
Honors Thesis
Majors in European Studies may fulfill 2 of their elective courses (6 credit hours) by writing an honor thesis in their final year of study. This Honors Thesis course will be a 3 credit hour course that can be repeated in two semesters, Fall and Spring.

European Languages
The major in European Studies does not include a language requirement. Students are strongly encouraged to pursue the study of at least one European language (up to and) at an advanced level. Majors with an interest in a European language, however, may take up to two elective courses in that language at the 300-level or above that will count toward the major. These courses constitute two of the elective courses required for the major. These courses do not include FREN 301, FREN 302 or GERM 301, GERM 302.

Policies for the BA Degree with a Major in European Studies
Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in European Studies should be aware of the following departmental transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

2021-2022 General Announcements PDF Generated 09/22/21
Opportunities for the BA Degree with a Major in European Studies

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

Financial Computation and Modeling

Contact Information

Financial Computation and Modeling

https://www.cofes-rice.org/
2051 Duncan Hall
713-348-5839

Katherine Bennett Ensor
Program Director
ensor@rice.edu

The interdisciplinary Financial Computation and Modeling (FCAM) program is offered through a collaboration of the departments of Statistics and Economics. The FCAM minor consists of six courses focusing on the strategies and computational technologies used in the financial industry. The minor is designed for those undergraduate students with strong computational skills and an interest in finance. Many students pursuing the FCAM minor enter careers in the financial industry, either immediately after completion of their undergraduate studies or after graduate studies. Students completing the FCAM minor will understand the complexities of financial markets and their role in and impact on world economies.

The basic tools component of the FCAM curriculum will equip students with the economic, probability, and statistical tools necessary to pursue the advanced analytical courses. In the advanced courses, students will be exposed to state-of-the-art models and methodologies based on long-standing assumptions about the behavior of financial markets. They also will be exposed to alternative views of market behavior and investment strategies. The goal is to educate students to question basic assumptions as well as utilize and understand technologies based on these important assumptions. In the financial industry, a large suite of solutions are implemented and continually enhanced. A goal of the FCAM program is to train leaders in this industry who not only will understand the financial technologies but also will understand the role, impact, and potential pitfalls of these technologies.

Minor

• Minor in Financial Computation and Modeling (p. 1030)

Financial Computation and Modeling does not currently offer an academic program at the graduate level.

Director

Katherine Bennett Ensor, Statistics

Steering Committee and Undergraduate Advisors

John Dobelman, Statistics
Mahmoud A. El-Gamal, Economics

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule

• Course offerings/subject codes: Courses from various subjects may apply toward this program

Program Description and Code

• Financial Computation and Modeling: FCAM

Undergraduate Minor Description and Code

• Minor in Financial Computation and Modeling: FCAM

CIP Code and Description ¹

• FCAM Minor: CIP Code/Title: 27.0305 - Financial Mathematics

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Financial Computation and Modeling

Program Learning Outcomes for the Minor in Financial Computation and Modeling

Upon completing the minor in Financial Computation and Modeling, students will be able to:

1. Demonstrate knowledge of statistical, mathematical, and computational techniques and methods and how to choose and apply appropriate methods to questions or problems in the field of finance.
2. Understand the basic concepts of Economic Theory and how they apply to financial markets as well as how financial markets impact global economies.
3. Demonstrate an understanding of basic financial databases and the ability to use technologies, like R and Excel, to model and solve financial problems.
4. Understand core quantitative modeling concepts and demonstrate key skills necessary for working in the field of finance and investing.
5. Demonstrate the ability to understand, interpret, and critically evaluate empirical financial studies and investment strategies.

Requirements for the Minor in Financial Computation and Modeling

Students pursuing the minor in Financial Computation and Modeling must complete:

- A minimum of 6 courses (19-20 credit hours, depending on course selection) to satisfy minor requirements.
- A minimum of 5 courses (16 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier [https://registrar.rice.edu/facstaff/degeworks/officialcertifier/]). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
<td>3</td>
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<tr>
<td>STAT 310 / ECON 307 or STAT 315</td>
<td>PROBABILITY AND STATISTICS / PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td>3-4</td>
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<tr>
<td>ECON 310 / STAT 376 or STAT 410</td>
<td>ECONOMETRICS / LINEAR REGRESSION</td>
<td>4</td>
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Elective Requirements

Select 3 courses from the following 4 groups: ¹

<table>
<thead>
<tr>
<th>Group I</th>
<th>Credit Hours</th>
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<tr>
<td>ECON 418 or STAT 421</td>
<td>APPLIED TIME SERIES AND FORECASTING</td>
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<tr>
<th>Group II</th>
<th>Credit Hours</th>
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<tr>
<td>ECON 449 or STAT 449</td>
<td>QUANTITATIVE FINANCIAL RISK MANAGEMENT</td>
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Group III

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<th>Group III</th>
<th>Credit Hours</th>
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<tr>
<td>ECON 443 or STAT 486</td>
<td>FINANCIAL ECONOMICS / MARKET MODELS</td>
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Footnotes and Additional Information

¹ A maximum of 1 course (3 credit hours) can be taken from each group to satisfy Elective Requirements.

Policies for the Minor in Financial Computation and Modeling

Program Restrictions and Exclusions

Students pursuing the minor in Financial Computation and Modeling should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in Financial Computation and Modeling should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Students (Undergraduate) page on the Center for Computational Finance and Economic Systems website: [https://cofes.rice.edu/](https://cofes.rice.edu/)

Opportunities for the Minor in Financial Computation and Modeling

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
Finance Seminar
Students pursuing the FCAM minor have the opportunity to participate in STAT 499 Computational Finance Seminar for 1 credit hour. Students are also encouraged to take part in the annual Eubank Conference on Real World Markets and join the student computational finance club.

Internship and Research Opportunities
The Center for Computational Finance and Economic Systems (CoFES) and the Department of Statistics encourages the practice of quantitative finance through summer internships, employment and research. Information on current opportunities are distributed to students through an FCAM email list.

Additional Information
For additional information, please see the Students (Undergraduate) page on the Center for Computational Finance and Economic Systems website: https://cofes.rice.edu/

French Studies
Contact Information
Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
emden@rice.edu

The Department of Modern and Classical Literatures and Cultures (MCLC) houses the French Studies program, offering courses on such topics as the legacy of courtly literature, French philosophy since the Enlightenment, sex and race in the French Atlantic, notions of the 'feminine' since the French Revolution, and social issues in contemporary France. The focus of the program is highly interdisciplinary, engaging not just literature and language, but also gender and race, film and visual art, history and medicine, philosophy and critical theory. Students in the program may pursue the BA degree with a major in French Studies. The department also offers a minor in French Studies.

The majority of courses are offered entirely in French but some courses are also offered in English (some of these in collaboration with the other majors offered by the Modern and Classical Literatures and Cultures Department).

Bachelor's Program
- Bachelor of Arts (BA) Degree with a Major in French Studies (p. 1041)

Minor
- Minor in French Studies (p. 1043)

French Studies does not currently offer an academic program at the graduate level.

Chair
Christian J. Emden

Program Advisor
Deborah Nelson-Campbell

Professors
Jacqueline Couti
Deborah Nelson-Campbell

Associate Professors
Julie Fette
Deborah A. Harter
Philip R. Wood

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

French Studies (FREN)
FREN 106 - ACCELERATED FIRST-YEAR FRENCH
Short Title: ACCEL 1ST YR FRENCH
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year French for students with previous knowledge of another romance language, or limited previous French knowledge with a significant (1+ year) gap in study. Covers equivalent of FREN 141 and 142. Upon completion, students are prepared for FREN 263 or Rice-in-France. Mutually exclusive: cannot earn credit for FREN 141/142. Mutually Exclusive: Cannot register for FREN 106 if student has credit for FREN 141/FREN 142.

FREN 141 - FIRST YEAR FRENCH I
Short Title: FIRST YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year French for students with previous knowledge of another romance language, or limited previous French knowledge with a significant (1+ year) gap in study. Covers equivalent of FREN 141 and 142. Upon completion, students are prepared for FREN 263 or Rice-in-France. Mutually exclusive: cannot earn credit for FREN 141/142. Mutually Exclusive: Cannot register for FREN 106 if student has credit for FREN 141/FREN 142.

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FREN 142 - FIRST YEAR FRENCH II
Short Title: FIRST YEAR FRENCH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 141
Description: Continuation of FREN 141. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 142 if student has credit for FREN 106/FREN 262.

FREN 222 - AP/OTH CREDIT FRENCH LANGUAGE
Short Title: AP/OTH CREDIT FRENCH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for FREN 222 if student has credit for FREN 141.

FREN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FREN 263 - SECOND YEAR FRENCH I
Short Title: SECOND YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 106 or FREN 142
Description: Continuation of FREN 142. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 263 if student has credit for FREN 201.
FREN 305 - LITERARY AND CULTURAL ANALYSIS: THE ART OF READING  
Short Title: LITERARY AND CULTURAL ANALYSIS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to the unique critical skills necessary for reading and analysis across the arts and social sciences. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 307 - THE MANY FACETS OF FRENCH CULTURAL IDENTITY  
Short Title: FRENCH CULTURAL IDENTITY I  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: With the help of nine French films and selected readings, we will discuss what it means to be French today. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 308 - BEAUTY AND THE BEAST(S): SEX, VIOLENCE, AND FOLKTALES IN THE AFRICAN DIASPORA  
Short Title: BEAUTY AND THE BEAST(S)  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course examines the carnal violence and brutality associated with sex and gender in folktales and fairytales from the African diaspora to the Americas. In so doing, this course will also put European and African folklore in conversation with the New World's oral traditions. Taught in English.

FREN 311 - MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE  
Short Title: PRE-REV FRENCH LIT  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of French culture, literature, and artifacts from the Middle Ages until the Revolution. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 312 - MAJOR LITERARY WORKS AND ARTIFACTS OF POST-REVOLUTIONARY FRANCE  
Short Title: MAJ LIT WORKS POST-REV FRANCE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of 19th and 20th century poetry, fiction, and cinema through the major literary and artistic movements: romanticism, realism, symbolism, Dada, surrealism, and existentialism. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 313 - MAJOR LITERARY WORKS AND ARTIFACTS OF THE FRANCOPHONE WORLD  
Short Title: MAJ LITERARY WORKS & ARTIFACTS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will explore the artistic, historical, and philosophical textures of French cultures outside Europe, focusing especially on Africa North and South of the Sahara, the Caribbean, North America, and on the evolution of the concept of "francophonie" since World War II. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 321 - INTRODUCTION TO FRENCH SOCIETY AND CULTURE  
Short Title: INTRO FRENCH SOCIETY & CULTURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course provides grounding in social, political, cultural, and economic aspects of contemporary France. The course will focus on themes such as youth culture, Europeanization, immigration, and gender debates. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 323 - FROM EXISTENTIALISM TO CYBERPUNK
Short Title: EXISTENTIALISM TO CYBERPUNK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Films and novels. Investigations of human consciousness, subjectivity and identity – from Sartre’s existentialism of the “absurd”, through Robbe-Grillet’s “anti-humanism”, to the cyberpunk science-fictional studies of “post-humanity”, genetic manipulation, environmental collapse and post-religious mysticism, by contemporary figures like Dantec and Houellebecq. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 324 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONI TO GLOBALIZATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: POLI 324, RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for FREN 324 if student has credit for FREN 524/RELI 604.

FREN 325 - FRENCH THEORY, IN ENGLISH
Short Title: FRENCH THEORY, IN ENGLISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to contemporary French theory and philosophy in their historical context, from decolonization and the Cold War to the present. Along the way, we will discuss French phenomenology, Marxism, structuralism, feminism, post-structuralism, and post-continental philosophy, including their impact on US culture. Taught in English.

FREN 326 - SHAKESPEARE IN THE CARIBBEAN: POST/COLONIAL READINGS
Short Title: SHAKESPEARE IN THE CARIBBEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines English translations of Caribbean and Latin American writers' retellings of Shakespeare's The Tempest. Students will explore the construction of identity (including race and gender) and otherness since the beginning of the colonial project (1492). We will question the relationship between colonized and colonizer, and tropes such as the Master/Slave relationship. Taught in English.

FREN 340 - GENDER AROUND THE WORLD
Short Title: GENDER AROUND THE WORLD
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the challenges of defining gender, race, and identity in Africa, Asia, and the Caribbean, or the Global South as this area is also known. The nations of the Global South are newly industrialized or in the process of industrializing and have had to battle the widespread effects of colonialism and globalization. Students will investigate the pervasiveness of stereotypes in literature, film, popular culture and the media in western and non-western contexts. We will examine theories from the Global South to avoid the simplification of Eurocentric analysis. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test
FREN 350 - PARIS
Short Title: PARIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the history of Paris as a cultural, intellectual, and economic center through texts, music and films. Students earn 3 credits for the course, or 4 credits if participating in a supplementary 10-day study trip to France at the end of the semester in May. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 351 - PROVINCES OF FRANCE
Short Title: PROVINCES OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the amazing diversity in the history, languages, economic bases, traditions, and cultures of the original provinces in order to arrive at a better understanding of France as it exists today. For an additional credit hour, students may participate in a two week on site visit to a location in France. The location will vary; contact the instructor or the department for details. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 355 - MODERN SHORT STORY: TOWARDS AN ETHICS OF FICTION
Short Title: MODERN SHORT STORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore those stories "behind the story" of the 19th century—that strange and often misunderstood genre, the "fantastic tale." Reading such writers as Gautier, Balzac, and Maupassant, we will discuss this genre's anxieties about madness and machines, misbehaving objects, and especially about women and their bodies. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 356 - TRANSLATION AS INTERPRETATION: CLOSE ENCOUNTERS WITH POETS OF THE MODERN AGE
Short Title: TRANSLATION AS INTERPRETATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course dedicated to reading closely some of the great poets of the modern period — from Hugo to Baudelaire to Prévert—and to the art of translation as a tool for reflecting on the subtleties of the French language and the special shape of the poetic. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 370 - WOMEN IN TALES OF THE FANTASTIC
Short Title: WOMEN IN TALES OF FANTASTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore those stories "behind the story" of the 19th century—that strange and often misunderstood genre, the "fantastic tale." Reading such writers as Gautier, Balzac, and Maupassant, we will discuss this genre's anxieties about madness and machines, misbehaving objects, and especially about women and their bodies. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 380 - FLAUBERT AND THE ART OF TRANSLATION: EXPERIMENTS IN WRITING
Short Title: WRITING FLAUBERT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Flaubert was both a romantic and a realist who achieved the acutely modern through legend and myth in prose that was poetic. This will be a course in which he anchors our study of short, innovative prose works of the 19th century, encountered, each one, through the imaginative art of translation. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 401 - TRANSLATION
Short Title: TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the theory and practice of translation. Includes translation of modern texts from and into English. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 402 - GLOBAL FRENCH CINEMA (IN ENGLISH)
Short Title: GLOBAL FRENCH CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Cinema from France and the French-speaking world (especially Africa) - both the canon of "art" cinema and smash successes of commercial "entertainment." Discussion of this distinction. Critical and theoretical discourse in film studies with special attention to French contributions. Globalization in cinema. Recommended Prerequisite(s): Completion of one 300-level course.

FREN 403 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with the department for additional information. Taught in French. Instructor Permission Required. Repeatable for Credit.

FREN 404 - BEGINNINGS OF THE LANGUAGE AND LITERATURE OF FRANCE
Short Title: THE LANG AND LIT OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes and external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Student will acquire a reading knowledge of Old French. Course taught in French. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 404. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 407 - CINEMA IN FRENCH
Short Title: CINEMA IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cinema In French -- In France and the French-speaking world (especially Africa): both the canon of "auteurs" of "high culture" and commercial "mere entertainment." Discussion of this distinction, and introduction to critical and theoretical discourse in film studies. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 409 - NOVELS AND FILMS
Short Title: NOVELS AND FILMS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Comparison between French novels from the 16th to the 20th centuries and movies that have been based on them, in some cases more than one movie based on a given novel. The class will read each novel in question and then examine how the director perceived it when making the film. For example, La Reine Margot, Tous les Matins du Monde, Liaisons Dangereuses, Madame Bovary, Cyrano de Bergerac, Hiroshima mon amour. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 411 - THE LEGACY OF COURTLY LITERATURE
Short Title: LEGACY OF COURTLY LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the various ways that courtly literature has evolved into modern times and stages through which the themes have passed. We will study courtly themes in literature (French, English, Spanish, German, Italian), film, art, and music from the Middle Ages to modern times. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 412 - SAINTS AND SINNERS
Short Title: SAINTS AND SINNERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of sanctity and sin in medieval culture through literary and some historical texts. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 413 - BLACK VENUS/VÉNUS NOIRE: REPRESENTATIONS OF BLACK WOMEN IN THE LONG 19TH CENTURY
Short Title: BLACK VENUS/VÉNUS NOIRE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the mythology of the black woman's body in the French/Francophone imaginary, namely in the literary rewriting of the "primitive" in the long 19th century. Students will examine how this eroticized body bears traces of its social, political and cultural codification and symbolizes anxieties born out of the colonial encounter. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 414 - SEX AND RACE IN THE FRENCH ATLANTIC
Short Title: SEX AND RACE - FRENCH ATLANTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex, gender, and race in folktales and fairy tales in French from the Americas. In so doing, this course will also put European and African folklore in conversation with the New World's oral traditions. Effective May 15, 2021, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 415 - COURTLY LOVE IN MEDIEVAL FRANCE
Short Title: COURTLY LOVE MEDIEVAL FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 425. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor. Mutually Exclusive: Cannot register for FREN 415 if student has credit for FREN 515.

FREN 416 - LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR
Short Title: LIT & CULTURE OF MIDDLE AGES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages but also in other medieval literatures of Western Europe. Includes discussion of the legend's influence in diverse areas even in modern times. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Cross-list: MDEM 436. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 430 - 17TH CENTURY
Short Title: 17TH CENTURY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Thematic approach to examining the main political, religious, philosophical, and literary discourses of the golden age of absolutism. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 433 - FRENCH CARIBBEAN ECOCRITICISM
Short Title: FRENCH CARIBBEAN ECOCRITICISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines French Caribbean writers’ representations of natural and human disasters, and their impact on human interactions, human societies, and nature. Contrary to scholars considered to be in the first-wave of ecocriticism, these writers explore the social dimensions of environmentalism as well as the ecological implications of colonialism and neocolonialism. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 450 - POETRY AND POETICS IN THE 19TH CENTURY
Short Title: POETRY & POETICS 19TH CENTURY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the poetry and prose poetry of the 19th century from the Romantic period to the Symbolist era, through such writers as Desbordes-Valmore, Lamartine, Musset, Vigny, Hugo, Nerval, Baudelaire, Verlaine, Rimbaud, and Mallarme. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 451 - FRANCE - AMERICA: IMAGE AND EXCHANGE
Short Title: FRANCE-AMER: IMAGE & EXCHANGE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies the history and memory of World War Two in France. Students will learn how literature and film contributed to the making and undoing of national myths about collaboration and resistance and participation in the Holocaust. How has contemporary French society reconciled with this dark period of history? Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 452 - WORLD WAR TWO IN FRENCH HISTORY, LITERATURE, AND FILM
Short Title: WORLD WAR TWO IN FRENCH HIST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This undergraduate course analyzes French and American culture and identity through transatlantic encounters. We study French intellectuals (Tocqueville, Beauvoir, Baudrillard) who traveled to the US, and images of America in French novels, comic strips, films. We also examine American gazes toward the French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 453 - IMMIGRATION AND CITIZENSHIP IN CONTEMPORARY FRANCE
Short Title: IMMIGRATION AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the impact of immigration on contemporary French society and analyzes debates over citizenship, integration, and multiculturalism. Taught in French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor
FREN 459 - THE BATTLES OF ALGIERS: FROM CHARLES X TO CHARLIE-HEBDO
Short Title: THE BATTLES OF ALGIERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical, literary, and visual materials from the 19th century to the present will illustrate the global perception of a war that left an indelible inscription in contemporary debates on democracy and reform. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 460 - WOMEN IN FICTION AND HISTORY: NOTIONS OF THE FEMININE SINCE THE FRENCH REVOLUTION
Short Title: WOMEN, FRENCH FICTION, HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading closely lyric, fictional, historical, and critical texts from Olympe de Gouges and Baudelaire to Rachilde and Irigaray, we will explore how women have been represented (and misrepresented) since the French Revolution, and how notions of the feminine since the 18th century still plague women's place and power in the 21st. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modnr & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

FREN 478 - THE CARIBBEAN IN FRENCH
Short Title: THE CARIBBEAN IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the undergraduate senior version of the graduate level seminar FREN/ARCR 578. Both the course's reading list and the length of the research are adjusted to accommodate undergraduate needs. The seminar examines the history, political writings, literature and the arts of the French Caribbean from the beginning of colonization to the present. It will include figures such as Saint-John Perse, Roumain, Césaire, Fanon, Depestre, Schwarz-Bart, Warner-Vieyra, Glissant, Condé, Chamoiseau, Laferrière, as well as the Caribbean arts and film. Taught in English. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: ARCR 478. Mutually Exclusive: Cannot register for FREN 478 if student has credit for FREN 578.

FREN 493 - FALL HONOR THESIS
Short Title: FALL HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.

FREN 494 - SPRING HONOR THESIS
Short Title: SPRING HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.
FREN 495 - THE FRENCH AVANT-GARDE: SYMBOLISM, DADAISM, SURREALISM, CONTEMPORARY CINEMA

Short Title: THE FRENCH AVANT-GARDE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Short texts and films by Baudelaire, Verlaine, Rimbaud, Mallarmé, Jarry, Apollinaire, Breton, Artaud, Bataille, Robbe-Grillet, Catherine Breillat, Virginie Despentes. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code for French Studies: FREN

Department Description and Code
• Modern and Classical Literatures and Cultures: MCLC

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in French Studies: FREN

Undergraduate Minor Description and Code
• Minor in French Studies: FREM

CIP Code and Description
• FREN Major/Program: CIP Code>Title: 16.0901 - French Language and Literature
• FREN Minor: CIP Code>Title: 16.0901 - French Language and Literature

Bachelor of Arts (BA) Degree with a Major in French Studies

Program Learning Outcomes for the BA Degree with a Major in French Studies

Upon completing the BA degree with a major in French Studies, students will be able to:

1. Communicate fluently in spoken and written French at an advanced level, as indicated by the ability to: understand spoken French, converse in French, critically read and translate French texts, and write in multiple genres in French.

2. Achieve the cultural literacy necessary for studying abroad or practicing internationally-based professions by demonstrating an understanding of the major social, cultural, and political stakes of the French and Francophone world, past and present.

3. Demonstrate an interdisciplinary understanding of French studies through critical investigations of French literature, art, film, and other cultural forms.

4. Understand French language and culture not as isolated geographic phenomena, but in the wider context of multicultural exchange and globalization.

5. Learn and apply various research skills, including critical thinking and reading skills, theory, and criticism, to French texts (broadly construed) in order to produce new critical insights verbally or in writing.

Requirements for the BA Degree with a Major in French Studies

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in French Studies must complete:

• A minimum of 10 courses (30 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 8 courses (24 credit hours) taken at the 300-level or above.
• A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1042) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>Total Credit Hours Required for the Major in French Studies</td>
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<tr>
<td>Total Credit Hours Required for the BA Degree with a Major in French Studies</td>
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Degree Requirements

Core Requirements

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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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</tr>
<tr>
<td>FREN 302</td>
<td>WRITING WORKSHOP</td>
<td>3</td>
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<td>Select 2 courses from the following:</td>
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<td></td>
</tr>
<tr>
<td>FREN 311</td>
<td>MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE</td>
<td>6</td>
</tr>
<tr>
<td>FREN 312</td>
<td>MAJOR LITERARY WORKS AND ARTIFACTS OF POST-REVOLUTIONARY FRANCE</td>
<td></td>
</tr>
</tbody>
</table>
Policies for the BA Degree with a Major in French Studies

Enrollment
As many as two French courses taught in English may count toward a major in French Studies. Students who have taken French courses at the 300- and 400-level (except those taught in English) cannot enroll simultaneously or afterward in 200-level French courses for credit. Students with diplomas from French-speaking institutions must consult with the department before enrolling in courses, and all majors and prospective majors must have their programs of study approved by an undergraduate advisor.

Students who arrive at Rice with AP credit in French of 4 or 5, or who have passed the International Baccalaureate with a 6 or 7 in French, can immediately enroll in all courses at the 300- or 400-level without taking a placement exam. All other students should take the placement exam administered by CLIC and will be assigned to courses in accordance with their level.

Program Restrictions and Exclusions
Students pursuing the major in French Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in French Studies should be aware of the following departmental transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

Opportunities for the BA Degree with a Major in French Studies
Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
Honors Program
French Studies offers an honors program for majors excelling in their studies. Honors work consists of two semesters of independent research under faculty supervision on a topic proposed by the student leading to a substantial thesis (FREN 493 in the fall semester and FREN 494 in the spring semester).

Study Abroad Opportunities
We strongly encourage students to spend time studying in a francophone country, and to that end the faculty and the Rice Study Abroad Office will help them select an appropriate program. To support study abroad, the department offers several Bull Fellowships annually.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Minor in French Studies

Program Learning Outcomes for the Minor in French Studies

Upon completing the minor in French Studies, students will be able to:

1. Communicate fluently in spoken and written French at an advanced level, as indicated by the ability to: understand spoken French, converse in French, critically read and translate French texts, and write in multiple genres in French.
2. Achieve the cultural literacy necessary for studying abroad or practicing internationally-based professions by demonstrating an understanding of the major social, cultural, and political stakes of the French and Francophone world, past and present.
3. Understand French language and culture not as isolated geographic phenomena, but in the wider context of multicultural exchange and globalization.

Requirements for the Minor in French Studies

Students pursuing the minor in French Studies must complete:

• A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
• A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1043) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

<table>
<thead>
<tr>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>FREN 302</td>
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<td>Select 2 courses from the following:</td>
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<tr>
<td>FREN 311</td>
<td>MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE</td>
</tr>
<tr>
<td>FREN 312</td>
<td>MAJOR LITERARY WORKS AND ARTIFACTS OF POST-REVOLUTIONARY FRANCE</td>
</tr>
<tr>
<td>FREN 313</td>
<td>MAJOR LITERARY WORKS AND ARTIFACTS OF THE FRANCOPHONE WORLD</td>
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</tbody>
</table>

Elective Requirements

Select 3 elective courses from departmental (FREN) course offerings at the 300-level and above. ¹, ²

Total Credit Hours

18

Footnotes and Additional Information

¹ Courses not used to fulfill the Core Requirements may be taken to fulfill Elective Requirements. The same course may not be used to satisfy more than one requirement for this minor.

² No courses may be taken in English to fulfill minor requirements. Departmental (FREN) course offerings taught in English that will not fulfill minor requirements include the following: FREN 308, FREN 324, FREN 355, FREN 402, and FREN 478.

Policies for the Minor in French Studies

Program Restrictions and Exclusions

Students pursuing the minor in French Studies should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in French Studies should be aware of the following departmental transfer credit guidelines:
• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
• Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

Opportunities for the Minor in French Studies
Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
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See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

German Studies
Contact Information
Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
emden@rice.edu

The Department of Modern and Classical Literatures and Cultures (MCLC) houses the German Studies program, a research-centered and student-friendly program with a challenging curriculum taught by internationally renowned faculty. The program covers the entire tradition of German culture, history, and politics within a European and global context, from early modern times to the present. Particular strengths of the department are in eighteenth- to twentieth-century literature and culture, media and film studies, modern intellectual history and political thought, and philosophy. Students in the program may pursue the BA degree with a major in German Studies. The department also offers a minor in German Studies.

The close connection between research and teaching lies at the heart of the major’s curriculum and enables students to develop original contributions at an early stage. Beyond a detailed and historically grounded understanding of German and European culture, students gain intellectual and social qualities that are highly valued in a global knowledge society: logical reasoning, critical thinking, linguistic skills, and cultural competence. German Studies majors have received Fulbright grants and have continued at some of the best graduate schools in the U.S. and Europe.

Bachelor’s Program
• Bachelor of Arts (BA) Degree with a Major in German Studies (p. 1054)

Minor
• Minor in German Studies (p. 1056)

German Studies does not currently offer an academic program at the graduate level.

Chair
Christian J. Emden

Program Advisor
Astrid Oesmann

Professors
Christian J. Emden
Uwe Steiner

Associate Professors
Martin Blumenthal-Barby
Astrid Oesmann
GERM 101/GERM 106/GERM 222.

Mutually Exclusive: Cannot register for GERM 141 if student has credit for GERM 201. Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for GERM 222 if student has credit for GERM 141.

GERM 222 - AP/OTH CREDIT IN GERMAN LANGUAGE
Short Title: AP/OTH CREDIT GERMAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for GERM 222 if student has credit for GERM 141.

GERM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GERM 263 - SECOND YEAR GERMAN I
Short Title: SECOND YEAR GERMAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 142
Description: Continuation of GERM 142. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for GERM 263 if student has credit for GERM 201.
GERM 264 - SECOND YEAR GERMAN II
Short Title: SECOND YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 263
Description: Continuation of GERM 263. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for GERM 264 if student has credit for GERM 202.
Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)

GERM 280 - HISTORY OF CINEMA AND MEDIA I: INVENTION TO 1945
Short Title: HISTORY OF CINEMA AND MEDIA I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will introduce students to the history of cinema from its inception to 1945 by considering individual cinematic artifacts in their technological, economic, aesthetic, political, and social contexts. Cross-list: CMST 201.

GERM 301 - THIRD YEAR GERMAN I
Short Title: THIRD YEAR GERMAN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary German speaking cultures through the use of authentic materials (film, media, literature). Taught in German. Recommended Prerequisite(s): GERM 264 or Instructor Permission.

GERM 302 - THIRD YEAR GERMAN II
Short Title: THIRD YEAR GERMAN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on complex topics in contemporary German speaking cultures through the use of authentic materials (film, media, literature). Recommended Prerequisite(s): GERM 301 or Permission of Instructor.

GERM 303 - GERMAN FOR PROFESSIONALS: BUSINESS AND RESEARCH
Short Title: GERMAN FOR PROFESSIONALS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GERM 302
Description: This course introduces students to current issues and language use in German technology, business, and international relations, and it explores these issues in larger cultural contexts. Assignments allow students to explore areas of individual interest and encourage exploration of international career opportunities including GERM 399 The German Studies Internship. Taught in German.

GERM 305 - ENLIGHTENMENT AND ROMANTICISM (1750-1850)
Short Title: ENLIGHTENMENT (1750-1850)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the major social, political and cultural developments in the period between 1700-1850, which contributed to the emergence of modern German cultural identity within the European context. Covers wide range of theoretical and literary works by Kant, Lessing, Schiller, Goethe, Eichendorff, Hoffmann, Heine, and others. Taught in German.

GERM 306 - REALISM TO MODERNITY (1850-PRESENT)
Short Title: REALISM TO MODERNITY-1850-PRES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: German history and culture during the late 19th and the 29th century have been rather turbulent: From Wilhelminian empire to Weimar democracy to Hitler fascism to socialist division to German reunification to entry into the European Union. All these political changes will be commented on by cultural reflections in textual and filmic forms. Literary texts will include Fontane, Mann, Kafka, Boll, Grass, Wolf and Maron. Taught in German.
GERM 307 - FOLK AND FAIRY TALE IN GERMAN: TRADITION, STRUCTURE, ARTISTRY
Short Title: FOLK & FAIRY TALE IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The folk tales collected by the Brothers Grimm still exhibit all the principle characteristics and functions of oral literature, i.e. the reproduction of an audience's cultural identity and the securing of that identity. Nevertheless, these characteristics are still preserved in fairy tales written by specific authors for a reading audience. Examples of the latter are mainly from authors of Romanticism and Realism. Taught in German.

GERM 309 - GERMAN POETRY
Short Title: GERMAN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "If the soul speaks out, alas! it is no longer the soul that speaks" - in Schiller's famous line one of the many fascinating paradoxes of lyric poetry is expressed. With the tradition of the "Lied," poems set to music, German poetry of the Classical-Romantic epoch was soon to become the epitome of lyric poetry as such. There were, however, poems of quite different kinds before and after Goethe, Eichendorff, and Heine. Without neglecting the Classical-Romantic period, the course will explore the history of lyric expression in German literature from the early modern period to the present in both poems and theoretical texts. Taught in German.

GERM 311 - BERLIN: PAST AND PRESENT
Short Title: BERLIN: PAST AND PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course introduces students to German history and culture as mirrored in the history of the city that is "always in progress and never accomplished." With an emphasis on the period from the 1920's to the present, class discussions encompass literature and theory, politics and social life, as well as architecture, fine arts and film. Taught in German.

GERM 320 - TWENTIETH CENTURY GERMAN THOUGHT AND LITERATURE IN GERMAN
Short Title: 20TH CENTURY GERMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on the way in which major events of twentieth century German history and culture — especially World War I, the founding of the Weimar Republic, and National Socialism and the Holocaust – have been dealt with in literature, philosophy, and the social sciences.

GERM 322 - MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY
Short Title: MARX, FREUD, EINSTEIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Like no others, these three thinkers of the 19th and 20th centuries have influenced the intellectual, historical, social and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English. Cross-list: HUMA 322.

GERM 324 - BERLIN: RESIDENCE, METROPOLIS, CAPITAL
Short Title: BERLIN: RESIDENCE, METROPOLIS, CAPITAL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course offers an introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Berlin has always been a city of contradictions: from imperial glamour to proletarian slums, from the Roaring Twenties to Hitler's seizure of power. Emerging from the ruins of WWII Berlin became both the capital of Socialism and the display window of the Free World. After the fall of the wall, Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English. Cross-list: HUMA 324.
GERM 325 - MODERN GERMAN WRITERS: KAFKA
Short Title: MODERN GERMAN WRITERS: KAFKA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Goethe’s vision of “world-literature” came true in the twentieth century. German authors, among them Kafka, transcended the confines of national traditions and redefined the concepts of literature and authorship in view of a modern globally dispersed audience. Topics may vary. Taught in English. Cross-list: HUMA 325. Repeatable for Credit.

GERM 326 - THE GERMAN FAIRY TALE: OLD AND NEW
Short Title: GERMAN FAIRY TALE: OLD & NEW
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the “literary” fairy tale from Goethe and the Romantics to the 20th century. Taught in English. Cross-list: HUMA 372.

GERM 327 - GERMAN EXPRESSIONISM IN EUROPEAN CONTEXT: HISTORY, LITERATURE AND FINE ARTS
Short Title: GERMAN EXPRESSIONISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The literature, fine arts and film of German Expressionism represent the most concentrated breakthrough of modernity. In addition to focusing on this accomplishment in its European context, the course will also discuss Nietzsche’s influence, the movement’s ambivalent reaction to WWI and its misappropriation by communism and national-socialism. Taught in English.

GERM 328 - GERMAN ADAPTATIONS: TEXT TO FILM
Short Title: GERMAN ADAPTATIONS: TEXT-FILM
Department: Modrn & Classicl Lit & Film
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Prominent novels of the 20th century will be studied for their possibilities or impossibilities of rendition from print medium to cinematic medium. From the myriad of adaptations we will concentrate on Thomas Mann: Tod in Venedig; Franz Kafka: Das Schloss; Klaus Mann: Mephisto; Gunter Grass: Die Blechtrommel; H. Boll: Katharina Blum; Jurek Becker: Jacob der Lugner. All films are subtitled in English. Taught in English. Cross-list: HUMA 328.

GERM 329 - LITERATURE OF THE HOLOCAUST AND EXILE
Short Title: LIT OF HOLOCAUST & EXILE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of the time, i.e., Th. and H. Mann, Brecht, Benjamin, Werfel, Doblin, J. Roth, S. Zweig, N. Sachs, Celan, Auslander. Taught in English. Cross-list: HUMA 329.

GERM 330 - LITERATURE AND FILM IN EAST GERMANY: BEHIND THE IRON CURTAIN
Short Title: Lit and Film: East Germany
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will introduce students to the literature and filmic culture of East Germany, as well as to its social, political, and cultural context. It will also ask how literature and film not only reflect history but also respond to history by mobilizing their own political force.
GERM 333 - NIETZSCHE: PHILOSOPHY, POLITICS, HISTORY
Short Title: NIETZSCHE
Department: Modrn &Classic Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Situates Nietzsche's thought on language, history, and the body within its historical context, and examines the validity of his arguments in a world increasingly challenged by scientific knowledge. Focuses on Nietzsche's views on truth, genealogy, nihilism, morality, and science, which continue to be relevant for current debates within the humanities. Taught in English.

GERM 334 - NATIONALISM AND CITIZENSHIP
Short Title: NATIONALISM AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical review of modern concepts of nationalism and citizenship. Topics include: theories of nationalism and citizenship, space and territory, identity, monuments, the emergence of nation states, multicultural democracy, transnationalism, and political belonging. Course provides links between political theory, public policy, literature, visual culture, architecture, and historical anthropology.

GERM 335 - GERMAN FILM (IN ENGLISH)
Short Title: GERMAN FILM (IN ENGLISH)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores filmic representations of communities, their complex mechanisms of inclusion and exclusion, their inevitable dynamics of otherness, as well as practices of modern states toward communal regulation and control. While communities biologically denote the interaction of organisms sharing an environment, we will examine the practices of power that states wield toward the maximization of "life." Hence the questions of biopower, health politics, eugenics, sexism, racism, and genocide. How do films negotiate the precarious politics of communal life, what are their strategies for resistance, and what their moments of complicity? We will explore how film reflects communal life in twentieth-century German history, but also, and perhaps primarily, how film responds to that history by generating its own speaking power and mobilizing its own political force. Mutually Exclusive: Cannot register for GERM 335 if student has credit for FSEM 136/GERM 136.

GERM 336 - NATIONAL SOCIALISM AND FILM
Short Title: NATIONAL SOCIALISM AND FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores films made in Nazi Germany as well as films about Nazi Germany and the corresponding crisis of justice in the mid-twentieth century. We will analyze cinematic responses to the rise of the fascist movement, World War II, the Holocaust, and the post-war years. Particular attention will be paid to the value of film as propagandistic tool, ways in which it can configure and contest our image of national identity, and the relation between mass manipulation and mass murder. Taught in English. Mutually Exclusive: Cannot register for GERM 336 if student has credit for FSEM 132/GERM 132.

GERM 337 - VIENNA 1800 TO THE PRESENT - LASTING CENTER OF GERMAN CULTURE
Short Title: VIENNA 1800 TO THE PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Despite Vienna's drastic political changes from 1800 to 2000, it is still synonymous with German culture in its fusion of literature, music and the fine arts.

GERM 338 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN
Short Title: NEW GERMAN FILM: HITLER'S CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerrie, Garnier, Tykwer, and others. The first 20 years of German film were oriented on coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: HUMA 373, SWGS 361.
GERM 339 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY
Short Title: FROM EXPRESSIONISM TO FASCISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. Cross-list: HART 398.

GERM 340 - WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS
Short Title: WALTER BENJAMIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English. Cross-list: HUMA 340.

GERM 341 - A SHORT HISTORY OF GERMAN THOUGHT ON HISTORY
Short Title: GERMAN THOUGHT ON HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From early modern times onward history has played and still plays a crucial role in German thought. Why? An answer to this question is to be sought in history; in authors such as Lessing, Kant, Hegel, Marx, and Nietzsche who contributed to what in German is called “Philosophy of History.”

GERM 345 - FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945
Short Title: GERMAN HISTORY, 1890-1945
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, and political culture, the Nazi social revolution, and the Holocaust. Taught in English. Cross-list: HIST 355.

GERM 349 - GERMAN POLITICAL THOUGHT
Short Title: GERMAN POLITICAL THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar in political thought. Traces the development and influence of one of the most important traditions of modern political thought from the Enlightenment to the present. Topics include: natural law, public sphere, intellectuals and the modern state, civil society, mass democracy. Reading intensive and research oriented. Taught in English.

GERM 351 - HOLOCAUST MEMORY IN MODERN GERMANY
Short Title: HOLOCAUST MEMORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course traces and examines forms of Holocaust memory and memorialization in film, literature, art, architecture, city planning, museums, and memorials in Germany. For an additional credit hour, students will participate in a week-long trip to Berlin. Instructor Permission Required. Cross-list: HART 387.
GERM 352 - POLITICS OF THE FLESH IN GERMAN LITERATURE, THOUGHT AND FILM
Short Title: THE POLITICS OF THE FLESH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the complex relation between the sphere of politics and the human body as negotiated in German literature, thought and film. We will examine the practices of power that states wield toward the maximization of "life" and discuss such pressing issues as biopower, eugenics, racism, sexism and genocide. Taught in English.

GERM 361 - THE AGE OF GOETHE: POETRY AND TRUTH
Short Title: AGE OF GOETHE: POETRY & TRUTH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The "Age of Goethe" is generally referred to as the "classical" decade of German literature and culture. It was, however, by no means exclusively the age of Goethe and Schiller, but also of Kant and Herder, Holderlin and Kleist, and the beginning of the Romantic movement. While German intellectuals debated revolution in the lofty realm of letters, their French contemporaries took to the streets and staged a political revolution that culminated in the execution of their king. Germany as the "land of the poets and philosophers" is a myth indeed, and a rather ambivalent one, too. The course explores the age of Goethe, its "poetry" and its "truth," by way of reading key texts of that period in their intellectual, historical, and political contexts. Taught in German.

GERM 362 - NEW REALITIES: LITERATURE AND POLITICS IN THE 19TH CENTURY
Short Title: 19TH C. LITERATURE & POLITICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In German arts and letters, the nineteenth century is usually referred to as the age of Realism. As a reaction to Neo-Classicism, Romanticism, and Idealism, intellectual life turned towards the new realities in the sciences as well as society and politics. Industrialization, urbanization, the social question, women's liberation and the founding of the "Reich" created a new sense of reality and gave way to new forms of expression in literature and the arts. While optimism regarding the process of mankind prevailed, pessimism spread amongst the more thoughtful. Readings include texts by Heine, Fontaine, Keller, Hauptmann, Marx, Schopenhauer and Nietzsche. Taught in German.

GERM 363 - THE WEIMAR REPUBLIC, 1919-1933
Short Title: THE WEIMAR REPUBLIC, 1919-1933
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar in Germany’s first democracy and one of the most formative moments of modernity. Covers political culture, constitutional conflict, literary and intellectual movements and urban visual culture from the end of the First World War and the spectacular modernity of 1920s Berlin to the rise of the Nazis. Taught in German.

GERM 364 - THE EXPRESSIONIST VISION OF "NEW MAN"
Short Title: EXPRESSIONIST VISION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Inspired by Nietzsche’s concept of the "Superman," the Expressionist writers and artists (roughly between 1910 and 1920) strived towards a total renewal of society. They attached its patriarchal foundation, blamed the anonymity of the metropolitan mass society with the newly formed proletariat on hand and the materialistic life-style on the other for the general dissociation of individuals. The major literary forms were poetry and drama, which were either activist or experimenting with newly created metaphors. The prose employs the genre of the grotesque. The visual artists are influenced by van Gogh. As a totally new medium, the film incorporates all these aspects and elements. Taught in German.

GERM 380 - GERMAN HISTORY IN FILM: INTERNATIONAL PERSPECTIVES
Short Title: GERMAN HISTORY IN FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores how German history and its effects on Europe and the world have been presented in international film. Special attention will be paid to films dealing with traumatic moments and developments before, during and after World War I, World War II, the Holocaust and the Cold War.
GERM 399 - THE GERMAN STUDIES INTERNSHIP
Short Title: THE GERMAN STUDIES INTERNSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Office of the Dean of humanities and relevant faculty from German Studies match students individually with one of a variety of projects in the areas of diplomacy, engineering, pedagogy, public culture. Students conduct research or related activities under the guidance of on-site supervisor and the section instructor on record. Instructor Permission Required.

GERM 401 - TOPICS IN GERMAN LITERATURE AND CULTURE
Short Title: TOPICS IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will work with sophisticated texts to enable students to bring their proficiency in the various modalities of German to the advanced level. Taught in German. Repeatable for Credit.

GERM 402 - GERMAN TRANSLATION
Short Title: GERMAN TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar on German-English translations. With stylistic exercises covering a broad range of genres: poetry, novels, essays, historical documents, legal documents, journalism, etc. Taught in German. Effective May 15, 2019, this course does not carry D1 credit.

GERM 410 - THE POLITICS OF GERMAN FILM (IN GERMAN)
Short Title: THE POLITICS OF GERMAN FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores film in the context of German politics and history. It examines why film has been such a contested subject in German philosophy and the social sciences. Assignments will include films from the Weimar Republic and Nazi Germany to postwar New German Cinema and today's filmic presentation of German history and politics. Selected directors include: Maren Ade, Rainer Werner Fassbinder, Florian Henckel von Donnersmarck, Werner Herzog, Fritz Lang, Margarete von Trotta, and Tom Tykwer. The course also provides an introduction to German film theory examining selected works by Theodor W. Adorno, Walter Benjamin, Siegfried Kracauer, and Georg Lukács. Taught in German.

GERM 411 - THE POETICS OF JUSTICE IN GERMAN LITERATURE, THOUGHT, AND FILM
Short Title: THE POETICS OF JUSTICE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar will introduce students to the ongoing concern with law and its relation to justice in German literature, thought, and film. We will examine works that stage actual and figurative trials, and will ask how these enactments serve as a catalyst for civilization's most pressing normative questions.

GERM 420 - GERMAN POLITICS/CULTURE AFTER 1945
Short Title: GERM. POLI/CULTURE AFTER 1945
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar on German culture and politics after the Second World War – from the foundation of the Federal Republic, the separation of the two Germanys, and the student revolts of 1968 to 1970s terrorism, the fall of the Berlin Wall, and Germany's present role in the international community. Taught in German.

GERM 425 - VIENNA AND ITS PEOPLE
Short Title: VIENNA AND ITS PEOPLE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will look at the people of Vienna from the turn of the century to the present. Our readings, film viewings and discussions will introduce us to the Viennese as people of all classes and ethnic and national groups. Taught in German. Recommended Prerequisite(s): Intermediate high proficiency (speaking & writing).

GERM 430 - GERMAN INTELLECTUAL HISTORY
Short Title: GERMAN INTELLECTUAL HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced Seminar on key topics in modern German intellectual history, including history of science and scholarship, from 1700 to the present. Ideal preparation for graduate school in the humanities. Taught in German.
GERM 435 - CONCEPTS OF HISTORY FROM G.E. LESSING TO W. BENJAMIN
Short Title: CONCEPTS OF HISTORY
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The eighteenth-century German philosopher Gotthold Lessing and the nineteenth-century philosopher Friedrich Nietzsche called philosophy of history (Geschichtsphilosophie) a "German discipline." There is indeed a long and rich tradition of texts in German thought focusing on making sense of the seemingly senseless, on speculating about the origin, the course, the aim, or, quite generally, the "meaning" of history. Based on selected texts by Lessing, Kant, Heine, Hegel, Nietzsche, Ranke, Burckhardt, Benjamin, and others, the course discusses different concepts of history from the early eighteenth century to the twentieth century. Taught in German.

GERM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact the department for current semester's topic(s). Repeatable for Credit.

GERM 491 - FALL - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: FALL-IND WRK GERM LITERATURE
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 492 - SPRING - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: SPRING-IND WRK GERM LITERATURE
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 493 - FALL HONOR THESIS
Short Title: FALL HONOR THESIS
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Department Permission Required.

GERM 494 - SPRING HONORS THESIS
Short Title: SPRING HONOR THESIS
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Department Permission Required.

GERM 541 - FIRST-YEAR GERMAN I FOR GRADUATE STUDENTS
Short Title: 1ST YR GERMAN I FOR GRAD STUD
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is targeted at graduate students of different disciplines as an introduction to the fundamentals of listening, reading, writing, spoken production and interaction in German. This course is student-centered, uses a critical-thinking approach and intends to make students aware of contextualized language use and socioculturally significant interactions.

GERM 542 - FIRST-YEAR GERMAN II FOR GRADUATE STUDENTS
Short Title: 1ST YR GERMAN II FOR GRAD STUD
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): GERM 541
Description: This course builds on GERM 541. Based on an active student-centered critical-thinking approach, this course wants to make students aware of language use in context and socioculturally significant interactions. The emphasis is on interactional communication, reading, writing, translations, and intercultural awareness and understanding.
Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)
GERM 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for German Studies: GERM

Department Description and Code
- Modern and Classical Literatures and Cultures: MCLC

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in German Studies: GERM

Undergraduate Minor Description and Code
- Minor in German Studies: GEMM

CIP Code and Description
- GERM Major/Program: CIP Code/Title: 16.0501 - German Language and Literature
- GEMM Minor: CIP Code/Title: 16.0501 - German Language and Literature

Bachelor of Arts (BA) Degree with a Major in German Studies

Program Learning Outcomes for the BA Degree with a Major in German Studies
Upon completing the BA degree with a major in German Studies, students will have:

1. Expertise in literary and film analysis and theory.
2. Understanding of the historical and political contexts of German culture.
3. German Studies specific oral and writing skills.
4. German Studies specific research knowledge.

Requirements for the BA Degree with a Major in German Studies
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in German Studies must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (24 credit hours) taken at the 300-level or above.
- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1055) tab.

German Studies at Rice is a research-centered and undergraduate-focused program with internationally renowned faculty. Courses are offered in both German and English. The program covers German history, literature, and culture, from the seventeenth century to the present, with a strong emphasis on Germany's role in a wider European and transatlantic context. Particular departmental strengths are in the areas of modern intellectual history, 18th- to 20th-century literature and philosophy, film and media studies, as well as political theory. The close connection between research and teaching lies at the core of the curriculum. For more information please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
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<td>Total Credit Hours Required for Major in German Studies</td>
<td>30</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major</td>
<td>120</td>
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Degree Requirements

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<thead>
<tr>
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<th>Credit Hours</th>
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<tr>
<td>GERM 263</td>
<td>SECOND YEAR GERMAN I</td>
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<td>GERM 264</td>
<td>SECOND YEAR GERMAN II</td>
<td>3</td>
</tr>
<tr>
<td>GERM 301</td>
<td>THIRD YEAR GERMAN I 1</td>
<td>3</td>
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<tr>
<td>GERM 302</td>
<td>THIRD YEAR GERMAN II</td>
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</table>

Elective Requirements

Select 6 elective courses from departmental (GERM) course offerings

Total Credit Hours Required for the Major in German Studies

Additional Credit Hours to Complete Degree Requirements
Footnotes and Additional Information

**Note:** University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. **Additional Credit Hours to Complete Degree Requirements** include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Both GERM 263 and GERM 264 may be replaced by an eight-week intensive summer language course at the University of Leipzig, Germany. The Leipzig Summer Program course counts toward the German Studies major at Rice with 6 credit hours. For more information, see the Opportunities (p. 1056) tab.

2 GERM 301 and GERM 302 may be replaced by two four-week summer language courses at the University of Leipzig, Germany. For more information, see the Opportunities (p. 1056) tab.

3 To fulfill the remaining German Studies major requirements, students must complete a total of 6 additional courses (18 credit hours) from departmental (GERM) course offerings as follows: 4 courses (12 credit hours) at the 300-level or above, and 2 courses (6 credit hours) at the 400-level. Please note: any elective course at the 300-level may be replaced by a course at a higher level.

### Courses Offered in English

<table>
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<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>GERM 322 / HUMA 322</td>
<td>MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY</td>
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<tr>
<td>GERM 324 / HUMA 324</td>
<td>BERLIN: RESIDENCE, METROPOLIS, CAPITAL</td>
<td>3</td>
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<td>GERM 325 / HUMA 325</td>
<td>MODERN GERMAN WRITERS: KAFKA</td>
<td>3</td>
</tr>
<tr>
<td>GERM 326 / HUMA 372</td>
<td>THE GERMAN FAIRY TALE: OLD AND NEW</td>
<td>3</td>
</tr>
<tr>
<td>GERM 328 / HUMA 328</td>
<td>GERMAN ADAPTATIONS: TEXT TO FILM</td>
<td>3</td>
</tr>
<tr>
<td>GERM 329 / HUMA 329</td>
<td>LITERATURE OF THE HOLOCAUST AND EXILE</td>
<td>3</td>
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<tr>
<td>GERM 330</td>
<td>LITERATURE AND FILM IN EAST GERMANY: BEHIND THE IRON CURTAIN</td>
<td>3</td>
</tr>
<tr>
<td>GERM 334</td>
<td>NATIONALISM AND CITIZENSHIP</td>
<td>3</td>
</tr>
<tr>
<td>GERM 338 / HUMA 373 / SWGS 361</td>
<td>NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN</td>
<td>3</td>
</tr>
<tr>
<td>GERM 339 / HART 398</td>
<td>FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY</td>
<td>3</td>
</tr>
<tr>
<td>GERM 340 / HUMA 340</td>
<td>WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS</td>
<td>3</td>
</tr>
<tr>
<td>GERM 345</td>
<td>FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945</td>
<td>3</td>
</tr>
<tr>
<td>GERM 349</td>
<td>GERMAN POLITICAL THOUGHT</td>
<td>3</td>
</tr>
<tr>
<td>GERM 351 / HART 387</td>
<td>HOLOCAUST MEMORY IN MODERN GERMANY</td>
<td>3-4</td>
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</tbody>
</table>

### Policies for the BA Degree with a Major in German Studies

#### Enrollment

Students who arrive at Rice with AP credit in German of 4 or 5, or who have passed the International Baccalaureate with a 6 or 7 in German, should enroll in any course at the 300-level or 400-level. All other students should take the placement exam administered by the Center for Languages and Intercultural Communication (CLIC) and will be assigned to courses at the appropriate level. Any 200-level course in German can be replaced by a higher-level course.

#### Program Restrictions and Exclusions

Students pursuing the major in German Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

#### Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the major in German Studies should be aware of the following departmental transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

#### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic
contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

Opportunities for the BA Degree with a Major in German Studies

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Honors Program
German Studies offers an honors program for majors excelling in their studies. Honors work consists of two semesters of independent research under faculty supervision on a topic proposed by the student leading to a substantial essay (GERM 493 in fall, GERM 494 in spring). Outstanding seniors are presented annually with the Max Freund Prize.

The Leipzig Summer Program
The Department of German Studies strongly encourages intermediate-level students of German to attend an eight-week, intensive language course at the University of Leipzig’s renowned Herder Institute. For the Rice student majoring in German Studies, this Leipzig course can be used to replace the sequence GERM 263 and GERM 264 or the sequence GERM 301 and GERM 302, and it will count as two courses (and 6 semester credit hours) of transfer credit. Through several generous endowments, the department offers the Leipzig Fellowships (and 6 semester credit hours) of transfer credit. Through several generous endowments, the department offers the Leipzig Fellowships (and 6 semester credit hours) of transfer credit.

Details about the Leipzig Summer Program, including information about housing, can be found at https://ces.rice.edu/ and https://www.interdaf.uni-leipzig.de/. Students must apply directly to Leipzig-interDaF for course admission. For further information, contact the Program Advisor for German Studies, Astrid Oesmann, astrid.oesmann@rice.edu.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Minor in German Studies

Program Learning Outcomes for the Minor in German Studies

Upon completing the minor in German Studies, students will be able to:

1. Display an understanding of the main lines of cultural, political, and social thought in German history from early modern times to the present in the European context based on original sources.
2. Analyze and evaluate key texts and documents of German cultural and political history such as literature, philosophy, art, film, and electronic media by way of close reading, critical interpretation and an awareness of the document’s rhetorical and media-specific features.
3. Identify and compare different authors and texts within the different traditions they form a part of as well as their impact and legacy within both the national and international context.

Requirements for the Minor in German Studies

Students pursuing the minor in German Studies must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 4 courses (12 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1057) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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<td>Total Credit Hours Required for the Minor in German Studies</td>
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Minor Requirements

Core Requirements 1, 2, 3

Select 2 courses from departmental (GERM) course offerings at the 200-level or above 6

Select 4 courses from departmental (GERM) course offerings at the 300-level or above 12

Total Credit Hours 18
Footnotes and Additional Information

1. No courses may be taken in English to fulfill minor requirements. Departmental (GERM) course offerings taught in English that will not fulfill minor requirements include the following: GERM 280, GERM 322, GERM 324, GERM 325, GERM 326, GERM 327, GERM 328, GERM 329, GERM 330, GERM 333, GERM 334, GERM 335, and GERM 336.

2. A maximum of 2 courses (6 courses) may be taken at the 200-level.

3. Any lower level course may be replaced by a course taken at a higher level.

Policies for the Minor in German Studies
Program Restrictions and Exclusions

Students pursuing the minor in German Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in German Studies should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

Opportunities for the Minor in German Studies

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

Global Affairs

Contact Information

Global Affairs
https://mga.rice.edu/
180 Baker Hall
713-348-2367

Mark P. Jones
Faculty Director
mpjones@rice.edu

Abbey Godley
Assistant Dean for Student Programs
agodley@rice.edu

The Master of Global Affairs is a co-sponsored degree between Rice University's Baker Institute for Public Policy and the School of Social Sciences. The program offers graduate students a professional master's degree that simultaneously requires high standards of scholarship and practical training for careers in government, the private sector, and international organizations.

The Master of Global Affairs is a two-year, 36 credit hour degree program. The program requires a non-credit bearing pre-term math boot camp held in the evenings before classes begin. The first year core-curriculum requires a sequence of 18 credit hours exposing students to a variety of topics in global affairs. The second year is reserved for pursuit of an Area of Study, participation in a required internship, and completion of
a capstone project. The program is considered full-time with classes offered in the evening.

Global Affairs does not currently offer an academic program at the undergraduate level.

**Master's Program**

- **Master of Global Affairs (MGA) Degree** (p. 1063)

**Faculty Director**

Mark P. Jones

**Professor**

Songying Fang

**Lecturers**

Michael Ard
Cory Birenbaum
Yvonne Cruz
Scott McHugh
Daniel Potter

**Baker Institute Fellows**

Joe Barnes
Kristian Coates Ulrichsen
Jim Krane
Kelsey Norman
Tony Payan

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog ([https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata))

To view the most recent semester’s course schedule, please see Rice's Course Schedule ([https://courses.rice.edu/admweb/ISWKSCAT.cat](https://courses.rice.edu/admweb/ISWKSCAT.cat))

**Global Affairs (GLBL)**

**GLBL 501 - GLOBAL SYSTEMS I**

- **Short Title:** GLOBAL SYSTEMS I
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** Designed to help students think theoretically and analytically about leading issues in international affairs by introducing them to social science methods and scholarship, and exposes them to the uses of such concepts in practice, through examination of contemporary problems and relations between nation states. Introduces central concepts and approaches from a variety of social science perspectives, particularly comparative politics and international relations used to explain, analyze and evaluate international politics and economics. Master of Global Affairs students only.

**GLBL 502 - INSTITUTIONS & DEVELOPMENT**

- **Short Title:** INSTITUTIONS & DEVELOPMENT
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course will explore a broad, multidisciplinary range of methodologies and requisite analytical tools needed to identify, measure, and assess the determinants and effects of international development, the nature of change in the development process, and of the associated role of policy and institutional design. This will include the normative analysis of change (applying various concepts of well-being, efficiency, social justice and poverty), the application of economic concepts (to the interpretation of household and firm behavior, strategic interactions and economy-wide patterns), and the role of political, governmental and social behavior in shaping the possibilities for, drivers of and resistance to change. This will be undertaken through a mixture of discussion of overall patterns backed by a strong focus on case studies in particular country settings. Master of Global Affairs students only.

**GLBL 503 - INTRODUCTION TO STATISTICS FOR MASTERS STUDENTS**

- **Short Title:** INTRODUCTION TO STATISTICS
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course familiarizes students with basic concepts of research design and statistical methodology that used in policy analysis. It covers (1) fundamental concepts of scientific inference and barriers to inference in observational data, (2) the implementation and evaluation of experimental and observational research designs in policy analysis, (3) descriptive and graphical statistics, (4) statistical hypothesis testing, (5) elementary use and interpretation of the generalized linear model, and (6) using the R statistical software environment for data organization and analysis. It is strongly recommended that students complete this course in the fall semester of their first year; in all cases, it must be completed before the end of the first year. Master of Global Affairs students only.

**GLBL 504 - QUANTITATIVE APPLICATIONS IN GLOBAL POLITICS AND POLICY**

- **Short Title:** GLOBAL POLITICS AND POLICY
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** The course takes a problem-driven approach to practical applications of quantitative research methods in political and policy studies. Using a series of international and domestic policy topics, students will learn to apply and extend their knowledge of research design and statistics as part of developing a systematic approach to the study of global affairs. Student assignments will involve research related to the practice of global affairs, including comparative policy-making, political economy and security. Master of Global Affairs students only.
GLBL 505 - MACROECONOMICS AND THE GLOBAL ECONOMY
Short Title: MACROECONOMICS&GLOBAL ECONOMY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This part develops our foundations on topics such as national product and income concepts, measurements, and relationships; interrelationships of the major segments of the national economy; forces affecting the general level of economic activity. Here we study how the major markets (those for labor, capital, and goods) operate. These markets are first studied in isolation. Why some countries have rapid economic development, and others low growth and pervasive poverty? We will explore the ways in which growing economic interdependence shifts global wealth. We will discuss the role of global energy supply and of ongoing technological progress as a force of change in the global economy. Masters of Global Affairs students only. Equivalency: GLBL 506, GLBL 524. Mutually Exclusive: Cannot register for GLBL 505 if student has credit for GLBL 524.

GLBL 506 - MACROECONOMICS FOR THE GLOBAL ECONOMY
Short Title: MACROECONOMICS FOR GLOBAL ECON
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The second part of the course puts the markets studied in the first part together and studies their interactions. The key issues here are: (a) how macroeconomic variables behave and (b) how can policy affect these outcomes both domestically and internationally. Students will engage in a short team project to explore the role of economic development in international settings, including topics such as energy supply, labor and employment, population, education, health and nutrition. International economics: balance of payments, foreign exchange markets, international trade theory, tariffs, quotas, and exchange controls. The course will focus on the relationship between international policy and economics. North-South relations, including the US-Mexico economic relation will be discussed. Master of Global Affairs students only. Equivalency: GLBL 505, GLBL 524. Mutually Exclusive: Cannot register for GLBL 506 if student has credit for GLBL 524.

GLBL 507 - DECISION MAKING UNDER UNCERTAINTY
Short Title: DECISION MAKING UNCERTAINTY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines how leaders on the world stage-those in governments, international organizations, and non-state actors-make decisions that alter the course of international affairs. These decisions are made under conditions of uncertainty with limited information, elements of surprise about what will happen next, and often carry high degrees of risk. The course considers key theoretical models of uncertainty in decision making and examines specific foreign policy decisions that managed the uncertainty toward a successful outcome and those that ended in failure or expensive mistakes. Master of Global Affairs students only.

GLBL 510 - CULTURAL DIRECTIONS IN INTERNATIONAL AFFAIRS
Short Title: CULTURAL DIRECTIONS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigates the cultural and social dimensions of the development and implementation of international policy; emphasizes historical and ethnographic case studies to understand the variable impacts of policy implementation in different contexts. Master of Global Affairs students only.

GLBL 512 - INTERNATIONAL CONFLICT
Short Title: INTERNATIONAL CONFLICT
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to a broad range of areas related to the analysis and resolution of conflict, focusing on the interdisciplinary study of defining, understanding, and addressing conflict. International and community conflict, characteristics, negotiation, collaborative problem solving, process-advice. Students will research international conflict escalation, stalemate, de-escalation, settlement, resolution, or management; mediation skills to facilitate the resolution of disputes and differences, techniques of third party intervention with individuals and groups. Learning approach includes lectures, simulations, modeling and practice mediations. Master of Global Affairs students only.

GLBL 513 - INTERNATIONAL COOPERATION
Short Title: INTERNATIONAL COOPERATION
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of theories and best practices from academia and governments/NGO's related to international cooperation, including international law and treaties, international coalitions and sanctions, international and transnational organizations, translocal city and NGO partnerships, government and business partnerships, transnational governance and publicly diplomacy, including soft power and collective action for global public goods. Master of Global Affairs students only.

GLBL 514 - THE MIDDLE EAST CAULDRON AND UNITED STATES POLICY
Short Title: M. EAST CAULDRON & U.S. POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the expanding public dimension of diplomacy by investigating the growing global interests and trends in the 21st century's diplomatic environment. This course also examines the underlying political, socio-economic, and cultural trends and surveys US national security interests, foreign policy, and public diplomacy around the world. For Master of Global Affairs Students Only.
GLBL 515 - ISSUES IN CONTEMPORARY U.S. FOREIGN POLICY
Short Title: CONTEMP. US FOREIGN POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: U.S. foreign policy is in transition. This process began long before President Donald J. Trump assumed office. We have moved decisively into what could be called "the post-post-Cold War" era. The global struggle between the Soviet Union and the United States ended 25 years go. But so has the "unipolar moment" that followed the Cold War, when the United States possessed unrivalled power in world affairs. The rise of China, the resurgence of Russia, and continuing turmoil in the Middle East confront U.S. policy-makers with an array of complex challenges. This course focuses on these and other issues that are shaping U.S. foreign policy today. It will include discussions of topics "ripped from the news" whether we are talking about the Syrian Civil War, the ongoing low-intensity conflict in the Ukraine, or Chinese military actions in the South China Sea. Master of Global Affairs students only.

GLBL 519 - MASTER OF GLOBAL AFFAIRS INTERNSHIP
Short Title: MASTER GLOBAL AFFAIRS INTRNSHP
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Master of Global Affairs internship is a graduate-level supervised field experience for students in the MAGA program. All internships must be preapproved and must be conducted after the student has completed a minimum of 18 credit hours in the program. Master of Global Affairs students only. Instructor Permission Required. Repeatable for Credit.

GLBL 520 - MASTER OF GLOBAL AFFAIRS CAPSTONE
Short Title: MASTER GLOBAL AFFAIRS CAPSTONE
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Master of Global Affairs capstone course is the culmination of all graduate coursework and internship experience in the program; it is a significant piece of work than what is normally expected of a term paper. The capstone project must reflect a scholarly and professional analysis informed by the application of analytical strategies that address a real-world problem or public policy issue. All MGA students must complete the capstone in their final semester. Instructor Permission Required.

GLBL 521 - DIRECTED READING IN GLOBAL AFFAIRS
Short Title: DIR READING IN GLOBAL AFFAIRS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3-6
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level independent reading course. Topics vary. Master of Global Affairs students only. Instructor Permission Required. Repeatable for Credit.

GLBL 523 - QUANTITATIVE APPLICATIONS IN GLOBAL AFFAIRS
Short Title: QUANTITATIVE APPLICATIONS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course takes a problem-driven approach to practical applications of quantitative research methods in political and policy studies. Using a series of international domestic policy topics, students will learn to apply and extend their knowledge of research design and statistics as part of developing a systematic approach to the study of global affairs. Student assignments will involve research related to the practice of global affairs, including comparative policy-making, political economy and security.

GLBL 524 - MACROECONOMICS IN A GLOBAL ECONOMY
Short Title: MACROECONOMICS GLOBAL ECONOMY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course develops our foundations of aggregate economic analysis; use of the aggregate demand/aggregate supply model for the determination of output, employment, and prices. The focus will be on topics such as national product and income concepts, measurements, and relationships; interrelationships of the major segments of the national economy; forces affecting the general level of economic activity. Here we study how the major markets (those for labor, capital, and goods) operate. These fundamental concepts will be used to analyze international economic policy. Equivalency: GLBL 505, GLBL 506. Mutually Exclusive: Cannot register for GLBL 524 if student has credit for GLBL 505/ GLBL 506.
GLBL 525 - INTERNATIONAL SECURITY
Course Title: INTERNATIONAL SECURITY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers two general areas in International Security: (1) traditional (i.e., "state-centered") and (2) non-traditional security issues. The first half of the course is devoted to recent developments in the study of interstate security. We will contemplate unipolarity, American security policy, the rise of some peer competitors, and the changing nature of interstate relations in the 21st century. The second half of the course will explore the growing significance of a number of emerging non-traditional security concerns. In this portion, we will discuss counterinsurgency, civil war, terrorism, humanitarian intervention, among other developing issues.

GLBL 532 - INTERNATIONAL BUSINESS ENVIRONMENT AND GLOBAL ECONOMIC GOVERNANCE
Course Title: INT'L BUSINESS DEVELOPMENT
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a comprehensive course in how governance of the global economy affects business and investment decisions. It is designed to provide students with an understanding of the main international economic institutions that have been developed to oversee the global economy, and how these institutions affect the international business and investment climate. Lectures and class discussions will focus on real world examples of the impact of the international trade and financial institutions (the G-8, G-20, WTO, IMF, and World Bank) on global and individual country economic environments, with particular emphasis on non-OECD countries.

GLBL 533 - SUSTAINABILITY AND GLOBAL ISSUES
Course Title: SUSTAINABILITY & GLOBAL ISSUES
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Arts in Global Affrs degree.
Course Level: Graduate
Description: This course aims to familiarize the student with current Sustainability debates as well as with conceptual origins, history and principles. We will study important global and regional landmarks, conferences and agreements that have brought Sustainability to the forefront of the political, private and public spheres. Moreover, this class is expected to provide a systems approach that will help students develop a comprehensive understanding of how local to regional challenges need to be addressed under sustainable frameworks.

GLBL 541/POST 401/POST 501.

GLBL 542 - INTERNATIONAL MACROECONOMIC POLICY FOR MASTER'S STUDENTS
Course Title: INTL MACROECONOMIC POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers two general areas in International Macroeconomics: (1) traditional (i.e., "state-centered") and (2) non-traditional exchange rate policies. The course will constraint policy space? Students will model the linkages between exchange rates, interest rates, capital flows, and prices. The course will emphasize emerging economies.

GLBL 543 - ENERGY POLICY
Course Title: ENERGY POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers two general areas in International Macroeconomics: (1) traditional (i.e., "state-centered") and (2) non-traditional exchange rate policies. The course will constraint policy space? Students will model the linkages between exchange rates, interest rates, capital flows, and prices. The course will emphasize emerging economies.

GLBL 544 - CHANGE IN WORLD POLITICS
Course Title: CHANGE IN WORLD POLITICS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers two general areas in International Macroeconomics: (1) traditional (i.e., "state-centered") and (2) non-traditional exchange rate policies. The course will constraint policy space? Students will model the linkages between exchange rates, interest rates, capital flows, and prices. The course will emphasize emerging economies.
other organization(s) to plan for and manage the crisis incident? Therefore requires an integrated joint partnership with the government or do these corporations prepare for a crisis even that impacts national banking system is owned and operated by private corporations. How medical, transportation, chemical, etc.), and nearly all of the global (water, electricity, food/agriculture, energy, finance, IT, communication, medical, transportation, chemical, etc.), and nearly all of the global banking system is owned and operated by private corporations. How do these corporations prepare for a crisis even that impacts national security, national economic issues, or public order/safety/health, and therefore requires an integrated joint partnership with the government or other organization(s) to plan for and manage the crisis incident?

**GLBL 551 - CYBERPOLITIK: INTERNATIONAL AFFAIRS IN TECHNOLOGY AND INFORMATION**

**Short Title:** CYBERPOLITIK  
**Department:** Global Affairs  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** How are the evolving cases of cyber-attack and breach as well as the actions of government and corporations shaping how cyberspace is governed? What object lessons are there in security cases such as those involving WikiLeaks and the Snowden affair? This course examines the widely pervasive and enormously effective nature of cyber threats today, explaining why cyber-attacks happen, how they matter, and how they may be managed.

**GLBL 552 - INTERNATIONAL SECURITY: DE-RISKING NATIONAL THREATS AND BUSINESS THREATS**

**Short Title:** INTERNATIONAL SECURITY  
**Department:** Global Affairs  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course seeks to define the risks and risk-mitigation strategies employed by both nation-states and multinational businesses. We will examine how businesses control their risks by following compliance laws around the world. We will also examine what a superpower is within the context of the geopolitical challenges America is facing (fracturing of national institutions/will/consensus, our potential relative decline, shifting alliances, China’s rise, the European Union stagnation and diminution, and Russian aggression) as we look to answer the following question: who would even want to be a superpower.

**GLBL 553 - INTERNATIONAL CRISIS MANAGEMENT IN A MULTI-RISK, INTER-CONNECTED WORLD**

**Short Title:** INTERNATIONAL CRISIS MGMT  
**Department:** Global Affairs  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Approximately 85% of the nation’s critical infrastructure (water, electricity, food/agriculture, energy, finance, IT, communication, medical, transportation, chemical, etc.), and nearly all of the global banking system is owned and operated by private corporations. How do these corporations prepare for a crisis even that impacts national security, national economic issues, or public order/safety/health, and therefore requires an integrated joint partnership with the government or other organization(s) to plan for and manage the crisis incident?

**GLBL 554 - UNDERSTANDING TERRORISM AND COUNTERTERRORISM**

**Short Title:** COUNTERTERRORISM SEMINAR  
**Department:** Global Affairs  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course reviews the history of terrorism and counterterrorism and focuses on the experience of the United States, the United Kingdom, and Israel. The course will include topics such as the evolution of terrorism, intelligence collection and analysis, the use of technology, and policing.

**GLBL 555 - SECURITY, ECONOMY AND DEVELOPMENT IN A CHANGING MIDDLE EAST**

**Short Title:** MIDDLE EAST SECURITY & ECONOMY  
**Department:** Global Affairs  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The Middle East and North Africa plays a key role in international patterns of energy, human rights, migration, development, and security remains in a state of transition a decade after the Arab uprisings of 2011. This course offers a survey of critical political, social, and economic topics in the Middle East and North Africa region with a particular focus on political economy, international and regional security, and international development. Over the semester, students will gain an understanding of the intersecting drivers of change in the region and the ability to put them into historical and comparative context. The course also will equip students with the skills to analyze cross-cutting conceptual developments and to identify nuance and variation in their public policy applicability across the region.

**GLBL 573 - NON-THESIS GRADUATE RESEARCH**

**Short Title:** NON-THESIS GRADUATE RESEARCH  
**Department:** Global Affairs  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 3-9  
**Restrictions:** Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research for graduate students in the Master of Global Affairs.

**GLBL 577 - SPECIAL TOPICS**

**Short Title:** SPECIAL TOPICS  
**Department:** Global Affairs  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: GLBL

Program Description and Code
- Global Affairs: GLBL

Graduate Degree Description and Code
- Master of Global Affairs degree: MGA

Graduate Degree Program Description and Code
- Degree Program in Global Affairs: GLBL

CIP Code and Description
- GLBL Major/Program: CIP Code/Title: 45.0901 - International Relations and Affairs

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Global Affairs (MGA) Degree

Program Learning Outcomes for the MGA Degree

Upon completing the MGA degree, students will be able to:

1. Demonstrate leadership, communication, and research skills to conduct independent studies enabling them to understand and formulate public policy recommendations in the international arena.
2. Apply quantitative skills to data analysis to make policy recommendations.
3. Describe real-life experience in international public policy development by participating in an internship.
4. Assess the social responsibilities of governments, non-governmental organizations, corporations, and individuals in the global twenty-first century.
5. Analyze and develop new and innovative solutions to emerging challenges in the global community.

Requirements for the MGA Degree

The MGA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MGA degree must complete:

- A minimum of 36 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1064) tab.
- The requirements for one area of specialization (see below for areas of specialization). The MGA degree program offers three areas of specialization:
  - International Political Development (p. 1064), or
  - International Political Economy (p. 1064), or
  - International Security (p. 1064).
- The required Graduate Field Internship.
- The required Capstone project.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Please Note: Courses offerings may vary. Some listed courses may not be offered every year, and others may be offered that satisfy the requirements with pre-approval. Students should consult their academic advisors before enrolling and check for any course prerequisites.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the MGA degree</td>
<td>36</td>
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Degree Requirements

<table>
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<tr>
<th>Core Requirements 1</th>
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<tbody>
<tr>
<td>GLBL 501 GLOBAL SYSTEMS I</td>
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<tr>
<td>GLBL 502 INSTITUTIONS &amp; DEVELOPMENT</td>
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<td>GLBL 507 DECISION MAKING UNDER UNCERTAINTY</td>
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<td>GLBL 515 ISSUES IN CONTEMPORARY U.S. FOREIGN POLICY</td>
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<tr>
<td>GLBL 523 QUANTITATIVE APPLICATIONS IN GLOBAL AFFAIRS</td>
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<tr>
<td>GLBL 524 MACROECONOMICS IN A GLOBAL ECONOMY</td>
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<tr>
<td>GLBL 525 INTERNATIONAL SECURITY</td>
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Area of Specialization

Select 1 from the following Areas of Specialization (see Areas of Specialization below):

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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Please note that the specific courses and requirements may vary and should be checked with the university's official catalog or academic advisor.
International Political Development

International Political Economy

International Security

Graduate Field Internship Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>GLBL 519</td>
<td>MASTER OF GLOBAL AFFAIRS INTERNSHIP</td>
<td>6</td>
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Capstone Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>GLBL 520</td>
<td>MASTER OF GLOBAL AFFAIRS CAPSTONE</td>
<td>3</td>
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</tbody>
</table>

Total Credit Hours 36

Footnotes and Additional Information

1 Core Requirements must be completed during the first year of study.
2 The Area of Specialization requirement must be completed during the second year of study.
3 Students are required to complete a minimum eight-week extensive field experience in which they intern at one of a variety of internationally-based or internationally-focused governmental and nongovernmental organizations, international commissions, embassies, agencies, or corporations. The internship will provide students valuable real-world application of their degree with the goal of facilitating their employment in these organizations.
4 In the second year, students must select a topic of concentration and pursue in-depth research which delves into the real-world, policy aspects of the topic.

Areas of Specialization

Students must complete a minimum of 3 courses (9 credit hours) from one area of specialization. Students should choose coursework according to their individual academic interests and career goals. No more than 1 course (3 credit hours) at the undergraduate level (300- or 400-level) can be used toward the area of specialization. The area of specialization requirement must be completed during the second year of study.

Area of Specialization: International Political Economy

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ANTH 540</td>
<td>NEOLIBERALISM AND GLOBALIZATION</td>
<td>9</td>
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<tr>
<td>GLBL 531</td>
<td>WORLD POLITICS AND GLOBAL GOVERNANCE</td>
<td>9</td>
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<tr>
<td>GLBL 532</td>
<td>INTERNATIONAL BUSINESS ENVIRONMENT AND GLOBAL ECONOMIC GOVERNANCE</td>
<td>9</td>
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<tr>
<td>GLBL 533</td>
<td>SUSTAINABILITY AND GLOBAL ISSUES</td>
<td>9</td>
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<tr>
<td>GLBL 542</td>
<td>INTERNATIONAL MACROECONOMIC POLICY FOR MASTER'S STUDENTS</td>
<td>9</td>
</tr>
<tr>
<td>GLBL 543</td>
<td>ENERGY POLICY</td>
<td>9</td>
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<tr>
<td>GLBL 555</td>
<td>SECURITY, ECONOMY AND DEVELOPMENT IN A CHANGING MIDDLE EAST</td>
<td>9</td>
</tr>
<tr>
<td>HIST 603</td>
<td>AMERICA IN THE MIDDLE EAST</td>
<td>9</td>
</tr>
<tr>
<td>POLI 504</td>
<td>INTRODUCTION TO MAXIMUM LIKELIHOOD ESTIMATION</td>
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</tr>
</tbody>
</table>

Total Credit Hours 9

Area of Specialization: International Security

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>ANTH 540</td>
<td>NEOLIBERALISM AND GLOBALIZATION</td>
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<tr>
<td>GLBL 531</td>
<td>WORLD POLITICS AND GLOBAL GOVERNANCE</td>
<td>9</td>
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<td>GLBL 543</td>
<td>ENERGY POLICY</td>
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<td>CYBERPOLITIK: INTERNATIONAL AFFAIRS IN TECHNOLOGY AND INFORMATION</td>
<td>9</td>
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<td>GLBL 552</td>
<td>INTERNATIONAL SECURITY: DE-RISKING NATIONAL THREATS AND BUSINESS THREATS</td>
<td>9</td>
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<td>GLBL 553</td>
<td>INTERNATIONAL CRISIS MANAGEMENT IN A MULTI-RISK, INTER-CONNECTED WORLD</td>
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<td>GLBL 554</td>
<td>UNDERSTANDING TERRORISM AND COUNTERTERRORISM</td>
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<td>SECURITY, ECONOMY AND DEVELOPMENT IN A CHANGING MIDDLE EAST</td>
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<td>POLI 504</td>
<td>INTRODUCTION TO MAXIMUM LIKELIHOOD ESTIMATION</td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Policies for the MGA Degree

Global Affairs Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Global Affairs publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2020_21/Global_Affairs_Graduate_Handbook.pdf
Admission
Applicants to the Master of Global Affairs degree program are required to submit:

- Statement of purpose
- Professional resume
- Three letters of recommendation
- Official transcripts from all colleges and universities attended, with official degree conferral date
- Applicants are recommended, but not required to submit scores from either the Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT).
- Approved TOEFL scores for applicants whose native language is not English and who did not receive a degree from a country in which English is the official language of communication.

Foreign Language Proficiency
Students who expect to complete their degree program with a particular regional focus in mind are expected to be proficient in one of the primary languages of that region. Proficiency is defined as the ability to read and speak the language. This requirement can be met in one of three ways:

- By passing a language proficiency exam administered by the Rice Language Center.
- By achieving a grade of B+ (3.33 grade points) or better in an intermediate language course at Rice. Taking this class does not count toward the 36 credit hours total for degree completion.
- By graduating from a high school or university where a language other than English was the primary language of instruction.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MGA degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Global Affairs website: https://mga.rice.edu/

Opportunities for the MGA Degree
Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master's degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master's degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master's degree program. A plan of study will need to be approved by the student's undergraduate major advisor and the master's degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate: Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students may have the option to pursue the Master of Global Affairs (MGA) degree. For additional information, students should contact their undergraduate major advisor and the MGA program director.

Additional Information
For additional information, please see the Global Affairs website: https://mga.rice.edu/

Global Health Technologies
Contact Information
Global Health Technologies
https://www.rice360.rice.edu/
BioScience Research Collaborative
713-348-4174

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Rice 360º: Institute for Global Health collaborates with multiple departments to offer students a minor in Global Health Technologies (GLHT), a unique, multidisciplinary program to educate and train students to reach beyond traditional disciplinary and geographic boundaries to understand, address, and solve global health disparities. With complementary contributions from the humanities, social science, policy,
bioscience, and engineering programs at Rice, the GLHT minor prepares students to integrate diverse perspectives as they develop solutions to the complex problems of global health, using the formal approach of the engineering design process.

The minor is open to Rice undergraduate students from all disciplines and requires completion of seven courses, including five core courses, and two electives. Students begin the minor by taking GLHT 201 which provides an overview of scientific, economic, and policy issues associated with advanced global health technologies, followed by an introductory design course, GLHT 360. The subsequent core course is selected by the student from a collection of approved courses. The final two courses include GLHT 451 and GLHT 452 which are taken in a two-semester sequence in which multidisciplinary teams of undergraduate students work together to design and implement solutions to existing global health challenges in low-resource settings. Elective courses include a range of subjects. Courses such as Immunology, Health Economics, Medical Chemistry, or Health Policy, provide students experience in engineering and social sciences as applied to international health challenges.

Throughout the program, GLHT students benefit from receiving guidance and mentorship from Rice faculty and graduate students as well as from the Texas Medical Center, partner organizations in low-resource settings, and clinicians to design low-cost, effective health technologies.

**Minor**

- Minor in Global Health Technologies (p. 1069)

Global Health Technologies does not currently offer an academic program at the graduate level.

**Director and Advisor**

Rebecca Richards-Kortum

**Undergraduate Advisors**

Elias K. Bongmba  
Z. Maria Oden

**Minor Advisor**

Ashley R. Taylor

**Steering Committee**

Pedro J.J. Alvarez  
Rachel Tolbert Kimbro  
Douglas A. Schuler  
Tomasz Tkaczyk

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)

To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

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**Global Health Technologies (GLHT)**

**GLHT 201 - INTRODUCTION TO GLOBAL HEALTH**

- **Short Title:** INTRO TO GLOBAL HEALTH  
- **Department:** Global Health Technologies  
- **Grade Mode:** Standard Letter  
- **Course Type:** Lecture  
- **Distribution Group:** Distribution Group III  
- **Credit Hours:** 3  
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
- **Course Level:** Undergraduate Lower-Level

**Description:** This course provides an overview of contemporary challenges and advances to improve human health. The course opens with an introduction to the epidemiology and physiology of the major human health problems throughout the world. With this introduction, we examine medical technologies to prevent infection, detect cancer and treat heart disease. The course is designed for non-engineering / non-science majors.

**GLHT 238 - SPECIAL TOPICS**

- **Short Title:** SPECIAL TOPICS  
- **Department:** Global Health Technologies  
- **Grade Mode:** Standard Letter  
- **Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
- **Credit Hours:** 1-4  
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
- **Course Level:** Undergraduate Lower-Level

**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**GLHT 314 - SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD**

- **Short Title:** SUST WTR PURIF FOR DEV WORLD  
- **Department:** Global Health Technologies  
- **Grade Mode:** Standard Letter  
- **Course Type:** Lecture/Laboratory  
- **Credit Hours:** 3  
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
- **Course Level:** Undergraduate Upper-Level

**Description:** This course is an overview of sustainable strategies for safe water supply in off-the-grid, low-income regions. Topics covered include water quality and treatment, sustainability and WASH (water, sanitation and hygiene). A major element of the course is a project to solve a water-related issue in a real-world context. Cross-list: BIOE 365, CEVE 314. Repeatable for Credit.
GLHT 360 - APPROPRIATE DESIGN FOR GLOBAL HEALTH
Short Title: APPRO DESIGN FOR GLOBAL HEALTH
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 201
Description: Seminar-style introductory design course covering epidemiology, pathophysiology, health systems, health economics, medical ethics, humanitarian emergencies, scientific and engineering design methods, and appropriate health technology case studies. To register, you must be enrolled in the GLHT minor and submit a 250 statement to beyondtraditionalborders@rice.edu by Monday of preregistration. The minor and course prerequisite is waived for students majoring in Bioengineering. Instructor Permission Required. Cross-list: BIOE 360.

GLHT 392 - NEEDS FINDING AND DEVELOPMENT IN BIOENGINEERING
Short Title: NEEDS FINDING & DEV IN BIOE
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will learn and develop the engineering skill of needs finding in the field of bioengineering focused on designing for disabilities. Students will work in groups with patients with disabilities to identify daily needs and develop design criteria to meet those needs including preliminary prototype development. Instructor Permission Required. Cross-list: BIOE 392.

GLHT 400 - GLOBAL HEALTH TECHNOLOGIES INDEPENDENT RESEARCH PROJECTS
Short Title: GLHT INDEPENDENT RESEARCH
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course enables undergraduates pursuing the Global Health Technologies Minor to perform independent research on a specific design challenge in global health technology and innovation. Students are advised by the faculty and often mentored by a graduate student/post-doc. Instructor Permission Required. Repeatable for Credit.
Course URL: www.btb.rice.edu (http://www.btb.rice.edu)

GLHT 401 - GLHT RESEARCH PAPER WRITING AND SUBMISSION
Short Title: GLHT RESEARCH REPORTING
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will work in the preparation of a paper reporting a previously completed design project. Instructor Permission Required. Repeatable for Credit.

GLHT 411 - INTEGRATED APPROACHES TO SUSTAINABLE DEVELOPMENT
Short Title: SUSTAINABLE DEVELOPMENT
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a multidisciplinary course in which students explore the origins, connections and consequence of social and political tensions arising from the expansion of commercial energy resources in unique and rapidly changing Arctic and sub-Artic environments. The challenge for the class will be to understand that in matters of sustainable development systemic complexities often give rise to a disconnect between analysis and decision-making. Topics will include the impacts of commercial energy development and drilling in rapidly changing Arctic environments, as well as strategies that can promote sustainable development and improved conditions for indigenous populations in the context of environmental challenges associated with the Arctic meltdown and drilling activities for oil and gas. Methodologies for structuring the analysis to be applied to enhance systemic resilience of the Alaska environment will be presented. Students will learn explore the barriers to sustainable development and discuss cost-effective, culturally appropriate solutions to energy related issues by integrating technical, organizational, and personal perspectives. Each class will have formal lectures(s) by Rice faculty or guest lecturer. Registered students are eligible to apply for a summer internship in Alaska. Recommended Prerequisite(s): POST 401 Mutually Exclusive: Cannot register for GLHT 411 if student has credit for POST 411. Repeatable for Credit.

2021-2022 General Announcements PDF Generated 09/22/21
GLHT 448 - TECHNOLOGY COMMERCIALIZATION IN DEVELOPING COUNTRIES FOR ENGINEERING
Short Title: TECH COMM IN DEV CTY FOR ENGS
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a unique opportunity for engineering students to 1) collaborate with graduate business students to design and disseminate global health technologies; 2) learn about the sustainable distribution of health products in developing countries; 3) have a once-in-a-lifetime trip to Africa that tourism can never duplicate; and 4) help the poor. Working alongside advanced MBA students, engineering students will apply their skills to developing business plans for student-designed global health technologies that may influence dissemination and business plans. Interested students should email beyondtraditionalborders@rice.edu for an application. Instructor Permission Required.

GLHT 449 - TROUBLESHOOTING WORKSHOP FOR CLINICALLY-RELEVANT BIOMEDICAL EQUIPMENT
Short Title: MED BIOENGINEERING WORKSHOP
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 243
Description: Bioengineering course in the troubleshooting, repair, and maintenance of standard biomedical equipment used in hospitals in the developed and developing worlds. Cross-list: BIOE 449. Repeatable for Credit.

GLHT 451 - GLOBAL HEALTH DESIGN CHALLENGES I
Short Title: GLOBAL HEALTH DESIGN I
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 201 and (BIOE 360 or GLHT 360) and (GLHT 363 or BIOS 363 or PSYC 480 or SOCI 345)
Description: Students in this course will work on design projects to address global health disparities. Students will work in teams and partner with bioengineering students to develop solutions to particular problems in delivering healthcare in the developing world. Students must take GLHT 452 in the spring semester to complete their projects. Instructor Permission Required.
Course URL: www.btb.rice.edu (http://www.btb.rice.edu)

GLHT 452 - GLOBAL HEALTH DESIGN CHALLENGES II
Short Title: GLOBAL HEALTH DESIGN II
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 451
Description: Students in this course will work on design projects to address global health disparities. Students will work in teams and partner with bioengineering students to develop solutions to particular problems in delivering healthcare in the developing world. Students must have taken GLHT 451 in the fall semester to initiate their projects.
Course URL: www.btb.rice.edu (http://www.btb.rice.edu)

GLHT 464 - SOCIAL ENTREPRENEURSHIP
Short Title: SOCIAL ENTREPRENEURSHIP
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary concepts, debates, and contexts necessary for analyzing and engaging in the sphere of social entrepreneurship. The course has four distinct parts: social context; organizational forms and collaborations; private sector roles; and measurement and impacts. Various aspects of social entrepreneurship, such as base of the pyramid/microenterprises, private-public partnerships, private-governmental partnerships, voluntary social codes, corporate social responsibility, and ethical consumerism will be covered. From this foundation, students will undertake a social entrepreneurship project about a contemporary social problem in Houston: food insecurity and food deserts. Cross-list: BUSI 464, SOSC 464.

GLHT 510 - SEMINAR IN TROPICAL MEDICINE
Short Title: SEMINAR IN TROPICAL MEDICINE
Department: Global Health Technologies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 8 week lecture series on topics in global health. The theme for this offering is one health; integrating efforts to obtain optimal health for humans, animals, and the environment. Offered in conjunction with the new National School of Tropical Medicine, the course will feature lectures by various experts on the public health issues most pressing in poor populations in the world today. Course open to all undergraduates and graduate students. Cross-list: BIOE 510. Repeatable for Credit.
GLHT 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: GLHT

Program Description and Code
• Global Health Technologies: GLHT

Undergraduate Minor Description and Code
• Minor in Global Health Technologies: GLHT

CIP Code and Description
GLHT Minor. CIP Code/Title: 51.2210 - International Public Health/International Health

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Global Health Technologies

Program Learning Outcomes for the Minor in Global Health Technologies
Upon completing the minor in Global Health Technologies, students will be able to:

1. Demonstrate the ability to prototype and build appropriate technologies that respond to global health design challenges or problems, and/or develop a community health plan or strategy to address these challenges. They will conduct independent research and design—from developing a research question and completing a literature review, to analyzing and interpreting data—to demonstrate the effectiveness of their proposed solution.

2. Demonstrate a broad understanding of the issue of human health, disease, and health care planning from Natural Science, Humanities, and Social Sciences perspectives.

3. Understand the basic elements of human health and disease from evolutionary, biological, and epidemiological perspectives.

4. Demonstrate critical thinking and analysis skills within the realm of global health and its related disciplines, including the ability to critically and responsibly synthesize materials and methods from a range of disciplines to address global health problems or questions.

5. Demonstrate a knowledge of how health and disease are, in part, social and cultural constructs; students will be able to explain how different populations of individuals within the same geographic locale or in very different geographic locales may understand health and disease differently. They will also demonstrate the ability to assess and explain how different kinds of health planning, delivery systems, institutions, and health products would be more or less effective for different populations.

6. Communicate effectively at the college level by demonstrating the ability to write research papers, literature reviews, and other scholarly papers and by being able to verbally present this information effectively and correctly.

Requirements for the Minor in Global Health Technologies
Students pursuing the minor Global Health Technologies must complete:

• A minimum of 7 courses (minimum of 21 credit hours) to satisfy minor requirements.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>GLHT 201</td>
<td>INTRODUCTION TO GLOBAL HEALTH</td>
<td>3</td>
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<tr>
<td>GLHT 360 / BIOE 360</td>
<td>APPROPRIATE DESIGN FOR GLOBAL HEALTH</td>
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<td>Select 1 course from the following:</td>
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<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
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<tr>
<td>GLHT 314 / BIOE 365 / CEVE 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
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<tr>
<td>GLHT 392 / BIOE 392</td>
<td>NEEDS FINDING AND DEVELOPMENT IN BIOENGINEERING</td>
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<tr>
<td>GLHT 464 / BUSI 464 / SOSC 464</td>
<td>SOCIAL ENTREPRENEURSHIP</td>
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<td>PSYC 370</td>
<td>INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS</td>
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<td>SOCI 345</td>
<td>MEDICAL SOCIOLOGY</td>
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<td>SOCI 381</td>
<td>RESEARCH METHODS</td>
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<tr>
<td>Elective Requirement</td>
<td>Select a minimum of 1 course (minimum of 3 total credit hours) from Natural Science/Engineering Electives (see course list below)</td>
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</tbody>
</table>
Select a minimum of 1 course (minimum of 3 total credit hours) from Humanities/Social Science Electives (see course list below)

Capstone Requirement

<table>
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<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>GLHT 451</td>
<td>GLOBAL HEALTH DESIGN CHALLENGES I</td>
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<tr>
<td>GLHT 452</td>
<td>GLOBAL HEALTH DESIGN CHALLENGES II</td>
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</table>

Total Credit Hours 21

Footnotes and Additional Information

1 All core courses will be offered each year:
   - GLHT 201, PSYC 370, SOCI 381, ANTH 381, GLHT 392 and GLHT 451 in the Fall.
   - GLHT 360 SOCI 345, GLHT 464, GLHT 314 and GLHT 452 in the Spring.

The sequence indicated is the required sequence, as prerequisites do apply.

If not selected as a Core course, some courses are also available as Electives (see below for course lists).

2 Prior to enrollment in the capstone courses GLHT 451 and GLHT 452, students must successfully complete all other GLHT minor core course requirements, although electives may be taken concurrently.

Course Lists to Satisfy Requirements

Elective Requirements

To fulfill the remaining Global Health Technologies minor requirements, students must complete a minimum of 2 additional electives courses (minimum of 6 total credit hours) as listed below.

Natural Science/Engineering Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIOE 449</td>
<td>TROUBLESHOOTING WORKSHOP FOR CLINICALLY-RELEVANT BIOMEDICAL EQUIPMENT</td>
<td>1</td>
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<tr>
<td>GLHT 449</td>
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<tr>
<td>BIOS 318</td>
<td>MICROBIOLOGY LABORATORY</td>
<td>2</td>
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<td>BIOS 372</td>
<td>IMMUNOLOGY</td>
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<td>BIOS 424</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
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<tr>
<td>BIOS 431</td>
<td>BIOLOGY OF INFECTIOUS DISEASES</td>
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<tr>
<td>BIOS 447</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
<td>3</td>
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<tr>
<td>BIOS 450</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
<td>3</td>
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<tr>
<td>BIOS 460</td>
<td>CANCER BIOLOGY</td>
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<td>CEVE 302</td>
<td>SUSTAINABLE DESIGN</td>
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<td>ENGI 302</td>
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<td>ELEC 446</td>
<td>MOBILE DEVICE APPLICATIONS PROJECT</td>
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<td>COMP 446</td>
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<td>GLHT 314</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
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<td>BIOE 365</td>
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<td>CEVE 314</td>
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<td>GLHT 400</td>
<td>GLOBAL HEALTH TECHNOLOGIES INDEPENDENT RESEARCH PROJECTS</td>
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<tr>
<td>GLHT 401</td>
<td>GLHT RESEARCH PAPER WRITING AND SUBMISSION</td>
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<tr>
<td>GLHT 448</td>
<td>TECHNOLOGY COMMERCIALIZATION IN DEVELOPING COUNTRIES FOR ENGINEERING</td>
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<td>GLHT 510</td>
<td>SEMINAR IN TROPICAL MEDICINE</td>
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<td>BIOE 510</td>
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<td>KINE 319</td>
<td>STATISTICS FOR THE HEALTH PROFESSION</td>
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<td>STAT 280</td>
<td>ELEMENTARY APPLIED STATISTICS</td>
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<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
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Humanities/Social Science Electives

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<th>Code</th>
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<tr>
<td>ANTH 343</td>
<td>NEW RELIGIOUS MOVEMENTS IN AFRICA</td>
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<td>ANTH 366</td>
<td>SCIENCE, LOCAL AND GLOBAL</td>
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<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
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<td>ANTH 443</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
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<td>ANTH 446</td>
<td>ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY</td>
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<td>ENGL 272</td>
<td>LITERATURE AND MEDICINE</td>
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<td>PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH</td>
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<td>FOUNDATIONS OF HEALTH PROMOTION AND EDUCATION</td>
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<td>UNDERSTANDING CANCER</td>
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<td>THE BUILT ENVIRONMENT AND PUBLIC HE/</td>
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<td>HEAL 380</td>
<td>DISPARITIES IN HEALTH IN AMERICA</td>
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<td>HEAL 407</td>
<td>EPIDEMIOLOGY</td>
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<td>HEAL 422</td>
<td>THEORIES AND MODELS OF HEALTH BEHAVIOR</td>
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<td>PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION</td>
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<td>HISTORY OF EARLY AFRICA</td>
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<td>HIST 223</td>
<td>HISTORY OF MODERN AFRICA</td>
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<td>PHIL 266</td>
<td>MEDICAL ETHICS</td>
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<td>PHIL 354</td>
<td>THE PHILOSOPHY OF MEDICINE</td>
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<td>PJHC 371</td>
<td>POVERTY, JUSTICE, AND HUMAN CAPABILITIES</td>
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<td>POLI 260</td>
<td>ADVOCATING FOR IDEAS TO CHANGE THE WORLD</td>
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POLI 329 HEALTH POLICY 3
PSYC 345 HEALTH PSYCHOLOGY 3
PSYC 370 INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS 3
PSYC 409 METHODS IN HUMAN-COMPUTER INTERACTION 3
PSYC 480 ADVANCED TOPICS 3
RELI 424 RELIGION AND POLITICS IN AFRICA 3
SOCI 313 DEMOGRAPHY 3
SOCI 345 MEDICAL SOCIOLOGY 3
SOCI 377 HEALTH DISPARITIES IN THE UNITED STATES 3
SOCI 381 RESEARCH METHODS 3
SOCI 406 BASIC DEMOGRAPHIC TECHNIQUES 3
SOCI 453 RACE, MIGRATION, AND HEALTH SEMINAR 3
SOCI 465 / SWGS 465 GENDER AND HEALTH 3

Policies for the Minor in Global Health Technologies

Admission
Courses with the GLHT subject code are open to all Rice students, including those not pursuing the GLHT minor, with the exception of GLHT 360 and the capstone course GLHT 451/452. Preferential admission to GLHT 360 will be given to students who formally declared or state their intention to pursue the GLHT minor. For GLHT 360, the minor and course prerequisite (GLHT 201) is waived for students who have declared a major in Bioengineering (BIOE). For information on the declaration of major process for the GLHT minor, please visit this website (http://www.rice360.rice.edu/minor/#Declaration).

There is no requirement to initiate or declare the GLHT minor in the freshman year. It can be formally declared as late as the junior year (beginning of the fifth semester). It will be possible for students to receive credit for GLHT minor courses that also fulfill a requirement within their major.

Program Restrictions and Exclusions
Students pursuing the minor in Global Health Technologies should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the minor in Global Health Technologies should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Global Health website: https://www.rice360.rice.edu/glht-minor (https://www.rice360.rice.edu/glht-minor/)

Opportunities for the Minor in Global Health Technologies

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Program Internships and Competition
Rice 360° Global Health Summer Internship Program
The Rice 360° Global Health Technologies Summer Internship Program gives Rice University undergraduate students - both science and non-science majors - first-hand exposure to health care in resource constrained settings. In partnership with clinics, schools, and organizations working in resource constrained settings, the internships allow students to advance their solutions to a global health design challenge in a real-world setting.

The summer internships are held in a number of national and international locations, exposing students to health care challenges and solutions in low-resource settings. In the past, our students have visited Malawi, Tanzania, Brazil, and the Rio Grande Valley in Texas among other locations. During the internship, students are responsible for the implementation of a GLHT project and a site specific project, both of which are assigned to them. In addition, participants select a project of their choice and work on identifying and documenting five novel ideas or technology ideas at the site.

Summer internships are fully funded experiences, covering the cost of your travel (airfare, visa, and traveler's insurance), immunizations, housing and a stipend for day to day living expenses (eg. food and local transportation).

For more information visit: https://www.rice360.rice.edu/internships (https://www.rice360.rice.edu/internships/).

Global Health Technologies Design Competition
The Rice 360° Annual Undergraduate Global Health Technologies Design Competition is held each Spring at Rice University. It features over 20 student teams from national and international universities who present their low-cost global health technologies. Entries are judged on the quality of the problem definition, the effectiveness and potential impact of the design solution, and the likelihood that the solution can be successful in improving healthcare delivery in low-resource settings by...
The Department of Religion offers the Certificate in Gnosticism, Esotericism and Mysticism (GEM). The GEM certificate provides graduate students with a theoretical orientation, which they then can apply to their chosen concentrations (i.e., African-American religions; African religions; Bible and Beyond; Buddhism; Christianity; Hinduism; Islam; Judaism; American Religion; New Age and New Religious Movements, New Testament and Early Christianity; etc.).

Traditionally the study of religion has privileged the authoritative voices of the religious experts and the scriptural texts that uphold orthodox faith traditions. GEM is a new approach to the study of religion that does not privilege the public orthodox framings but takes seriously the heterodox and esoteric currents that have been actively repressed, censored, or marginalized in a variety of sociological, psychological, philosophical, and political ways. GEM takes into account the plurality of religious voices and expressions, including the neglected currents, in order to reconceive religion. This approach also engages the psychology and the phenomenology of religious experience, rather than relying exclusively on the authorial framings taught by the faith traditions and transmitted in their scriptural texts, interpretations and rituals.

Gnosticism, Esotericism and Mysticism does not currently offer an academic program at the undergraduate level.

Certificate
- Certificate in Gnosticism, Esotericism and Mysticism, (p. 1103)

Chair, Department of Religion
Elias K. Bongmba

Advisors
April D. DeConick

Jeffrey J. Kripal

Professors
Marcia Brennan
David Cook
April D. DeConick
Anne C. Klein
Jeffrey J. Kripal
William B. Parsons

Associate Professors
Claire Fanger
Brian Ogren

Assistant Professor
Niki Clements

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Religion (RELI)

RELI 101 - INTRODUCTION TO THE STUDY OF RELIGION
Short Title: WHAT IS RELIGION?
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Comparative and interdisciplinary analysis of key elements (including scripture, religious experience, ideas of the divine, religious art and practices) of two Western and two non-Western religions, of the scholarly study of religion, and of the role of religion in the contemporary world.

RELI 104 - INTRODUCTION TO JEWISH MYSTICISM
Short Title: INTRO TO JEWISH MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Surveys the historical development and central themes of Jewish mysticism. From the bible to ancient mysticism to medieval Kabbalah to modern expressions, we will critically reflection the ideas such as divine presence in the world, the cultivation of insight and magical powers, contemplative and restorative practices, and charismatic authority. Cross-list: MDEM 103.
REL 105 - INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT
Short Title: MEDIEVAL CHRISTIAN THOUGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of major medieval Christian thinkers. Primary focus on high and late middle ages (12th-15th century), with some attention to spiritual and apocalyptic writings and dissenting thought in this period. Cross-list: MDEM 105.

REL 108 - INTRODUCTION TO JUDAISM
Short Title: INTRODUCTION TO JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of post-biblical Judaism as reflected in the literature of the classical rabbinic tradition, mysticism, medieval biblical commentary, legal codes and philosophy, and modern movements such as Hasidism, denominational Judaism, Zionism, and feminist Judaism. Jewish material culture such as synagogue architecture, illuminated manuscripts and ritual artifacts will be included. Students will not receive credit for both RELI 108 and RELI 209. Mutually Exclusive: Cannot register for RELI 108 if student has credit for RELI 209.

REL 109 - RELIGION AND LAW
Short Title: RELIGION AND LAW
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Law and religion: origins, differentiation, relation to legitimacy and stability of basic institutions. Law school, professional life, quest for a fitting career in the search for meaning and authentic selfhood. Required: willingness to share the personal roots of your interest in law and your take on the Big Picture.

REL 111 - INTRODUCTION TO AFRICAN RELIGIONS
Short Title: INTRO AFRICAN RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the structures of African religions through readings. Topics include community, cosmology, ritual, ethical values, magic, witchcraft, spirit possession, contribution to nationalism, social change, religion and art, and transplantation of African Religions in the Americas.

REL 112 - COMPARING CHRISTIANITIES
Short Title: COMPARING CHRISTIANITIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course maps the pluralistic nature of early Christianity from its grassroots beginnings in a commune in Jerusalem to Rome and the conversion of Emperor Constantine. Different Christian movements include the Apostolic Christians, Ebionites, Marcionites, Thomasians, Montanists, Monarchians, Modalists, Arians, and a variety of Gnostic Christians will be studied comparatively as well as historically.

REL 113 - INTRODUCTION TO CHRISTIANITY IN AFRICA
Short Title: INTRO TO CHRISTIANITY AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introductory reading course examining the dynamics of African Christianity from the early church to the present. Course will include studying the African church during the Patristic era, the Colonial period, Prophetic Movements, nationalism, racial tensions, the role of women, and the emergence of a distinct theological voice.
RELI 116 - MYSTICISM THROUGHOUT THE AGES
Short Title: MYSTICISM THROUGHOUT THE AGES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.

RELI 122 - THE BIBLE AND ITS INTERPRETERS
Short Title: THE BIBLE AND ITS INTERPRETERS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level

RELI 123 - INTRODUCTION TO WORLD CHRISTIANITY
Short Title: INTRO TO WORLD CHRISTIANITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to introduce students to world Christianity from historical and thematic perspectives. Readings and lectures for the course will draw from interdisciplinary research and scholarship to situate world Christianity as a dynamic spiritual, intellectual, cultural, and communal tradition. This course will introduce students to Christianity in the Americas, Europe, Asia, Africa, and the Pacific using historical analysis to probe the history of the Christian movement, its global distribution, its sacred texts and practices, social engagement, and roles it has a place in a changing world. Interdisciplinary texts will be used to probe selected topics including but not limited to proselytization, leadership, the dynamic competitive relations between mainstream churches, emerging Christian communities, and the social and political dimensions of world Christianity.

RELI 124 - RELIGION AND THE ART OF HAPPINESS
Short Title: RELIGION & ART OF HAPPINESS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students at Rice University consistently self-report as "happiest" by rankings like the Princeton Review. Course analyzes what we mean when we talk about "happiness" in the study of religion, assessing the role of community, habits, meaning, and positive thinking in religious and psychological texts, as well as lived experience.

RELI 125 - INTRODUCTION TO BIBLICAL HEBREW I
Short Title: INTRO TO BIBLICAL HEBREW I
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Cross-list: HEBR 125. Graduate/Undergraduate Equivalency: RELI 507. Mutually Exclusive: Cannot register for RELI 125 if student has credit for RELI 507.

RELI 126 - INTRODUCTION TO BIBLICAL HEBREW II
Short Title: INTRO TO BIBLICAL HEBREW II
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of RELI 125. We will finish the grammar in the second half of this semester and then read selections from the Hebrew Bible. Cross-list: HEBR 126. Graduate/Undergraduate Equivalency: RELI 511. Mutually Exclusive: Cannot register for RELI 126 if student has credit for RELI 511.

RELI 127 - INTERMEDIATE BIBLICAL HEBREW III
Short Title: INTERM BIBLICAL HEBREW III
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RELI 125 and RELI 126
Description: Readings in the Hebrew Bible as well as in some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 512. Mutually Exclusive: Cannot register for RELI 127 if student has credit for RELI 512.
RELI 157 - RELIGION AND HIP HOP CULTURE IN AMERICA
Short Title: RELIGION AND HIP HOP
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Hip Hop culture has changed how life is discussed and conducted. However, one of the under-explored dimensions of Hip Hop culture involves its religious sensibilities. Using lectures, discussions, films, and video presentations, this course explores Hip Hop culture’s religious dimensions through its musical language-rap music. Mutually Exclusive: Cannot register for RELI 157 if student has credit for RELI 311.

RELI 158 - LIBERATION THEOLOGIES
Short Title: LIBERATION THEOLOGIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course seeks to acquaint students with examples of liberation theology, as they relate to the following issues: racism, sexism, classism, and environmental destruction. Attention is given to the context, construction, form, and aims of Latin American liberation theology, Black theology, Feminist theology, and Theology in the Intersections. Mutually Exclusive: Cannot register for RELI 158 if student has credit for RELI 548.

RELI 191 - STAR WARS AND RELIGION
Short Title: STAR WARS AND RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Star Wars films contain one of the richest fictional universes of our time. In this course, we use the theories and methods of Religious Studies (e.g., comparison, psychology, the paranormal, religion and technology) to analyze the Star Wars universe as a modern mythology. Student can expect to gain a working knowledge of tools utilized in the humanities as well as a novel understanding of Star Wars films and fandom.

RELI 203 - JUDAISM OF JESUS AND HILLEL
Short Title: JUDAISM OF JESUS AND HILLEL
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history and literature of Judaism during the Second Temple period, which produced such religious leaders as Jesus and Hillel. Topics include: Jewish sectarianism, scribes and the growth of Scripture, temple worship and the first synagogues, diaspora religion, Jesus and the birth of Christianity, and the origin of Rabbinic Judaism. Counts for the Minor in Jewish Studies. Cross-list: HIST 201.

RELI 213 - THE PROPHET JEREMIAH: THE BIBLICAL BOOK AND ITS RECEPTION IN JUDAISM AND CHRISTIANITY
Short Title: THE PROPHET JEREMIAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A seminar on the book of Jeremiah and its reception. Topics to be explored: ancient Near Eastern prophecy and Israel's cultures of revelation; the composition, production, and transmission of a biblical book; the life of the prophet; the transformation of Jeremiah's message in later, post-biblical texts attributed to him.

RELI 215 - MYSTIC CINEMA: KABBALAH IN FILM
Short Title: MYSTIC CINEMA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores uses by the film industry of ideas drawn from Jewish mysticism. We will examine themes such as monsters, spirits, numerology and the paranormal, as portrayed in classic film and through to contemporary Hollywood. Emphasis will be placed on the medieval textual and folkloric traditions behind such portrayals. Cross-list: FILM 215. Mutually Exclusive: Cannot register for RELI 215 if student has credit for FILM 114/FSEM 141/RELI 114.
RELI 216 - RELIGION AND BLACK LIVES MATTER
Short Title: RELIGION & BLACK LIVES MATTER
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores the intersections of religion, politics, and social justice during the period of history marked by the emergence and activities of the Black Lives Matter Movement.

RELI 217 - SHI'ISM: ASSASSINS AND AYATULLAH
Short Title: SHI'ISM: ASSASSINS & AYATULLAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Ranging from the violent disputes at the beginnings of Islam to the mysterious and misunderstood Assassins, Shi'ism is more than about Iran and Iraq. Ayatullahs rule, Alawis in Syria fight ISIS, Isalamis in London are at the cutting edge of Muslim modernity—Shi'ism is much more than you would expect.

RELI 219 - THE SUPERNATURAL AND RELIGION
Short Title: THE SUPERNATURAL AND RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will treat the history of the supernatural from the biblical materials on the miraculous "sign" through the birth of the "supernatural" in medieval Christianity and the canonization of saints, to the mediating categories of the "preternatural" and the modern "paranormal." Comparative categories and materials in other cultural and religious complexes will also be treated. Mutually Exclusive: Cannot register for RELI 219 if student has credit for RELI 519.

RELI 221 - THE LIFE OF THE PROPHET MUHAMMAD
Short Title: LIFE OF PROPHET MUHAMMAD
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur'an, Ibn Hisham, and Haykal. Cross-list: ASIA 221.

RELI 223 - QUR'AN AND COMMENTARY
Short Title: QUR'AN AND COMMENTARY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the major themes of the Qur'an and selected types of commentary on it from the early Islamic period until the present day.

RELI 230 - ASIAN RELIGIONS IN AMERICA
Short Title: ASIAN RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey course on Hinduism, Buddhism, Taoism, and Jainism in America, from the colonial period to the present, with a special focus on American metaphysical religion, the counterculture, the New Age, and the history of Western colonialism, transcultural encounter, translation and immigration. Cross-list: ASIA 230.

RELI 231 - AMERICAN METAPHYSICAL RELIGION
Short Title: AMERICAN METAPHYSICAL RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Beginning with a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, California, as a unique window into some of the different ways the tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Cross-list: ASIA 231. Graduate/Undergraduate Equivalency: RELI 505. Mutually Exclusive: Cannot register for RELI 231 if student has credit for RELI 505.

RELI 232 - RELIGIONS FROM INDIA
Short Title: RELIGIONS FROM INDIA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Cross-list: ASIA 232. Graduate/Undergraduate Equivalency: RELI 500. Mutually Exclusive: Cannot register for RELI 232 if student has credit for RELI 500.
RELI 233 - INTRODUCTION TO TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INTRO TO TIBETAN LANG & LIT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. Cross-list: TIBT 234. Graduate/Undergraduate Equivalency: RELI 564. Mutually Exclusive: Cannot register for RELI 233 if student has credit for RELI 564. Repeatable for Credit.

RELI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

RELI 243 - THE BOOK OF GENESIS
Short Title: THE BOOK OF GENESIS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A critical reading in English of the Book of Genesis with close attention to the narrative artistry and theological dimensions of the text. Compares pre-modern modes of interpretation and modern historical criticism.

RELI 270 - INTRODUCTION TO THE BLACK CHURCH IN THE UNITED STATES
Short Title: INTRO BLACK CHURCH IN THE US
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Much of what has historically taken place within Black communities has been shaped by Black Christian churches. These churches are resources for those interested in understanding religious expression and activism within the Black community. This course provides an introduction into the history, thought, and worship of the major Black denominations.

RELI 271 - MEDIEVAL POPULAR CHRISTIANITY
Short Title: MEDIEVAL POPULAR CHRISTIANITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For much of the Middle Ages, literacy was a luxury that ordinary people could not afford. How could peasants participate in Christian traditions? Course surveys devotional practices engaged by the laity, including penance, pilgrimage, plays, charms and spells, as well as traditions of lay interaction with dead saints and ghosts. Cross-list: MDEM 271.

RELI 282 - INTRODUCTION TO CHRISTIANITY
Short Title: INTRO TO CHRISTIANITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Multidisciplinary exploration of Christian religious experience, belief, and social reality with examples from Africa, the Americas, Asia, and Europe during the last two thousand years. Themes include search for lasting marks of identity amid change and diversity as well as the issue of Christianity’s relation to processes of modernization and secularization. No prior background in religious studies required.
Gnosticism, Esotericism and Mysticism

RELI 294 - RELIGION IN FICTION AND FILM
Short Title: RELIGION IN FICTION AND FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunuel, and Nutley. Graduate/Undergraduate Equivalency: RELI 514. Mutually Exclusive: Cannot register for RELI 294 if student has credit for RELI 514.

RELI 300 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate/Undergraduate Equivalency: RELI 504. Mutually Exclusive: Cannot register for RELI 300 if student has credit for RELI 504.

RELI 301 - NIETZSCHE AND RELIGIOUS THOUGHT
Short Title: NIETZSCHE & RELIGIOUS THOUGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Nietzsche's thought and background: his impact on religious thinkers and cultural critics; his influence on understanding of God, faith, values, society, his connection with Schopenhauer, Wagner, Tillich, Mann, Barth, Buber, Freud, Jung, D.H. Lawrence, Heidegger, antibourgeois cultural criticism, environmentalism, feminism, and postmodernism. Graduate/Undergraduate Equivalency: RELI 515. Mutually Exclusive: Cannot register for RELI 301 if student has credit for RELI 515.

RELI 302 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE
Short Title: PEOPLE OF THE BOOK
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines Judaism as a "People of the Book" recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 526. Mutually Exclusive: Cannot register for RELI 302 if student has credit for RELI 526.

RELI 304 - JESUS AND THE GOSPELS
Short Title: JESUS AND THE GOSPELS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the various portraits of Jesus in the New Testament and extra-canonical gospels (including the gospels of Thomas Philip, Mary and Judas) in order to reconstruct each gospel's Christological interpretation of Jesus as well as the "historical" Jesus himself.

RELI 307 - BASIC COPTIC 1
Short Title: BASIC COPTIC 1
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A first semester introduction to Coptic grammar and vocabulary. Graduate/Undergraduate Equivalency: RELI 591. Mutually Exclusive: Cannot register for RELI 307 if student has credit for RELI 591. Repeatable for Credit.

RELI 308 - BASIC COPTIC 2
Short Title: BASIC COPTIC 2
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 307
Description: Second semester introduction to Coptic grammar and vocabulary, with selected readings from the Coptic New Testament, Nag Hammadi, and monastic literature. Prerequisite: Introduction to Coptic Language I. Graduate/Undergraduate Equivalency: RELI 592. Mutually Exclusive: Cannot register for RELI 308 if student has credit for RELI 592.
RELI 309 - BASIC COPTIC 3
Short Title: BASIC COPTIC 3
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Varied readings in original language to include the New Testament, Nag Hammadi, and monastic literature. Prerequisite: Coptic 1 and 2. Graduate/Undergraduate Equivalency: RELI 593. Mutually Exclusive: Cannot register for RELI 309 if student has credit for RELI 593. Repeatable for Credit.

RELI 311 - RELIGION AND HIP HOP CULTURE IN AMERICA
Short Title: RELIGION AND HIP HOP
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Hip Hop culture has changed how life is discussed and conducted. However, one of the under-explored dimensions of Hip Hop culture involves its religious sensibilities. Using lectures, discussions, films, and video presentations, this course explores Hip Hop culture's religious dimensions through its musical language-rap music. RELI 311 requires additional work above the RELI 157 counterpart, including a term paper, etc. Mutually Exclusive: Cannot register for RELI 311 if student has credit for RELI 157.

RELI 312 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Although many figures played a prominent role during the Civil Rights Movement, Martin L. King, Jr. and Malcolm X made unique contributions. Their work sparked important conversation concerning the methods, goals, and consequences of struggle toward liberation. This course examines their religiosity, theological sensibilities, and the major themes which surface in their writings and public work. Graduate/Undergraduate Equivalency: RELI 546. Mutually Exclusive: Cannot register for RELI 312 if student has credit for RELI 546.

RELI 315 - GENDER AND ISLAM
Short Title: GENDER AND ISLAM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the lives of Muslim women in Asia, the Middle East, Europe, and North America; analyze constructions of gender in the Islamic world over time, the challenges faced from such diverse quarters as colonial administrators, Western feminists, and states, as well as movements and individuals within the Muslim world. Cross-list: ASIA 315, SWGS 315.

RELI 318 - THE BIBLE: A BRIEF INTELLECTUAL HISTORY
Short Title: BIOGRAPHY OF THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate/Undergraduate Equivalency: RELI 518. Mutually Exclusive: Cannot register for RELI 318 if student has credit for RELI 518.

RELI 322 - INTRODUCTION TO BUDDHISM
Short Title: INTRODUCTION TO BUDDHISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Cross-list: ASIA 322. Graduate/Undergraduate Equivalency: RELI 572. Mutually Exclusive: Cannot register for RELI 322 if student has credit for RELI 572.
RELI 328 - RELIGION AND GLOBAL POVERTY
Short Title: RELIGION & GLOBAL POVERTY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of religion and poverty in global context. Course materials will address religious, ethical, anthropological theories of development, analyze specific themes economic and social development, examine the role of Faith Based Organizations and do specific case studies. Students will be graded on short reflections papers and a final term paper. Graduate/Undergraduate Equivalency: RELI 528. Mutually Exclusive: Cannot register for RELI 328 if student has credit for RELI 528.

RELI 329 - THE BIBLE AS LIVED EXPERIENCE
Short Title: THE BIBLE AS LIVED EXPERIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Even in today's seemingly secular landscape, the Bible is a strong artistic, social, and political influence. We will explore ways in which the Bible is brought to life in contemporary culture by analyzing biblical references in music, film, art, and contemporary religious practice. We will show how American culture shapes understandings of the Bible and vice versa. Mutually Exclusive: Cannot register for RELI 329 if student has credit for RELI 529.

RELI 332 - ADVANCED TIBETAN LANGUAGE & CULTURE
Short Title: ADV TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 132 or TIBT 132
Description: This class builds on RELI 232 and 234, now including more challenging material in Tibetan, and continuing the trajectory of gaining familiarity with Buddhist philosophical systems as these touch on epistemology, ontology, and contemplative practice. Cross-list: TIBT 332. Graduate/Undergraduate Equivalency: RELI 532. Mutually Exclusive: Cannot register for RELI 332 if student has credit for RELI 532. Repeatable for Credit.

RELI 333 - KNOWING BODY/GLOWING MIND: BUDDHIST ARTS OF CONTEMPLATION AND ANALYSIS
Short Title: KNOWING BODY/GLOWING MIND
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhism is a performing art engaging both mind and body. Our course investigates Buddhist and other literature, epistemology and rituals with an eye to how they speak to contemplative practice. Contemplative practice itself, in class and out, supplements our exploration of the interplay between traditional Asian and contemporary Western perspectives. Graduate/Undergraduate Equivalency: RELI 573. Recommended prerequisite(s): One course in Buddhism. Mutually Exclusive: Cannot register for RELI 333 if student has credit for RELI 573. Repeatable for Credit.

RELI 334 - PSYCHOLOGY OF RELIGION
Short Title: PSYCHOLOGY OF RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of the basic approaches in the psychological understanding of religious belief and practice. Topics to be addressed in religious systems East and West include: sex, religious experience, ritual, myth, saintliness, guilt, God and meditation.

RELI 335 - MEDICINE AND THE MUSEUM: CLINICAL AESTHETICS AND THE MUSEUM OF FINE ARTS, HOUSTON
Short Title: MEDICINE AND THE MUSEUM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through weekly visits to the Museum of Fine Arts, Houston, this class develops key skills and engages relevant themes relating to medicine and caregiving, including observation and description, embodiment and motion, eros and suffering, vulnerable populations, grief and loss, human mortality and spiritual transcendence.
RELI 336 - RELIGION & THE SOCIAL SCIENCES
Short Title: RELIGION & THE SOCIAL SCIENCES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to introduce the student to classic and contemporary texts in the social scientific study of religion. Topics include: mysticism, the social construction of gender, the guru-disciple relationship, secularization, healing traditions East and West, cross-cultural debates. Mutually Exclusive: Cannot register for RELI 336 if student has credit for RELI 260/RELI 609.

RELI 337 - SHAMANS, SAINTS, & SAGES
Short Title: SHAMANS, SAINTS, & SAGES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Familiarize the student with diverse texts (secular and religious, East and West) found in mystical literature. Emphasis will be placed on psychological and comparative methods. Mutually Exclusive: Cannot register for RELI 337 if student has credit for RELI 262.

RELI 338 - THE CHURCH OF AFRICA
Short Title: THE CHURCH OF AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A reading course designed to examine Christianity in Africa. Course materials and readings will address the development of the church from the Patristic era to the present, paying attention to theological developments, missionization, colonialism, nationalism, prophetic movements, race relations, the role of women, and social issues. Graduate/Undergraduate Equivalency: RELI 540. Mutually Exclusive: Cannot register for RELI 338 if student has credit for RELI 540.

RELI 339 - APOCALYPSE THEN AND NOW
Short Title: APOCALYPSE THEN AND NOW
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A close reading of some early Jewish and Christian apocalypses, a discussion of the apocalyptic worldview, and an examination of America's fascination with the Apocalypse in media and science. Graduate/Undergraduate Equivalency: RELI 510. Mutually Exclusive: Cannot register for RELI 339 if student has credit for RELI 510.

RELI 340 - THEOLOGY IN AFRICA
Short Title: THEOLOGY IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introductory readings on theological thinking in Africa. Course will address methodological issues as well as constructive theological work on enculturation, social and economic justice, gender, health, and liberation. Read 5 major texts, write a major review, lead class discussions, discuss texts used, and write 20 page research paper. Graduate/Undergraduate Equivalency: RELI 539. Mutually Exclusive: Cannot register for RELI 340 if student has credit for RELI 539.

RELI 341 - AMERICAN JUDAISM: RELIGION AND THOUGHT
Short Title: AMERICAN JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Graduate/Undergraduate Equivalency: RELI 542. Mutually Exclusive: Cannot register for RELI 341 if student has credit for RELI 542.
RELI 342 - NEW RELIGIOUS MOVEMENTS IN AFRICA
Short Title: NEW RELIG MOVEMENTS IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discusses new religious movements and the religious, sociological, and political factors leading to their rise, also missionary and colonial reactions to them. Examines their relationship to indigenous religions, political praxis, and their focus on this-worldly salvation in the wake of political and economic marginality. Cross-list: ANTH 343.

RELI 343 - SEMINAR ON LOVE
Short Title: SEMINAR ON LOVE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the themes of love, sex, and spirit from the classical era through the postmodern age. We will examine literary, philosophical, and artistic expressions in painting, sculpture, cinema, novels, poetry, psychoanalysis, religion, and culture. Cross-list: HART 347.

RELI 344 - SEMINAR ON THE END OF LIFE
Short Title: END OF LIFE SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines themes associated with death and dying from the historical through the contemporary periods. The class will adopt highly multidisciplinary approach that combines the critical perspectives of biomedicine, religious studies, art history, philosophy, anthropology, bioethics, and cultural studies as we consider life at the end of life.

RELI 348 - CHRISTIANITY AND ISLAM IN AFRICA
Short Title: CHRISTIANITY & ISLAM IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus upon the history and conflict of Christianity and Islam in Africa, with emphasis placed upon indigenous African developments, cultural and artistic themes, and conversion narratives as well as exploring the co-existence and conflict of the two major faiths of the continent. Mutually Exclusive: Cannot register for RELI 348 if student has credit for RELI 536.

RELI 350 - DEMONS, MENTAL ILLNESS AND MEDICINE
Short Title: DEMONS/MENTAL ILLNESS/MEDICINE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Treats complex connections between religious beliefs/practices and formulation of human psychology in western tradition, through a historical reckoning with demonology. Consider the way demons are represented – from semi-corporeal beings to marks of mental illness – by looking at texts from the ancient world to modern psychiatry. Cross-list: MDEM 350. Mutually Exclusive: Cannot register for RELI 350 if student has credit for RELI 605.

RELI 356 - MAJOR ISSUES IN CONTEMPORARY ISLAM
Short Title: MAJ ISSUES CONTEMPORARY ISLAM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on the major issues confronting contemporary Islam including Islamic unity, the place of the Qur’an and traditions, human rights, Islamic feminism, da’wa, education, science and Islam, globalization and medical ethics.
RELI 357 - WHAT’S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines two questions: How is religion defined within the study of black religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Graduate/Undergraduate Equivalency: RELI 547. Mutually Exclusive: Cannot register for RELI 357 if student has credit for RELI 547.

RELI 359 - RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION
Short Title: RELIGIOUS TOLERANCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores context and consequences of the concept of religious tolerance in the crucible of globalization politics. Background in settlement of Reformation-era religious wars; American attitudes; impetus for tolerance policies and their implementation, 1945 to present (including governmentality and surveillance); results for historically Christian populations, esp. in US and Europe. Graduate/Undergraduate Equivalency: RELI 580. Mutually Exclusive: Cannot register for RELI 359 if student has credit for RELI 580.

RELI 361 - THE HUMANITIES OF CARE & END OF LIFE
Short Title: THE HUMANITIES OF CARE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Pairing the perspectives of medicine, bioethics, and the medical humanities with thematic case studies in art, literature, cinema, and visual culture, the class examines the humanities of care and the end of life.

RELI 362 - RELIGION AND SCIENCE
Short Title: RELIGION AND SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar analyzes interdisciplinary efforts by scholars of religion to engage scientific research in the cognitive and neuro-sciences. We assess the possibilities for collaboration, as well as conflict, between humanistic and scientific disciplines, asking how the tools of interpretation and empiricism might enrich our understanding of religious phenomena. Graduate/Undergraduate Equivalency: RELI 563. Mutually Exclusive: Cannot register for RELI 362 if student has credit for RELI 563.

RELI 363 - JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT
Short Title: JEWISH PHILOSOPHY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the main figures and themes in Jewish philosophy. Topics to be discussed include reason vs faith and prophetic revelation; Israel’s chosenness vs human universalism; creation vs eternity; divine providence and necessity vs free will; evil, justice, and divine omnipotence; prayer, contemplation, and divine and human perfection. Graduate/Undergraduate Equivalency: RELI 567. Mutually Exclusive: Cannot register for RELI 363 if student has credit for RELI 567.

RELI 365 - PAUL AND THE NEW TESTAMENT
Short Title: PAUL & THE NEW TESTAMENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the growth of Christianity from its origins as a Jewish group to a religion in the mid-second century that distinguished itself from Judaism. Includes discussion of Acts, Paul’s letters, Johannine corpus, Gospel of Thomas, Pastorals, Catholic letters, Hebrews, and Revelation.
RELI 367 - REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART
Short Title: REPRESENTING THE DEVIL
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on representations of the Devil, demons, and ambiguous spirits in Christian sources from the early medieval to early modern period. Students examine theological as well as ritual sources (blessings and exorcisms), and popular, narrative, dramatic, and artistic representations of evil. Graduate/Undergraduate Equivalency: RELI 557. Mutually Exclusive: Cannot register for RELI 367 if student has credit for RELI 557.

RELI 368 - RISE OF THE NONES: HUMANISMS AND HUMANITIES
Short Title: RISE OF THE NONES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will look at the rise of the “nones,” that is, individuals who affiliate with no religious tradition, through both a history of secular thought in the West and a close reading of key texts and figures. Atheism, humanism, secularism and the “spiritual but not religious” will all be treated as key categories. Graduate/Undergraduate Equivalency: RELI 568. Mutually Exclusive: Cannot register for RELI 368 if student has credit for RELI 568. Repeatable for Credit.

RELI 369 - READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT
Short Title: READING RICHARD WRIGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Richard Wright’s fiction and nonfiction are important resources for understanding the nature of radicalized life in the United States. This course explores his writings for what they tell us about the role of religion in the development of identity and life meaning, and we will juxtapose the role of religion with Wright’s commentary on the nature and significance of atheism for countering injustice. Graduate/Undergraduate Equivalency: RELI 606. Mutually Exclusive: Cannot register for RELI 369 if student has credit for RELI 606.

RELI 371 - CHRISTIANITY IN THE GLOBAL SOUTH
Short Title: CHRISTIANITY IN GLOBAL SOUTH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings on Christianity in the Global South analyzing historical developments, mission and colonial encounters, growth and expansion; diversity of expression, the development of local initiated Churches, Pentecostalism, and public role of the Church. Graduate/Undergraduate Equivalency: RELI 561. Mutually Exclusive: Cannot register for RELI 371 if student has credit for RELI 561.

RELI 375 - EPIPHANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE
Short Title: EPIPHANIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Epiphanies are events or objects that can note a striking appearance or manifestation, just as an epiphanic experience contains a significant moment of revelation. This course examines expressions of epiphanies in modernist art, literature, film, sacred experience, and in the mundane details of life itself. Cross-list: HART 328.

RELI 378 - MIND AND ART, FILM AND LITERATURE IN BUDDHISM
Short Title: BUDDHIST ART AND LITERATURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the historical origins of Messianism. The Hebrew Bible, the Dead Sea Scrolls, and other ancient texts reflect a surprising diversity of Messianic expectations in early Judaism. These form the background of early Christian depictions of Jesus of Nazareth.
RELI 382 - LOST JUDAISMS: THE APOCRYPHAL WRITINGS
Short Title: LOST JUDAISMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After the Hebrew Bible/Old Testament canon was closed, Jews and Christians continued to compose texts and attributed them to the biblical figures of the past. Seminar offers a close reading of some of these apocryphal/pseudepigraphic little known texts. Graduate/Undergraduate Equivalency: RELI 509. Mutually Exclusive: Cannot register for RELI 382 if student has credit for RELI 509.

RELI 383 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the Dead Sea Scrolls as a window into the Second Temple period. A close reading of the scrolls will lead to a discussion of the theological and historical issues of the time, a period pivotal for the formation of Rabbinic Judaism and Early Christianity. Graduate/Undergraduate Equivalency: RELI 553. Mutually Exclusive: Cannot register for RELI 383 if student has credit for RELI 553.

RELI 384 - PILGRIMAGE AND CRUSADE
Short Title: PILGRIMAGE AND CRUSADE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focus on the pilgrimage to Jerusalem and Mecca by Jews, Christians, and Muslims within the context of the crusade period. Also covers the historical religious events of the crusades (approximately 1000-1300) from both a Muslim and a Christian perspective. Mutually Exclusive: Cannot register for RELI 384 if student has credit for RELI 608.

RELI 385 - GOD, TIME AND HISTORY
Short Title: GOD, TIME AND HISTORY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How is the passage of time given meaning, and what role—if any—is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world—the cultures in which modern ideas of history began. Cross-list: HIST 381. Mutually Exclusive: Cannot register for RELI 385 if student has credit for RELI 585.

RELI 387 - WESTERN ESOTERICISM: METHOD AND THEORY
Short Title: WESTERN ESOTERICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the relation between esoteric texts and the idea of "Western Esotericism." We will look at primary writings from Agrippa to Madame Blavatsky and consider the historical and methodological approaches emerging as Esotericism is constructed as an academic area. Graduate/Undergraduate Equivalency: RELI 587. Mutually Exclusive: Cannot register for RELI 387 if student has credit for RELI 587.

RELI 388 - THE PSALMS
Short Title: THE PSALMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar on biblical poetry. The Psalms have constituted a book of study, devotion, and prayer for Jews and Christians for two millennia. This course explores the psalms' poetic force, liturgical setting in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 612. Mutually Exclusive: Cannot register for RELI 388 if student has credit for RELI 612.
REL 390 - SEARCH FOR GOD IN THE POSTMODERN WORLD
Short Title: SEARCH FOR GOD
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore forms of theistic religious experience, concentrating on the Western Christian tradition; past and present cultural and philosophical challenges to traditional religious belief; the possibility of Christian faith and the struggle for justice and meaning. Mutually Exclusive: Cannot register for RELI 390 if student has credit for RELI 280.

REL 391 - THE REFORMATION & ITS RESULTS
Short Title: THE REFORMATION & ITS RESULTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theology and church-state issues from 16th-century Reformation to 17th-century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Cross-list: MDEM 391. Mutually Exclusive: Cannot register for RELI 391 if student has credit for RELI 286.

REL 392 - JERUSALEM: HOLY CITY IN TIME AND IMAGINATION
Short Title: JERUSALEM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course on Jerusalem's past and present, its religious meanings in Judaism, Christianity, and Islam, and its role in the modern conflict in the Middle East. Instructor Permission Required.

REL 393 - MUTANTS AND MYSTICS: RACE, SEXUALITY, AND THE FUTURE OF THE HUMANITIES
Short Title: MUTANTS AND MYSTICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a course about the deep historical and conceptual connections between the histories of science fiction, the paranormal, and social transformation around race, gender, sexuality, and the human. We will see that such events tend to erupt in the "gaps" or "fractures" of society and within both personal and historical traumatic contexts in order to both deconstruct the reigning social formations, epistemologies, and ontologies—usually of an objectivizing, colonizing, and scientific nature—but also supply the numinous foundations for the imagining of new humanities, or what queer theorist Ramzi Fawaz calls our emerging "mutanity.” Graduate/Undergraduate Equivalency: RELI 589. Mutually Exclusive: Cannot register for RELI 393 if student has credit for RELI 589.

REL 395 - LOSING YOUR RELIGION IN FILM & FICTION & MUSIC
Short Title: LOSING YOUR RELIGION IN FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Doubt, sex, despair, obsession, ecstasy in directors, writers, musicians wanting spiritual reboot, 1890-2015: such as Allen Ginsberg, Oscar Wilde, D.H. Lawrence, T.S. Eliot, H.P. Lovecraft, John Updike, and Ingmar Bergman. Graduate/Undergraduate Equivalency: RELI 503. Mutually Exclusive: Cannot register for RELI 395 if student has credit for RELI 503.

REL 396 - PENTECOSTALISM
Short Title: PENTECOSTALISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Pentecostalism in a global context focusing historical developments, expansion in Europe, North America, Africa, Latin America and Asia. Graduate/Undergraduate Equivalency: RELI 595. Mutually Exclusive: Cannot register for RELI 396 if student has credit for RELI 595.
RELI 399 - CONTEMPLATIVE PRACTICE
Short Title: CONTEMPLATIVE PRACTICE
Department: Religion
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Literary and artistic creativity, religious experience, and textual interpretation often draw on focused states of consciousness made possible by contemplative practices. The practice will provide historical information about such practices and offer opportunities to participate in techniques ranging from meditation and observing breath to freeform writing and T'ai Chi. Graduate/Undergraduate Equivalency: RELI 597. Mutually Exclusive: Cannot register for RELI 399 if student has credit for RELI 597. Repeatable for Credit.

RELI 400 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Consisting of the writing of a thesis of considerable length, depth, and research, this course will function as the capstone course on writing in the discipline. Required of all majors.

RELI 401 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 402 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 403 - SENIOR THESIS I
Short Title: SENIOR THESIS I
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For the duration of their senior year, qualified students can elect to write a senior thesis. To complete the thesis, the student elects RELI 403 "Senior Thesis I" in Fall semester and RELI 404 "Senior Thesis II" in Spring semester and works with a Religion faculty supervisor for the year. Instructor Permission Required.

RELI 404 - SENIOR THESIS II
Short Title: SENIOR THESIS II
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 403
Description: For the duration of their senior year, qualified students can elect to write a senior thesis. To complete the thesis, the student elects RELI 403 "Senior Thesis I" in Fall semester and RELI 404 "Senior Thesis II" in Spring semester and works with a Religion faculty supervisor for the year. Instructor Permission Required.

RELI 406 - CHRISTIANITY AND LATE ANTIQUITY
Short Title: CHRISTIANITY & LATE ANTIQUITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 506. Mutually Exclusive: Cannot register for RELI 406 if student has credit for RELI 506.
RELI 407 - ARCHIVES OF THE IMPOSSIBLE
Short Title: ARCHIVES OF THE IMPOSSIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After reading Prof. Kripal's Authors of the Impossible as a basic theoretical structure for the semester, this advanced archival research seminar will involve students engaging original historical documents contained in Rice University's archive on Paranormal Currents in American Culture toward the writing of a graduate or undergraduate thesis. Graduate/Undergraduate Equivalency: RELI 607. Mutually Exclusive: Cannot register for RELI 407 if student has credit for RELI 607.

RELI 410 - CONCEPTS IN THE STUDY OF RELIGION
Short Title: CONCEPTS IN RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces useful concepts and key methodological problems in the discipline of religious studies. It aims to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in honors or MA theses in the Religion department. Graduate students must take a final exam and write an additional three to four thousand words. Graduate/Undergraduate Equivalency: RELI 610.

RELI 415 - SECRET RELIGION
Short Title: SECRET RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. Graduate/Undergraduate Equivalency: RELI 615. Mutually Exclusive: Cannot register for RELI 415 if student has credit for RELI 615.

RELI 416 - NEW TESTAMENT / CHRISTIAN ORIGINS
Short Title: NEW TESTAMENT/CHRISTIAN ORIG
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces useful concepts and key methodological problems in the discipline of religious studies. It aims to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in honors or MA theses in the Religion department. Graduate students must take a final exam and write an additional three to four thousand words. Graduate/Undergraduate Equivalency: RELI 610.

RELI 417 - GNOSTIC AMERICA
Short Title: GNOSTIC AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces useful concepts and key methodological problems in the discipline of religious studies. It aims to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in honors or MA theses in the Religion department. Graduate students must take a final exam and write an additional three to four thousand words. Graduate/Undergraduate Equivalency: RELI 610.

RELI 419 - MYSTERY RELIGIONS
Short Title: MYSTERY RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. Graduate/Undergraduate Equivalency: RELI 615. Mutually Exclusive: Cannot register for RELI 415 if student has credit for RELI 615.
RELI 420 - ART OF INTERPRETING THE BIBLE
Short Title: ART OF INTERPRETING THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores issues of history, historiography, and hermeneutics within the context of Biblical Studies. While traditional forms of Biblical criticism are covered, the bulk of the course focuses on intertextuality, reception history, sociological methods, feminist views, and cognitive approaches. Graduate students (7500 word paper, seminar leadership, and oral presentation); Undergraduate students (5000 word paper and oral presentation). Graduate/Undergraduate Equivalency: RELI 620.

RELI 421 - FOUCAULT & THE HERMENEUTICS OF SELF
Short Title: FOUCAULT & THE SELF
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Best known for analyzing domination and power, Michel Foucault shifts his attention to ethics and “technologies of the self” in 1976. In this advanced seminar, we study and critique Foucault’s turn to western antiquity through his lectures and volumes of foregrounding power through religion, politics and ethics. Graduate/Undergraduate Equivalency: RELI 569. Mutually Exclusive: Cannot register for RELI 421 if student has credit for RELI 569.

RELI 423 - AFRICAN MYTHS AND RITUALS
Short Title: AFRICAN MYTHS AND RITUALS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and that serve as a basis for the negotiation of power and ideology for members within that community. Readings from classic theorists: Durkheim, Levi-Strauss, Edmond Leach, Gennap and Turner, and contemporary theorists: Webner, Heusch, Comaroff, and Ray. Cross-list: ANTH 423. Graduate/Undergraduate Equivalency: RELI 537. Mutually Exclusive: Cannot register for RELI 423 if student has credit for RELI 537.

RELI 424 - RELIGION AND POLITICS IN AFRICA
Short Title: RELIGION & POLITICS IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. Graduate/Undergraduate Equivalency: RELI 534. Mutually Exclusive: Cannot register for RELI 424 if student has credit for RELI 534. Repeatable for Credit.

RELI 426 - RELIGION AND LITERATURE IN AFRICA
Short Title: RELI AND LITERATURE IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on Islam, Christianity, indigenous religions and African Initiated Churches. Religious and gender issues addressed include identity crises, power, clash of cultures, modernity, cosmology, community, and socio-religious conflicts in a postcolonial world. Mutually Exclusive: Cannot register for RELI 426 if student has credit for RELI 538.

RELI 427 - HISTORY AND METHODS: NINETEENTH CENTURY
Short Title: HISTORY AND METHODS: 19TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1800-1900. Graduate/Undergraduate Equivalency: RELI 527. Mutually Exclusive: Cannot register for RELI 427 if student has credit for RELI 527.
REL 428 - HISTORY AND METHODS: TWENTIETH CENTURY
Short Title: HISTORY AND METHODS: 20TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1900-present. Graduate/Undergraduate Equivalency: RELI 559. Mutually Exclusive: Cannot register for RELI 428 if student has credit for RELI 559.

REL 430 - RELIGION, PSYCHOLOGY & CULTURE
Short Title: RELIGION, PSYCHOLOGY & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the historical development of the psychology of religion and its conversation with theology, comparative studies, gender studies, sociology, and anthropology. Topics include: mysticism, eroticism, conversion, feminism, psychobiography. Examples drawn from a variety of religious traditions. Readings include: Freud, Jung, Tillich, Erikson, Kristeva, Kakar. Graduate/Undergraduate Equivalency: RELI 584. Mutually Exclusive: Cannot register for RELI 430 if student has credit for RELI 584.

REL 431 - RELIGION AND COGNITIVE SCIENCE
Short Title: RELIGION AND COGNITIVE SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Interdisciplinary approach founded on biological, cross-cultural, evolutionary, neurological and cognitive studies of religion. Explores extreme religious experiences, ritualized behaviors, shamanism and religious therapy, religious community, universality of religion, and transmission of religious ideas and practices. 5000 word research paper. Graduate/Undergraduate Equivalency: RELI 531. Mutually Exclusive: Cannot register for RELI 431 if student has credit for RELI 531.

REL 433 - TIBETAN LANGUAGE AND CULTURE
Short Title: TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Tibetan texts -- debates, philosophical treatises of various kinds, meditation texts for contemplative practice -- accompanied by supportive readings in English and discussion of the thematic issues raised by the material, with an emphasis on cultural awareness. Repeatable for Credit.

REL 440 - ISLAM'S MYSTICAL TRADITION
Short Title: ISLAM'S MYSTICAL TRADITION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ascetic and Sufi aspects of Islam from the middle Islamic period until the present day. Readings from al-Ghazali, Ibn al-Arabi, Sa'di, Hafiz and Rumi. Graduate/Undergraduate Equivalency: RELI 522. Mutually Exclusive: Cannot register for RELI 440 if student has credit for RELI 522.

REL 441 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Cross-list: ASIA 441. Graduate/Undergraduate Equivalency: RELI 525. Mutually Exclusive: Cannot register for RELI 441 if student has credit for RELI 525.

REL 442 - CLASSICAL AND CONTEMPORARY ARABIC TEXTS
Short Title: ARABIC TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study and read classical Arabic texts with the goal of learning the material as well as the syntax and grammar of Arabic. Graduate/Undergraduate Equivalency: RELI 541. Repeatable for Credit.
RELI 444 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Cross-list: MDEM 444. Graduate/Undergraduate Equivalency: RELI 644. Mutually Exclusive: Cannot register for RELI 444 if student has credit for RELI 644.

RELI 449 - EARLY CHRISTIAN CONTROVERSIES
Short Title: EARLY CHRISTIAN CONTROVERSIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar examines controversies and debates among the early Christians as catholic Christianity emerged from a diversity of Christian movements. Literature reviewed will vary. Students will select to focus on one controversy and write a research paper (undergraduates, 5000 words; graduate students, 7500 words). Oral discussion and presentations will be required. Graduate/Undergraduate Equivalency: RELI 549. Mutually Exclusive: Cannot register for RELI 449 if student has credit for RELI 549. Repeatable for Credit.

RELI 458 - MYSTICISM: THEORIES AND METHODS
Short Title: MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A history of the development of the modern category of "mysticism" from the seventeenth century to today, with side studies of cognate terms like "spirituality," "metaphysical religion," and the "paranormal," as these forms of extreme religious experience are by social-scientific and humanistic methods. RELI 558: Additional readings and writing. Graduate/Undergraduate Equivalency: RELI 558. Mutually Exclusive: Cannot register for RELI 458 if student has credit for RELI 558.

RELI 470 - BUDDHIST WISDOM TEXTS
Short Title: BUDDHIST WISDOM TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: FREN 324, POLI 324. Graduate/Undergraduate Equivalency: RELI 604. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for RELI 476 if student has credit for RELI 604.
RELI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Mutually Exclusive: Cannot register for RELI 477 if student has credit for RELI 353. Repeatable for Credit.

RELI 481 - GNOSTICISM SEMINAR
Short Title: GNOSTICISM SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In depth examination of one (or more) Gnostic texts within its literary, social, historical, and religious landscapes. Graduate/Undergraduate Equivalency: RELI 581. Mutually Exclusive: Cannot register for RELI 481 if student has credit for RELI 581.

RELI 488 - THE HISTORY OF RELIGIONS SCHOOLS
Short Title: HISTORY OF RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An historical survey of the History of Religions School that emerged in the 1960s and 70s at the University of Chicago and came to play such an important role in the comparative study of religion. Graduate/Undergraduate Equivalency: RELI 588. Mutually Exclusive: Cannot register for RELI 488 if student has credit for RELI 588.

RELI 490 - AFRICAN AMERICAN LITERATURE AND RELIGION
Short Title: AF/AM LITERATURE & RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this seminar students will read and analyze African American literature in order to explore the various ways in which African Americans have understood and articulated the nature and meaning of African American religious experience and practice. Graduate/Undergraduate Equivalency: RELI 590. Mutually Exclusive: Cannot register for RELI 490 if student has credit for RELI 590.

RELI 500 - RELIGIONS FROM INDIA
Short Title: RELIGIONS FROM INDIA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to religions and religious practices of India. Topics vary; Buddhist literature and art, personal narrative, core cultural characteristics. Readings in English and Tibetan. RELI 531: write a paper approximately one-third longer than the undergraduate equivalent (RELI 233) and complete a more substantial presentation. Graduate/Undergraduate Equivalency: RELI 233. Mutually Exclusive: Cannot register for RELI 500 if student has credit for RELI 232.

RELI 502 - INTRODUCTION TO TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INTRO TO TIBETAN LANG & LIT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introducing the Tibetan alphabet and basics of grammar and Tibetan literary genres. Topics vary; Buddhist literature and art, personal narrative, core cultural characteristics. Readings in English and Tibetan. RELI 531: write a paper approximately one-third longer than the undergraduate equivalent (RELI 233) and complete a more substantial presentation. Graduate/Undergraduate Equivalency: RELI 233. Mutually Exclusive: Cannot register for RELI 502 if student has credit for RELI 233.

RELI 503 - LOSING YOUR RELIGION IN FILM & FICTION & MUSIC
Short Title: LOSING YOUR RELIGION IN FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doubt, sex, despair, obsession, ecstasy in directors, writers, musicians wanting spiritual reboot, 1890-2015: such as Allen Ginsberg, Oscar Wilde, D.H. Lawrence, T.S. Eliot, H.P. Lovecraft, John Updike, and Ingrid Bergman. Graduate/Undergraduate Equivalency: RELI 395. Mutually Exclusive: Cannot register for RELI 503 if student has credit for RELI 395.

RELI 504 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate students will be required to read a standard and well-known two-volume, 1,200-page collection of primary historical sources. They will also write a research paper (25-30 pages) that is approximately twice as long as the undergraduate paper. Graduate/Undergraduate Equivalency: RELI 300. Mutually Exclusive: Cannot register for RELI 504 if student has credit for RELI 300.
RELI 505 - AMERICAN METAPHYSICAL RELIGION
Short Title: AMERICAN METAPHYSICAL RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: With a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, CA, as a unique window to some of the different ways tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Graduate/Undergraduate Equivalency: RELI 231. Mutually Exclusive: Cannot register for RELI 505 if student has credit for RELI 231.

RELI 506 - CHRISTIANITY AND LATE ANTIQUITY
Short Title: CHRISTIANITY & LATE ANTIQUITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 406. Mutually Exclusive: Cannot register for RELI 506 if student has credit for RELI 406.

RELI 507 - INTRODUCTION TO BIBLICAL HEBREW I
Short Title: INTRO TO BIBLICAL HEBREW I
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Write an exegetical paper on a Hebrew text of your choice. UG/GR Equivalent: RELI 127.

RELI 508 - INTERMEDIATE BIBLICAL HEBREW II
Short Title: INTERM BIBLICAL HEBREW II
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of RELI 507. We will finish the grammar in the second half of this semester and then read selections from the Hebrew bible. Write an exegetical paper on a Hebrew text of your choice. Graduate/Undergraduate Equivalency: RELI 126. Mutually Exclusive: Cannot register for RELI 511 if student has credit for RELI 126.

RELI 509 - LOST JUDAISMS: THE APOCRYPHAL WRITINGS
Short Title: LOST JUDAISMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After the Hebrew Bible/Old Testament canon was closed, Jews and Christians continued to compose texts and attributed them to the biblical figures of the past. Seminar offers a close reading of some of these apocryphal/psuedepigraphic little known texts. Students in RELI 509 will additionally conduct a research project. Graduate/Undergraduate Equivalency: RELI 382. Mutually Exclusive: Cannot register for RELI 509 if student has credit for RELI 382.

RELI 510 - APOCALYPSE THEN AND NOW
Short Title: APOCALYPSE THEN AND NOW
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A close reading of some early Jewish and Christian apocalypses, a discussion of the apocalyptic worldview, and an examination of America's fascination with the Apocalypse in media and science. Graduate/Undergraduate Equivalency: RELI 339. Mutually Exclusive: Cannot register for RELI 510 if student has credit for RELI 339.

RELI 511 - INTRODUCTION TO BIBLICAL HEBREW II
Short Title: INTRO TO BIBLICAL HEBREW II
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Readings in the Hebrew Bible as well as some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Write an exegetical paper on a Hebrew text of your choice. Graduate/Undergraduate Equivalency: RELI 127. Instructor Permission Required.

RELI 512 - INTERMEDIATE BIBLICAL HEBREW III
Short Title: INTERM BIBLICAL HEBREW III
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): RELI 125 and RELI 126
Description: Readings in the Hebrew Bible as well as some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Write an exegetical paper on a Hebrew text of your choice. Graduate/Undergraduate Equivalency: RELI 127. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 127. Mutually Exclusive: Cannot register for RELI 512 if student has credit for RELI 127.

RELI 514 - RELIGION IN FICTION AND FILM
Short Title: RELIGION IN FICTION AND FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunnel, and Nutley. Term paper twice as long as undergraduate requirement. Graduate/Undergraduate Equivalency: RELI 294. Mutually Exclusive: Cannot register for RELI 514 if student has credit for RELI 294.
REL 515 - NIETZSCHE AND RELIGIOUS THOUGHT
Short Title: NIETZSCHE & RELIGIOUS THOUGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate students will have one extra reading assignment per week and complete a 14-15 page paper. Graduate/Undergraduate Equivalency: RELI 441. Mutually Exclusive: Cannot register for RELI 515 if student has credit for RELI 441.

REL 517 - GNOSTIC AMERICA
Short Title: GNOSTIC AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers the rise of Gnostic spirituality in American religion and culture, from the Colonial period to the present. Explores the alpha conduits (Boehme, Blavatsky, Jung, academia). Examines the roles of revelatory experience, artifact migration, historical criticism, secularization, hybridity, heresy, and popularization. Case studies vary depending on students' research goals. 7500-word research paper. Graduate/Undergraduate Equivalency: RELI 417. Mutually Exclusive: Cannot register for RELI 517 if student has credit for RELI 417.

REL 518 - THE BIBLE: A BRIEF INTELLECTUAL HISTORY
Short Title: BIOGRAPHY OF THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate students will have one extra reading assignment per week and complete a 14-15 page paper. Graduate/Undergraduate Equivalency: RELI 301. Mutually Exclusive: Cannot register for RELI 518 if student has credit for RELI 302.

REL 521 - ADVANCED STUDY OF ISLAM
Short Title: ADVANCED STUDY OF ISLAM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course will be to give graduate students a working knowledge of Islam historically and religiously.

REL 522 - ISLAM'S MYSTICAL AND ESOTERIC TRADITION
Short Title: ISLAM'S MYSTICAL TRADITION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate students will have one extra reading assignment per week and complete a 14-15 page paper. Graduate/Undergraduate Equivalency: RELI 440. Mutually Exclusive: Cannot register for RELI 522 if student has credit for RELI 440.

REL 523 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Multiple sections of this course are offered. Repeatable for Credit.

REL 524 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Multiple sections of this course are offered. Repeatable for Credit.

REL 525 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Graduate/Undergraduate Equivalency: RELI 441. Mutually Exclusive: Cannot register for RELI 525 if student has credit for RELI 441.

REL 526 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE
Short Title: PEOPLE OF THE BOOK
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 302. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 302.
RELI 527 - HISTORY AND METHODS: 19TH CENTURY  
Short Title: HISTORY AND METHODS: 19TH CENT  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1800-1900. Graduate course will require reading of more books and a longer paper to write. Graduate/Undergraduate Equivalency: RELI 427. Mutually Exclusive: Cannot register for RELI 527 if student has credit for RELI 427.

RELI 528 - RELIGION & GLOBAL POVERTY  
Short Title: RELIGION & GLOBAL POVERTY  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Advanced study of religion and poverty in global context. Course materials will address religious, ethical anthropological theories of development, analyze specific themes economic and social development, examine the role of Faith Based Organizations and do specific case studies. Students will be graded on short reflections papers and a final term paper. Graduate students taking the course will be assigned 4 additional texts, do a major review of one of the texts, and do two class presentations on one of the texts. Graduate/Undergraduate Equivalency: RELI 328. Mutually Exclusive: Cannot register for RELI 528 if student has credit for RELI 328.

RELI 530 - PEDAGOGY PRACTICUM  
Short Title: PEDAGOGY PRACTICUM  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: As an integral part of the department’s apprenticeship program, this is a semester-long practicum through which a graduate student apprentices with a faculty member teaching an undergraduate course in order to be trained in all aspects of course design, lecturing, advising, and grading. Required of all graduate students. Repeatable for Credit.

RELI 531 - RELIGION AND COGNITIVE SCIENCE  
Short Title: RELIGION AND COGNITIVE SCIENCE  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Interdisciplinary approach founded on biological, cross-cultural, evolutionary, neurological and cognitive studies of religion. Explores extreme religious experiences, ritualized behaviors, shamanism and religious therapy, religious community, universality of religion, and transmission of religious ideas and practices. GR: seminar leadership, 7500 word research paper. Graduate/Undergraduate Equivalency: RELI 431. Mutually Exclusive: Cannot register for RELI 531 if student has credit for RELI 431.

RELI 532 - ADVANCED TIBETAN LANGUAGE AND CULTURE  
Short Title: ADV TIBETAN LANGUAGE & CULTURE  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): RELI 131  
Description: This class builds on RELI 500 and 564, now including more challenging material in Tibetan, and continuing the trajectory of gaining familiarity with Buddhist philosophical systems as these touch on epistemology, ontology, and contemplative practice. Graduate/Undergraduate Equivalency: RELI 332. Recommended Prerequisite(s): Basic reading ability in Tibetan. Mutually Exclusive: Cannot register for RELI 532 if student has credit for RELI 132/RELI 332. Repeatable for Credit.

RELI 534 - RELIGION AND POLITICS IN AFRICA  
Short Title: RELIGION & POLITICS IN AFRICA  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. RELI 534 requires additional reading, review a book on the subject, and write a 25 page research paper. Graduate/Undergraduate Equivalency: RELI 424. Mutually Exclusive: Cannot register for RELI 534 if student has credit for RELI 424.

RELI 537 - AFRICAN MYTHS AND RITUALS  
Short Title: AFRICAN MYTHS AND RITUALS  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. RELI 534 requires additional reading, review a book on the subject, and write a 25 page research paper. Graduate/Undergraduate Equivalency: RELI 423. Mutually Exclusive: Cannot register for RELI 537 if student has credit for RELI 423.
RELI 539 - THEOLOGY IN AFRICA
Short Title: THEOLOGY IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 339. Mutually Exclusive: Cannot register for RELI 539 if student has credit for RELI 339.

RELI 540 - THE CHURCH OF AFRICA
Short Title: THE CHURCH OF AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 340. Mutually Exclusive: Cannot register for RELI 540 if student has credit for RELI 340.

RELI 541 - CLASSICAL AND CONTEMPORARY ARABIC TEXTS
Short Title: ARABIC TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 541 if student has credit for RELI 341.

RELI 542 - AMERICAN JUDAISM: RELIGION AND THOUGHT
Short Title: AMERICAN JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 342. Mutually Exclusive: Cannot register for RELI 542 if student has credit for RELI 342.

RELI 543 - Gnosticism, Esotericism and Mysticism
Short Title: Gnosticism, Esotericism and Mysticism
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 343. Mutually Exclusive: Cannot register for RELI 543 if student has credit for RELI 343.

RELI 544 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 344. Mutually Exclusive: Cannot register for RELI 544 if student has credit for RELI 344.

RELI 545 - WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 345. Mutually Exclusive: Cannot register for RELI 545 if student has credit for RELI 345.

RELI 546 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level students will complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 346. Mutually Exclusive: Cannot register for RELI 546 if student has credit for RELI 346.
RELI 555 - HISTORICAL ANTHROPOLOGIES OF RELIGION  
**Short Title:** HISTORICAL ANTHROPOLOGIES  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will address the study of the religious past through conjunctions of anthropology and history. Readings will include books and selections by Max Weber, Marshall Sahlins, Victor Turner, Jacques Le Goff, Aron Gurevich, and others. Cross-list: ANTH 550.  

RELI 557 - REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART  
**Short Title:** REPRESENTING THE DEVIL  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course focuses on representations of the Devil, demons and ambiguous spirits in Christian theological, ritual, and narrative sources from the early medieval to early modern period. Graduate work includes added reading (30-50 pp weekly above undergraduate requirements), article length essay (8 to 10 thousand words) and two presentations. Graduate/Undergraduate Equivalency. RELI 367. Mutually Exclusive: Cannot register for RELI 557 if student has credit for RELI 367.  

RELI 558 - MYSTICISM: THEORIES AND METHODS  
**Short Title:** MYSTICISM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A history of the development of the modern category of "mysticism" from the seventeenth century to today, with side studies of cognate terms like "spirituality," "metaphysical religion," and the "paranormal," as these forms of extreme religious experience are by social-scientific and humanistic methods. RELI 558: Additional readings and writing. Graduate/Undergraduate Equivalency: RELI 458. Mutually Exclusive: Cannot register for RELI 558 if student has credit for RELI 458.  

RELI 559 - HISTORY AND METHODS: TWENTIETH CENTURY  
**Short Title:** HISTORY AND METHODS: 20TH CENT  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1900-present. Graduate course will require reading of more books and a longer paper to write. Graduate/Undergraduate Equivalency: RELI 428. Mutually Exclusive: Cannot register for RELI 559 if student has credit for RELI 428.  

RELI 560 - ADVANCED READINGS IN TIBETAN TEXTS  
**Short Title:** READING TIBETAN TEXTS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course is to accommodate Grad students’ requests to read more widely in Tibetan texts and genres. Our focus is reading and disciplined discussion of the texts. Repeatable for Credit.  

RELI 561 - CHRISTIANITY IN THE GLOBAL SOUTH  
**Short Title:** CHRISTIANITY IN GLOBAL SOUTH  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Readings on Christianity in the Global South analyzing historical developments, mission and colonial encounters, growth and expansion; diversity of expression, the development of local initiated Churches, Pentecostalism, and public role of the Church. Graduate students will lead class on a church in a country of their choice. Each graduate student will prepare and lead a seminar on one aspect of the region or country. Each graduate student will also present in class an in-depth study of a selected theme. Graduate students will read additional books selected from a list of texts discussed with instructor. They will also write a 25 page research paper on any topic in Global Christianity. Graduate/Undergraduate Equivalency: RELI 371. Mutually Exclusive: Cannot register for RELI 561 if student has credit for RELI 371.  

RELI 563 - RELIGION AND SCIENCE  
**Short Title:** RELIGION AND SCIENCE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This advanced seminar analyzes interdisciplinary efforts by scholars of religion to engage scientific research in the cognitive and neuro-sciences. We assess the possibilities for collaboration, as well as conflict, between humanistic and scientific disciplines, asking how the tools of interpretation and empiricism might enrich our understanding of religious phenomena. Graduate students will lecture one course session and will engage additional secondary literature throughout the semester. Graduate/Undergraduate Equivalency: RELI 362. Mutually Exclusive: Cannot register for RELI 563 if student has credit for RELI 362.
RELI 564 - INTERMEDIATE TIBETAN LANGUAGE, LITERATURE AND CULTURE  
**Short Title:** INT. TIBETAN LANG LIT & CULTUR  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. RELI 564: Write a paper approximately one-third longer and complete a more substantial oral presentation. Graduate/Undergraduate Equivalency: RELI 234. Mutually Exclusive: Cannot register for RELI 564 if student has credit for RELI 234. Repeatable for Credit.

RELI 567 - JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT  
**Short Title:** JEWISH PHILOSOPHY  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An introduction to the main figures and themes in Jewish philosophy. Topics to be discussed include reason vs faith and prophetic revelation; Israel's chosenness vs human universalism; creation vs eternity; divine providence and necessity vs free will; evil, justice, and divine omnipotence; prayer, contemplation, and divine and human perfection. Graduate students are required to write a research paper (25-30 pp.) and to prepare and lead at least one class. Graduate/Undergraduate Equivalency: RELI 363. Mutually Exclusive: Cannot register for RELI 567 if student has credit for RELI 363.

RELI 568 - RISE OF THE NONES: HUMANISMS AND HUMANITIES  
**Short Title:** RISE OF THE NONES  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will look at the rise of the “nones,” that is, individuals who affiliate with no religious tradition, through both a history of secular thought in the West and a close reading of key texts and figures. Atheism, humanism, secularism and the “spiritual but not religious” will all be treated as key categories. RELI 568 will require additional readings, 3 additional papers plus a longer research paper, leading discussions and teaching. Graduate/Undergraduate Equivalency: RELI 368. Mutually Exclusive: Cannot register for RELI 568 if student has credit for RELI 368. Repeatable for Credit.

RELI 569 - FOUCALUT & THE HERMENEUTICS OF SELF  
**Short Title:** FOUCALUT & THE SELF  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Best known for analyzing domination and power, Michel Foucault shifts his attention to ethics and “technologies of the self” in 1976. In this advanced seminar, we study and critique Foucault's turn to western antiquity through his lectures and volumes of foregrounding resistance to power through religion, politics and ethics. Graduate/Undergraduate Equivalency: RELI 421. Mutually Exclusive: Cannot register for RELI 569 if student has credit for RELI 421.

RELI 570 - BUDDHIST WISDOM TEXTS  
**Short Title:** BUDDHIST WISDOM TEXTS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Indo-Tibetan analyses of the mind and its functions, especially differing views on the role of reasoning and the nature of the “ultimate” in major philosophical schools of Tibet and India. RELI 570: More difficult readings and two longer papers required. Graduate/Undergraduate Equivalency: RELI 470. Repeatable for Credit.

RELI 572 - INTRODUCTION TO BUDDHISM: ARTS FOR LIFE  
**Short Title:** INTRODUCTION TO BUDDHISM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Additional readings, more writing. Graduate/Undergraduate Equivalency: RELI 322. Mutually Exclusive: Cannot register for RELI 572 if student has credit for RELI 322.

RELI 573 - KNOWING BODY/GLOWING MIND: BUDDHIST ARTS OF CONTEMPLATION AND ANALYSIS  
**Short Title:** KNOWING BODY/GLOWING MIND  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Buddhism is a performing art engaging both mind and body. Our course investigates Buddhist and other literature, epistemology and rituals with an eye to how they speak to contemplative practice. Contemplative practice itself, in class and out, supplements our exploration of the interplay between traditional Asian and contemporary Western perspectives. Graduate/Undergraduate Equivalency: RELI 333. Recommended prerequisite(s): One course in Buddhism. Mutually Exclusive: Cannot register for RELI 573 if student has credit for RELI 333. Repeatable for Credit.
RELI 582 - KABBALAH SEMINAR
Short Title: KABBALAH SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will delve into literature known as "kabbalah." Drawing on a wealth of Buddhist-related art, film, and literature, this course introduces you to Tibetan and other Buddhist approaches to these crucial questions. RELI 582 requires additional readings and research papers. Graduate/Undergraduate Equivalency: RELI 472. Mutually Exclusive: Cannot register for RELI 582 if student has credit for RELI 472.

RELI 581 - GNOSTICISM SEMINAR
Short Title: GNOSTICISM SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In depth examination of one (or more) Gnostic texts within its literary, social, historical, and religious landscapes. RELI 581 requires preparation and delivery of public presentations. Graduate/Undergraduate Equivalency: RELI 481. Mutually Exclusive: Cannot register for RELI 581 if student has credit for RELI 481.

RELI 580 - RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION
Short Title: RELIGIOUS TOLERANCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores context and consequences of the concept of religious tolerance in the crucible of globalization politics. Background in settlement of Reformation-era religious wars; American attitudes; impetus for tolerance policies and their implementation, 1945 to present (including governmentality and surveillance); results for historically Christian populations, esp. in US and Europe. Graduate/Undergraduate Equivalency: RELI 359. Mutually Exclusive: Cannot register for RELI 580 if student has credit for RELI 359.

RELI 589 - MUTANTS AND MYSTICS: RACE, SEXUALITY, AND THE FUTURE OF THE HUMANITIES
Short Title: MUTANTS AND MYSTICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a course about the deep historical and conceptual connections between the histories of science fiction, the paranormal, and social transformation around race, gender, sexuality, and the human. We will see that such events tend to erupt in the "gaps" or "fractures" of society and within both personal and historical traumatic contexts in order to both deconstruct the reigning social formations, epistemologies, and ontologies—usually of an objectivizing, colonizing, and scientific nature—but also supply the numerous foundations for the imagining of new humanities, or what queer theorist Ramzi Fawaz calls our emerging "mutany." Graduate/Undergraduate Equivalency: RELI 393. Mutually Exclusive: Cannot register for RELI 589 if student has credit for RELI 393.
RELI 590 - AFRICAN AMERICAN LITERATURE AND RELIGION
Short Title: AF/AM LITERATURE & RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this seminar students will read and analyze African American literature in order to explore the various ways in which African Americans have understood and articulated the nature and meaning of African American religious experience and practice. Graduate/Undergraduate Equivalency: RELI 490. Mutually Exclusive: Cannot register for RELI 590 if student has credit for RELI 490.

RELI 591 - BASIC COPTIC 1
Short Title: BASIC COPTIC 1
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A first semester introduction to Coptic grammar and vocabulary. Select a Coptic text, read in its original language, and prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 307. Mutually Exclusive: Cannot register for RELI 591 if student has credit for RELI 307.

RELI 592 - BASIC COPTIC 2
Short Title: BASIC COPTIC 2
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): RELI 307
Description: Second semester introduction to Coptic grammar and vocabulary, with selected readings from the Coptic New Testament, nag Hammadi, and monastic literature. Pre-requisite: Introduction to Coptic Language I RELI 592: Select a Coptic text, read in its original language, and prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 308. Mutually Exclusive: Cannot register for RELI 592 if student has credit for RELI 308.

RELI 593 - BASIC COPTIC 3
Short Title: BASIC COPTIC 3
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Varied readings in original language to include the New Testament, Nag Hammadi, and monastic literature. Pre-requisite: Coptic 1 and 2. RELI 593: Students will select a Coptic text, and in addition to reading it in its original language, prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 309. Mutually Exclusive: Cannot register for RELI 593 if student has credit for RELI 309. Repeatable for Credit.

RELI 595 - PENTECOSTALISM
Short Title: PENTECOSTALISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate stu and analysis of introduction to Pentecostalism in a global context focusing historical developments, expansion in Europe, North America, Africa, Latin America and Asia. Graduate students will read 4 additional texts one from East, Central, West, and Southern Africa. Graduate students will write weekly reflections on the reading to the braded satisfactory or unsatisfactory. They will do two presentations during the semester. Each student will write a research paper that will be at least 25 double spaced pages. Graduate/Undergraduate Equivalency: RELI 396. Mutually Exclusive: Cannot register for RELI 595 if student has credit for RELI 396.

RELI 596 - THE LEGAL FRAMEWORK OF RELIGIOUS TOLERANCE
Short Title: LEGAL FRMWK RELI TOLERANCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The American Constitution embodies a complex experiment in religious tolerance, including the promise of "free exercise of religion" and the prohibition of laws "respecting an establishment of religion". In this class we will primarily seek a critical understanding of our tolerance-rich legal invocations of religious freedom and address fundamental issues such as how can we distinguish "religious" actions and commitments from other morally important beliefs and activities. RELI 596: Write additional paper and more readings. Mutually Exclusive: Cannot register for RELI 596 if student has credit for RELI 320.

RELI 597 - CONTEMPLATIVE PRACTICE
Short Title: CONTEMPLATIVE PRACTICE
Department: Religion
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Literary and artistic creativity, religious experience, and textual interpretation often draw on focused states of consciousness made possible by contemplative practices. The practice will provide historical information about such practices and offer opportunities to participate in techniques ranging from meditation and observing breath to freeform writing and Tai Chi. Graduate students will be expected to write a longer paper and/or to include a segment on contemplative practice in connection with whatever course they are taking. In either case this will involve readings and issues beyond what the undergraduates are responsible for, and which will be developed with each graduate student on an individual basis. Graduate/Undergraduate Equivalency: RELI 399. Mutually Exclusive: Cannot register for RELI 597 if student has credit for RELI 399. Repeatable for Credit.
RELI 600 - GEM RESEARCH FORUM
Short Title: GEM RESEARCH FORUM
Department: Religion
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The GEM Research Forum meets regularly throughout the academic year to share and engage the ongoing research of the GEM faculty and students. The annual capstone experience of the Forum features an invited speaker. Evaluation is based on student participation, research, and presentations. Repeatable for Credit.

RELI 604 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONI TO GLOBALIZATION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Taught in English. Novels and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Graduate/Undergraduate Equivalency: RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for RELI 604 if student has credit for FREN 324/POLI 324/RELI 476.

RELI 606 - READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT
Short Title: READING RICHARD WRIGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Richard Wright's fiction and nonfiction are important resources for understanding the nature of radicalized life in the United States. This course explores his writings for what they tell us about the role of religion in the development of identity and life meaning, and we will juxtapose the role of religion with Wright's commentary on the nature and significance of atheism for countering injustice. RELI 606 requires additional reflection papers, longer research paper and class presentations. Graduate/Undergraduate Equivalency: RELI 369. Mutually Exclusive: Cannot register for RELI 606 if student has credit for RELI 369.

RELI 607 - ARCHIVES OF THE IMPOSSIBLE
Short Title: ARCHIVES OF THE IMPOSSIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After reading Prof. Kripal's Authors of the Impossible as a basic theoretical structure for the semester, this advanced archival research seminar will involve students engaging original historical documents contained in Rice University's archive on Paranormal Currents in American Culture toward the writing of a graduate or undergraduate thesis. Graduate students will be responsible for a much more extensive engagement with Whitley Strieber's corpus. They will be required to read examples of Stieber's nonfiction (particularly COMMUNION and THE AFTERLIFE REVOLUTION) and fiction, including WOLFEN, THE GRAYS, and THE HYBRIDS. Each of these books bears directly or indirectly on the content of the Anne and Whitley Strieber Collection. Graduate/Undergraduate Equivalency: RELI 407. Mutually Exclusive: Cannot register for RELI 607 if student has credit for RELI 407.

RELI 610 - CONCEPTS IN THE STUDY OF RELIGION
Short Title: CONCEPTS IN RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course serves as an advanced introduction to useful concepts and key methodological problems in the discipline of religious studies. The primary aim of the course is to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in an honors or MA thesis in the department of Religion. Graduate work includes extended writing assignments and exam. Graduate/Undergraduate Equivalency: RELI 410. Mutually Exclusive: Cannot register for RELI 610 if student has credit for RELI 405.

RELI 611 - READINGS IN MEDIEVAL LATIN
Short Title: READINGS IN MEDIEVAL LATIN
Department: Religion
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Guided readings in Latin from a range of medieval genres, including medicine, theology, visionary literature. Repeatable for Credit.
RELI 612 - THE PSALMS
Short Title: THE PSALMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on biblical poetry. The Psalms have constituted a book of study, devotion, and prayer for Jews and Christians for two millennia. This course explores the psalms’ poetic force, liturgical setting in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 388. Mutually Exclusive: Cannot register for RELI 612 if student has credit for RELI 388.

RELI 614 - THE RICE/LEIPZIG SEMINAR ON EARLY JUDAISM AND CHRISTIAN ORIGINS
Short Title: THE RICE/LEIPZIG SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar on Early Judaism and Christian Origins taught jointly by Dr. Matthias Henze (Rice) and Dr. Jens Herzer (University of Leipzig, Germany). Participation is by invitation only. Instructor Permission Required.

RELI 615 - SECRET RELIGION
Short Title: SECRET RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. RELI 615: Write 7,500-10,000 word research paper. Graduate/Undergraduate Equivalency: RELI 415. Mutually Exclusive: Cannot register for RELI 615 if student has credit for RELI 415.

RELI 616 - NEW TESTAMENT / CHRISTIAN ORIGINS
Short Title: NEW TESTAMENT/CHRISTIAN ORIG
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How did Christianity emerge as a new religious movement in the Roman Empire? Covers the history and literature of the first generations of Christians, focusing on Post-Temple developments, issues of authority and leadership, rise of regional forms of Christianity, and formation of distinct Christian identities. Graduate requirements: additional readings and presentations. Graduate/Undergraduate Equivalency: RELI 416. Mutually Exclusive: Cannot register for RELI 616 if student has credit for RELI 416.

RELI 619 - MYSTERY RELIGIONS
Short Title: MYSTERY RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. RELI 615: Write 7,500-10,000 word research paper. Graduate/Undergraduate Equivalency: RELI 415. Mutually Exclusive: Cannot register for RELI 619 if student has credit for RELI 419/RELI 491.

RELI 620 - ART OF INTERPRETING THE BIBLE
Short Title: ART OF INTERPRETING THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues of history, historiography, and hermeneutics within the context of Biblical Studies. While traditional forms of Biblical criticism are covered, the bulk of the course focuses on intertextuality, reception history, sociological methods, feminist views, and cognitive approaches. Graduate students (7500 word paper, seminar leadership, and oral presentation); Undergraduate students (5000 word paper and oral presentation). Graduate/Undergraduate Equivalency: RELI 420.

RELI 644 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Graduate work includes 10 additional readings (200 pp), double the pages to be written, 30 more minutes presentation time. Graduate/Undergraduate Equivalency: RELI 444. Mutually Exclusive: Cannot register for RELI 644 if student has credit for RELI 444.

RELI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Certificate in Gnosticism, Esotericism and Mysticism

Program Learning Outcomes for the Certificate in Gnosticism, Esotericism and Mysticism

Upon completing the certificate in Gnosticism, Esotericism and Mysticism, students will be able to:

1. Understand and interpret gnostic, esoteric, and mystic traditions by examining the plurality of religious voices and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways.

Requirements for the Certificate in Gnosticism, Esotericism and Mysticism

The certificate in Gnosticism, Esotericism, and Mysticism is a graduate certificate. For general university requirements, please see Graduate Certificates (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the certificate in Gnosticism, Esotericism and Mysticism must complete:

- A minimum of 6 courses (14 credit hours) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- All course requirements met with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the Policies (p. 1104) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td></td>
<td>Total Credit Hours Required for the Certificate in Gnosticism, Esotericism and Mysticism</td>
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Certificate Requirements

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<th>Code</th>
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<tr>
<td></td>
<td>Theory-Intensive Courses</td>
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<tr>
<td>RELI 558</td>
<td>MYSTICISM: THEORIES AND METHODS</td>
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<tr>
<td>RELI 581</td>
<td>Gnosticism Seminar</td>
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<td>RELI 587</td>
<td>Western Esotericism: Method and Theory</td>
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<td>Thematic Course</td>
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<td>Select 1 course from the following</td>
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<tr>
<td>RELI 522</td>
<td>Islam's Mystical and Esoteric Tradition</td>
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<td>RELI 526</td>
<td>People of the Book: Judaism and Scripture</td>
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<td>RELI 532</td>
<td>Advanced Tibetan Language and Culture</td>
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<td>RELI 570</td>
<td>Buddhist Wisdom Texts</td>
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<td>RELI 588</td>
<td>The History of Religions School</td>
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<td>RELI 589</td>
<td>Mutants and Mystics: Race, Sexuality, and the Future of the Humanities</td>
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<td>RELI 607</td>
<td>Archives of the Impossible</td>
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<td>RELI 615</td>
<td>Secret Religion</td>
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<td>RELI 644</td>
<td>Visions and Visonary Practices: Medieval to Modern</td>
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<td></td>
<td>Gnosticism, Esotericism and Mysticism (GEM) Research Forum</td>
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<td>RELI 600</td>
<td>GEM Research Forum (2 semesters required, 1st semester)</td>
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<td>RELI 600</td>
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<td>Total Credit Hours</td>
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Footnotes and Additional Information

1 Students must complete 2 consecutive Fall and Spring semesters of RELI 600 (1 credit hour each semester for 2 credit hours total). This forum meets monthly throughout the semester. RELI 600 is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As a S/U course, it does not apply to the requirement of a minimum grade of B- (2.67 grade points) in each required course.

Program Restrictions and Exclusions

Students pursuing the certificate in Gnosticism, Esotericism and Mysticism should be aware of the following program restriction:

• Graduate students may declare their intent to pursue a university certificate only after they have first been admitted into a graduate-level Rice degree-granting program.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the certificate in Gnosticism, Esotericism and Mysticism should be aware of the following departmental transfer credit guidelines:

• Transfer credit coursework cannot be applied or used to meet any of the program's course requirements.

Additional Information

For additional information, please see the Gnosticism, Esotericism and Mysticism's page on the Department of Religion website: https://reli.rice.edu/gem-certificate (https://reli.rice.edu/gem-certificate/)

Opportunities for the Certificate in Gnosticism, Esotericism and Mysticism

Additional Information

For additional information, please see the Gnosticism, Esotericism and Mysticism's page on the Department of Religion website: https://reli.rice.edu/gem-certificate (https://reli.rice.edu/gem-certificate/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Greek Language and Literature

Contact Information

Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
emden@rice.edu

The minor in Greek Language and Literature is part of the program in Classical Studies in the department of Modern and Classical Literatures and Cultures. This minor is an opportunity to pursue a well-defined course of study in ancient Greek language, from the elementary to advanced level, and in ancient Greek authors and texts and their cultural contexts.
Greek Language and Literature does not currently offer an academic program at the graduate level.

Chair
Christian J. Emden

Program Advisor
Hilary S. Mackie

Professors
Scott McGill
Donald R. Morrison
Harvey E. Yunis

Associate Professor
Hilary S. Mackie

Assistant Professor
Sophie Crawford-Brown

Lecturer
Ted Somerville

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Greek (GREE)

GREE 101 - ELEMENTARY GREEK I
Short Title: ELEMENTARY GREEK I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Reading-based introduction to ancient Greek. Readings include passages from classical and New Testament authors. Explanation and analysis of basic grammar, including comparison with English grammar. Besides translating Greek to English (and vice versa), we will consider the language and literature in their historical context, and practice reading ancient Greek aloud. Effective May 15, 2019, this course does not carry D1 credit.

GREE 102 - ELEMENTARY GREEK II
Short Title: ELEMENTARY GREEK II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of GREE 101. Effective May 15, 2019, this course does not carry D1 credit.

GREE 201 - INTERMEDIATE GREEK I: PROSE
Short Title: INTERMEDIATE GREEK I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of forms and syntax. Readings from Plato.

GREE 202 - INTERMEDIATE GREEK: EURIPIDES MEDEA/BIBLICAL KOINE
Short Title: INTERMEDIATE GREEK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Section 1 reads Euripides or Sophocles. Section 2 reads excerpts from New Testament, Septuagint, and Early Christian writers. Includes review of forms and syntax.

GREE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
GREE 302 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to third and fourth year undergraduates. An opportunity to read the iliad/Odyssey in the original Greek. Includes review of forms and syntax as well as discussion of Homeric dialect, meter, poetics, and oral tradition. May be repeated (once) for credit. Graduate/Undergraduate Equivalency: GREE 502. Mutually Exclusive: Cannot register for GREE 302 if student has credit for GREE 502. Repeatable for Credit.

GREE 305 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO, ARISTOTLE, NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Greek prose for third or fourth year undergraduates. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 301, with additional texts. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 505. Mutually Exclusive: Cannot register for GREE 305 if student has credit for GREE 505. Repeatable for Credit.

GREE 306 - ADVANCED GREEK: POETRY
Short Title: ADVANCED GREEK: POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on Greek poetic texts, with an emphasis on fifth- and fourth-century authors. The course will emphasize vocabulary, grammar, and historical contexts. Texts change each semester, repeatable for credit. Repeatable for Credit.

GREE 307 - ADVANCED GREEK: PROSE
Short Title: ADVANCED GREEK: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on prose texts, with an emphasis on fifth- and fourth-century authors. The course will emphasize vocabulary, grammar, and historical contexts. Texts change each semester, repeatable for credit. Repeatable for Credit.

GREE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 492 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required. Repeatable for Credit.

GREE 502 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to graduate students. Read the iliad/Odyssey in the original Greek. Review of forms and syntax. Discussion of Homeric dialect, meter, poetics, and oral tradition. Requirement beyond GREE 302: oral presentation analyzing diction and poetic formulas in a specific passage. Repeatable (once) for credit. Graduate/Undergraduate Equivalency: GREE 302. Mutually Exclusive: Cannot register for GREE 502 if student has credit for GREE 302. Repeatable for Credit.
GREE 503 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: DIRECTED READING GRAD STUDENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Repeatable for Credit.

GREE 504 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: GR STUDENTS DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

GREE 505 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO,ARISTOTLE,NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Greek prose for graduate students in related disciplines. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 501, with additional texts. Additional work required beyond GREE 305, in the form of an oral presentation analyzing the language and style of one or more text in terms of its historical, social, and generic context. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 305. Mutually Exclusive: Cannot register for GREE 505 if student has credit for GREE 305. Repeatable for Credit.

GREE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for Greek: GREE

Department Description and Code
- Modern and Classical Literatures and Cultures: MCLC

Undergraduate Minor Description and Code
- Minor in Greek Language and Literature: GRLL

CIP Code and Description
- GRLL Minor: CIP Code/Title: 16.1202 - Ancient/Classical Greek Language and Literature

Minor in Greek Language and Literature

Program Learning Outcomes for the Minor in Greek Language and Literature
Upon completing the minor in Greek Language and Literature, students will be able to:
1. Understand texts, artifacts, institutions, events, personalities, and places that are integral to ancient Greek culture.
2. Situate those texts, artifacts, institutions, events, personalities, and places in their historical and cultural contexts.
3. Relate classical civilization to the world around them, and appreciate the profound influence classical civilization has on later Western civilization.

Requirements for the Minor in Greek Language and Literature
Students pursuing the minor in Greek Language and Literature must complete:
- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 2 courses (6 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1108) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>Total Credit Hours Required for the Minor in Greek Language and Literature</td>
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Minor Requirements

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>CLAS 107 / HUMA 107</td>
<td>GREEK CIVILIZATION AND ITS LEGACY</td>
<td>3</td>
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</tbody>
</table>

Elective Requirements

Select 3 elective courses from departmental Greek (GREE) course offerings at any level
Select 2 elective courses from departmental Greek (GREE) course offerings at the 300-level and above

Total Credit Hours 18

Footnotes and Additional Information

1 CLAS 336 Introduction to Indo-European may substitute for any of the Elective Requirements.

Policies for the Minor in Greek Language and Literature

Students pursuing the minor in Greek Language and Literature should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.
- Students pursuing the major in Classical Studies may not additionally declare the minor in Greek Language and Literature.
- Students pursuing the minor in Greek Language and Literature may not additionally declare the minor in Classical Civilizations.
- Students pursuing the minor in Greek Language and Literature may not additionally declare the minor in Latin Language and Literature.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Greek Language and Literature should be aware of the following departmental transfer credit guidelines.

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

Opportunities for the Minor in Greek Language and Literature

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

Health Sciences

Contact Information

Kinesiology
https://kinesiology.rice.edu
S203 Tudor Fieldhouse
713-348-8816
Heidi Y. Perkins
Department Chair
hperkins@rice.edu

Health Sciences is a major offered by the Kinesiology (KINE) Department. The goal of the health sciences major is to provide students...
with a fundamental background in health promotion and disease prevention. This background will enable them to understand the role that health promotion plays in society and the mechanisms that affect public and community health, while also considering the complexities of maintaining an optimal level of personal health. The health sciences major is viewed as an excellent option for undergraduate students who are preparing to enter graduate school in public health, health promotion, and health education, as well as other health-related graduate or professional programs, such as medicine or dentistry.

**Bachelor's Program**

- **Bachelor of Arts (BA) Degree with a Major in Health Sciences**
  
  Health Sciences does not currently offer an academic program at the graduate level.

**Chair**
Heidi Y. Perkins

**Professors Emeriti**
Bruce Etnyre
Nicholas K. Iammarino
Eva J. Lee
Dale W. Spence

**Teaching Professor**
Heidi Y. Perkins

**Associate Teaching Professor**
Augusto X. Rodriguez

**Assistant Teaching Professors**
Cassandra S. Diep
Laura Kabiri
Amanda Perkins Ball

**Clinical Professor**
Brian Gibson

**Lecturers**
Lisa Basgall
Nicholas K. Iammarino

**Part-Time Lecturers**
Roberta Anding
Jaime Aparicio
Steven L. Jones
Nathan Parker
Wendy Schell
P. Burke Wilson

**Adjunct Faculty**
Karen Basen-Engquist
Daniel C. Hughes
Thomas Krouskop
Alexis Ortiz

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**Emergency Med Studies/Practice (EMSP)**

**EMSP 238 - SPECIAL TOPICS**

- **Short Title:** SPECIAL TOPICS
- **Department:** Kinesiology
- **Grade Mode:** Standard Letter
- **Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
- **Credit Hours:** 1-4
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Lower-Level
- **Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**EMSP 281 - EMT-B: INTRODUCTION TO EMERGENCY CARE**

- **Short Title:** EMT-B INTRO TO EMERGENCY CARE
- **Department:** Kinesiology
- **Grade Mode:** Standard Letter
- **Course Type:** Laboratory, Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Lower-Level
- **Description:** This course is a state-sanctioned EMT-B Certification course which includes practical and didactic exploration into pre-hospital care. This class culminates with a national certification to practice pre-hospital care on the EMT-B level. This course will discuss anatomy, body systems, and the biochemical basis of emergency intervention in addition to practical application of EMT-B skills. Formerly HEAL 308 and BIOS 281 and NSCI 281. Instructor Permission Required.

**EMSP 282 - ADVANCED EMT**

- **Short Title:** ADVANCED EMT
- **Department:** Kinesiology
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture/Laboratory
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Lower-Level
- **Description:** Continuation of EMSP 281, Emergency Care. Formerly BIOS 282, HEAL 310, and NSCI 282. Instructor Permission Required.
EMSP 375 - EMS INCHARGE LEADERSHIP COURSE
Short Title: EMS INCHARGE LEADERSHIP COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students preparing to hold leadership positions in EMS will expand their competency in emergency services, including emergency management and incident response, in addition to improving patient care and leadership skills. Participants will achieve certification in national emergency services courses, and will work as a team to manage a major event. Formerly UNIV 275. Instructor Permission Required.

EMSP 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EMSP 491 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 491 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 491. Instructor Permission Required. Repeatable for Credit.

EMSP 492 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 492 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 492. Instructor Permission Required. Repeatable for Credit.

EMSP 499 - EMT TEACHING PRACTICUM
Short Title: EMT TEACHING PRACTICUM
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is open to an undergraduate student who serves as an instructor for the Emergency Medical Technician course. As an instructor, he/she would need to participate in course planning, course assignments, and student evaluation. They would also be expected to present course material through preparing and delivering lectures, presentations, and practical skills instructions. Grade would be assigned based on student self-evaluation, class evaluation, and primary instructor assessment. Formerly NSCI 289. Instructor Permission Required. Repeatable for Credit.

Health Sciences (HEAL)

HEAL 103 - NUTRITION
Short Title: NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Concepts underlying the science of nutrition: food composition, calories and needs for energy, special nutrients, and nutritional deficiencies.

HEAL 119 - INTRODUCTION TO HEALTH AND WELLNESS
Short Title: INTRO TO HEALTH & WELLNESS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed to help students develop a greater understanding and appreciation of health and well being, as it relates to themselves and others around them, and for students to apply health and wellness knowledge in their personal life to improve their health.
HEAL 132 - MEDICAL TERMINOLOGY
Short Title: MEDICAL TERMINOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: This course introduces the student interested in medical and health professions to a large vocabulary of medical language which develops skills in understanding and remembering new words. It describes word origins, basic terms in anatomy and terms pertaining to each body system as well as pharmacology and medical equipment, and many frequently used medical terms, abbreviations and symbols.

HEAL 208 - CHEMICAL ALTERATIONS OF BEHAVIOR
Short Title: CHEM ALTERATIONS OF BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Examination of social, cultural psychological, physiological causes and effects of drug use and abuse. Individual, family, and community factors related to prevention and treatment will be addressed.

HEAL 212 - CONSUMER HEALTH AND THE MEDIA
Short Title: CONSUMER HEALTH AND THE MEDIA
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Study of factual information and guidelines that enable consumers to act intelligently in selecting health products and services, with emphasis on the economic aspects of health.

HEAL 222 - PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH
Short Title: PRIN PUBLIC&COMMHEALTH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Principles of Public & Community Health examines aspects of the community that relate to health including health issues within community subgroups; identification and analysis of community health programs; organizational patterns and functions of voluntary and governmental health agencies and coordination of community health programs.

HEAL 228 - SPECIALTOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

HEAL 306 - HUMAN SEXUALITY
Short Title: HUMAN SEXUALITY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Designed to explore the physiological, psychological, and sociological parameters of human sexuality, while providing accurate information and helping students develop healthy attitudes toward sexuality. Cross-list: SWGS 306.

HEAL 313 - FOUNDATIONS OF HEALTH PROMOTION AND EDUCATION
Short Title: FOUNDATIONS HEALTH PROMO&EDUC
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Designed to introduce students to the discipline of health education and the practice of health promotion. The course explores critical issues in the field of health promotion, accountability and professional preparation, professional ethics, credentialing and the changing technology in the field. Intended for Health Sciences majors only.

HEAL 350 - UNDERSTANDING CANCER
Short Title: UNDERSTANDING CANCER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Examination of cancer from a biological, psychological and sociological perspective with emphasis on cancer epidemiology, prevention, and early detection.
HEAL 360 - VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE  
Short Title: VIOLENCE IN AMERICA  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course presents an overview of issues concerning violence using a public health perspective. Information will be presented and discussed concerning several domains pertinent to violence, including family violence, intimate partner violence, community violence, and workplace harassment.

HEAL 375 - THE BUILT ENVIRONMENT AND PUBLIC HEALTH  
Short Title: ENVIRONMENT AND PUBLIC HEALTH  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This interdisciplinary course reviews topics involved in characterizing the built environment and its impact on health. The course encompasses economic, environmental, & social factor such as (a) community design; (b) public space governance, planning & management; (c) broader functions such as accessibility to healthy food & jobs. Solutions to improve population health must include environmental & other determinants of health.

HEAL 379 - INTERNSHIP IN HEALTH SCIENCES  
Short Title: INTERNSHIP IN HEALTH SCIENCES  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 1-3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Health Sciences.  
Course Level: Undergraduate Upper-Level  
Description: Internship experience for upper-level Health Sciences majors. Department Permission Required. Repeatable for Credit.

HEAL 380 - DISPARITIES IN HEALTH IN AMERICA  
Short Title: DISPARITIES IN HEALTH IN AMER  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores social, behavioral, and medical determinants (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate/Undergraduate Equivalency: HEAL 580. Mutually Exclusive: Cannot register for HEAL 380 if student has credit for HEAL 580.

HEAL 407 - EPIDEMIOLOGY  
Short Title: EPIDEMIOLOGY  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate/Undergraduate Equivalency: HEAL 507. Mutually Exclusive: Cannot register for HEAL 407 if student has credit for HEAL 507.

HEAL 412 - HEALTH CARE DELIVERY & POLICY IN THE UNITED STATES  
Short Title: HEALTH CARE DELIVERY & POLICY  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An in-depth look our current health delivery system intended to introduce students to the historic development, organization and delivery of health care; the health care delivery system; current payment and reimbursement systems; health insurance options; the functions of health care providers; and organizational patterns of health care facilities. Recommended Prerequisite(s): HEAL 222

HEAL 422 - THEORIES AND MODELS OF HEALTH BEHAVIOR  
Short Title: THEORY&MODELS HLTH BEHAVIOR  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): HEAL 222  
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate/Undergraduate Equivalency: HEAL 522. Mutually Exclusive: Cannot register for HEAL 422 if student has credit for HEAL 522.
HEAL 460 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: This class introduces mental health, substance use, and recovery from a public health perspective. Social, biological, and behavioral science approaches to addressing mental health challenges are examined. Course work includes readings and lectures and an experiential learning activity to provide a real-world perspective on substance use and mental health. Spring 2021 Topic: Introduction to Public Mental Health Repeatable for Credit.

HEAL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

HEAL 499 - TEACHING PRACTICUM IN HEALTH SCIENCES
Short Title: TEACH PRACTICUM HEALTH SCIENCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Health Sciences, and at least an “A-” in the course serving as the practicum. Repeatable for Credit.

HEAL 498 - SPECIAL TOPICS IN HEALTH SCIENCES
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces mental health, substance use, and recovery from a public health perspective. Social, biological, and behavioral science approaches to addressing mental health challenges are examined. Course work includes readings and lectures and an experiential learning activity to provide a real-world perspective on substance use and mental health. Spring 2021 Topic: Introduction to Public Mental Health Repeatable for Credit.

HEAL 495 - INDEPENDENT RESEARCH IN HEALTH SCIENCES
Short Title: INDEPENDENT RESEARCH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Repeatable for Credit.
Course URL: kinesiology.rice.edu (http://kinesiology.rice.edu)

HEAL 522 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORY&MODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 422. Mutually Exclusive: Cannot register for HEAL 522 if student has credit for HEAL 422.
HEAL 560 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION  
**Short Title:** PLAN/EVAL: HEALTH PROGRAMS  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 460. Mutually Exclusive: Cannot register for HEAL 560 if student has credit for HEAL 460.

HEAL 580 - DISPARITIES IN HEALTH IN AMERICA  
**Short Title:** DISPARITIES IN HEALTH IN AMER  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course explores social, behavioral, and medical determinants (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 380. Mutually Exclusive: Cannot register for HEAL 580 if student has credit for HEAL 380.

HEAL 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Kinesiology (KINE)  
KINE 120 - SCIENTIFIC FOUNDATIONS OF KINESIOLOGY  
**Short Title:** FOUNDATIONS OF KINESIOLOGY  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** An introduction to studies in the areas of human movement: anatomy and physiology, exercise physiology, biomechanics, motor learning and control, and psychological aspects of sport and exercise.

KINE 238 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

KINE 300 - HUMAN ANATOMY WITH LAB  
**Short Title:** HUMAN ANATOMY WITH LAB  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An introduction to normal human anatomy structure and function. All major body systems will be examined in both lecture and laboratory format using a variety of physical and virtual models.

KINE 301 - HUMAN PHYSIOLOGY  
**Short Title:** HUMAN PHYSIOLOGY  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will address the fundamental principles of human physiology at the cell, tissue, organ, organ system, and organism levels. Emphasis will be placed on mechanisms of function and homeostasis as achieved through the coordinated function of homeostatic control systems.

KINE 302 - BIOMECHANICS  
**Short Title:** BIOMECHANICS  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** KINE 300  
**Description:** An introduction to the discipline of mechanics as it applies to biological systems. Primary emphasis is placed on humans and other vertebrate species. Topics covered include the kinematics and kinetics of movement, material and functional properties of musculoskeletal tissues and the integration of musculoskeletal function from molecules and cells to whole animals. Recommended prerequisite(s): KINE 321.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions Note</th>
<th>Course Level</th>
<th>Description</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 310</td>
<td>PSYCHOLOGICAL ASPECTS OF SPORT AND EXERCISE</td>
<td>PSYC OF SPORT &amp; EXERCISE</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course provides a hands-on laboratory to demonstrate and apply in-depth human physiology concepts. Students will collect, analyze, and report data on physiological variables. Findings will be applied to key human physiology concepts including homeostasis, isolated and integrated functions of body systems, and response to activity and exercise.</td>
<td>KINE 301</td>
</tr>
<tr>
<td>KINE 320</td>
<td>HUMAN PHYSIOLOGY LAB</td>
<td>HUMAN PHYSIOLOGY LAB</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Laboratory</td>
<td>1</td>
<td>Enrollment is limited to students with a major in Sports Medicine &amp; Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course provides a hands-on laboratory to demonstrate and apply in-depth human physiology concepts. Students will collect, analyze, and report data on physiological variables. Findings will be applied to key human physiology concepts including homeostasis, isolated and integrated functions of body systems, and response to activity and exercise.</td>
<td>KINE 301</td>
</tr>
<tr>
<td>KINE 311</td>
<td>MOTOR LEARNING</td>
<td>MOTOR LEARNING</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Designed to provide a basic understanding of the theories related to skill acquisition, development, and movement. Learners develop an understanding of the cognitive, behavioral, and neurological concepts needed to become skilled at movements. The course will also incorporate laboratory experiences in the physiological, neurological, and psychological factors of human movement.</td>
<td>PSYC 101</td>
</tr>
<tr>
<td>KINE 319</td>
<td>STATISTICS FOR THE HEALTH PROFESSION</td>
<td>STATS FOR HEALTH PROFESSION</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Topics include displaying and describing data, the normal curve, regression, statistical inference including parametric and non-parametric analyses, and hypothesis testing. Students also have the opportunity to analyze data using SPSS and Excel software.</td>
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<tr>
<td>KINE 321</td>
<td>EXERCISE PHYSIOLOGY</td>
<td>EXERCISE PHYSIOLOGY</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course examines the acute and chronic effects of exercise on physiological functions. Topics include nutrition, energy transfer, fatigue, metabolism, disease, aging, preventative medicine, genetics, elite performance, ergogenic aids, exercise testing, and specificity of training.</td>
<td>KINE 300 and KINE 301</td>
</tr>
<tr>
<td>KINE 326</td>
<td>PHYSICAL ACTIVITY EPIDEMIOLOGY</td>
<td>PHYSICAL ACTIVITY EPIDEMIOLOGY</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course provides an epidemiological foundation to exercise and physical activity research related to public health. The course is designed to present evidence of the positive effects of physical activity and exercise in preventing disease, disability, and increasing quality of life.</td>
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<tr>
<td>KINE 351</td>
<td>ADVANCED HUMAN ANATOMY LAB</td>
<td>ADVANCED HUMAN ANATOMY LAB</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Laboratory</td>
<td>1</td>
<td>Enrollment is limited to students with a major in Sports Medicine &amp; Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Study of the pro-sections and cadavers are used for learning and understanding human anatomy in a gross anatomy examination laboratory at BCM in the Texas Medical Center. Hands-on examination of human anatomy in this course provides supplemental practical experience for lectures in KINE 300, Human Anatomy courses.</td>
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<tr>
<td>KINE 375</td>
<td>SPORTS MEDICINE &amp; EXERCISE PHYSIOLOGY INTERNSHIP</td>
<td>SPORTS MEDICINE INTERNSHIP</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Internship/Practicum</td>
<td>1-3</td>
<td>Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine &amp; Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Internship experience for upperclassmen in the Sports Medicine and Exercise Physiology major. Department Permission Required. Repeatable for Credit.</td>
<td></td>
</tr>
</tbody>
</table>
KINE 403 - SPORT NUTRITION
Short Title: SPORTS NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 311
Description: This course will address current scientific knowledge about common macronutrients, micronutrients, and supplements, and how they may enhance athletic performance. The course will also focus on the role of nutritional timing, volume, and periodization to achieve practical results in endurance, strength, power and speed. Recommended Prerequisite(s): KINE 321.

KINE 410 - CASE STUDIES IN HUMAN PERFORMANCE
Short Title: CASE STUDIES HUMAN PERFORMANCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An advanced, multidisciplinary consideration of how humans perform. Class work will center around problem solving using a case study methodology.

KINE 412 - MOTOR CONTROL
Short Title: MOTOR CONTROL
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 311
Description: Exploration of the neurophysiological, behavioral, and biomechanical aspects of human movement and development.

KINE 415 - PSYCHOLOGICAL ASPECTS OF SPORTS INJURY & REHABILITATION
Short Title: PSYCHOLOGY OF SPORT INJURY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the psychological factors involved in sport-related injuries and the rehabilitation process. Topics include personal and situational factors influencing injury and recovery, adherence to rehabilitation programs, social support, returning to play after injury, and the application of psychological interventions to optimize the recovery process. Recommended Prerequisite(s): KINE 310

KINE 419 - MOVEMENT DISORDERS
Short Title: MOVEMENT DISORDERS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300 and KINE 301 and KINE 311
Description: This course offers an in-depth look into selected developmental, degenerative, and hyperkinetic movement disorders resulting in abnormal muscle tone and/or motor control. Multiple aspects of each disorder (presentation, treatment, and progression) will be considered through a variety of sources.

KINE 421 - ADVANCED TOPICS IN EXERCISE PHYSIOLOGY AND PREVENTIVE MEDICINE
Short Title: ADV TOPICS IN EX PHYS & MED
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 321 and KINE 323
Description: This course is a seminar style course that examines acute and chronic effects of exercise stimuli on physiological adaptation as relevant to health, disease and human performance. Topics will vary depending on current issues in exercise physiology. Examples include metabolism, fatigue, diabetes, genetics, muscular dystrophy, orthopedics, cancer and cardiovascular disease. The course is intended for those with a background in biology and/or physiology and interest in exercise and health.

KINE 430 - SPORTS INJURY: EVALUATION, MANAGEMENT, AND TREATMENT
Short Title: SPORTS INJURY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: Upper level course designed to provide students with practical application of basic science knowledge obtained in lower level courses within the department of Kinesiology. The course will address the management of common sports injuries from time of injury to return to play. At the end of the course, students will have a comprehensive understanding of athletic injuries and their management.
KINE 440 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: Designed to introduce students to research methods, statistical techniques, and topics appropriate for experimental research.

KINE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

KINE 490 - SEMINAR IN SPORTS MEDICINE
Short Title: SEMINAR IN SPORTS MEDICINE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Considers issues related to athletic injury including mechanisms, assessment, management, and rehabilitation.

KINE 495 - INDEPENDENT RESEARCH IN SPORTS MEDICINE & EXERCISE PHYSIOLOGY
Short Title: INDEPENDENT RESEARCH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Recommended Prerequisite(s): KINE 319 and KINE 440. Repeatable for Credit.

KINE 498 - SPECIAL TOPICS IN SPORTS MEDICINE
Short Title: SPECIAL TOPICS IN SPORTS MED
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Kinesiology or Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 301
Description: This course provides a laboratory experience designed to demonstrate and apply concepts from human physiology. Students will collect, analyze, and report data on various physiological variables. Key concepts and application include homeostasis, isolated and integrated functions of body systems, and response to exercise. Spring 2021 Topic: Human Physiology Lab. Instructor Permission Required. Repeatable for Credit.

KINE 499 - TEACHING PRACTICUM IN SPORTS MEDICINE & EXERCISE PHYSIOLOGY
Short Title: TEACHING PRACTICUM
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Sports Medicine & Exercise Physiology, and at least an *A-" in the course serving as the practicum. Repeatable for Credit.

Descriptions and Codes Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for Emergency Medical Services/Practice: EMSP
- Course offerings/subject code for Health Sciences: HEAL
- Course offerings/subject code for Kinesiology: KINE

Department Description and Code
- Kinesiology: KINE

Undergraduate Degree Description Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Health Sciences: HESC

CIP Code and Description
- HESC Major/Program: CIP Code/Title: 51.0001 - Health and Wellness, General
Bachelor of Arts (BA) Degree with a Major in Health Sciences

Program Learning Outcomes for the BA Degree with a Major in Health Sciences

Upon completing the BA degree with a major in Health Sciences, students will be able to:

1. Understand the functions of health promotion, health education, and public health on human health and disease prevention. They will demonstrate fundamental knowledge of epidemiology, statistics, and theories and models of health behavior.
2. Explain the role of socioeconomic, behavioral, biological, environmental, and other factors on human health, including personal health and public and community health.
3. Read, select, and interpret important information from health sciences literature. They will be able to identify and understand appropriate methodologies in public health research studies.
4. Collaborate with other professionals, staff, and communities in the planning, implementation, and evaluation of health promotion programs. They will be able to administer and manage health promotion programs, serve as a health education resource person, and communicate and advocate for health and health education.
5. Promote public health education and promotion within the framework of legal, ethical, moral, and professional standards.
6. Demonstrate an ability to work in a collaborative environment and deliver public health information effectively through written, oral, and media-based formats.

Requirements for the BA Degree with a Major in Health Sciences

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Health Sciences must complete:

- A minimum of 14 courses (42 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH</td>
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<td>FOUNDATIONS OF HEALTH PROMOTION AND EDUCATION</td>
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<td>EPIDEMIOLOGY</td>
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<td>THEORIES AND MODELS OF HEALTH BEHAVIOR</td>
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<td>PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION</td>
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<tr>
<td>STATISTICS FOR THE HEALTH PROFESSIONAL</td>
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Elective Requirements
Select 8 elective courses (see course list below)  
Additional Credit Hours: 42

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours: 47

University Graduation Requirements (p. 29)

Total Credit Hours: 120

Course List to Satisfy Requirements

Elective Requirements
To fulfill the elective requirements for the Major in Health Sciences, students must complete a total of 8 elective courses (minimum of 24 credit hours) from the course list below. This list of electives is drawn from course offerings that are both within the Department of Kinesiology and, at present, more than 20 courses from other academic departments at Rice. In keeping with the university’s interest in an interdisciplinary approach to undergraduate education, this allows students to choose a broad range of studies within the field of health sciences.
health-related courses from within the schools of natural sciences, social sciences, and humanities.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
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<td>ANTH 386</td>
<td>MEDICAL ANTHROPOLOGY OF FOOD AND HEALTH</td>
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<td>ANTH 446</td>
<td>ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY</td>
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<td>BIOLOGY FOR VOTERS</td>
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<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
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<td>BIOE 360 /</td>
<td>APPROPRIATE DESIGN FOR GLOBAL HEALTH</td>
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<td>GLHT 360</td>
<td>HEALTH</td>
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<td>HEAL 212</td>
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<td>HEAL 306 /</td>
<td>HUMAN SEXUALITY</td>
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<td>SWGS 306</td>
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<td>HEAL 350</td>
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<td>HEAL 360</td>
<td>VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE</td>
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<td>HEAL 375</td>
<td>THE BUILT ENVIRONMENT AND PUBLIC HE/</td>
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<td>HEAL 379</td>
<td>INTERNSHIP IN HEALTH SCIENCES</td>
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<td>HEAL 380</td>
<td>DISPARITIES IN HEALTH IN AMERICA</td>
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<td>HEAL 412</td>
<td>HEALTH CARE DELIVERY &amp; POLICY IN THE UNITED STATES</td>
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<td>HEAL 495</td>
<td>INDEPENDENT RESEARCH IN HEALTH SCIENCES</td>
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<td>HEAL 498</td>
<td>SPECIAL TOPICS IN HEALTH SCIENCES</td>
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<td>PHIL 266</td>
<td>MEDICAL ETHICS</td>
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<td>PHIL 354</td>
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<td>SOCI 313</td>
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<td>SOCI 345</td>
<td>MEDICAL SOCIOLOGY</td>
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</table>

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Health Sciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Department of Kinesiology website: [https://kinesiology.rice.edu/](https://kinesiology.rice.edu/)

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (*summa cum laude*, *magna cum laude*, and *cum laude*) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Unique Program: Rice-UTSPH Public Health Scholars

Rice undergraduate students interested in pursuing a Master of Public Health (MPH) degree at the University of Texas Health Science Center at Houston (UTHealth School of Public Health (UTSPH)) may apply to the Rice-UT Public Health Scholars Program. This unique coordinated program enables accepted Rice students to earn credit towards their Rice undergraduate degree (BA or BS with any major), and to accelerate in the completion of their UTSPH Master of Public Health degree to within one year after completing their Rice undergraduate degree. For more information on the Rice-UTSPH Public Health Scholars Program, please see the program’s website: [https://dou.rice.edu/student-resources/public-health-scholars-program](https://dou.rice.edu/student-resources/public-health-scholars-program).

Additional Information

For additional information, please see the Department of Kinesiology website: [https://kinesiology.rice.edu/](https://kinesiology.rice.edu/)

History

Contact Information

History
[https://history.rice.edu/](https://history.rice.edu/)
326 Humanities Building
713-348-4947

W. Caleb McDaniel
Department Chair
The study of history informs students about the many worlds of the past from which our diverse community has come. It provides analytical tools with which to understand the present in terms of the past, and it helps create a knowledgeable citizenry that can confront the challenges of the future with confidence and historical insight. History is at the heart of the Humanities, which provide the core of a liberal arts education.

The department of History at Rice offers a diverse and exciting range of undergraduate electives that encourage engagement with the past as a way to understand the present and that foster appreciation of past societies for their own sake as important elements of the human experience. Our undergraduate major emphasizes critical skills in communication, writing, and especially research skills, and our department funds travel to archives and libraries as students prepare senior seminar papers and honors theses. The History major is flexible and offers an International Concentration that recognizes study abroad experience and research competency in languages other than English. The Honors Program offers highly motivated students the chance to engage deeply with historical research and writing. Additionally, the department offers an undergraduate minor for students who wish to master a core body of basic knowledge in historical narrative, methodologies and thought.

The graduate program, which trains a limited number of carefully selected students, offers these fields: U.S. History, including U.S. and the World topics; Atlantic World history; Latin American history; and the history of the Middle East. These areas are supplemented by an interconnected range of supporting courses and fields, including early modern and modern colonial history, African history, Asian history, European history, world history, gender history, transnational history, economic history, and the history of empires. PhD students may concurrently pursue one of the graduate certificates offered at Rice, such as those offered through the Center for the Study of Women, Gender, and Sexuality, or the Center for Critical and Cultural Theory.

Through graduate reciprocal agreements with the Universidade Estadual de Campinas (UNICAMP) and the Instituto Mora, the department offers highly qualified graduate students the opportunity to earn a second PhD at a top-ranked university in Brazil or Mexico. Students in the dual degree program study in Brazil or Mexico, and write theses that are co-supervised by faculty at Rice, and either UNICAMP, or Mora.

Bachelor's Programs
- Bachelor of Arts (BA) Degree with a Major in History (p. 1149)
  - and a Major Concentration in History: International Concentration (p. 1155)

Minor
- Minor in History (p. 1164)

Master's Program
- Master of Arts (MA) Degree in the field of History*

Doctoral Programs
- Doctor of Philosophy (PhD) Degree in the field of History (p. 1161)

Coordinated Programs
- Doctor of Philosophy (PhD) Degree in the field of History with Instituto Mora, in Mexico (Dual Degree) (p. 1163)
- Doctor of Philosophy (PhD) Degree in the field of History with Universidade Estadual de Campinas (UNICAMP), in Brazil (Dual Degree) (p. 1163)

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair
W. Caleb McDaniel

Director of Undergraduate Studies
Paula A. Sanders

Director of Graduate Studies
Nathan Citino

Professors
Lisa A. Balabanlilar
Tani E. Barlow
Douglas G. Brinkley
Peter C. Caldwell
Nathan Citino
Randal L. Hall
Michael R. Maas
Ussama Makdisi
W. Caleb McDaniel
Alida C. Metcalf
Paula A. Sanders
Sayuri Guthrie Shimizu
James Sidbury
Lora Wildenthal
Fay Yarbrough

Associate Professors
Alexander X. Byrd
Luis Campos
G. Daniel Cohen
Daniel Domingues Da Silva
Maya Soifer Irish
Moramay López-Alonso
Elizabeth Petrick
Aysha Pollnitz
William Suarez-Potts
Kerry Ward

Assistant Professor
Lan Li

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)
**History (HIST)**

**HIST 101 - MODERN EUROPE, 1500-1789**  
Short Title: MODERN EUROPE, 1500-1789  
Department: History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Description: Course provides an introduction to European history from 1500 to the French Revolution, tracing Europe's rise to world dominance via capitalism, the nation-state, science and technology, and a secular world view. It asks how conditions in the rest of the world allowed European imperialism and colonialism to triumph. Mutually Exclusive: Cannot register for HIST 101 if student has credit for HIST 325.

**HIST 102 - MODERN EUROPE, 1789-PRESENT**  
Short Title: MODERN EUROPE, 1789-PRESENT  
Department: History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Description: Course provides an introduction to European history between the French Revolution and the collapse of the Soviet system in 1989-1990. The course examines industrialization, the development of the nation-state, World War One, fascism and communism, World War Two, European integration, decolonization and the Velvet Revolutions of 1989. Mutually Exclusive: Cannot register for HIST 102 if student has credit for HIST 326.

**HIST 103 - AP/OTH CREDIT IN EUROPEAN HISTORY I**  
Short Title: AP/OTH CREDIT-EUROPEAN HISTORY  
Department: History  
Grade Mode: Transfer Courses  
Course Type: Transfer  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

**HIST 104 - AP/OTH CREDIT IN UNITED STATES HISTORY I**  
Short Title: AP/OTH CREDIT U.S. HISTORY  
Department: History  
Grade Mode: Transfer Courses  
Course Type: Transfer  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

**HIST 105 - AP/OTH CREDIT IN WORLD HISTORY**  
Short Title: AP/OTH CREDIT IN WORLD HISTORY  
Department: History  
Grade Mode: Transfer Courses  
Course Type: Transfer  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

**HIST 106 - WORLD HISTORY SINCE 1492**  
Short Title: WORLD HISTORY SINCE 1492  
Department: History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Description: Class will explore the last 500 years of world history. The focus will be four long-term processes that have shaped the world today: struggles between Europeans and colonized peoples; forms of producing and exchanging goods; formation and spread of the modern state; and the development of 'bourgeois' ways of living.
HIST 111 - RED, WHITE AND BLACK IN EARLY AMERICA CREATING RACIAL IDENTITIES IN THE ERA OF THE AMERICAN REVOLUTION
Short Title: RED, WHITE, & BLACK EARLY AMER
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class analyzes the way peoples of African, American and European descent in North America came to think of themselves as members of different racial groups from about 1750 to 1820. The class will include a mixture of lectures and discussion.

HIST 112 - THE ARAB-ISRAELI CONFLICT
Short Title: ARAB-ISRAELI CONFLICT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores the history and politics of what is known as the Arab-Israeli conflict as it has developed from WWI to the present. Themes covered are nationalism, colonialism, and orientalism, as they relate to the question of Palestine and the U.S. hegemony in the region.

HIST 116 - AP/OTH CREDIT AFRICA/MIDDLE EAST HISTORY
Short Title: AP/OTH AFRICA/MIDDLE EAST HIST
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams or International Baccalaureate exams/diploma. This credit counts toward the total credit hours required for graduation.

HIST 117 - EARLY AMERICA
Short Title: EARLY AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of North America from 1500 to the conclusion of the Mexican War.

HIST 118 - THE UNITED STATES, 1848 TO THE PRESENT
Short Title: UNITED STATES 1848-PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A continuation of HIST 117 (though 117 is not a prerequisite) surveying the social, political, cultural, and economic history of the United States from the end of the Mexican War to the present.

HIST 119 - AP/OTH CREDIT ASIA/OCEANIA HISTORY
Short Title: AP/OTH ASIA/OCEANIA HISTORY
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams or International Baccalaureate exams/diploma. This credit counts toward the total credit hours required for graduation.

HIST 120 - MEDIEVAL CIVILIZATIONS
Short Title: MEDIEVAL CIVILIZATIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Focusing on the period between 300-1500 CE, the course will survey political institutions, society, and culture in medieval European, Byzantine, and Islamic civilizations. Topics include Christianization of Europe, the rise of Islam, the Crusades, scholastic theology, persecution of heretics, bubonic plague, and the rise of centralized monarchies. Cross-list: MDEM 120.

HIST 176 - MEXICO: AN INTRODUCTION
Short Title: MEXICO: AN INTRODUCTION
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Class will explore the last 600 years of Mexican history. The focus will be four long-term processes that have shaped Mexico today: pre-Columbian civilizations, the arrival of Spaniards and colonization; the post 1810 independence national period, and the Post Revolutionary period.
HIST 186 - HISTORICAL SURVEY OF JEWISH CIVILIZATION FROM ITS ORIGINS TO THE PRESENT
Short Title: HISTORICAL SURVEY JEWISH CIV.
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Jewish civilization spans over 3,000 years and virtually the entire planet. Throughout their history as a minority amid majority cultures, Jews have adapted enough to preserve their heritage but not so much that they disappear. This course studies Jewish religion, ethnicity, politics and culture and impact on world history. Counts towards Jewish Studies Minor core requirement.

HIST 188 - THE ATLANTIC WORLD: ORIGINS TO THE AGE OF REVOLUTION
Short Title: THE ATLANTIC WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of social, political, economic, and intellectual ligatures that bound the particular histories of Africa, Europe, and the Americas one to the other, until by the late 18th century the Atlantic basin constituted a world unto itself. Mutually Exclusive: Cannot register for HIST 188 if student has credit for HIST 388.

HIST 190 - OCEANS IN WORLD HISTORY
Short Title: OCEANS IN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course presents maritime history through the social construction of the sea. It analyses the historical significance of islands and archipelagos. Also explores themes including technology, mapping, disease, communication and law. Maritime law includes an interrogation of piracy, not only historically, but in the present (and future).

HIST 200 - ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS
Short Title: ANCIENT EMPIRES
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course explores development of imperial systems from the Bronze Age to Roman Empire with attention to subject peoples’ participation in multi-ethnic states. Aspects of art, law, economics, religion, and literature of the Hittites, Assyrians, Hebrews, Persians, Greeks, and Romans examined with consideration given to strengths and weaknesses of contributions to the modern world.

HIST 201 - JUDAISM OF JESUS AND HILLEL
Short Title: JUDAISM OF JESUS AND HILLEL
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history and literature of Judaism during the Second Temple period, which produced such religious leaders as Jesus and Hillel. Topics include: Jewish sectarianism, scribes and the growth of Scripture, temple worship and the first synagogues, diaspora religion, Jesus and the birth of Christianity, and the origin of Rabbinic Judaism. Counts for the Minor in Jewish Studies. Cross-list: RELI 203.

HIST 202 - IMMIGRATION IN 20TH AND 21ST CENTURY UNITED STATES SOCIETY
Short Title: IMMIGRATION IN THE USA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines how immigration policies and attitudes have developed during the 20th and 21st centuries. It provides a historical context that allows one to better understand the root of contemporary immigration discourse. Additionally, it considers how immigrants shape and have been shaped by American society.
HIST 204 - THE IDEA OF AFRICA
Short Title: THE IDEA OF AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Traces Western perceptions of Africa as a geographic, political and racial entity, from ancient times to the present day through a variety of media, including ancient texts, travelogues, maps, slave narratives, novels, films, museum exhibits in Houston, and journalists' reports. Mutually Exclusive: Cannot register for HIST 204 if student has credit for FSEM 155/HIST 155.

HIST 205 - MEDIEVAL MEDITERRANEAN WORLD
Short Title: MEDIEVAL MEDITERRANEAN WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course examines the political, institutional, military, and cultural development of the societies that successively dominated the "Middle Sea" from AD 500-1500 in Europe and the Islamic World. It highlights the Mediterranean legacy of commercial, cultural, and religious exchange and coexistence, as well as its history of confrontation and warfare. Cross-list: MDEM 205.

HIST 207 - SPATIAL HISTORY AND HISTORICAL GIS
Short Title: SPATIAL HISTORY HISTORICAL GIS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to the emerging methodologies that combine geographic information systems (GIS) with historical thinking. Students will study and evaluate the benefits and limitations of key works in historical GIS, become familiar with basic principles of cartographic design, and learn technical skills to create their own HGIS project.

HIST 208 - RACE AND MEDICINE IN AMERICAN HISTORY
Short Title: RACE AND MEDICINE IN AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores how medical theories have supported racial inequalities in American history from the beginning of European settlement until today. It traces the emergence of the concept of race, its effect on the development of modern medicine, and medicine’s continuing reliance on race as a category of analysis.

HIST 209 - AMERICAN URBAN HISTORY, 1609 TO TODAY
Short Title: AMERICAN URBAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course surveys American urban history from colonial times to the present day. Students will study how American cities formed and altered the shape of the nation. Topic areas include urban politics, city planning the built environment, and racial and ethnic diversity.

HIST 210 - REMEMBERING PAINFUL PASTS: THE PRACTICE OF MEMORY AND PUBLIC HISTORY
Short Title: REMEMBERING PAINFUL PASTS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to history studies and the practice of public history. Particular attention is paid to the role of power and ideology in shaping both dominant and minority memories and commemorations of slavery, the Civil War, labor exploitation, and the Civil Rights Movement. Students will learn to construct digital exhibits that collect, interpret and present historical memory.
HIST 211 - MEDIEVAL VIOLENCE
Short Title: MEDIEVAL VIOLENCE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Discussion course looks at private and large-scale warfare during the European Middle Ages. It considers how violence was legitimized and carried out, and examines attitudes towards violence and its effects on society. Topics include theoretical approaches to violence, crusading, chivalry, Truce of God, rituals of violence, military technologies, and cinematic portrayals of medieval warfare. Cross-list: MDEM 210.

HIST 212 - CONTEMPORARY CHINA
Short Title: CONTEMPORARY CHINA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of 40 year period (post socialism) 1976-2016 known as “China’s Rise.” Focus on social, political, intellectual, economic change and China's globalization.

HIST 213 - THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING
Short Title: AGE OF MUHAMMAD TO ARAB SPRING
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Lecture-discussion. Course surveys history of the Middle East from the Age of Muhammad to the Arab spring. No background needed. Includes political institutions; impact of migrations; development of cultural traditions; communal structures; economics, society, and environment; colonialisms; emergence of nation-states; revolutions; changing religious discourses; contemporary debates.

HIST 215 - BLACKS IN THE AMERICAS
Short Title: BLACKS IN THE AMERICAS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Comparative survey of black people in the Americas from the late 15th century to the present examines the Atlantic slave trade, the movement toward slave emancipation in various countries, and 19th century black self-help efforts. Course also concentrates on economic and social conditions for blacks in the 20th and 21st centuries. Equivalency: HIST 315. Mutually Exclusive: Cannot register for HIST 215 if student has credit for HIST 315.

HIST 216 - BLACK LIFE IN THE NINETEENTH-CENTURY UNITED STATES
Short Title: BLACK LIFE IN THE 19TH C. U.S.
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course traces the lives of people of African descent in America before and after the Civil War, an event which transformed enslaved people from property to citizens and forced the country to determine the place of these new citizens in American society.

HIST 217 - HISTORY: THE WORKSHOP
Short Title: HISTORY: THE WORKSHOP
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to the craft of history; formulating a question for inquiry, finding and analyzing primary sources, critiquing secondary source, and constructing an argument in support of a thesis. Recommended for History Majors and open to all majors.

HIST 218 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA
Short Title: EAST/NORTHEAST ASIA FILM HIST
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
HIST 219 - GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS
Short Title: MONGOL EMPIRE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The 13th century semi-nomadic tribes of Central Asia, led by Genghis (Chingis) Khan, created the largest contiguous land empire in World history, reaching from Korea to Hungary. This class examines the conditions of their rise and military success, the global impact of their conquests, and their political and cultural legacy.

HIST 220 - MEXICO: 1910 TO PRESENT
Short Title: MEXICO: 1910 TO PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey course from the outbreak of the 1910 Revolution to the Present. The class will focus on the impact of the Revolution in the Building of Mexican Society, culture, politics, economic and relationship to the world, with a specific focus on Latin America and the U.S.

HIST 221 - UNITED STATES AND LATIN AMERICAN RELATIONS
Short Title: US - LATIN AMERICAN RELATIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history of U.S.-Latin American relations since the early 1800s. It is organized chronologically but addresses political, economic, social, and cultural themes. The class considers both reasons for specific outcomes of U.S. - Latin American relations and their implications for the peoples most affected by them.

HIST 222 - HISTORY OF EARLY AFRICA
Short Title: HISTORY OF EARLY AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduces students to the history of Africa from the rise of humankind to the period of the transatlantic slave trade.

HIST 223 - HISTORY OF MODERN AFRICA
Short Title: HISTORY OF MODERN AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduces students to the history of Africa from the abolition of the transatlantic slave trade to the Arab Spring.

HIST 225 - EUROPE SINCE 1945
Short Title: EUROPE SINCE 1945
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the history of Europe from the end of World War II to 1989. The course focuses on the impact of the war on European societies as well as on decolonization, European unification, economic reconstruction, immigration, and the rise and fall of communism in Eastern Europe.

HIST 226 - COLONIAL SPANISH AMERICA
Short Title: COLONIAL SPANISH AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of Latin American History, from 1492 to the 1820's, including the European background and the major New World indigenous civilizations. The course will examine the pre-Columbian societies, the impact of conquest and colonization, colonial political economy, slave systems and indigenous peasants and the collapse of Iberian colonialism.

HIST 227 - LATIN AMERICAN CULTURAL TRADITIONS
Short Title: LATIN AM CULTURAL TRADITIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A synthetic overview of the emergence of Latin American culture and society beginning with the 16th century encounters and continuing through independence in the 19th century. Discovery, conquest, slavery, family life, religious beliefs, and urban and rural communities are explored through chronicles, visual images, music, and maps.
HIST 228 - MODERN LATIN AMERICA
Short Title: MODERN LATIN AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course introduces the student to the history of contemporary Latin America. For the most part political events will provide the periodic framework of the course, but we shall also consider major economic, social and cultural developments to understand the complex social formations that comprise contemporary Latin American societies. Graduate/Undergraduate Equivalency: HIST 508.

HIST 229 - HISTORY OF SOUTH AFRICA
Short Title: HISTORY OF SOUTH AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level

Short Title: SPORTS, EMPIRE AND NATION
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history of the world since the 19th century through the lens of sports and athletics. It investigates who/why sport emerged as social activity and became entrenched in the modern world and what this historical development can tell us about political, social, economic and cultural change. Effective May 15, 2019, this course does not carry D1 credit.

HIST 233 - HISTORY OF MODERN SCIENCE
Short Title: HISTORY OF MODERN SCIENCE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Main issues in the history of modern science from the Ancient Greeks to the present. Topics include: the Scientific Revolution, Newtonianism in the 18th century, Darwinism and evolution, the relativity and quantum revolutions in physics in the early 20th century, and recent developments in the life sciences like molecular biology.

HIST 236 - STATE, SOCIETY, AND THE ECONOMY IN THE MODERN MIDDLE EAST
Short Title: MIDDLE EAST:SOCIETY/STATE/ECON
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Arab societies are often studied through the lens of cultural, religious, tribal, or kinship relations, with little attention to the role of the state and the economy. This course will examine the intersection of politics, social movements, and economics in the building of nation-states from the collapse of the Ottoman Empire and up to the Arab uprisings.

HIST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HIST 239 - NATIVE AMERICAN HISTORY: FROM EUROPEAN CONTACT TO THE ERA OF REMOVAL
Short Title: NATIVE AMERICAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will cover the history of Native Americans from the time of European arrival in the Americas until the era of removal.
HIST 240 - ANCIENT CHINESE THOUGHT
Short Title: ANCIENT CHINESE THOUGHT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Golden Age of Chinese thought established positions on the human person, human ethical practices, social hierarchy, relations of divinity and sociability that have formed the intellectual basis for regular reinvention for millennia. This course examines the “100 Schools of Thought,” origins and canonization.

HIST 241 - U.S. WOMEN’S HISTORY I: COLONIAL BEGINNINGS TO THE CIVIL WAR
Short Title: U.S. WOMEN’S HISTORY, I
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of American women's history examines the lives of elite, working, black, Indian, and white women, and traces changes in women's legal, political, and economic status from the mid-17th century through the Civil War. Topics include slavery, suffrage, sexuality, and feminism. Cross-list: SWGS 234.

HIST 242 - U.S. WOMEN’S HISTORY II: CIVIL WAR TO THE PRESENT
Short Title: U.S. WOMEN’S HISTORY, II
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of American women's history examines the lives of black, Asian American, Chicana, native American, and white women, and traces changes in women's legal, political, and economic status from the Civil War to the present. Topics include suffrage, anti-lynching, welfare, birth control, and the modern civil rights and feminist movements. Cross-list: SWGS 235.

HIST 244 - MUSEUMS IN WORLD HISTORY
Short Title: MUSEUMS IN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examining museums in global history gives critical insight into their present role in society. Museums were sites of identity at local, regional, national, imperial and global levels. The collection and display of objects allowed communities, states, and empires to use cultural heritage, history, and science to interpret the past.

HIST 245 - AMERICAN CIVIL WAR ERA
Short Title: AMERICAN CIVIL WAR ERA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the Civil War era from 1848 to 1876. Topics include the causes of the war, the mobilization of Northern and Southern armies; race, slavery and emancipation; Reconstruction; the Civil War in contemporary popular culture and memory; and the global dimensions of the war and its aftermath.

HIST 251 - CONTINUITIES AND CHANGES IN BRAZILIAN HISTORY
Short Title: BRAZIL: CONTINUITY & CHANGE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of themes essential to understanding modern Brazil, such as the origins of a multi-racial society, the transition from monoculture to industry; authoritarian and democratic trends, the emergence of a uniquely Brazilian culture, and the conflicts - environmental, political, and economic - over the development of the Amazon. Cross-list: LASR 251.

HIST 256 - EUROPEAN POLITICS AND SOCIETY, 1890-1945
Short Title: EUR POLITICS&SOCIETY,1890-1945
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of European history in the age of total war. Includes imperialism and the development of the welfare state, institutional responses to the demands of total warfare, the crisis of liberal constitutionalism, the Russian Revolution, and the rise of fascism.
HIST 259 - US IN THE 1960s AND 70s
Short Title: US IN THE 1960s AND 70s
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of the cultural, political, and social trends that shaped the 1960s and 70s, with attention to American culture and public policy.

HIST 266 - SLAVERY AND THE FOUNDING FATHERS
Short Title: SLAVERY & THE FOUNDING FATHERS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course will explore the Founding Fathers' attitudes towards slavery, towards slavery, and towards racial difference, beginning with interpretations of the Founders as a group, and moving to case studies of individual founders. Students will write a paper about the engagement with slavery of one person from the founding generation.

HIST 268 - MODERN SLAVERY AND HUMAN TRAFFICKING
Short Title: MODERN SLAVERY AND TRAFFICKING
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Slavery has re-emerged as a global issue in the 21st century. This course explores various forms of slavery and slave trades globally from the 19th century to the present, examining the emergence of contemporary human trafficking.

HIST 271 - HISTORY OF SOUTH ASIA
Short Title: HISTORY OF SOUTH ASIA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the history of the cultural, religious, economic and political systems of South Asia, beginning with the development of world religious systems such as Hinduism and Buddhism, indigenous state-building, the rise of Islamic power, emergent European colonialism, and subsequent resistance movements which resulted in South Asian independence in mid-20th century.

HIST 275 - MODERN MIDDLE EAST
Short Title: MODERN MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is an introduction to the history of the Modern Middle East: the Arab countries of the Levant and North Africa, as well as Turkey, Iran, and Israel. It covers the main events that shaped the region from the final years of the Ottoman empire, to the creation of the nation-states by Western colonialism, to the struggles for independence and decolonization. The course tackles some of the following themes: reform and modernization in the Ottoman Empire; World War One and its impact on the Middle East; the emergence of a new world order, and modern states and their political systems since World War I; and the transformation of Middle Eastern societies during this same period under the impact of colonialism, independence, regional wars, and oil. It also sheds light on particular social and cultural phenomena: the role of women in society; changing notions of gender roles; class formation and relations; and cultural expressions through art, literature and new modes and spaces of sociability. Graduate/Undergraduate Equivalency: HIST 542.

HIST 278 - MODERN ARAB HISTORY
Short Title: MODERN ARAB HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the history and culture of the Arab world from World War I to the present. Topics include nationalism, colonialism, modern secular and Islamist politics and the "Arab Spring." Equivalency: HIST 378. Mutually Exclusive: Cannot register for HIST 278 if student has credit for HIST 378.

HIST 281 - GOLDEN AGE OF ISLAM
Short Title: GOLDEN AGE OF ISLAM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the Islamic World from the 8th century to the 13th century. Topics include conquests and classical Islamic states, Arabization, Jewish and Christian communities, impact of Turkic peoples, and the Ottoman Empire, with emphasis on social, cultural, artistic, and scientific trends that shaped the region's history. Cross-list: MDEM 281.
### HIST 291 - 20TH CENTURY AMERICAN PRESIDENTS
**Short Title:** 20TH C. AMERICAN PRESIDENTS  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Course will study the American presidency and the evolving use of executive power from Theodore Roosevelt to Bill Clinton. It will analyze how presidents develop foreign and domestic policy, relate to congress and their cabinets, and lead the nation in wartime.

### HIST 295 - THE AMERICAN SOUTH
**Short Title:** THE AMERICAN SOUTH  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Survey of the American South from development of Native American cultures to present. Topics include slavery and plantation economy; emergence of southern distinctiveness; Civil War and Reconstruction; political reform and the civil rights movement; rise of the Sunbelt, southern religion, music, and literature; and the future of southern regionalism. Equivalency: HIST 395. Mutually Exclusive: Cannot register for HIST 295 if student has credit for HIST 395.

### HIST 300 - INDEPENDENT STUDY
**Short Title:** INDEPENDENT STUDY  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Independent study under the supervision of a history faculty member. Hours are variable. Instructor Permission Required. Repeatable for Credit.

### HIST 301 - FIGHTING THE ATLANTIC SLAVE TRADE
**Short Title:** FIGHTING THE SLAVE TRADE  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Provides students with a deeper understanding of the history of African slavery in the Americas by allowing them to step in the shoes of late-eighteenth century abolitionists and fight the Atlantic slave trade.

### HIST 303 - OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD
**Short Title:** ISLAMIC EMPIRES  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Course Level:** Undergraduate Lower-Level  
**Description:** This class explores the cultural, religious, economic and political values and institutions of the premodern states of the Ottomans, Safavids, and Mughals. Sharing a common Central Asian Turco-Mongol Muslim inheritance, each developed distinctive methods for rule over diverse subject populations, while retaining their common aesthetic, political and social values.

### HIST 305 - READING HISTORIES OF WORK
**Short Title:** READING HISTORIES OF WORK  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** History of Work in the modern world is about earning a living, identity, creativity, and much more. This course emphasizes discussion and writing about a common set of assigned readings. We read Adam Smith, Karl Marx, and other classic texts on work as well as important recent monographs on the experiences and meanings of work. The authors and settings of our readings are mostly European, but also extend to the Americas and other colonial and postcolonial societies since 1492. This class is useful for students majoring in pre-law, pre-HUM grad, or interested in economics or social theory. HIST 445 Writing Histories of Work is complementary to this course, but one does not require the other. While this course emphasizes longer, complex assigned texts and analysis, HIST 445 has fewer common readings and emphasizes individual research projects on student-chosen topics. The assignments for these two courses do not overlap.

### HIST 307 - IMPERIAL ROME FROM CAESAR TO DIOCLETIAN
**Short Title:** IMPERIAL ROME  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Examination of how Rome acquired, maintained, and understood her empire. Includes the development of a political, social, and ideological system reaching from Scotland to Mesopotamia during the three centuries of Rome's greatest power.
HIST 308 - THE WORLD OF LATE ANTIQUITY
Short Title: THE WORLD OF LATE ANTIQUITY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the social, religious, and political history of the Roman world from Diocletian to the rise of Islam, with emphasis on the breaking of the unity of the Mediterranean world and the emergence of early medieval societies in the east and west. Cross-list: MDEM 308.

HIST 309 - CHINESE INTELLECTUAL HISTORY
Short Title: CHINESE INTELLECTUAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Framework and categories of modern Chinese intellectual history and its major traditions of thought in early modern and modern period.

HIST 310 - THE BODY IN GLOBAL HISTORIES OF MEDICINE
Short Title: BODY IN GLOBAL HIST OF MED
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class surveys the body, health, and healing in ancient, medieval, modern and modern periods. It compares regional and transnational practices to learn about how physicians, laypeople, women, and men understood and recovered from illnesses. This course moves chronologically and thematically to cover different bodily processes.

HIST 311 - SEX, GENDER, AND FAMILY IN EUROPE, 1300-1700
Short Title: SEX & GEN IN EUROPE, 1300-1700
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What did it mean to be child, woman, or man in Europe between 1300 and 1700? This course explores the experiences of nuns, soldiers, courtesans, sodomites, apprentices, witches, and slaves. It examines the construction of sexual identity in a period of dramatic change and increasing entanglement with non-Christian cultures.

HIST 312 - ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA
Short Title: ENVIRONMENT & HEALTH IN LAT AM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The environment, medicine, diseases, public health, demography, and nutrition in Latin America in historical perspective. It delves on classic works on the history of human societies. It will also use historical studies from particular disciplines such as biology, demography, medicine, nutrition, anthropology, and economic concentrating around disease, medicine and public health.

HIST 314 - HISTORY OF ARTIFICIAL INTELLIGENCE
Short Title: HISTORY OF AI
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers the history of artificial intelligence from three perspectives: its technical development, the philosophy behind it, and its impact on society. Mutually Exclusive: Cannot register for HIST 314 if student has credit for HIST 214.

HIST 315 - BLACKS IN THE AMERICAS
Short Title: BLACKS IN THE AMERICAS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Enriched version of HIST 215. Students may not receive credit for both HIST 215 and 315. Equivalency: HIST 215. Mutually Exclusive: Cannot register for HIST 315 if student has credit for HIST 215.

HIST 316 - JEWS AND CHRISTIANS IN THE MEDIEVAL ISLAMIC WORLD
Short Title: JEWS CHRISTIANS MEDIEVAL ISLAM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Lecture discussion. Course focuses on Jewish and Christian communities in the medieval Islamic world. Topics include legal status of non-Muslims, social life, economic life, distinctive developments in religious thought in Islamic context, dynamics among communities, shared culture through the medium of Arabic, distinctive features in comparison with medieval Europe.
HIST 318 - DIGITAL HISTORY METHODS
Short Title: DIGITAL HISTORY METHODS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the use of computers and new media to conduct historical research and communicate its results. While working on their own digital projects, students will consider questions like: How should history be written in the age of Google? How will historians deal with primary sources like tweets and blogs?

HIST 320 - IMPERIAL GARDENS: A CULTURAL COMPARISON
Short Title: IMPERIAL GARDENS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will examine the design and development of gardens (primarily those of the Islamic world - Al Andalus, the Middle East, Persia, Central and South Asia) and their use as political and religious metaphors, havens for meditation, stages of imperial performance and ritual, sites of social interaction, and affirmations of power and legitimacy.

HIST 321 - US ENVIRONMENTAL HISTORY
Short Title: US ENVIRONMENTAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the interaction between humans and the natural environment in the present United States from the colonial era to recent environmentalism. The course will center on discussion and writing; readings will include primary sources as well as secondary analysis.

HIST 323 - HISTORY OF ATLANTIC AFRICA
Short Title: ATLANTIC AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides students with a deeper understanding of the history of Atlantic Africa by researching key topics based on primary and secondary sources.

HIST 324 - CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN
Short Title: COEXISTENCE IN MEDIEVAL SPAIN
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain's three religious communities - Christians, Jews, and Muslims. Cross-list: MDEM 324.

HIST 327 - MEDIEVAL BORDERLANDS
Short Title: MEDIEVAL BORDERLANDS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Courses examines the military, political, social and cultural developments on the European frontiers between 500-1500 AD. Topics include colonization and conquest, crusades and Spanish Reconquista, piracy, slavery, encounters with native peoples, spread of Christianity, medieval colonial regimes, map-making and cultural exchanges. Cross-list: MDEM 327.

HIST 328 - POVERTY AND SOCIAL JUSTICE IN LATIN AMERICA
Short Title: POVERTY & SOCIAL JUSTICE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course surveys the economic, political, social, environmental and geographic origins of poverty and inequality in Latin American countries since independence. It compares welfare policies to promote social justices across these nations and examines their different outcomes in historical perspective.

HIST 329 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the street as a focus of urban life in 18th and 19th century. We will look at ways streets functioned as spaces of livelihood, sociability, and transgression in cities such as London, Paris, Istanbul, Amsterdam and Cairo. Cross-list: ARCH 329, HART 329.
HIST 330 - ATLANTIC SLAVE TRADE AND THE ORIGINS OF AFRO-AMERICAN LEGAL HISTORY
Short Title: SLAVE TRADE & AFRO-AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This survey of American legal history begins with the Emancipation Proclamation and ends near the present. Legal themes covered are related to major political, economic, and social developments that have shaped the U.S. since 1863: the civil war’s outcome and abolition of slavery; the organization of an industrial economy; U.S. ascendancy in the world; and the social movements of the late nineteenth and twentieth centuries.

HIST 332 - AMERICAN LEGAL HISTORY, 1863 TO THE PRESENT
Short Title: AMERICAN LEGAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This survey of American legal history begins with the Emancipation Proclamation and ends near the present. Legal themes covered are related to major political, economic, and social developments that have shaped the U.S. since 1863: the civil war’s outcome and abolition of slavery; the organization of an industrial economy; U.S. ascendancy in the world; and the social movements of the late nineteenth and twentieth centuries.

HIST 337 - LATIN AMERICAN PERSPECTIVES
Short Title: LATIN AMERICAN PERSPECTIVES
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through an analysis of sea charts, maps, paintings, and city and town plans this course traces the changes in Latin American peoples, landscapes, and settlements from the time of contact (1492) to independence in the early 19th century. Attention will be given to European, Indigenous, and emerging "Latin American" perspectives.

HIST 338 - 19TH CENTURY WOMEN'S NARRATIVES
Short Title: 19TH C. WOMEN'S NARRATIVES
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the experiences of women in the United States during the nineteenth century through first-hand accounts and scholarly readings. Students will ready a variety of materials to explore the social and legal status of women and consider the impact of race on women's lives. Cross-list: SWGS 338.

HIST 340 - HISTORY OF FEMINISM
Short Title: HISTORY OF FEMINISM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores feminism as political thought and social movement in various times and places. Readings will include classic as well as non-canonical texts. We will consider the historical contexts of feminist action, and examine controversies over and within feminisms. Cross-list: SWGS 345.
**HIST 342 - MODERN CHINA**  
**Short Title:** MODERN CHINA  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A survey of Chinese history from c. 1800 to the present, focusing on the related themes of imperialism, nationalism, modernization and revolution.

**HIST 343 - HISTORY OF AFRICA IN THE MUSEUM**  
**Short Title:** AFRICA IN THE MUSEUM  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Provides students with an opportunity to examine the history of Africa in modern museums through readings, discussions, and analyses of exhibits.

**HIST 344 - EUROPEAN REFORMATIONS**  
**Short Title:** EUROPEAN REFORMATIONS  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** In the 16th century Europe's house divided. This juncture in the history of Christianity had extraordinary consequences for the modern world. The course traces the impact of Protestant and Catholic reform movements on politics, society and culture and on Europe's engagements with the rest of the world.

**HIST 346 - COMPUTER TECHNOLOGY AND SOCIETY**  
**Short Title:** COMPUTERS AND SOCIETY  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course traces the development of computer technology from its theoretical origins in the nineteenth century; to the growth of digital technology; the emergence of personal computing; up to computers of today, in order to understand the place of computer technology in people's lives and how they shape each other.

**HIST 347 - BLACK AMERICA: FROM NADIR THROUGH THE GREAT DEPRESSION**  
**Short Title:** BLACK AMERICA: THE NADIR  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course examines the changing nature of black society, culture, and politics in the United States from the census of 1890 through the attack on Pearl Harbor.

**HIST 350 - AMERICA, 1900-1940**  
**Short Title:** AMERICA SINCE 1945  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Survey of major economic, social, and political developments in the United States from 1900 to 1940.

**HIST 351 - AMERICA SINCE 1945**  
**Short Title:** AMERICA SINCE 1945  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Survey of major economic, social and political developments in the United States since 1945.

**HIST 352 - HISTORY OF THE COLD WAR**  
**Short Title:** HISTORY OF THE COLD WAR  
**Department:** History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Course will cover Russo-American relations from the end of World War II to the collapse of the Soviet Union in 1989, profiling the major policymakers and world leaders and exploring not only the diplomatic and military operations but also the cultural landscape of the Cold War.
HIST 353 - HISTORY OF SENSATION
Short Title: HISTORY OF SENSATION
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class offers a deep history of sensation. It opens a window into how scientists, philosophers, medical practitioners, and neurophysiologists developed theories of touching, tasting, smelling, hearing, and seeing. Students will learn about the history of using animal models to inform human sensation, as well as the medical consequences of sensations that failed to fit neat categories of sensing.

HIST 355 - FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945
Short Title: GERMAN HISTORY, 1890-1945
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, and political culture, the Nazi social revolution, and the Holocaust. Taught in English. Cross-list: GERM 345.

HIST 356 - AFTER NAZISM: GERMAN HISTORY, 1945 - PRESENT
Short Title: GERMAN HISTORY, 1945 - PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course examines German politics and societies under Allied administration, West and East Germany 1949-1989, and the Federal Republic since 1990. Topics include democracy, post-1945 responses to Nazism; political economies; challenges of the “new social movements;” and national identity in context of European unification and global migration.

HIST 357 - JEWS AND CHRISTIANS IN MEDIEVAL EUROPE
Short Title: JEWS & CHRISTIANS-MEDIEVAL EUR
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will focus on Jewish-Christian coexistence in medieval Europe. Will examine the Jews’ legal status in Christendom, their communal life, economic activities, intellectual achievements, while also focusing on the complex dynamics of Jewish-Christian interaction, and the shifting patterns of persecution and acceptance. Cross-list: MDEM 357.

HIST 358 - HUMANITARIANISM FROM THE 19TH CENTURY TO THE PRESENT
Short Title: HUMANITARIANISM FROM 19TH C.
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course surveys the history of humanitarian sentiment and practices in the West form the 19th Century to the present. It is conceived as a critical investigation of the humanitarian movement and practices in the West form the 19th Century to the present. It is conceived as a critical investigation of the humanitarian movement and examines various patterns of Western interventions on behalf of “suffering humanity.” Topics covered are evangelicalism, abolitionism, colonialism and war humanitarianism, as well as United Nations humanitarianism since 1945.

HIST 359 - THE UNITED STATES IN THE TWENTIETH CENTURY WORLD
Short Title: U.S. IN THE 20TH CENTURY WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the United States interactions with the wider world in the 20th century. Impact of international affairs on the evolution of U.S. Domestic institutions, changing ideas about the United States’ role in the world as articulated and practiced by key public figures, private-sector activists, intellectuals, and citizens at large.
HIST 361 - HISTORY OF PREMODERN BRITAIN: TUDORS AND STUARTS, 1485 - 1707
Short Title: TUDORS AND STUARTS, 1485-1707
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Tudor and Stuart monarchs were some of the most intriguing characters to walk on the world’s stage. This course will explore the foundational political and religious changes which occurred in their reigns, from the victory of Henry VII at Bosworth to the union of Great Britain in 1707.

HIST 365 - WORLD ECONOMIC HISTORY
Short Title: WORLD ECONOMIC HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 100 or ECON 201 or ECON 211) and (ECON 200 or ECON 301 or ECON 370) and (ECON 203 or ECON 303 or ECON 375)
Description: Study and analysis of world economy focusing on the economic expansion of Western countries between the 14th and 21st centuries. Emphasis on contextual changes in economy, geography, history, society, culture, religion and politics in determining economic leadership of certain economies, such as Italy, Portugal, Spain, the United Kingdom, Belgium, the Netherlands, France, Germany, Sweden, the United States and Japan. Cross-list: ECON 365. Mutually Exclusive: Cannot register for HIST 365 if student has credit for HIST 235/HUMA 235.

HIST 366 - RIO DE JANEIRO: A SOCIAL AND ARCHITECTURAL HISTORY
Short Title: RIO DE JANEIRO
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The development of Rio de Janeiro from a colonial capital to an Olympic host with emphasis on the peoples of the city and evolution of the urban panorama. Cross-list: ARCH 366.

HIST 370 - EUROPEAN INTELLECTUAL HISTORY: BACON TO HEGEL
Short Title: EUROPEAN INTELLECTUAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of major thinkers and intellectual movements from the scientific revolution to the French Revolution. Includes the use of primary and secondary sources to establish the main contours of philosophical, political, and cultural expression and to relate them to their historical context.

HIST 371 - HISTORY OF MODERN FRANCE
Short Title: HISTORY OF MODERN FRANCE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of transformations in French society, culture, and politics from the French Revolution to the end of the 20th century. Taught in English.

HIST 372 - IMMIGRATION AND THE STATE: 19TH & 20TH CENTURY
Short Title: IMMIGRATION AND THE STATE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How did modern states organize and regulate immigration in the modern era? Lecture course explores the comparative history of labor migration and forced displacement from the point of view of state policies in the United States and Western Europe from 1800 to the present.

HIST 373 - SOCIAL AND POLITICAL THOUGHT IN 19TH CENTURY EUROPE
Short Title: 19TH C SOC/POLITICAL THOUGHT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Social and political thinkers of the 19th century confronted revolutionary change in both politics and society: the demand for democracy as well as the challenges associated with industrial capitalism. Course combines lectures with discussion of original sources, including Smith, Mill, Marx, Proudhon, Wollstonecraft, and Weber.
HIST 374 - JEWISH HISTORY, 1500-1948
Short Title: JEWISH HISTORY, 1500-1948
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: History of the Jews' expulsion from Spain to the establishment of the state of Israel. Life in western and eastern Europe as well as in Islamic countries, seen from the perspective of settlement, assimilation, and the particularities of the Jewish historical experience.

HIST 375 - EUROPEAN ROMANTICISM, 1750-1850
Short Title: EUROPEAN ROMANTICISM 1750-1850
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Investigation of the emergence, triumph, and defeat of romanticism as a major cultural force in European history, with emphasis on national and epochal diversity within Romanticism in Britain, Germany, and France. Includes Rousseau, Goethe, Schiller, Schlegel, Schelling, Wordsworth, Coleridge, Byron, Stendhal, Hugo, and Baudelaire, as well as music and art.

HIST 378 - MODERN ARAB HISTORY
Short Title: MODERN ARAB HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The region by examining societies and empires shaped by intercontinental commerce and the expansion of empire, Arab empires, and the Muslim world. Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world - the cultures in which modern ideas of history began. Cross-list: RELI 385.

HIST 379 - INDIAN OCEAN WORLD HISTORY
Short Title: INDIAN OCEAN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of the history and culture of the Arab world from World War I to the present. Topics include colonialism and nationalism, modern secular and Islamist politics and the "Arab Spring." Equivalency: HIST 278. Mutually Exclusive: Cannot register for HIST 378 if student has credit for HIST 278.

HIST 381 - GOD, TIME AND HISTORY
Short Title: GOD, TIME AND HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How is the passage of time given meaning, and what role - if any - is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world - the cultures in which modern ideas of history began. Cross-list: RELI 385.

HIST 384 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook "The Modern Girl Around the World," this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: ASIA 328, SWGS 384.

HIST 387 - THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION
Short Title: U.S. IN THE WORLD: 1750-1900
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of the United States' interactions with the world from the revolutionary period to the Spanish-American war. Impact of international affairs on the evolution of U.S. domestic institutions, changing ideas about America's role in the world by key political figures, private-sector activists, intellectuals, and citizens at large.

HIST 389 - INDIAN OCEAN WORLD HISTORY
Short Title: INDIAN OCEAN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Indian Ocean World presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. Course introduces the region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Cross-list: ASIA 389.

HIST 390 - JOURNAL PUBLISHING WORKSHOP
Short Title: JOURNAL PUBLISHING WORKSHOP
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Participants will explore scholarly communication through hands-on-work running the university's new undergraduate history journal, talking with editors, and discussing readings. Tasks include preparing to publish the journal's annual issues, refining the workflow, issuing a call for papers, and promoting the journal. Repeatable for Credit.
HIST 392 - PRE-MODERN POLITICAL THOUGHT FROM CICERO TO LOCKE
Short Title: PRE-MOD POLITICAL THOUGHT
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examining major texts from Cicero's De Officiis (CCE 44) to Locke's Two Treatises (1689 CE) shows how significant political questions emerged from specific historical contexts and developed over time. Writing intensive. Students will have weekly meetings in groups of three at an agreed-upon time (inclusive of the regular class meeting time).

HIST 395 - THE AMERICAN SOUTH
Short Title: THE AMERICAN SOUTH
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An enriched version of HIST 295. Equivalency: HIST 295. Mutually Exclusive: Cannot register for HIST 395 if student has credit for HIST 295.

HIST 401 - THE AGE OF ATTILA THE HUN
Short Title: THE AGE OF ATTILA THE HUN
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the fifth century A.D. in Western Europe, when the Roman Empire ended and new kingdoms were established from Britain to North Africa. The "barbarian invasions" and Attila and the Huns will be considered. Research seminar format. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 402 - CHINESE WOMEN THROUGH TIME
Short Title: CHINESE WOMEN THROUGH TIME
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This discussion- and research-based course uses history, biography, law, fiction and film to examine the experiences and images of Chinese women from the late imperial time to the present. Topics include foot-binding, matriarchy, social constructs such as the Tiger Mom and the submissive Asian woman, crime, art etc. Students will write a final paper based on primary sources, and there will be one mid-term project involving a collaborative online experience. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 403 - ADVANCED RESEARCH SEMINAR
Short Title: ADVANCED RESEARCH SEMINAR
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Restricted to students admitted to History Honors Program. Seminar is designed to advance students from preliminary research to development of a formal prospectus for the honors thesis and a first draft of one section. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.) Instructor Permission Required.

HIST 404 - HISTORY HONORS THESIS
Short Title: HISTORY HONORS THESIS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HIST 403
Description: Restricted to students admitted to History Honors Program. Seminar is designed to advance students from prospectus to draft and final version of the honors thesis. Prerequisite: HIST 403 and approval of Director of Undergraduate Studies. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.) Instructor Permission Required.
HIST 405 - DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP
Short Title: DEMOCRACY AND CAPITALISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Does mass democracy presume freedom of private property, free labor, and market relations as fundamental rights of the individual? Or does the market mean capital's domination over individuals, negating democracy? Does democratic "freedom" involve restraining capitalism? Or does capitalism involve limiting democracy through undemocratic institutions like rights and central banks?

HIST 406 - WORKERS' REVOLUTIONS, SUBALTERN SOLIDARITIES, AND THE MAKING OF EMANCIPATORY POLITICS
Short Title: THE GLOBAL LEFT
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar examines the origins of the political left and its global manifestations in the 20th century. Focusing especially on the global south, the seminar explores the ways marginalized groups interpreted and applied leftist politics to build international solidarities against capitalism but also imperialism, fascism, and patriarchy.

HIST 407 - THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888
Short Title: SLAVERY IN THE ATLANTIC
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the expansion and eradication of slavery in the Atlantic world during the 19th century. Special emphasis given to history of enslaved resistance, slaveholders, and abolitionists. Considers the influence of slavery on the cultural, economic, and political developments of Atlantic societies from the Haitian Revolution (1791) to Brazilian abolition (1888).

HIST 408 - THE JAPANESE EMPIRE
Short Title: THE JAPANESE EMPIRE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A history of Japanese imperialism starting in the mid-19th century and ending in the 1990s and the end of the "bubble economy." Economic, political, intellectual history.

HIST 409 - MUSLIMS, JEWS, CHRISTIANS, HERETICS, AND PAGANS IN THE AGE OF THE CRUSADES
Short Title: CHRISTIAN HOLY WARS, 1095-1492
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the crusading movement between the proclamation of the First Crusade in 1095 and the fall of Muslim Granada in 1492. It focuses on the wars against Muslims in the Middle East and Iberia, Baltic crusades against pagans, wars against Christian heretics in Europe, and political crusades.

HIST 410 - EMPIRE AND INTERNATIONAL LAW
Short Title: EMPIRE AND INTERNATIONAL LAW
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the relationship between international law and empire, from about 1500 to 1914. In a period of expanding Western domination, international law formed, serving partly as a critical as well as apologetic discourse for Western imperialism. The seminar examines key primary sources and recent scholarship concerning this topic.

HIST 411 - A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL
Short Title: HISTORY OF TRAVEL
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The development of travel and travel narratives from the early medieval period through the 20th century, identifying why people travel and how those motives change over time. Examining spiritual journeys; fear and desire; the foreign gaze (east looking west); fictitious and vicarious travelling; geography/ethnography; antiquarianism; the gendered path; divine landscapes and the search for the authentic.
HIST 414 - WORLD WAR ONE IN EUROPE: ORIGINS, SOCIAL EFFECTS, POLITICAL CONSEQUENCES
Short Title: WWI IN EUROPE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The First World War transformed Europe and the world. This seminar examines the debates over the origins of the war; the effects of the war itself on European societies and economies; and the political outcomes of the war, on international relations as well as on domestic politics.

HIST 416 - SEMINAR IN CONTEMPORARY AFRICAN AMERICAN HISTORY
Short Title: CONTEMP AF-AMER HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the exigencies of African American life from the Reagan era to the age of Obama. A reading- and writing-intensive seminar focusing on selected issues in black culture, politics, and community in the United States since the climax of the civil rights movement. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 418 - HOW HISTORIANS THINK
Short Title: HOW HISTORIANS THINK
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will familiarize students with how historians think about research, problem setting, problem solving, innovation, historical problems and histories outside the nation state. Students read one book or its equivalent each week and write a 20-page research paper on the relation of primary and secondary sources.

HIST 420 - MEXICAN HISTORY
Short Title: MEXICAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an advanced undergraduate seminar examining the history of Mexico from Independence to the Present. It addresses topics including the war of Independence (1810-1821), civil wars and foreign invasions in the nineteenth and twentieth centuries, as well as social, cultural religious, political and economic transformations. Graduate/Undergraduate Equivalency: HIST 500. Mutually Exclusive: Cannot register for HIST 420 if student has credit for HIST 500.

HIST 421 - RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH
Short Title: RACE, EDUCATION & SOCIETY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of urban life and education since the decision in Brown v. Board. Seminar focuses on the Brown cases, the development of the post war city in the context of American race relations, the course of court-ordered desegregation, and the impact of recent reforms on urban schools and neighborhoods. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.) Graduate/Undergraduate Equivalency: HIST 521. Mutually Exclusive: Cannot register for HIST 421 if student has credit for HIST 521.

HIST 423 - AMERICAN RADICALS AND REFORMERS
Short Title: AMERICAN RADICALS & REFORMERS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on radicals and reformers in American history. Readings vary and will focus on a selected group of reformers, such as abolitionists, labor radicals, socialists, feminists, pacifists, Progressives, environmentalists, or health reformers. Students may conduct original research for a thesis-driven paper related to course themes. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>HIST 424</td>
<td>RAJ AND RESISTANCE</td>
<td>RAJ AND RESISTANCE</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Examination of the development and nature of the British-Indian relationship. From John Company to Company Raj (17th to 20th centuries), British mercantile and imperial ambitions in South Asia were met by indigenous movements of political independence and popular resistance across the subcontinent, in Bengal, Mysore, Punjab, Delhi and beyond. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)</td>
</tr>
<tr>
<td>HIST 426</td>
<td>DISABILITY AND U.S. LAW</td>
<td>DISABILITY AND U.S. LAW</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This seminar examines the historical intersection of people with disabilities and U.S. law. We will study the fight for anti-discrimination legislation, the challenges to gaining such protections and enforcing them, the development of the disability rights movement, and the legal and social concerns facing people with disabilities today.</td>
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<tr>
<td>HIST 427</td>
<td>HISTORY OF THE CIVIL RIGHTS MOVEMENT, 1954 TO THE PRESENT</td>
<td>THE CIVIL RIGHTS MOVEMENT</td>
<td>History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This seminar reviews the history of the U.S.-Mexico borderlands while providing students opportunities to write a substantial research paper. It covers the period from the 16th century to the present and examines political and cultural issues relevant to comprehending the significance of the border for the U.S. and Mexico.</td>
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<tr>
<td>HIST 428</td>
<td>MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL</td>
<td>SLAVERY &amp; HUMAN TRAFFICKING</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar examines contemporary slavery and human trafficking in global historical context. It examines forms of gendered unfree labor that persisted after the legal abolition of slave trades and slavery. It explores the emergence of human rights discourse, activism, and law from the 19th century onwards. Houston is the contemporary case study. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)</td>
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<tr>
<td>HIST 429</td>
<td>BORDERLANDS HISTORY</td>
<td>BORDERLANDS</td>
<td>History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar traces the history and politics of the Arab-Israeli conflict. Course seeks to understand how and at what costs Israeli and Palestinian nationalisms have been constructed in both Palestinian and Israeli understandings of the past and present using books, documentaries, and films. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)</td>
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<tr>
<td>HIST 433</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar traces the history and politics of the Arab-Israeli conflict. Course seeks to understand how and at what costs Israeli and Palestinian nationalisms have been constructed in both Palestinian and Israeli understandings of the past and present using books, documentaries, and films. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)</td>
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</table>
HIST 434 - ISLAM AND THE WEST
Short Title: ISLAM AND THE WEST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar explores issues of contact and exploration between Western and Islamic worlds, from the Crusades to the modern era. Investigations will explore how identities are formed and reshaped through interaction with other cultures and how traditions are "invented" by relationships between civilization and despotism, freedom and tyranny, religious tolerance and holy war. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 436 - AMERICA IN THE MIDDLE EAST
Short Title: AMERICA IN THE MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar explores evolution of American involvement in the Middle East from missionary origins in the early 19th century to superpower hegemony in the 20th. Puts into perspective central issues such as the U.S. role in the Arab-Israeli conflict, the question of terrorism, and the U.S. invasion/occupation of Iraq in 2003. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 443 - MULTICULTURAL EUROPE, 1400-1700
Short Title: MULTICULTURAL EUROPE, 1400-1700
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The art of Europe was never the product of a single culture working in isolation. This seminar will explore the multicultural aspects of medieval and early modern Europe by focusing on the visual culture of groups who defined themselves or are today defined by nationality, race, or religion. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.) Cross-list: HART 435, MDEM 435.

HIST 445 - WRITING HISTORIES OF WORK
Short Title: WRITING HISTORIES OF WORK
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Work in the modern world is about earning a living, identity, creativity, morality, and much more. This course emphasizes full-length research papers related to experiences, struggles, and meanings of work. The arguments and conclusions of these papers will be based on sources from the time under investigation, and will show the student's grasp of the relevant scholarly literature. Assigned readings for all students mostly concern the modern European past; students can choose any setting worldwide since 1492 for their research paper. This class is useful for students considering law school or graduate study in history. HIST 305 Reading Histories of Work is complementary to this course, but one does not require the other. This course has fewer common assigned readings than HIST 305, in order to make space for project-specific reading and writing; students will periodically present sources and drafts to the class. The assignments for HIST 445 and HIST 305 do not overlap. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 448 - WESTERN EUROPEAN WELFARE STATE, 1880-1980: ORIGINS, CONSOLIDATIONS, CRISIS
Short Title: WEST EUROPEAN WELFARE STATES
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This upper level seminar looks at why and how the welfare states came into being, how they were affected by the World Wars and dictatorship, postwar expansion, and the effects of the 1970s stagflation and oil crises. Focus on Germany, Britain, and France. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)
HIST 449 - LAW IN THE DIGITAL WORLD  
Short Title: LAW IN THE DIGITAL WORLD  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar examines U.S. legal issues concerning digital technologies, over the past two centuries. We will cover five legal topics: privacy, security, intellectual property, corporate regulations, and crime/vice. Students will produce original research that analyzes the relationship between law and the digital world we have constructed.

HIST 455 - THE HISTORY OF HUMAN RIGHTS 
Short Title: THE HISTORY OF HUMAN RIGHTS 
Department: History 
Grade Mode: Standard Letter 
Course Type: Seminar 
Credit Hours: 3 
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. 
Course Level: Undergraduate Upper-Level 
Description: What are human rights, and what does it mean to call them "universal"? How do rights across borders, such as those needed by refugees, fit with rights within borders that citizens use to exercise sovereignty? How do new (or previously unrecognized) rights emerge, such as rights for sexual minorities? And how can we write histories of ideas that are claimed to be timeless? This advanced history seminar draws on multiple disciplines, especially anthropology and law, to answer these and other questions. Students undertake independent research on an issue of their choosing. This class is important for students considering law school or graduate study in history. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 457 - FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989  
Short Title: FOUR MODERN REVOLUTIONS  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Seminar brings together four leading examples of modern revolution in the western world: the American Revolution, the French Revolution of 1789, the Russian Revolution of October 1917, and the Eastern European revolutions of 1989. Topics include: revolutionary subjects, reactionaries, terror, law, and constitutions. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 459 - NAZISM AND THE HOLOCAUST 
Short Title: NAZISM AND THE HOLOCAUST 
Department: History 
Grade Mode: Standard Letter 
Course Type: Seminar 
Credit Hours: 3 
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. 
Course Level: Undergraduate Upper-Level 
Description: Seminar uses sources from the time and historians' interpretations to analyze Nazism and the Holocaust, especially pre-war racial policy, economic policy, labor, the war experience; and the phases and legacies of the Holocaust.

HIST 461 - THE SECOND WORLD WAR: A POLITICAL HISTORY 
Short Title: WW II: A POLITICAL HISTORY 
Department: History 
Grade Mode: Standard Letter 
Course Type: Seminar 
Credit Hours: 3 
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. 
Course Level: Undergraduate Upper-Level 
Description: World War Two was not just a military conflict, but also a violent political and social struggle. Seminar explores the main ideologies and political blueprints devised during the war in the United States, Western and Eastern Europe. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 464 - U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR 
Short Title: COLD WAR U.S. FOREIGN POLICY 
Department: History 
Grade Mode: Standard Letter 
Course Type: Seminar 
Credit Hours: 3 
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. 
Course Level: Undergraduate Upper-Level 
Description: Seminar on American foreign policy during the Cold War. Readings and research.

HIST 477 - SPECIAL TOPICS 
Short Title: SPECIAL TOPICS 
Department: History 
Grade Mode: Standard Letter 
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory 
Credit Hours: 1-4 
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. 
Course Level: Undergraduate Upper-Level 
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
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<tr>
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<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>HIST 478</td>
<td>TOPICS IN LATIN AMERICAN HISTORY</td>
<td>History</td>
<td>TOPICSLatinAmericanHistory</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar on selected topics in Latin American history. Contents vary. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)</td>
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<tr>
<td>HIST 484</td>
<td>THE BLACK CITY: AFRICAN AMERICAN URBAN LIFE IN THE UNITED STATES</td>
<td>History</td>
<td>BLACKCITY</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>An examination of how African Americans become a largely urban people in the twentieth century, how their urbanization affects the nature and prospect of US cities, and how the demands and opportunities of city life contribute changing meanings of blackness in American life.</td>
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<td>HIST 491</td>
<td>COEXISTENCE AND SECTARIANISM IN THE MIDDLE EAST</td>
<td>History</td>
<td>MIDDEASTSECTARIANISM</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar will examine the validity of the notion of age-old religious and tribal violence in the region, relate the nature of religious violence in the Ottoman Empire to Zionism in Palestine and sectarianism in Lebanon, and analyze the sectarian struggle in contemporary Iraq in light of the American occupation.</td>
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<tr>
<td>HIST 494</td>
<td>RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA</td>
<td>History</td>
<td>RULINGHINDUSTAN</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar on 16th century Central Asian Muslim Turks who conquered India and, in collusion with local political and social forces, developed a sophisticated syncretic royal culture. Focus on culture, fine arts, architecture, familial relations and religious/spiritual practices in Islam. Readings include memoirs and letters of the royal family, Hindu courtiers, visiting Jesuit priests, and European merchants. A major research component is included.</td>
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<td>HIST 495</td>
<td>COMPARATIVE MODERNIZATION OF CHINA AND JAPAN</td>
<td>History</td>
<td>MODERNIZATIONOFCHINA&amp;JAPAN</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Research seminar examining not only the respective modernizing experiences of Japan and China in the 19th and 20th centuries, but also the way that developments in one country influenced developments in the other. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)</td>
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<td>HIST 499</td>
<td>BLACK AT RICE: HISTORIES OF THE UNIVERSITY</td>
<td>History</td>
<td>BLACKATRICE</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Research seminar focused especially on recovering and analyzing the black experience at Rice University with final projects based on oral histories and primary source research. Open to juniors and seniors, and to others with the permission of the instructor. Part of the Task Force on Slavery, Segregation and Racial Injustice.</td>
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<tr>
<td>HIST 500</td>
<td>GRADUATE SEMINAR IN MEXICAN HISTORY</td>
<td>History</td>
<td>MEXICANHISTORY</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Seminar on selected topics in Mexican History. It delves into questions in Mexican historiography such as political instability, economic development and inequality, the origins of social movements, the Mexican Revolution and the relationship with the US. Graduate/Undergraduate Equivalency: HIST 420. Mutually Exclusive: Cannot register for HIST 500 if student has credit for HIST 420.</td>
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<tr>
<td>HIST 501</td>
<td>WOMEN AND GENDER IN NATIVE AMERICA</td>
<td>History</td>
<td>NATIVEWOMEN'SHISTORY</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Seminar on selected topics in Native American History. It examines the historical and cultural experiences of women and gender in indigenous history from the colonial period to the early twentieth century.</td>
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2021-2022 General Announcements PDF Generated 09/22/21
HIST 502 - EARLY AMERICA AND THE WORLD THAT MADE IT, 1450 - 1820
Short Title: EARLY AMERICA AND THE WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A reading seminar in the history of Early America (1450-1820) with an emphasis on its multifarious interactions with the wider world. Seminar participants will read books that have inaugurated key developments in the field of Early American history.

HIST 503 - HISTORY OF NORTH AMERICAN CAPITALISM
Short Title: NORTH AMERICAN CAPITALISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading seminar is an introduction for graduate students to scholarship on the burgeoning field of the history of capitalism. The course centers largely in the U.S. but also considers developments across the world while noting capitalist formations elsewhere in North America from ca. 1500 to the near present.

HIST 504 - COLONIALISM, RACISM, AND RESISTANCE
Short Title: COLONIALISM AND RACISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar examines histories of colonialism and racism and resistance to them across Asia, Africa, and America: both as articulated by historical protagonists and by scholars.

HIST 505 - THE ATLANTIC SLAVE TRADE
Short Title: THE ATLANTIC SLAVE TRADE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This research seminar studies four centuries of transatlantic slave voyages in comparative perspective and complements existing literature on the Atlantic economy. Primary sources will be drawn from the quantitative data of www.slavevoyages.org. Students will be able to focus on particular regions on both sides of the Atlantic.

HIST 506 - COLONIAL TO REPUBLICAN BRAZIL
Short Title: COLONIAL TO REPUBLICAN BRAZIL
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course traces the history of Brazil from colony to republic. Topics to be covered include: encounters, Jesuit missions, Indian and African slavery, plantation society, the court in Rio de Janeiro, and change and continuities in the 19th century.

HIST 508 - MODERN LATIN AMERICA
Short Title: MODERN LATIN AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on Latin America from the early nineteenth century to present through reading classic and current most relevant scholarship. Political events will provide the periodic framework of the course but it will delve on major economic, social and cultural developments to understand the complex social formations that comprise contemporary Latin American societies. Graduate/Undergraduate Equivalency: HIST 228.

HIST 509 - DIRECTED READINGS
Short Title: DIRECTED READINGS
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level independent readings course. Topics vary. Repeatable for Credit.

HIST 510 - DIRECTED READINGS
Short Title: DIRECTED READINGS
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level independent reading course. Topics vary. Repeatable for Credit.
HIST 512 - READINGS IN BORDERLANDS, CITIZENSHIP, AND IMMIGRATION HISTORY
Short Title: BORDERLANDS & IMMIGRATION
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading seminar is an introduction for graduate students to the historiography that constitutes the fields of U.S.-Mexico borderlands history. The seminar covers the period from the early colonial period to the near present. Special attention is given to historical questions that have been posed in the related but separate fields of American immigration history, including the significance and conceptualization of U.S. citizenship.

HIST 521 - RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH
Short Title: RACE, EDUCATION & SOCIETY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of urban life and education since the decision in Brown v. Board. Seminar focuses on the Brown cases, the development of the post war city in the context of American race relations, the course of court-ordered desegregation, and the impact of recent reforms on urban schools and neighborhoods Graduate/Undergraduate Equivalency: HIST 421. Mutually Exclusive: Cannot register for HIST 521 if student has credit for HIST 421.

HIST 535 - RICE, SLAVERY, & SEGREGATION
Short Title: RICE, SLAVERY, & SEGREGATION
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in this course will work with the Task Force on Slavery, Segregation and Racial Injustice, perform original research on the history of Rice University, and situate that research within a broader national & international context of academic & public history work on universities and racism.

HIST 536 - AMERICA AND THE WORLD
Short Title: AMERICA & THE WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this graduate seminar, we will examine U.S. history in a global context, focusing particularly on imperialism and empire-building. Students are encouraged to think broadly about empire and imperial relationships of which the United States constitute an integral part, looking at domination in economic and cultural forms in addition to political subjugation, formal colonialism and military interventions/dominations.

HIST 539 - ORIGINS OF AFRO AMERICA
Short Title: ORIGINS OF AFRO AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar focused on the articulation of black society, culture, and labor in the Americas from the 15th century to the early 19th century.

HIST 542 - HISTORIOGRAPHY OF THE MODERN MIDDLE EAST
Short Title: MODERN MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar will explore the relationship between religion, race, and difference in the modern world. Using both American and non-American cases, the course will explore how and why unequal multi-religious and multi-racial societies - from the United States to the Middle East and South Asia - have elaborated and adapted to modern ideas of secular citizenship and multiculturalism.

HIST 558 - RELIGION, RACE, AND DIFFERENCE IN A GLOBAL PERSPECTIVE
Short Title: RELIGION, RACE, & DIFFERENCE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar will explore the relationship between religion, race, and difference in the modern world. Using both American and non-American cases, the course will explore how and why unequal multi-religious and multi-racial societies - from the United States to the Middle East and South Asia - have elaborated and adapted to modern ideas of secular citizenship and multiculturalism.

HIST 563 - RACE AND SLAVERY IN THE EARLY ATLANTIC
Short Title: EARLY ATLANTIC RACE & SLAVERY
Department: History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar designed to help students formulate, research, and produce an initial draft of what will hopefully become a publishable scholarly article dealing with race or slavery in the Atlantic World.
HIST 565 - THE ATLANTIC WORLD
Short Title: THE ATLANTIC WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar provides an introduction to the historiography of the Atlantic World, especially Africa and the British Atlantic during the 17th and 18th centuries with comparison to France and French Caribbean and to Iberia and Spanish and Luso-America. Thematic topics will include commercial networks, political/imperial/legal structures, and slavery.

HIST 566 - NORTH AMERICA, 1500-1800
Short Title: NORTH AMERICA, 1500-1800
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar provides overview of historical literature pertaining to British North America and the Atlantic World from 1500 to 1800. Related topics in Spanish and French North America also considered.

HIST 570 - U.S. ENVIRONMENTAL HISTORY
Short Title: U.S. ENVIRONMENTAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on the Spanish and Portuguese colonies in the Americas. Topics covered include: the Iberian heritage, encounters and conquests, historical demography, the colonial economy, slavery, family life, religion, and the coming of independence.

HIST 571 - THE HISTORIOGRAPHY OF NATIONALISM, PLURALISM AND POLITICAL BELONGING.
Short Title: HISTORIOGRAPHY OF NATIONALISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will explore the historiography of pluralism and political belonging and its relationship to various national formations, including the United States. It will read major figures such a W.E.B. Du Bois alongside exemplary figures from the colonial and postcolonial worlds to explore how claims to national belonging are made through the construction of historical narratives.

HIST 574 - SLAVERY AND SLAVING IN AFRICA
Short Title: SLAVERY AND SLAVING IN AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces graduate students to the key debates, scholars, and historiography relating to slavery and slaving in African history. Students will also gain basic familiarity with the narrative of slaving in Africa as well as introductions to topics in slavery studies like gender, commodities, and identity.

HIST 575 - INTRODUCTION TO DOCTORAL STUDIES
Short Title: INTRO DOCTORAL STUDIES
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to a range of methodological and theoretical approaches to historical research, as well as to important current debates about the nature of historical investigation and interpretation.

HIST 576 - PEDAGOGY SEMINAR
Short Title: PEDAGOGY SEMINAR
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For ABD students who intend to teach. Required for those who intend to teach for the department.

HIST 578 - PROSPECTUS SEMINAR
Short Title: PROSPECTUS SEMINAR
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on prospectus and grant-writing for third-year graduate students. Required for students in the third year.

HIST 579 - COLONIAL LATIN AMERICA
Short Title: COLONIAL LATIN AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on the Spanish and Portuguese colonies in the Americas. Topics covered include: the Iberian heritage, encounters and conquests, historical demography, the colonial economy, slavery, family life, religion, and the coming of independence.
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<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Description</th>
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<td>SOUTHERN HISTORY</td>
<td>SOUTHERN HISTORY</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate reading in conjunction with another course. Repeatable for Credit.</td>
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<td>HIST 584</td>
<td>THE EARLY SOUTH, 1600-1800</td>
<td>THE EARLY SOUTH, 1600-1800</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate reading seminar in world history.</td>
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<td>HIST 587</td>
<td>19TH CENTURY US RESEARCH</td>
<td>19TH CENTURY US RESEARCH</td>
<td>History</td>
<td>Standard Letter</td>
<td>Research</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate research and writing seminar on U.S. nineteenth-century history, with an emphasis on social and cultural history. Research paper required.</td>
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<td>HIST 588</td>
<td>19TH CENTURY AMERICA</td>
<td>19TH CENTURY AMERICA</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
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<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate reading seminar on American history from the early republic to World War I. Contents vary.</td>
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<td>HIST 590</td>
<td>INTRODUCTION TO WORLD HISTORY</td>
<td>INTRODUCTION TO WORLD HISTORY</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
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<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate reading seminar in world history.</td>
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<td>HIST 591</td>
<td>GRADUATE READING</td>
<td>GRADUATE READING</td>
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<td>Standard Letter</td>
<td>Independent Study</td>
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<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate reading in conjunction with another course. Repeatable for Credit.</td>
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<td>HIST 595</td>
<td>THE AMERICAN SOUTH</td>
<td>THE AMERICAN SOUTH</td>
<td>History</td>
<td>Standard Letter</td>
<td>Research</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate reading seminar on major scholarly literature of southern history. Includes readings, discussions, and a major paper on historiographical topic decided in consultation with the instructor.</td>
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<td>HIST 596</td>
<td>PORT CITIES IN THE ATLANTIC WORLD: SIXTEENTH-NINETEENTH CENTURIES</td>
<td>PORT CITIES IN THE ATLANTIC WORLD: SIXTEENTH-NINETEENTH CENTURIES</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate seminar investigates the social and economic history of key port cities in the Atlantic World from the sixteenth through the nineteenth centuries. Emphasis will be placed on slavery and the slave trade, the spatial history of the port city, and the experiences of men and women. Digital humanities methods will be demonstrated through a case study of Rio de Janeiro. Students will develop and write a final paper on the port city of their choice.</td>
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<td>HIST 598</td>
<td>THE MAKING OF THE MODERN ARAB WORLD</td>
<td>MAKING OF THE MODERN ARAB WORLD</td>
<td>History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate seminar explores how various approaches from the secular to the religious, from the colonial to the post-colonial, and from the orientalist to the nationalist and post-orientalist have shaped the idea of what constitutes the Arab world.</td>
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<td>HIST 599</td>
<td>ADVANCED MUSEUM STUDIES</td>
<td>ADVANCED MUSEUM STUDIES</td>
<td>History</td>
<td>Standard Letter</td>
<td>Research</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Repeatable for credit. Offered as necessary. Repeatable for Credit.</td>
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<td>HIST 601</td>
<td>MASTER'S THESIS RESEARCH</td>
<td>MASTER'S THESIS RESEARCH</td>
<td>History</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Research</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Research for master's thesis. Must take both HIST 601 and 602 to receive credit. Offered as necessary.</td>
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HIST 602 - MASTER'S THESIS RESEARCH
Short Title: MASTER'S THESIS RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of HIST 601. Must complete both HIST 601 and 602 to receive credit.

HIST 603 - AMERICA IN THE MIDDLE EAST
Short Title: AMERICA IN THE MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar examining the encounter between the United States and Middle Eastern societies since the nineteenth century. Graduate students will complete all UG requirements in as well as an additional 15 page essay to be submitted with the project prospectus. Final papers must be at least 25 pages and incorporate non-English research as appropriate. Graduate/Undergraduate Equivalency: HIST 436. Mutually Exclusive: Cannot register for HIST 603 if student has credit for HIST 436.

HIST 604 - ECONOMIC HISTORY
Short Title: ECONOMIC HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced graduate seminar examining world economic history and the history of political economy from 1500 to the present.

HIST 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

HIST 700 - THIRD-YEAR RESEARCH
Short Title: THIRD-YEAR RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 4-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Appropriate for third-year graduate students who are working on their prospectus and have not yet taken their general exam. Repeatable for Credit.

HIST 800 - PH.D. RESEARCH
Short Title: PH.D. RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for doctoral dissertation. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: HIST

Department Description and Code
- History: HIST

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in History: HIST

Undergraduate Major Concentration Description and Code
- Major Concentration in History: International Concentration: HINT

Undergraduate Minor Description and Code
- Minor in History: HISM

Graduate Degree Descriptions and Codes
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
- Degree Program in History: HIST

CIP Code and Description
- HIST Major/Program: CIP Code/Title: 54.0101 - History, General
- HINT Major Concentration: CIP Code/Title: 54.0199 - History, Other
- HISM Minor: CIP Code/Title: 54.0101 - History, General

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in History

Program Learning Outcomes for the BA Degree with a Major in History

Upon completing the BA degree with a major in History, students will be able to:

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1. Identify and connect the ways that people, ideas, and technologies have circulated across the range of geographic regions and historical periods.

2. Apply historical questions to concrete cases and demonstrate analytical skills through the use of historical evidence, rigorous logic, and persuasive argument.

3. Exhibit a solid understanding of historical methodologies and research skills, including the careful and creative use of primary and secondary sources that are read critically and weighed carefully as historical evidence.

4. Demonstrate an awareness of the scholarly literature on a given research topic and identify the position of their research within that literature.

5. Exhibit mastery in writing persuasive and analytical prose following the conventions of the discipline.

Requirements for the BA Degree with a Major in History

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in History must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A minimum of 2 courses (6 credit hours) from departmental course offerings of 400-level seminars.

Some foreign language proficiency is desirable and the department highly recommends that students contemplating graduate work in history study at least one foreign language in some depth.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in History</td>
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Degree Requirements

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<td>MEDIEVAL CIVILIZATIONS</td>
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<td>MEXICO: AN INTRODUCTION</td>
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<td>HISTORICAL SURVEY OF JEWISH CIVILIZATION FROM ITS ORIGINS TO THE PRESENT</td>
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<td>OCEANS IN WORLD HISTORY</td>
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<td>ANCIENT Empires: Origins of Western CIVILIZATIONS</td>
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<td>JUDAISM OF JESUS AND HILLEL</td>
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<td>HIST 211</td>
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<td>THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING</td>
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<td>ANCIENT CHINESE THOUGHT</td>
<td>3</td>
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<tr>
<td>HIST 271</td>
<td>HISTORY OF SOUTH ASIA</td>
<td>3</td>
</tr>
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<td>GOLDEN AGE OF ISLAM</td>
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<td>OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD</td>
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<td>IMPERIAL ROME FROM CAESAR TO DIOCLETIAN</td>
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<td>THE WORLD OF LATE ANTIQUITY</td>
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<td>THE BODY IN GLOBAL HISTORIES OF MEDICINE</td>
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<td>JEWS AND CHRISTIANS IN THE MEDIEVAL ISLAMICAL WORLD</td>
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<td>IMPERIAL GARDENS: A CULTURAL COMPARISON</td>
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<td>HISTORY OF ATLANTIC AFRICA</td>
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**Europe Courses**

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<td>EUROPEAN POLITICS AND SOCIETY, 1890-1945</td>
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### Africa, Asia, Latin America, Middle East Courses

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<td>OCEANS IN WORLD HISTORY</td>
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<td>CHINESE WOMEN THROUGH TIME</td>
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<td>TOPICS IN LATIN AMERICAN HISTORY</td>
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<td>RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA</td>
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<td>COMPARATIVE MODERNIZATION OF CHINA AND JAPAN</td>
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**Transnational, Comparative, World Courses**

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<td>MEDIEVAL MEDITERRANEAN WORLD</td>
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<td>HIST 207</td>
<td>SPATIAL HISTORY AND HISTORICAL GIS</td>
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<td>HIST 211 / MDEM 210</td>
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<td>HIST 218 / ASIA 218 / FILM 218</td>
<td>HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA</td>
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<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
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<td>MEXICO: 1910 TO PRESENT</td>
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<td>HIST 226</td>
<td>COLONIAL SPANISH AMERICA</td>
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<td>HIST 227</td>
<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
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<td>SPORTS, EMPIRE AND NATION: THE HISTORY OF THE MODERN WORLD THROUGH SPORTS</td>
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<td>HISTORY OF MODERN SCIENCE</td>
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<td>STATE, SOCIETY, AND THE ECONOMY IN THE MODERN MIDDLE EAST</td>
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<td>MUSEUMS IN WORLD HISTORY</td>
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<td>OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD</td>
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<td>HIST 310</td>
<td>THE BODY IN GLOBAL HISTORIES OF MEDICINE</td>
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<td>IMPERIAL GARDENS: A CULTURAL COMPARISON</td>
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<td>HISTORY OF ATLANTIC AFRICA</td>
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<td>HIST 327 / MDEM 327</td>
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<td>AMERICAN LEGAL HISTORY, 1863 TO THE PRESENT</td>
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<td>HISTORY OF FEMINISM</td>
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<td>COMPUTER TECHNOLOGY AND SOCIETY</td>
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<td>AMERICA, 1900-1940</td>
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<td>JEWS AND CHRISTIANS IN MEDIEVAL EUROPE</td>
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<td>IMMIGRATION AND THE STATE: 19TH &amp; 20TH CENTURY</td>
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<td>HIST 378</td>
<td>MODERN ARAB HISTORY</td>
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<td>HIST 381 / RELI 385</td>
<td>GOD, TIME AND HISTORY</td>
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<td>MODERN GIRL AND ASIA IN THE WORLD</td>
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<td>THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION</td>
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<td>HIST 389 / ASIA 389</td>
<td>INDIAN OCEAN WORLD HISTORY</td>
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<td>DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP</td>
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<td>WORKERS' REVOLUTIONS, SUBALTERN SOLIDARITIES, AND THE MAKING OF EMANCIPATORY POLITICS</td>
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<td>HIST 407</td>
<td>THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888</td>
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<td>HIST 413</td>
<td>A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL</td>
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<td>WORLD WAR ONE IN EUROPE: ORIGINS, SOCIAL EFFECTS, POLITICAL CONSEQUENCES</td>
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<td>HIST 418</td>
<td>HOW HISTORIANS THINK</td>
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<td>HIST 424</td>
<td>RAJ AND RESISTANCE</td>
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<td>MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL</td>
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<td>GLOBAL HISTORY OF SPORT</td>
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<td>WRITING HISTORIES OF WORK</td>
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<td>THE HISTORY OF HUMAN RIGHTS</td>
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<td>FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989</td>
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<td>U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR</td>
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<td>HIST 494</td>
<td>RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA</td>
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<td>HIST 495</td>
<td>COMPARATIVE MODERNIZATION OF CHINA AND JAPAN</td>
<td>3</td>
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</tbody>
</table>

### Policies for the BA Degree with a Major in History

#### Program Restrictions and Exclusions

Students pursuing the major in History should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the major in History should be aware of the following departmental transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- Courses taken at another university, including online courses, must be equivalent in required reading, writing, research and testing, as well as classroom hours, of a Rice history course. Regarding subject matter, however, there does not have to be an equivalent course in the Rice history course offerings, unless the student requires distribution credit.
• Rice students planning to study at a foreign university must also obtain pre-approval from the Rice Study Abroad Office.
• AP, IB or A-level credit (and the corresponding Rice transfer credit) may not be used to satisfy any requirements for the history major (even though a student may be able to use the articulated credit hours toward general university requirements).

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from History (HIST) are generally 100- and 200-level introductory courses that do not presuppose work in History or the Humanities.

Additional Information
For additional information, please see the History website: https://history.rice.edu/.

Opportunities for the BA Degree with a Major in History

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors Program in History
Qualified undergraduates may enroll for 6 semester credit hours of directed honors research and writing, completing an honors thesis in their senior year (these 6 credit hours are in addition to the 30 hours required for the major). Accepted students enroll in HIST 403 for 3 credit hours in the Fall of their senior year and in HIST 404 for 3 credit hours in the Spring of their senior year. Application to the program is required. For current procedures, see the department website (http://history.rice.edu/). Financial assistance is available to conduct related research during the summer between the junior and senior year for all students accepted into the Honors Program.

Research Assistantships
The Department of History offers several paid Research Assistantships to give undergraduate students the opportunity to work closely with a faculty member and exercise their historical research skills.

Ira and Patricia Gruber Fund for Undergraduate Research
This fund supports, among other things, independent research projects carried out by history majors under the supervision of department faculty. Typical forms of support include reimbursements or advances for travel to an archive to do research or to a conference to present a paper.

Charles Garside, Jr. Prize in History
Awarded to a "distinguished student of history to honor the memory of Charles Garside, Jr.," a member of the Rice faculty from 1966-1987. The prize offers the winners time to broaden and deepen their education through travel and reflection.

Additional Information
For additional information, please see the History website: https://history.rice.edu/.

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Bachelor of Arts (BA) Degree with a Major in History and a Major Concentration in History: International Concentration

Program Learning Outcomes for the BA Degree with a Major in History and an International Major Concentration
Upon completing the BA degree with a major in History, students will be able to:

1. Identify and connect the ways that people, ideas, and technologies have circulated across the range of geographic regions and historical periods.
2. Apply historical questions to concrete cases and demonstrate analytical skills through the use of historical evidence, rigorous logic, and persuasive argument.
3. Exhibit a solid understanding of historical methodologies and research skills, including the careful and creative use of primary and secondary sources that are read critically and weighed carefully as historical evidence.
4. Demonstrate an awareness of the scholarly literature on a given research topic and identify the position of their research within that literature.
5. Exhibit mastery in writing persuasive and analytical prose following the conventions of the discipline.

Additionally, upon completing the BA degree with a major in History and a major concentration in History: International Concentration, students will be able to:

1. Experience a different language and culture in situ.
2. Demonstrate the ability to use a second language for research.
Requirements for the BA Degree with a Major in History

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in History must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A minimum of 2 courses (6 credit hours) from departmental course offerings of 400-level seminars.

In addition to the degree requirements, students following the major concentration in History: International Concentration will be required to:

- Complete a significant study abroad experience (such as those recommended by Rice’s Office of International Programs).
- Demonstrate research competency in a language other than English.
- Students may demonstrate language competency in two ways. Students who pass a departmental language exam will be certified as having met the language requirement. Students who complete a history honors thesis or a 400-level seminar paper that draws on a significant number of non-English secondary or primary sources will also be certified as having met the stipulation.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions may be formally and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
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<td><strong>Total Credit Hours Required for the BA Degree with a Major in History</strong></td>
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**Degree Requirements**

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<th>Title</th>
<th>Credit Hours</th>
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<td></td>
<td><strong>Core Requirements</strong></td>
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<td>Select at least 1 course from at least 4 of the 5 following fields</td>
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<td>(see course lists below):</td>
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<tr>
<td></td>
<td><strong>Premodern</strong></td>
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<tr>
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<td>Europe</td>
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<tr>
<td></td>
<td>United States</td>
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<td></td>
<td>Africa, Asia, Latin America, Middle East</td>
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<td></td>
<td>Transnational, Comparative, World</td>
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<td><strong>Seminar</strong></td>
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<td>Select 2 seminar courses from departmental (HIST) course offerings at the 400-level.</td>
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**Elective Requirements**

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<td>Select 4 elective courses from departmental (HIST) course offerings</td>
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</table>

**Total Credit Hours Required for the Major in History**

- 30 Additional Credit Hours to Complete Degree Requirements
- 59 University Graduation Requirements (p. 29)

**Total Credit Hours**

- 120

**Footnotes and Additional Information**

- **Note:** University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. Any departmental (HIST) course offerings between HIST 400 and HIST 499, with the exception of HIST 403 and HIST 404, will fulfill the Seminar Requirement.

2. AP credit for history (HIST 103, HIST 105, HIST 107), HIST 403, and HIST 404, do not fulfill History major requirements as Electives or as Seminar. Additionally, students may take HIST 390 only once to fulfill History major requirements.

**Core Requirements**

Select at least 1 course (3 credit hours) from at least 4 of the 5 following fields. Of the 10 required courses to satisfy the History major requirements, a minimum of 6 courses total (18 credit hours) must be completed at the 300-level or above.

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<td><strong>HIST 176</strong>              MEXICO: AN INTRODUCTION</td>
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<td><strong>HIST 200</strong>              ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS</td>
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<td><strong>HIST 201 / RELI 203</strong> JUDAISM OF JESUS AND HILLEL</td>
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<td>RACE AND MEDICINE IN AMERICAN HISTORY</td>
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<td>AMERICAN URBAN HISTORY, 1609 TO TODAY</td>
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<td>REMEMBERING PAINFUL PASTS: THE PRACTICE OF MEMORY AND PUBLIC HISTORY</td>
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<td>BLACK LIFE IN THE NINETEENTH-CENTURY UNITED STATES</td>
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<td>HISTORY: THE WORKSHOP</td>
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<td>UNITED STATES AND LATIN AMERICAN RELATIONS</td>
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<td>RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH</td>
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<td>LAW IN THE DIGITAL WORLD</td>
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<td>U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR</td>
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<td>HIST 484</td>
<td>THE BLACK CITY: AFRICAN AMERICAN URBAN LIFE IN THE UNITED STATES</td>
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### Africa, Asia, Latin America, Middle East Courses

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<td>MEXICO: AN INTRODUCTION</td>
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<td>OCEANS IN WORLD HISTORY</td>
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<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
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<td>GOLDEN AGE OF ISLAM</td>
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<td>THE ARAB-ISRAELI CONFLICT</td>
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HIST 308 / MDEM 308  THE WORLD OF LATE ANTIQUITY  3
HIST 310  THE BODY IN GLOBAL HISTORIES OF MEDICINE  3
HIST 312  ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA  3
HIST 320  IMPERIAL GARDENS: A CULTURAL COMPARISON  3
HIST 323  HISTORY OF ATLANTIC AFRICA  3
HIST 327 / MDEM 327  MEDIEVAL BORDERLANDS  3
HIST 332  AMERICAN LEGAL HISTORY, 1863 TO THE PRESENT  3
HIST 340 / SWGS 345  HISTORY OF FEMINISM  3
HIST 346  COMPUTER TECHNOLOGY AND SOCIETY  3
HIST 350  AMERICA, 1900-1940  3
HIST 351  AMERICA SINCE 1945  3
HIST 353  HISTORY OF SENSATION  3
HIST 357 / MDEM 357  JEWS AND CHRISTIANS IN MEDIEVAL EUROPE  3
HIST 358  HUMANITARIANISM FROM THE 19TH CENTURY TO THE PRESENT  3
HIST 359  THE UNITED STATES IN THE TWENTIETH CENTURY WORLD  3
HIST 365 / ECON 365  WORLD ECONOMIC HISTORY  3
HIST 372  IMMIGRATION AND THE STATE: 19TH & 20TH CENTURY  3
HIST 378  MODERN ARAB HISTORY  3
HIST 381 / RELI 385  GOD, TIME AND HISTORY  3
HIST 384 / ASIA 328 / SWGS 384  MODERN GIRL AND ASIA IN THE WORLD  3
HIST 387  THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION  3
HIST 389 / ASIA 389  INDIAN OCEAN WORLD HISTORY  3
HIST 405  DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP  3
HIST 406  WORKERS’ REVOLUTIONS, SUBALTERN SOLIDARITIES, AND THE MAKING OF EMANCIPATORY POLITICS  3
HIST 407  THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888  3
HIST 413  A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL  3
HIST 414  WORLD WAR ONE IN EUROPE: ORIGINS, SOCIAL EFFECTS, POLITICAL CONSEQUENCES  3
HIST 418  HOW HISTORIANS THINK  3
HIST 424  RAJ AND RESISTANCE  3
HIST 428  MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL  3

HIST 429  BORDERLANDS HISTORY  3
HIST 433  THE ARAB-ISRAELI CONFLICT  3
HIST 434  ISLAM AND THE WEST  3
HIST 436  AMERICA IN THE MIDDLE EAST  3
HIST 437  GLOBAL HISTORY OF SPORT  3
HIST 445  WRITING HISTORIES OF WORK  3
HIST 455  THE HISTORY OF HUMAN RIGHTS  3
HIST 457  FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989  3
HIST 464  U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR  3
HIST 494  RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA  3
HIST 495  COMPARATIVE MODERNIZATION OF CHINA AND JAPAN  3

Policies for the BA Degree with a Major in History and an International Major Concentration

Program Restrictions and Exclusions

Students pursuing the major in History should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in History should be aware of the following departmental transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- Courses taken at another university, including online courses, must be equivalent in required reading, writing, research and testing, as well as classroom hours, of a Rice history course. Regarding subject matter, however, there does not have to be an equivalent course in the Rice history course offerings, unless the student requires distribution credit.
- Rice students planning to study at a foreign university must also obtain pre-approval from the Rice Study Abroad Office.
- AP, IB or A-level credit (and the corresponding Rice transfer credit) may not be used to satisfy any requirements for the history major (even though a student may be able to use the articulated credit hours toward general university requirements).
Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://Registrar.rice.edu/FacStaff/CourseProcess/). Additionally, as part of an annual roll call (https://Registrar.rice.edu/FacStaff/Distribution_Credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from History (HIST) are generally 100- and 200-level introductory courses that do not presuppose work in History or the Humanities.

Additional Information

For additional information, please see the History website: https://history.rice.edu/.

Opportunities for the BA Degree with a Major in History and an International Major Concentration

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors Program in History

Qualified undergraduates may enroll for 6 semester credit hours of directed honors research and writing, completing an honors thesis in their senior year (these 6 credit hours are in addition to the 30 hours required for the major). Accepted students enroll in HIST 403 for 3 credit hours in the Fall of their senior year and in HIST 404 for 3 credit hours in the Spring of their senior year. Application to the program is required. For current procedures, see the department website (http://history.rice.edu/). Financial assistance is available to conduct related research during the summer between the junior and senior year for all students accepted into the Honors Program.

Research Assistantships

The Department of History offers several paid Research Assistantships to give undergraduate students the opportunity to work closely with a faculty member and exercise their historical research skills.

Ira and Patricia Gruber Fund for Undergraduate Research

This fund supports, among other things, independent research projects carried out by history majors under the supervision of department faculty. Typical forms of support include reimbursements or advances for travel to an archive to do research or to a conference to present a paper.

Charles Garside, Jr. Prize in History

Awarded to a "distinguished student of history to honor the memory of Charles Garside, Jr.," a member of the Rice faculty from 1966-1987. The prize offers the winners time to broaden and deepen their education through travel and reflection.

Additional Information

For additional information, please see the History website: https://history.rice.edu/.

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/stUDENT-LIFE/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Doctor of Philosophy (PhD) Degree in the field of History

Program Learning Outcomes for the MA and PhD Degrees in the field of History

Upon completing the MA and PhD degrees in the field of History, students will be able to:

1. Develop analytic skills in critical thinking and writing that are of value both inside and outside the academy.
2. Conduct original research that makes a contribution to the field.
3. Be equipped to enter the historical profession as academics who can teach, present work to peers, and communicate effectively with the public.
4. Acquire expertise in their major field of historical inquiry and learn the skills necessary to write historical monographs.

Requirements for the MA and PhD Degrees in the field of History

MA Degree Program

The MA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students are not normally admitted into the Master of Arts (MA) degree program, but the department of History offers the MA degree to those PhD students who have achieved doctoral candidacy and are in the process of completing the doctorate, or to qualified PhD students who leave the program before completing the doctorate. Students pursuing the MA degree in the field of History must complete the degree in one of the following three ways:

1. completion of one year of coursework (18 credit hours) and a thesis written and defended in an oral examination during the second year, or
2. completion of two years of coursework (36 credit hours), normally including at least two seminar research papers, or
3. for students continuing to the PhD, completion of all requirements for PhD candidacy, including written and oral examinations.

Rice University
Summary

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Requirements for the PhD Degree in the field of History

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Doctoral candidates must prepare themselves in three fields of history: two in their major area of specialization, and a third in an area not included in the first two fields. Students who wish to pursue a third field in an area outside the department should petition the graduate committee by the end of their second semester.

The requirements for completing the degree will be administered as flexibly as possible within the bounds of general university requirements (p. 57). These requirements state that the PhD degree will be awarded after successful completion of at least 90 semester hours of advanced study and an original investigation reported in an approved thesis. The student may apply for formal admission to candidacy for the PhD degree after passing the qualifying exam.

Students pursuing the PhD degree in the field of History must:

- Prepare themselves thoroughly in three examination fields.
- Take 8 graduate seminars, including HIST 575.
- Pass an examination in the principal language of research and in one additional language. If the principal language of research is English, candidates must pass an examination in one other language.
- Perform satisfactorily on written and oral examinations.
- Complete a thesis presenting the results of original research.
- Defend the thesis in a public oral examination.

Summary

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Policies for the PhD Degree in the field of History

Department of History Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of History publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/History_Graduate_Handbook.pdf

Admission

The Rice University graduate program in history is primarily a PhD program. Students who have a BA in history (or its equivalent) are eligible to apply to the PhD program. Although many successful candidates to the PhD program have an MA or other advanced degree, advanced study is not a requirement for admission. Graduate study is offered in these fields: U.S. history, including U.S. and the World topics; Atlantic World history; Latin American history; and the history of the Middle East. These areas are supplemented by an interconnected range of supporting courses and fields, including early modern and modern colonial history, African history, Asian history, European history, world history, gender history, transnational history, economic history, and the history of empires. Further information is available at the department website (http://history.rice.edu/). For general university requirements, see Graduate Degrees (p. 57).

Financial Support

The department awards graduate tuition waivers and fellowship stipends, within the limits of available funds, to qualified PhD candidates with demonstrated ability. All graduate students in the history department are expected to participate in the professional activities of the department as part of their training. These include, but are not limited to, assisting with the Journal of Southern History or serving as research assistants or teaching assistants for department members. As far as possible, these assignments are kept consistent with the areas of interests of the students.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of History should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the History website: https://history.rice.edu/.

Opportunities for the PhD Degree in the field of History

Information regarding resources and opportunities for the Department of History graduate students, including conference and research travel support, as well as additional funding, can be found on the History website: https://history.rice.edu/.

Teaching Opportunities

Avenues for teaching experience at Rice for graduate students include:

The Program in Writing and Communication (PWC (http://pwc.rice.edu/)) hires a number of graduate students each semester for instructor and teaching assistant positions (http://pwc.rice.edu/graduate-students-postdocs-2/) for the University’s First-Year Writing Intensive Seminars (FWIS).

The Center for Academic and Professional Communication (CAPC (https://pwc.rice.edu/center-academic-and-professional-communication/)) hires student consultants enthusiastic about working with Rice students to improve communication skills. The annual job notice is posted in late March and training is provided to successful applicants.
A competitive, sixth-year fellowship serving as the Boles Editing Fellow for the Journal of Southern History is also available.

**Additional Information**

For additional information, please see the History website: [https://history.rice.edu/](https://history.rice.edu/).

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this degree.

## Dual Doctor of Philosophy (PhD) Degree in the field of History, with Instituto Mora, in Mexico

### Program Learning Outcomes for the Dual PhD Degree in the field of History, with Instituto Mora, in Mexico

Upon completing the Dual PhD program in the field of History with Instituto Mora, students will be able to:

1. Write and present orally at the level expected for PhD students at Instituto Mora and Rice.
2. Be widely read in historical literature relevant to their research topic in English and Spanish.
3. Work in archives and libraries in the United States and Mexico.
4. Do original research in relevant primary sources in both languages.
5. Understand two distinct academic traditions and learn from both.

### Requirements for the Dual PhD Degree in the field of History, with Instituto Mora, in Mexico

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

*Rice will award the PhD Degree in the field of History to Instituto Mora students who have successfully completed the following requirements:*

1. Passed their comprehensive examinations and been admitted to candidacy at Instituto Mora.
2. Completed 6 graduate level courses at Rice, of which one must be HIST 575, one must be a History Graduate Research seminar, and one must be a History Graduate Reading seminar.
3. Written a thesis in the language of their home institution and a summary in English that is equivalent in style, scholarship and length to an academic journal article.
4. Successfully presented the thesis, and the summary, in English, to a faculty panel at Rice.
5. Successfully defended the thesis at Instituto Mora.

*The Instituto Mora will award the Doctorado en Historia Moderna y Contemporánea to Rice students who have successfully completed the following requirements:*

1. Passed their comprehensive examinations and been admitted to candidacy at Rice.
2. Completed 8 graduate-level courses at Mora, of which must include Teoría de la Historia; Seminarios de tesis I and II; 2 courses chosen from any of these categories: Teoría Antropológica, Teoría Social, Teoría del Derecho, or Teoría Económica, and 3 additional graduate seminars.
3. Written a thesis in the language of their home institution and a summary in Spanish that is equivalent in style, scholarship and length to an academic journal article.
4. Successfully defended the doctoral thesis at Rice.

### Summary

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<tr>
<th>Code</th>
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<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

### Policies for the Dual PhD Degree in the field of History, with Instituto Mora, in Mexico

#### Department of History Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of History publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/History_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/History_Graduate_Handbook.pdf)

### Additional Information

For additional information, please see the History website: [https://history.rice.edu/](https://history.rice.edu/).

### Opportunities for the Dual PhD Degree in the field of History, with Instituto Mora, in Mexico

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this degree.

## Dual Doctor of Philosophy (PhD) Degree in the field of History, with Universidade Estadual de Campinas (UNICAMP), in Brazil

### Program Learning Outcomes for the Dual PhD Degree in the field of History, with Universidade Estadual de Campinas (UNICAMP), in Brazil

Upon completing the Dual PhD program in the field of History with the Universidade Estadual de Campinas (UNICAMP), students will be able to:
1. Demonstrate oral and written fluency at the graduate level in the two target languages.
2. Demonstrate knowledge of the historiography on their research topic(s) in the two target languages.
3. Demonstrate the ability to work with archives and libraries abroad; and demonstrate the ability to do research in the primary sources in the two target languages.
4. Demonstrate the ability to work with two advisors showing an understanding of two distinct academic communities.

Requirements for the Dual PhD Degree in the field of History, with Universidade Estadual de Campinas (UNICAMP), in Brazil

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Rice will award a PhD degree in the field of History to UNICAMP students who have successfully completed the following requirements:

1. Passed their comprehensive examinations and been admitted to candidacy at UNICAMP.
2. Completed 6 graduate-level courses at Rice, which one must be HIST 575, one must be a History research seminar, and one must be a History reading seminar. Students must be enrolled in at least 9 credit hours per semester while at Rice University.
3. Written a thesis in the language of their home institution and a summary in English that is equivalent in style, scholarship, and length to an academic journal article.
4. Successfully presented the thesis and the summary in English to a faculty panel at Rice.
5. Successfully defended the thesis at UNICAMP.

UNICAMP will award the Doutor em História to Rice students who have successfully completed the following requirements:

1. Passed their comprehensive examinations and been admitted to candidacy at UNICAMP.
2. Completed 2 semesters of coursework at UNICAMP, including all required courses for UNICAMP PhD students in History.
3. Written a thesis in the language of their home institution and a summary in Portuguese, that is equivalent in style, scholarship, and length to an academic journal article.
4. Successfully presented the thesis, and the summary, in Portuguese, to a faculty panel at UNICAMP.
5. Successfully defended the thesis at Rice.

Summary

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
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Policies for the Dual PhD Degree in the field of History, with Universidade Estadual de Campinas (UNICAMP), in Brazil

Department of History Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of History publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021-22/History_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021-22/History_Graduate_Handbook.pdf)

Additional Information

For additional information, please see the History website: [https://history.rice.edu/](https://history.rice.edu/)

Opportunities for the Dual PhD Degree in the field of History, with Universidade Estadual de Campinas (UNICAMP), in Brazil

Additional Information

For additional information, please see the History website: [https://history.rice.edu/](https://history.rice.edu/)

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life) for tables of fellowships, prizes, and internships/practica that may be relevant to this degree.

Minor in History

Program Learning Outcomes for the Minor in History

Upon completing the minor in History, students will be able to:

1. Identify and connect the ways that people, ideas, and technologies have circulated across a range of geographic regions and historical periods.
2. Apply historical questions to concrete cases and demonstrate analytical skills through the use of historical evidence.
3. Exhibit a solid understanding of historical methodologies, including the careful and creative use of primary and secondary sources that are read critically and weighed carefully as historical evidence.

Requirements for the Minor in History

Students pursuing the minor in History must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 course (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1169) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://...
Students and their academic advisors should identify and clearly document the courses to be taken.

## Summary

<table>
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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
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</table>

**Total Credit Hours Required for the Minor in History**

## Minor Requirements

### Core Requirements

Select at least 1 course from at least 3 of the 5 following fields (see course lists below):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
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### Elective Requirements

Select 3 elective courses from departmental (HIST) course offerings at the 300-level and above.

<table>
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<th>Credit Hours</th>
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</table>

**Total Credit Hours**

18

## Footnotes and Additional Information

1 AP credit for history (HIST 103, HIST 105, HIST 107), and History courses HIST 403 and HIST 404, do not fulfill History minor requirements. Additionally, students may take HIST 390 only once to fulfill History minor requirements.

## Courses Lists to Satisfy Requirements

Select at least 1 course (3 credit hours) from at least 3 of the 5 following fields. Of the 6 required courses to satisfy the History minor requirements, a minimum of 3 courses total (9 credit hours) must be completed at the 300-level or above.

### Premodern Courses

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<thead>
<tr>
<th>Code</th>
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<tr>
<td>HIST 109</td>
<td>THE HERO AND HIS COMPANION FROM GILGAMESH TO SHERLOCK HOLMES (AND BEYOND)</td>
<td>3</td>
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<tr>
<td>HIST 120 / MDEM 120</td>
<td>MEDIEVAL CIVILIZATIONS</td>
<td>3</td>
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<tr>
<td>HIST 176</td>
<td>MEXICO: AN INTRODUCTION</td>
<td>3</td>
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<tr>
<td>HIST 186</td>
<td>HISTORICAL SURVEY OF JEWISH CIVILIZATION FROM ITS ORIGINS TO THE PRESENT</td>
<td>3</td>
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<tr>
<td>HIST 190</td>
<td>OCEANS IN WORLD HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 200</td>
<td>ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS</td>
<td>3</td>
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<tr>
<td>HIST 201 / RELI 203</td>
<td>JUDAISM OF JESUS AND HILLEL</td>
<td>3</td>
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<td>HIST 205 / MDEM 205</td>
<td>MEDIEVAL MEDITERRANEAN WORLD</td>
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### Europe Courses

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<td>HIST 102</td>
<td>MODERN EUROPE, 1789-PRESENT</td>
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<tr>
<td>HIST 120 / MDEM 120</td>
<td>MEDIEVAL CIVILIZATIONS</td>
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<td>HIST 190</td>
<td>OCEANS IN WORLD HISTORY</td>
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<td>HIST 205 / MDEM 205</td>
<td>MEDIEVAL MEDITERRANEAN WORLD</td>
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<td>HIST 225</td>
<td>EUROPE SINCE 1945</td>
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<td>HIST 256</td>
<td>EUROPEAN POLITICS AND SOCIETY, 1890-1945</td>
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<td>HIST 305</td>
<td>READING HISTORIES OF WORK</td>
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<td>HIST 311</td>
<td>SEX, GENDER, AND FAMILY IN EUROPE, 1300-1700</td>
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<td>HIST 324</td>
<td>CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN</td>
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<td>HIST 327</td>
<td>MEDIEVAL BORDERLANDS</td>
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<td>HIST 329</td>
<td>STREETS AND URBAN LIFE: PARIS TO ISTANBUL</td>
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<td>HIST 344</td>
<td>EUROPEAN REFORMATIONS</td>
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<td>HIST 352</td>
<td>HISTORY OF THE COLD WAR</td>
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<td>HIST 355</td>
<td>GERMAN HISTORY, 1890-1945</td>
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<td>HIST 356</td>
<td>AFTER NAZISM: GERMAN HISTORY, 1945 - PRESENT</td>
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<td>JEWS AND CHRISTIANS IN MEDIEVAL EUROPE</td>
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<td>HIST 358</td>
<td>HUMANITARIANISM FROM THE 19TH CENTURY TO THE PRESENT</td>
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<td>HISTORY OF PREMODERN BRITAIN: TUDORS AND STAURTS, 1485 - 1707</td>
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<td>HIST 370</td>
<td>EUROPEAN INTELLECTUAL HISTORY: BACON TO HEGEL</td>
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<td>HIST 371</td>
<td>HISTORY OF MODERN FRANCE</td>
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<tr>
<td>HIST 372</td>
<td>IMMIGRATION AND THE STATE: 19TH &amp; 20TH CENTURY</td>
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<tr>
<td>HIST 373</td>
<td>SOCIAL AND POLITICAL THOUGHT IN 19TH CENTURY EUROPE</td>
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<td>HIST 374</td>
<td>JEWISH HISTORY, 1500-1948</td>
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<td>HIST 375</td>
<td>EUROPEAN ROMANTICISM, 1750-1850</td>
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<td>HIST 405</td>
<td>DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP</td>
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<tr>
<td>HIST 409</td>
<td>MUSLIMS, JEWS, CHRISTIANS, HERETICS, AND PAGANS IN THE AGE OF THE CRUSADES</td>
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<td>HIST 412</td>
<td>EMPIRE AND INTERNATIONAL LAW</td>
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<td>HIST 413</td>
<td>A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL</td>
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<td>MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL</td>
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<td>HIST 433</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
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<td>HIST 434</td>
<td>ISLAM AND THE WEST</td>
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<td>MULTICULTURAL EUROPE, 1400-1700</td>
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<td>WRITING HISTORIES OF WORK</td>
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<td>WESTERN EUROPEAN WELFARE STATE, 1880-1980: ORIGINS, CONSOLIDATIONS, CRISIS</td>
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<td>HIST 459</td>
<td>NAZISM AND THE HOLOCAUST</td>
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<td>HIST 461</td>
<td>THE SECOND WORLD WAR: A POLITICAL HISTORY</td>
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<tr>
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<td>HIST 111 RED, WHITE AND BLACK IN EARLY AMERICA CREATING RACIAL IDENTIES IN THE ERA OF THE AMERICAN REVOLUTION</td>
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<tr>
<td>HIST 117 EARLY AMERICA</td>
<td>3</td>
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<tr>
<td>HIST 118 THE UNITED STATES, 1848 TO THE PRESENT</td>
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<tr>
<td>HIST 190 OCEANS IN WORLD HISTORY</td>
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<tr>
<td>HIST 202 IMMIGRATION IN 20TH AND 21ST CENTURY UNITED STATES SOCIETY</td>
<td>3</td>
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<tr>
<td>HIST 208 RACE AND MEDICINE IN AMERICAN HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>HIST 209 AMERICAN URBAN HISTORY, 1609 TO TODAY</td>
<td>3</td>
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<tr>
<td>HIST 210 REMEMBERING PAINFUL PASTS: THE PRACTICE OF MEMORY AND PUBLIC HISTORY</td>
<td>3</td>
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<tr>
<td>HIST 215 BLACKS IN THE AMERICAS</td>
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<td>HIST 216 BLACK LIFE IN THE NINEENTH-CENTURY UNITED STATES</td>
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<td>HIST 217 HISTORY: THE WORKSHOP</td>
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<td>HIST 221 UNITED STATES AND LATIN AMERICAN RELATIONS</td>
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<td>HIST 239 NATIVE AMERICAN HISTORY: FROM EUROPEAN CONTACT TO THE ERA OF REMOVAL</td>
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<td>HIST 241 / SWGS 234 U.S. WOMEN'S HISTORY I: COLONIAL BEGINNINGS TO THE CIVIL WAR</td>
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<tr>
<td>HIST 242 / SWGS 235 U.S. WOMEN'S HISTORY II: CIVIL WAR TO THE PRESENT</td>
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<td>HIST 246 AMERICAN CIVIL WAR ERA</td>
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<td>HIST 259 US IN THE 1960s AND 70s</td>
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<td>HIST 266 SLAVERY AND THE FOUNDING FATHERS</td>
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<td>HIST 268 MODERN SLAVERY AND HUMAN TRAFFICKING</td>
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<td>HIST 291 20TH CENTURY AMERICAN PRESIDENTS</td>
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<td>HIST 295 THE AMERICAN SOUTH</td>
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<td>HIST 315 BLACKS IN THE AMERICAS</td>
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<td>HIST 318 DIGITAL HISTORY METHODS</td>
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<td>HIST 321 US ENVIRONMENTAL HISTORY</td>
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<tr>
<td>HIST 330 ATLANTIC SLAVE TRADE AND THE ORIGINS OF AFRO AMERICA</td>
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<td>HIST 332 AMERICAN LEGAL HISTORY, 1863 TO THE PRESENT</td>
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<td>HIST 338 / SWGS 338 19TH CENTURY WOMEN'S NARRATIVES</td>
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<td>HIST 339 HISTORY OF THE SLAVE EXPERIENCE</td>
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<td>HIST 347 BLACK AMERICA: FROM NADIR THROUGH THE GREAT DEPRESSION</td>
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<td>HIST 350 AMERICA, 1900-1940</td>
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<td>HIST 351 AMERICA SINCE 1945</td>
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<td>HIST 352 HISTORY OF THE COLD WAR</td>
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<td>HIST 359 THE UNITED STATES IN THE TWENTIETH CENTURY WORLD</td>
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HIST 387  THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION  3
HIST 395  THE AMERICAN SOUTH  3
HIST 405  DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP  3
HIST 407  THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888  3
HIST 412  EMPIRE AND INTERNATIONAL LAW  3
HIST 413  A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL  3
HIST 416  SEMINAR IN CONTEMPORARY AFRICAN AMERICAN HISTORY  3
HIST 421  RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH  3
HIST 423  AMERICAN RADICALS AND REFORMERS  3
HIST 426  DISABILITY AND U.S. LAW  3
HIST 427  HISTORY OF THE CIVIL RIGHTS MOVEMENT, 1954 TO THE PRESENT  3
HIST 428  MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL  3
HIST 429  BORDERLANDS HISTORY  3
HIST 433  THE ARAB-ISRAELI CONFLICT  3
HIST 434  ISLAM AND THE WEST  3
HIST 449  LAW IN THE DIGITAL WORLD  3
HIST 457  FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989  3
HIST 464  U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR  3
HIST 484  THE BLACK CITY: AFRICAN AMERICAN URBAN LIFE IN THE UNITED STATES  3

Africa, Asia, Latin America, Middle East Courses

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<td>HIST 112</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
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<td>HIST 176</td>
<td>MEXICO: AN INTRODUCTION</td>
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<td>HIST 190</td>
<td>OCEANS IN WORLD HISTORY</td>
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<td>HIST 205 /</td>
<td>MEDIEVAL MEDITERRANEAN WORLD</td>
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<td>HIST 213</td>
<td>THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING</td>
<td>3</td>
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<td>HIST 215</td>
<td>BLACKS IN THE AMERICAS</td>
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<tr>
<td>HIST 218 /</td>
<td>HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA</td>
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<tr>
<td>FILM 218</td>
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<td>HIST 219</td>
<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
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<td>HIST 220</td>
<td>MEXICO: 1910 TO PRESENT</td>
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<td>HIST 221</td>
<td>UNITED STATES AND LATIN AMERICAN RELATIONS</td>
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<td>HISTORY OF EARLY AFRICA</td>
<td>3</td>
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<td>HISTORY OF MODERN AFRICA</td>
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<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
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<td>MODERN LATIN AMERICA</td>
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<td>HISTORY OF SOUTH AFRICA</td>
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<td>STATE, SOCIETY, AND THE ECONOMY IN THE MODERN MIDDLE EAST</td>
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<td>CONTINUITIES AND CHANGES IN</td>
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<td>SLAVERY AND THE FOUNDING FATHERS</td>
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<td>MODERN SLAVERY AND HUMAN TRAFFICKING</td>
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<td>HISTORY OF SOUTH ASIA</td>
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<td>HIST 275</td>
<td>MODERN MIDDLE EAST</td>
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<td>HIST 278</td>
<td>MODERN ARAB HISTORY</td>
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<td>HIST 281 /</td>
<td>GOLDEN AGE OF ISLAM</td>
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<td>OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD</td>
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<td>CHINESE INTELLECTUAL HISTORY</td>
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<td>HISTORY OF ATLANTIC AFRICA</td>
<td>3</td>
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<td>HIST 328</td>
<td>POVERTY AND SOCIAL JUSTICE IN LATIN AMERICA</td>
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<tr>
<td>HIST 329 /</td>
<td>STREETS AND URBAN LIFE: PARIS TO ISTANBUL</td>
<td>3</td>
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<td>ARCH 329 /</td>
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<td>ATLANTIC SLAVE TRADE AND THE ORIGINS OF AFRO AMERICA</td>
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<td>HIST 331</td>
<td>THE HISTORICAL CONTEXT OF THE CUBAN REVOLUTION</td>
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<td>HIST 337</td>
<td>LATIN AMERICAN PERSPECTIVES</td>
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<tr>
<td>HIST 342</td>
<td>MODERN CHINA</td>
<td>3</td>
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<td>HIST 343</td>
<td>HISTORY OF CHINA IN THE MUSEUM</td>
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<tr>
<td>HIST 352</td>
<td>HISTORY OF THE COLD WAR</td>
<td>3</td>
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<td>HIST 366 /</td>
<td>RIO DE JANEIRO: A SOCIAL AND ARCHITECTURAL HISTORY</td>
<td>3</td>
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<td>ARCH 366</td>
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<td>MODERN ARAB HISTORY</td>
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<td>HIST 384 /</td>
<td>MODERN GIRL AND ASIA IN THE WORLD</td>
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<tr>
<td>SWGS 384</td>
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<td>HIST 389 /</td>
<td>INDIAN OCEAN WORLD HISTORY</td>
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<td>HIST 402</td>
<td>CHINESE WOMEN THROUGH TIME</td>
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<td>THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888</td>
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<td>THE JAPANESE EMPIRE</td>
<td>3</td>
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<td>MUSLIMS, JEWS, CHRISTIANS, HERETICS, AND PAGANS IN THE AGE OF THE CRUSADES</td>
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<td>MEXICAN HISTORY</td>
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<td>RAJ AND RESISTANCE</td>
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<td>MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL</td>
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<td>HIST 429</td>
<td>BORDERLANDS HISTORY</td>
<td>3</td>
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<tr>
<td>HIST 433</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
<td>3</td>
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<tr>
<td>HIST 434</td>
<td>ISLAM AND THE WEST</td>
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<td>HIST 436</td>
<td>AMERICA IN THE MIDDLE EAST</td>
<td>3</td>
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<td>HIST 457</td>
<td>FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989</td>
<td>3</td>
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<td>HIST 478</td>
<td>TOPICS IN LATIN AMERICAN HISTORY</td>
<td>3</td>
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<td>HIST 491</td>
<td>COEXISTENCE AND SECTARIANISM IN THE MIDDLE EAST</td>
<td>3</td>
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<td>HIST 494</td>
<td>RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA</td>
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<td>HIST 495</td>
<td>COMPARATIVE MODERNIZATION OF CHINA AND JAPAN</td>
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**Transnational, Comparative, World Courses**

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<tr>
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<tr>
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<td>WORLD HISTORY SINCE 1492</td>
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<td>HIST 112</td>
<td>THE ARAB-ISRAELI CONFLICT</td>
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<td>MEDIEVAL CIVILIZATIONS</td>
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<td>THE ATLANTIC WORLD: ORIGINS TO THE AGE OF REVOLUTION</td>
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<td>OCEANS IN WORLD HISTORY</td>
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<td>ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS</td>
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<td>IMMIGRATION IN 20TH AND 21ST CENTURY UNITED STATES SOCIETY</td>
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<td>THE IDEA OF AFRICA</td>
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<td>HIST 205 / MDEM 205</td>
<td>MEDIEVAL MEDITERRANEAN WORLD</td>
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<td>SPATIAL HISTORY AND HISTORICAL GIS</td>
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<td>HIST 211 / MDEM 210</td>
<td>MEDIEVAL VIOLENCE</td>
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<td>HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA</td>
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<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
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<td>MEXICO: 1910 TO PRESENT</td>
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<td>COLONIAL SPANISH AMERICA</td>
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<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
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<td>HISTORY OF MODERN SCIENCE</td>
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<td>STATE, SOCIETY, AND THE ECONOMY IN THE MIDDLE EAST</td>
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<td>MUSEUMS IN WORLD HISTORY</td>
<td>3</td>
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<td>MODERN SLAVERY AND HUMAN TRAFFICKING</td>
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<td>HIST 271</td>
<td>HISTORY OF SOUTH ASIA</td>
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<td>OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD</td>
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<td>IMPERIAL ROME FROM CAESAR TO DIOCLETIAN</td>
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<td>THE WORLD OF LATE ANTIQUITY</td>
<td>3</td>
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<td>THE BODY IN GLOBAL HISTORIES OF MEDICINE</td>
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<td>ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA</td>
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<td>IMPERIAL GARDENS: A CULTURAL COMPARISON</td>
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<td>HISTORY OF ATLANTIC AFRICA</td>
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<td>HIST 327 / MDEM 327</td>
<td>MEDIEVAL BORDERLANDS</td>
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<td>AMERICAN LEGAL HISTORY, 1863 TO THE PRESENT</td>
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<td>HISTORY OF FEMINISM</td>
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<td>COMPUTER TECHNOLOGY AND SOCIETY</td>
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<td>AMERICA, 1900-1940</td>
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<td>AMERICA SINCE 1945</td>
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<td>HIST 353</td>
<td>HISTORY OF SENSATION</td>
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<td>JEWS AND CHRISTIANS IN MEDIEVAL EUROPE</td>
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<td>HUMANITARIANISM FROM THE 19TH CENTURY TO THE PRESENT</td>
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<td>THE UNITED STATES IN THE TWENTIETH CENTURY WORLD</td>
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<td>WORLD ECONOMIC HISTORY</td>
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<td>IMMIGRATION AND THE STATE: 19TH &amp; 20TH CENTURY</td>
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<td>MODERN ARAB HISTORY</td>
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<td>HIST 381 / RELI 385</td>
<td>GOD, TIME AND HISTORY</td>
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<td>MODERN GIRL AND ASIA IN THE WORLD</td>
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<td>THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION</td>
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<td>HIST 389 / ASIA 389</td>
<td>INDIAN OCEAN WORLD HISTORY</td>
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<td>DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP</td>
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<td>WORKERS' REVOLUTIONS, SUBALTERN SOLIDARITIES, AND THE MAKING OF EMANCIPATORY POLITICS</td>
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<td>THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888</td>
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<td>A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL</td>
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HIST 414 WORLD WAR ONE IN EUROPE: ORIGINS, SOCIAL EFFECTS, POLITICAL CONSEQUENCES 3
HIST 418 HOW HISTORIANS THINK 3
HIST 424 RAJ AND RESISTANCE 3
HIST 428 MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL 3
HIST 429 BORDERLANDS HISTORY 3
HIST 433 THE ARAB-ISRAELI CONFLICT 3
HIST 434 ISLAM AND THE WEST 3
HIST 436 AMERICA IN THE MIDDLE EAST 3
HIST 437 GLOBAL HISTORY OF SPORT 3
HIST 445 WRITING HISTORIES OF WORK 3
HIST 455 THE HISTORY OF HUMAN RIGHTS 3
HIST 457 FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989 3
HIST 464 U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR 3
HIST 494 RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA 3
HIST 495 COMPARATIVE MODERNIZATION OF CHINA AND JAPAN 3

Policies for the Minor in History
Program Restrictions and Exclusions
Students pursuing the minor in History should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the minor in History should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- Courses taken at another university, including online courses, must be equivalent in required reading, writing, research and testing, as well as classroom hours, of a Rice history course. Regarding subject matter, however, there does not have to be an equivalent course in the Rice history course offerings, unless the student requires distribution credit.

- Rice students planning to study at a foreign university must also obtain pre-approval from the Rice Study Abroad Office.
- Transfer credit coursework received via the articulation of AP, IB or A-level credit will not be considered towards minor requirements.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Additional Information
For additional information, please see the History website: https://history.rice.edu (https://history.rice.edu/)

Opportunities for the Minor in History

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Research Assistantships
The Department of History offers several paid Research Assistantships to give undergraduate students the opportunity to work closely with a faculty member and exercise their historical research skills.

Ira and Patricia Gruber Fund for Undergraduate Research
This fund supports, among other things, independent research projects carried out by history majors and minors under the supervision of department faculty. Typical forms of support include reimbursements or advances for travel to an archive to do research or to a conference to present a paper.

Additional Information
For additional information, please see the History website: https://history.rice.edu

Human-Computer Interaction and Human Factors

Contact Information
Psychological Sciences
https://psychology.rice.edu/
464 Sewall Hall
The Rice University Department of Psychological Sciences offers the Master of Human-Computer Interaction and Human Factors degree, which examines the scientific consideration of people in the design of products, services, and systems.

Human Factors is responsible for ensuring that systems meet the needs and expectations of the user, and more importantly, conform to the capabilities and limitations of those users. Human Factors can increase the ability of users to use effectively complex systems and enhance the safety of those systems. Human Factors focuses much of its efforts to the study of complex human-machine interfaces such as automobile controls, aircraft cockpits, medical devices, and many others.

Human-Computer Interaction is the subarea within Human Factors particularly concerned with computer systems. Human-Computer Interaction and Human Factors is particularly concerned with issues of usability, that is, how the design of technological systems impacts how efficiently and effectively people can use those systems.

Human-Computer Interaction and Human Factors does not currently offer an academic program at the undergraduate level.

**Master’s Program**
- Master of Human-Computer Interaction and Human Factors (MHCIHF) Degree (p. 1190)

**Chair, Department of Psychological Sciences**
Eduardo Salas

**Professors**
- Michael D. Byrne
- Patricia DeLucia
- Eduardo Salas

**Associate Professor**
Philip T. Kortum

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
PSYC 203 - INTRODUCTION TO COGNITIVE PSYCHOLOGY
Short Title: INTRO TO COGNITIVE PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to topics in cognitive psychology, including perception, attention, language, memory, and decision making. Required for psychology majors.

PSYC 231 - INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY
Short Title: INDUS & ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 101
Description: An overview of the principles, techniques, and theories of psychology applied in the industrial setting.

PSYC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 260 - UNDERGRADUATE PROFESSIONAL ISSUES IN PSYCHOLOGY
Short Title: UNDERGRAD PROF ISSUES IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will provide students interested in psychology with an opportunity to explore psychology as a major and a career. Through guest lecturers, group discussions, and class projects, students will learn about diverse fields and potential career paths in psychology. Instructor Permission Required.

PSYC 308 - MEMORY
Short Title: MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Critical review of traditional and contemporary approaches to the study of remembering and forgetting. Graduate/Undergraduate Equivalency: PSYC 524.

PSYC 309 - PSYCHOLOGY OF LANGUAGE
Short Title: PSYCHOLOGY OF LANGUAGE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Study of human and other animal communication. Includes the structure of human language, word meaning and semantic memory, psychological studies of syntax, bilingualism, language and thought, and language errors and disorders. Cross-list: LING 309.

PSYC 310 - PSYCHOLOGY OF AGING
Short Title: PSYCHOLOGY OF AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: This course focuses on the psychology of aging through a biological, cognitive, and socio-emotional framework. Topics to be covered include how mental capacities change over time, especially memory processing, differences between normal and pathological aging, neurobiological changes with age, dementias such as Alzheimer's disease, and individual differences in aging. There will be an emphasis on discussion of recent literature and developing research ideas in the field of psychology of aging.
PSYC 315 - INTRODUCTION TO SEMANTICS
Short Title: INTRODUCTION TO SEMANTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Cross-list: LING 315. Recommended Prerequisite(s): LING 200 or ANTH 200.

PSYC 321 - DEVELOPMENTAL PSYCHOLOGY
Short Title: DEVELOPMENTAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of behavioral changes with age in both human and nonhuman species. Recommended Prerequisite(s): PSYC 202 and PSYC 203.

PSYC 325 - LANGUAGE ACQUISITION
Short Title: LANGUAGE ACQUISITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: The aim of this course is to explore language development closely through a variety of theories and research findings. Students will become familiar with different theories concerning language development, and develop an understanding of relevant issues, theoretical positions and relevant methodologies in language development using critical thinking skills. Cross-list: LING 325.

PSYC 329 - PSYCHOLOGICAL TESTING
Short Title: PSYCHOLOGICAL TESTING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: Offers a detailed examination of psychological test development and analysis. Topics include an exploration of different forms of psychological tests (e.g. intelligence, attitudes, personality, clinical), reliability and validity of tests, and practical issues in testing such as test bias (e.g. gender differences).

PSYC 330 - PERSONALITY THEORY AND RESEARCH
Short Title: PERSONALITY THEORY & RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 340
Description: Examination of those aspects of personality emphasized by major theorists past and present.

PSYC 331 - PSYCHOLOGY OF GENDER
Short Title: PSYCHOLOGY OF GENDER
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of research and theory on gender in psychology. Cross-list: SWGS 331.

PSYC 332 - ABNORMAL BEHAVIOR
Short Title: ABNORMAL BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of the diagnosis and treatment of mental disorders.
PSYC 333 - MULTICULTURAL PSYCHOLOGY  
Short Title: MULTICULTURAL PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101  
Description: This seminar examines psychological research and theories that address important issues in the lives of diverse individuals. Readings, discussions, and films will be used to explore the acculturation process; stereotyping, prejudice, discrimination and racism; racial/ethnic identity development; and multicultural competence. Students are required to participate in a service learning project. Recommended Prerequisite(s): PSYC 202 and PSYC 321.

PSYC 339 - STATISTICAL METHODS-PSYCHOLOGY  
Short Title: STATISTICAL METHODS-PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 or PSYC 203  
Description: Introduction to quantitative and computer methods applicable to the analysis of experimental and correlational data. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 340 - RESEARCH METHODS - PSYCHOLOGY  
Short Title: RESEARCH METHODS - PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 and (PSYC 339 or SOSC 302)  
Description: A continuation of PSYC 339/SOSC 302, with emphasis on individual student experiments and the writing of research reports. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 342 - COMPUTER APPLICATIONS IN PSYCHOLOGY  
Short Title: COMPUTER APPLICATIONS IN PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 203  
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 504. Mutually Exclusive: Cannot register for PSYC 342 if student has credit for PSYC 504.

PSYC 345 - HEALTH PSYCHOLOGY  
Short Title: HEALTH PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 340  
Description: Contemporary theory and research in health psychology, including topics such as health behaviors, stress and coping, pain and its management, heart disease, psychoneuroimmunology, chronic illness, and dying. Recommended Prerequisite(s): PSYC 332 and PSYC 340.

PSYC 346 - STRESS AND HEALTH ACROSS THE LIFESPAN  
Short Title: STRESS/HEALTH ACROSS LIFESPAN  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203  
Description: Contemporary theory and research in health psychology, including topics such as health behaviors, stress and coping, pain and its management, heart disease, psychoneuroimmunology, chronic illness, and dying. Recommended Prerequisite(s): PSYC 332 and PSYC 340.
PSYC 351 - PSYCHOLOGY OF PERCEPTION
Short Title: PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency. PSYC 521.

PSYC 353 - PSYCHOLOGY OF EMOTION AND MOTIVATION
Short Title: PSYC OF EMOTION & MOTIVATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202
Description: Study of motives and emotions as causes of human behavior; includes biological motives, aggression, emotions and emotional expression, and individual differences in motivation. Recommended Prerequisite(s): PSYC 203.

PSYC 354 - INTRODUCTION TO SOCIAL AND AFFECTIVE NEUROSCIENCE
Short Title: INTRO TO SOC/AFFECTIVE NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: This course will give students hands-on training in the research methods of social cognitive and affective neuroscience. Students will learn about the theoretical underpinnings of these allied fields; acquire, preprocess, and analyze human functional neuroimaging data (i.e., using fMRI); and interpret and write-up results. PSYC 354 or PSYC 362 may be taken concurrently.

PSYC 362 - COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN
Short Title: COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Survey of theory and research on how mental processes are carried out by the human brain, with an emphasis on relating measures of brain activity to cognitive functioning, methods surveyed included electro physiological recording techniques, functional imaging techniques and methods that involve lesioning or disrupting neural activity. Cross-list: NEUR 362.

PSYC 364 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 362 (may be taken concurrently) or NEUR 362 (may be taken concurrently)
Description: This course will give students hands-on training in the research methods of social cognitive and affective neuroscience. Students will learn about the theoretical underpinnings of these allied fields; acquire, preprocess, and analyze human functional neuroimaging data (i.e., using fMRI); and interpret and write-up results. PSYC 354 or PSYC 362 may be taken concurrently.
PSYC 370 - INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS
Short Title: INTRO TO HUMAN FACTORS & ERGO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 390 or LING 309 or LING 200 or ANTH 200) and (PSYC 362 or NEUR 362 or NEUR 380 or BIOE 380 or PSYC 380 or BIOC 380)
Description: Application of principles of psychology and human performance to the design of modern systems.

PSYC 375 - NEUROPSYCHOLOGY OF LANGUAGE AND MEMORY
Short Title: NEUROPSYCH OF LANGUAGE/MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 390 or LING 309 or LING 200 or ANTH 200) and (PSYC 362 or NEUR 362 or NEUR 380 or BIOE 380 or PSYC 380 or BIOL 380)
Description: An introduction to the neural basis of language and memory, covering patient-based and neuroimaging approaches. Topics include the neural basis of speech perception, language comprehension, language production, short-term memory, working memory, semantic and episodic memory, and domain-specific memory (e.g., verbal, spatial, and emotional memory).

PSYC 380 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. The course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Cross-list: NEUR 380. Graduate/Undergraduate Equivalency: PSYC 584. Recommended Prerequisite(s): PSYC 101. Mutually Exclusive: Cannot register for PSYC 380 if student has credit for PSYC 584.

PSYC 385 - MEDITATION AND MINDFULNESS
Short Title: MEDITATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: This course provides an introduction to meditation and mindfulness practices, including various forms of meditation, guided meditation, mindfulness exercises, and the application of these practices in daily life. It aims to promote a deeper understanding of the mind-body relationship and its potential benefits for well-being, stress reduction, and personal growth. Cross-list: NEUR 380.

PSYC 409 - METHODS IN HUMAN-COMPUTER INTERACTION
Short Title: METHODS HUMAN-COMP INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 609. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 409 if student has credit for PSYC 609.

PSYC 411 - HISTORY OF PSYCHOLOGY
Short Title: HISTORY OF PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Survey of evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 511. Mutually Exclusive: Cannot register for PSYC 411 if student has credit for PSYC 511.

PSYC 420 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION
Short Title: ELECTION SYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: This multidisciplinary course will consider how elections are conducted to enhance participation, to accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be accurate and secure, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election.
Cross-list: COMP 435, POLI 420.
PSYC 430 - COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
Short Title: COMP MODELING OF COG PROCESSES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency: PSYC 543. Recommended Prerequisite(s): PSYC 203 and COMP 200 (or equivalent). Mutually Exclusive: Cannot register for PSYC 430 if student has credit for PSYC 543.

PSYC 431 - ADVANCED INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY SEMINAR
Short Title: ADVANCED I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An emphasis on reading original published research. Topics covered include personnel selection, training, motivation, job attitudes, and groups. Instructor Permission Required. Mutually Exclusive: Cannot register for PSYC 431 if student has credit for PSYC 530.

PSYC 432 - BRAIN AND BEHAVIOR
Short Title: BRAIN AND BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203 and PSYC 362
Description: An in-depth examination of the neural basis of higher mental functions in humans, including perception, attention, memory, motor skill, and language. Claims and controversies in cognitive neuroscience will be discussed. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 435 - POLLUTION AND PSYCHOLOGICAL DEVELOPMENT
Short Title: POLLUTION & PSYCHOLOGICAL DEV
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, we will consider research on the effects of various pollutants and toxic substances on the cognitive, social, and emotional development of children. Expert guest speakers will contribute to the course as well. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 436 - ADVANCED ORGANIZATIONAL PSYCHOLOGY
Short Title: ADVANCED ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231 and PSYC 431
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 636. Mutually Exclusive: Cannot register for PSYC 436 if student has credit for PSYC 636.

PSYC 438 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 551. Recommended Prerequisite(s): PSYC 339 and PSYC 340 and should be majoring in Psychology or Business. Mutually Exclusive: Cannot register for PSYC 438 if student has credit for PSYC 551.

PSYC 439 - ADVANCED STATISTICAL METHODS FOR PSYCHOLOGY UNDERGRADUATES
Short Title: ADV STATISTICAL METHODS-PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: This course is intended as a second course in statistics for psychology and the social sciences. It builds on PSYC 339/SOSC 302. Advanced factorial ANOVA designs, mixed between- and within-subject designs, and multiple regression will be covered. This course is primarily for advanced psychology undergraduates contemplating enrollment in graduate school.
PSYC 440 - RESEARCH SEMINAR: INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY
Short Title: RESEARCH IN I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An examination of selected topics in industrial/organizational psychology, focusing on published and ongoing research by contemporary scholars. Topics will vary. Instructor Permission Required.

PSYC 441 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 441 if student has credit for PSYC 341/PSYC 541.

PSYC 445 - ADVANCED SEMINAR IN CLINICAL PSYCHOLOGY
Short Title: ADV SEM IN CLINICAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 310 and (PSYC 339 or SOSC 302 or STAT 280 or STAT 300 or STAT 310 or STAT 315 or DSCI 301 or ECON 307)
Description: Study of the higher mental processes. Includes problem solving, judgment, decision making, and reasoning. Graduate/Undergraduate Equivalency: PSYC 527. Mutually Exclusive: Cannot register for PSYC 461 if student has credit for PSYC 360/PSYC 527.

PSYC 442 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 552. Mutually Exclusive: Cannot register for PSYC 452 if student has credit for PSYC 552.

PSYC 444 - ADVANCED SEMINAR IN HEALTH PSYCHOLOGY
Short Title: ADV SEM IN HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 and PSYC 332 and (PSYC 339 or SOSC 302) and PSYC 340
Description: Consideration of research on psychological factors and health, with special consideration to the role of health beliefs in people's practice and nonpractice of health, illness, and sick-role behaviors. Topics will vary. Repeatable for credit with Permission of Department.

PSYC 447 - RESEARCH SEMINAR: PSYCHOLOGICAL SCIENCES
Short Title: RESEARCH PSYCHOLOGICAL SCIENCES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 339 or SOSC 302 or STAT 280 or STAT 300 or STAT 310 or STAT 315 or DSCI 301 or ECON 307)
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 662. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 462 if student has credit for PSYC 662.
### PSYC 463 - MEDICAL HUMAN FACTORS
**Short Title:** MEDICAL HUMAN FACTORS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 663. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 463 if student has credit for PSYC 663.

### PSYC 464 - USABILITY ASSESSMENT
**Short Title:** USABILITY ASSESSMENT  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are “discount” usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency: PSYC 664. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 464 if student has credit for PSYC 664.

### PSYC 465 - OLFACTORY PERCEPTION
**Short Title:** OLFACTORY PERCEPTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 101  
**Description:** Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

### PSYC 470 - ENGINEERING PSYCHOLOGY
**Short Title:** ENGINEERING PSYCHOLOGY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 370  
**Description:** This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency: PSYC 540. Mutually Exclusive: Cannot register for PSYC 470 if student has credit for PSYC 540.

### PSYC 475 - STEREOTYPING AND PREJUDICE
**Short Title:** STEREOTYPING AND PREJUDICE  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 202  
**Description:** Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

### PSYC 477 - SPECIAL TOPICS
**Short Title:** SPECIAL TOPICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

### PSYC 480 - ADVANCED TOPICS
**Short Title:** ADVANCED TOPICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 101 and (PSYC 202 (may be taken concurrently) or PSYC 203)  
**Description:** Topics will vary. Please see individual instructor for prerequisite requirements. Repeatable for different topics. Repeatable for Credit.
PSYC 485 - UNDERGRADUATE SUPERVISED RESEARCH
Short Title: UG SUPERVISED RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised empirical research. Research paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339, PSYC 340. Repeatable for Credit.

PSYC 487 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain’s three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Instructor Permission Required. Graduate/Undergraduate Equivalency: PSYC 587. Mutually Exclusive: Cannot register for PSYC 487 if student has credit for PSYC 587.

PSYC 488 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised reading of books and empirical papers on a topic of mutual interest to students and faculty. Term paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339 and PSYC 340. Repeatable for Credit.

PSYC 495 - SUMMER INTERNSHIP
Short Title: SUMMER INTERNSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides enrollment for various department summer internships. Instructor Permission Required. Repeatable for Credit.

PSYC 499 - HONORS THESIS
Short Title: HONORS THESIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate Level
Prerequisite(s): (PSYC 339 or SOSC 302) and PSYC 340
Description: Sponsorship by faculty member required. Students must apply for the Honors Program. Instructor Permission Required. Repeatable for Credit.

PSYC 502 - ADVANCED PSYCHOLOGICAL STATISTICS I
Short Title: ADVANCED PSYC STATISTICS I
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate Level
Description: Introduction to inferential statistics, with emphasis on analysis of variance. Students who do not meet registration requirements as Graduate and Psychology or MHCIF (Master in Human-Computer Interaction and Human Factors) Majors must receive instructor permission to register. Cross-list: STAT 509.

PSYC 503 - ADVANCED PSYCHOLOGICAL STATISTICS II
Short Title: ADVANCED PSYC STATISTICS II
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 502 or STAT 509
Description: A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Cross-list: STAT 510.
PSYC 504 - COMPUTER APPLICATIONS IN PSYCHOLOGY
Short Title: COMPUTER APPLICATIONS IN PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 342. Mutually Exclusive: Cannot register for PSYC 504 if student has credit for PSYC 342.

PSYC 507 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level treatment of a wide range of laboratory and field research methodologies.

PSYC 511 - HISTORY AND SYSTEMS OF PSYCHOLOGY
Short Title: HISTORY & SYSTEMS OF PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 411. Mutually Exclusive: Cannot register for PSYC 511 if student has credit for PSYC 411.

PSYC 520 - FOUNDATIONS OF COGNITIVE PSYCHOLOGY
Short Title: FOUNDATIONS OF COGNITIVE PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the basic topics in cognitive psychology, including perception, memory, psycholinguistics, concept formation, problem solving, and decision making.

PSYC 521 - PSYCHOLOGY OF PERCEPTION
Short Title: PSYCHOLOGY OF PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency: PSYC 351.

PSYC 522 - INFORMATION PROCESSING AND ATTENTION
Short Title: INFO PROCESSING & ATTENTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of topics in attention, including information overload, selective attention, response conflict, and automatic/unconscious and controlled/conscious processes. The neural mechanisms underlying these processes will also be discussed.

PSYC 524 - MEMORY
Short Title: MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of issues and research in remembering and forgetting. Graduate/Undergraduate Equivalency: PSYC 308.

PSYC 525 - PSYCHOLINGUISTICS
Short Title: PSYCHOLINGUISTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the psychology of language. Includes the study of speech production, reading, syntax, meaning, bilingualism, language and thought, and language errors and disorders.

PSYC 527 - REASONING, DECISION MAKING, PROBLEM SOLVING
Short Title: REASONING, DECISION MAKING, PROB SOLVING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of higher mental processes. Includes problem solving, judgment, decision making, and reasoning. Graduate/Undergraduate Equivalency: PSYC 461. Mutually Exclusive: Cannot register for PSYC 527 if student has credit for PSYC 461.
PSYC 529 - COGNITIVE RESEARCH SEMINAR
Short Title: COGNITIVE RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent research about mental phenomena. Repeatable for Credit.

PSYC 530 - FOUNDATIONS OF I-O PSYCHOLOGY
Short Title: FOUNDATIONS OF I-O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level introduction to the study of human behavior in the work setting. Mutually Exclusive: Cannot register for PSYC 530 if student has credit for PSYC 431.

PSYC 531 - HF/HCI RESEARCH SEMINAR
Short Title: HF/HCI RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on various human factors and human-computer interaction topics. Repeatable for Credit.

PSYC 532 - HEALTH RESEARCH SEMINAR
Short Title: HEALTH RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent health and emotion-related research. Repeatable for Credit.

PSYC 533 - I-O PSYCHOLOGY RESEARCH SEMINAR
Short Title: I-O PSYCHOLOGY RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on various industrial-organizational psychology topics. Repeatable for Credit.

PSYC 535 - HUMAN FACTORS/ERGONOMICS
Short Title: HUMAN FACTORS/ERGONOMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Broad overview of the science and profession of human factors/ergonomics. Emphasis is on discussion of literature and presentations of recommendations to applied problems.

PSYC 536 - I-O PSYCHOLOGY RESEARCH SEMINAR
Short Title: I-O PSYCHOLOGY RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent research about mental phenomena. Repeatable for Credit.

PSYC 540 - FOUNDATIONS OF ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency: PSYC 470. Mutually Exclusive: Cannot register for PSYC 540 if student has credit for PSYC 470.

PSYC 541 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 541 if student has credit for PSYC 341/PSYC 441.

PSYC 543 - COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
Short Title: COMP MODELING OF COG PROCESSES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency: PSYC 430. Mutually Exclusive: Cannot register for PSYC 543 if student has credit for PSYC 430.
PSYC 546 - PSYCHONEUROIMMUNOLOGY
Short Title: PSYCHONEUROIMMUNOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Psychoneuroimmunology research

PSYC 547 - FOUNDATIONS OF HEALTH PSYCHOLOGY
Short Title: FOUNDATIONS-HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Foundations of Health Psychology research

PSYC 548 - INTERVENTIONS
Short Title: INTERVENTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will prepare students to conduct high-impact research across the translational continuum in the social, psychobiological, and behavioral sciences. In this course, students will gain a thorough grounding in the conduct of randomized controlled trials (RCTs) and develop competence in the planning, design, and execution of clinical trials involving behavioral interventions. After taking this course, students will be able to plan and conduct longitudinal observational studies and clinical trials that have the potential to change practice guidelines, health care policies, and third-party coverage for health-related outcomes. The first two weeks of the course will cover causal inference in experimental and observational studies and address various implications of counterfactual thinking. The remainder of the course will provide training in planning, designing, and conducting translational research with a focus on randomized controlled trials of health-related behavioral interventions. Each student will develop and write a research grant proposal that will serve as the course “Final.” Recommended Prerequisite(s): This course has no specific course prerequisites. It is designed to be most useful to students with knowledge of basic (i.e., undergraduate level statistics and research methods) that are pertinent to the social, behavioral, and biomedical sciences.
Course URL: canvas.rice.edu/courses/33575 (http://canvas.rice.edu/courses/33575/)

PSYC 549 - PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Short Title: PSYCHOPATHOLOGY,DEVELOPMENT, AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will take a developmental approach to understand psychopathology and aging. We will seek to evaluate the factors contributing to psychopathology that emerge across the lifespan. We will adopt a biopsychosocial model to address the roots of normal and abnormal adult development, & aging. This course will begin with an overview of the field; we will then work toward a sophisticated understanding anxiety disorders, aging & cognitive disorders, mood disorders, factitious and dissociative disorders, and personality disorders. Although we will cover nosological models of psychopathology, we will primarily focus on etiology.

PSYC 550 - FOUNDATIONS OF SOCIAL PSYCHOLOGY
Short Title: FOUNDATIONS OF SOCIAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of theories of social psychology with an emphasis on current empirical research.

PSYC 551 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 438. Mutually Exclusive: Cannot register for PSYC 551 if student has credit for PSYC 438.

PSYC 552 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 452. Mutually Exclusive: Cannot register for PSYC 552 if student has credit for PSYC 452.
PSYC 560 - PSYCHOLOGY PRESENTATIONS
Short Title: PSYCHOLOGY PRESENTATIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Practicum on oral psychology presentation.

PSYC 561 - TEACHING IN PSYCHOLOGY
Short Title: TEACHING IN PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assistance in the teaching of undergraduate and occasionally graduate courses in psychology. Repeatable for Credit.

PSYC 563 - COGNITIVE PSYCHOLOGY INTERNSHIP
Short Title: COGNITIVE PSYCS INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in cognitive psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 564 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective is to equip the students of PSYC/NEUR 362 the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. Cross-list: NEUR 564. Graduate/Undergraduate Equivalency. PSYC 364. Mutually Exclusive: Cannot register for PSYC 564 if student has credit for PSYC 364.

PSYC 565 - HUMAN OLFACTION
Short Title: HUMAN OLFACITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 465. Mutually Exclusive: Cannot register for PSYC 565 if student has credit for PSYC 465.

PSYC 571 - FIRST-YEAR PROJECT
Short Title: FIRSTYEAR PROJECT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research project undertaken in the first year of the graduate program. Repeatable for Credit.

PSYC 572 - SECOND-YEAR PROJECT
Short Title: SECOND-YEAR PROJECT
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research project undertaken during the second year of the graduate program. Repeatable for Credit.

PSYC 573 - NON-THESIS GRADUATE RESEARCH
Short Title: NON-THESIS GRADUATE RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research prior to achieving candidacy. Repeatable for Credit.

PSYC 574 - INTRODUCTION TO COGNITIVE NEUROSCIENCE
Short Title: INTRO COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Cross-list: NEUR 508.
PSYC 575 - ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION
Short Title: ATTENTION AND PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods, and the historical and philosophical context of contemporary neuroscience. Cross-list: NEUR 501.
Course URL: www.ruf.rice.edu/~neurosci

PSYC 576 - ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS
Short Title: HIGHER MENTAL FUNCTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and neuroimaging approaches to higher mental functions, including language, memory, executive functions, reasoning, and numerical processing. Cross-list: NEUR 502.
Course URL: www.ruf.rice.edu/~neurosci

PSYC 577 - INTRODUCTION TO FUNCTIONAL NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. Usually taught at the Texas Medical Center. Instructor Permission Required.

PSYC 578 - COGNITIVE NEUROPSYCHOLOGY: THEORIES AND METHODS
Short Title: COGNEURO: THEORIES AND METHODS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores different approaches in the field of Cognitive Neuropsychology. Topics include single-case studies, case series, voxel-lesion symptom mapping and computational neuropsychology. We will discuss how to do research with each of these techniques, how to draw inferences from neuropsychological data and critiques of the methodology.

PSYC 580 - DEVELOPMENTAL COGNITIVE NEUROSCIENCE
Short Title: DEVELOPMENTAL COG NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar focusing on the neural/biological bases of both normal and abnormal human development through a survey of recent research in developmental cognitive neuroscience. Topics include perceptual, motive, cognitive, and language development as well as experimental research methods for studying the developing brain.

PSYC 581 - VISION SCIENCE
Short Title: VISION SCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced graduate seminar in the psychology of vision, covering the neural, psychophysical, and phenomenological approaches to visual perception.

PSYC 582 - EARLY SENSORY, PERCEPTUAL AND ATTENTIONAL DEVELOPMENT
Short Title: EARLY SENSORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a survey course for graduate students interested in the development of sensory systems, perception, and attention. There will be original empirical and theoretical readings from the literature on the development of these functions primarily during infancy. Neurobiological underpinnings for these functions will be debated and discussed.

PSYC 583 - THEORY, CONTENT, AND EXECUTION IN COGNITIVE NEUROSCIENCE
Short Title: COGNEURO THEORY/CONTENT/EXECUT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The particular combination of issues in cognitive neuroscience in any one course will vary depending on the background and needs of the students registered for that course and the nature of the important articles in journals covering these areas. Instructor Permission Required. Repeatable for Credit.
PSYC 584 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. This course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Graduate/Undergraduate Equivalency: PSYC 380. Mutually Exclusive: Cannot register for PSYC 584 if student has credit for PSYC 380.

PSYC 585 - FUNCTIONAL MAGNETIC RESONANCE IMAGING LABORATORY
Short Title: FMRI LABORATORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Laboratory course that provides comprehensive introduction to the practical aspects of planning conducting and analyzing Blood Oxygen Dependent Functional Magnetic Resonance Imaging (BOLD fMRI) data. BOLD fMRI is a methodology that allows non-invasive measurements of the neural processing underlying human perception/cognition. Course taught at Baylor College of Medicine for Advanced fMRI.

PSYC 586 - SOCIAL AND AFFECTIVE NEUROSCIENCE
Short Title: SOCIAL AND AFFECTIVE NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of the field of social and affective neuroscience, including conceptual foundations and methodology. Review and discussion of contemporary research on the neurobiological supporting social cognition and emotion in both healthy and affectively-disordered populations.

PSYC 587 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain’s three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Graduate/Undergraduate Equivalency: PSYC 487. Mutually Exclusive: Cannot register for PSYC 587 if student has credit for PSYC 487.

PSYC 590 - ADVANCED TOPICS IN NEUROSCIENCE
Short Title: ADVANCED TOPICS - NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 595 - HUMAN-COMPUTER INTERACTION AND HUMAN FACTORS PROFESSIONAL MASTER'S INTERNSHIP
Short Title: HCI&HF PROF MASTERS INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 503
Description: Supervised internship in Human-Computer Interaction and Human Factors Professional Master's Program. Instructor Permission Required.

PSYC 600 - HCI & HF PROFESSIONAL MASTER'S CAPSTONE PROJECT
Short Title: HCI&HF PROF MASTER'S CAPSTONE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 503
Description: This course allows students to integrate all of the knowledge they have gained in their HCI/HF professional master’s coursework in the form of a capstone project in the area of human-computer interaction and human factors. The capstone may be either research focused or application focused. Department Permission Required.
PSYC 601 - MULTIVARIATE STATISTICS
Short Title: MULTIVARIATE STATISTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of a wide range of concepts and skills for conducting data analysis on multivariate data sets encountered in psychology. Issues involve preparing the data set, selecting and conducting the appropriate analysis, interpreting the output from statistical programs, and presenting complex analyses and results in a clear manner.

PSYC 602 - PSYCHOMETRICS
Short Title: PSYCHOMETRICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Test theory, including reliability, validity, item response theory, and generalizability theory. In addition, the course offers hands-on experience with analysis software and discussion of practical issues such as test bias, item writing, and scale construction.

PSYC 609 - METHODS IN HUMAN-COMPUTER INTERACTION
Short Title: METHODS HUMAN-COMP INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 409. Mutually Exclusive: Cannot register for PSYC 609 if student has credit for PSYC 409.

PSYC 620 - ADVANCED TOPICS IN COGNITIVE PSYCHOLOGY
Short Title: ADV TOPICS - COGNITIVE PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 621 - TOPICS IN MEMORY
Short Title: TOPICS IN MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 622 - TOPICS IN PSYCHOLINGUISTICS
Short Title: TOPICS IN PSYCHOLINGUISTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 624 - SOCIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR
Short Title: SOCIAL/ORG PSYC RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in social/organizational psychology. Repeatable for Credit.

PSYC 625 - COGNITIVE NEUROSCIENCE RESEARCH SEMINAR
Short Title: COGNEURO RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in cognitive neuroscience. Instructor Permission Required. Repeatable for Credit.

PSYC 626 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION RESEARCH SEMINAR
Short Title: HF/HCI RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in human factors/human-computer interaction. Instructor Permission Required. Repeatable for Credit.

PSYC 627 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR
Short Title: I/O PSYC RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in industrial/organizational psychology. Instructor Permission Required. Repeatable for Credit.
PSYC 628 - MEMORY RESEARCH SEMINAR
Short Title: MEMORY RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in human memory. Repeatable for Credit.

PSYC 629 - PSYCHOLINGUISTICS RESEARCH SEMINAR
Short Title: PSYCHOLINGUISTICS SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in psycholinguistics. Repeatable for Credit.

PSYC 630 - ADVANCED TOPICS IN I/O
Short Title: ADVANCED TOPICS IN I/O
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Topics will vary. Repeatable for different topics. Repeatable for Credit.

PSYC 631 - FOUNDATIONS OF INDIVIDUAL DIFFERENCES
Short Title: INDIVIDUAL DIFFERENCES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applied psychologists attempt to build theoretical and empirical models that effectively explain how variation in individual differences (e.g., cognitive ability, personality, motivation, interests) relates to variation in practically relevant outcomes (e.g., training effectiveness, job performance, response to clinical treatment). This course covers major theoretical and methodological approaches to this end.

PSYC 632 - LEADERSHIP
Short Title: LEADERSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examination of the major psychological approaches to the study of leadership. Emphasis is on theory and practice in formal organizations.

PSYC 633 - ORGANIZATIONAL PSYCHOLOGY
Short Title: ORGANIZATIONAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 436. Mutually Exclusive: Cannot register for PSYC 636 if student has credit for PSYC 436.

PSYC 634 - PERSONNEL PSYCHOLOGY
Short Title: PERSONNEL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Examination of the theory, research, and applications in personnel selection, including job analysis, job performance, evaluation of performance, validation of selection methods, and training.

PSYC 635 - MULTILEVEL MODELING IN PSYCHOLOGICAL RESEARCH
Short Title: MULTILEVEL MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Psychological data often have a nested structure (e.g., students within classrooms, time points within individuals). Multilevel modeling of such data yields results that are more appropriate and interpretable than traditional statistical methods. Students will gain both practical and conceptional knowledge of this popular methodology.

PSYC 636 - ORGANIZATIONAL PSYCHOLOGY
Short Title: ORGANIZATIONAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 436. Mutually Exclusive: Cannot register for PSYC 636 if student has credit for PSYC 436.

PSYC 637 - META-ANALYSIS IN PSYCHOLOGICAL RESEARCH
Short Title: META-ANALYSIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Meta-analysis is a popular tool for statistically aggregating effects across related psychological studies. Course topics traverse a wide range of issues, including developing and using a coding sheet, fixed- vs. random-effects models, analysis moderator effects, correcting for statistical artifacts, dealing with dependent outcomes and outliers, and detecting publication bias.
PSYC 638 - STRUCTURAL EQUATION MODELING
Short Title: STRUCTURAL EQUATION MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structural equation modeling attempts to provide improved estimates of construct-level relationships. It also allows for complex hypothesis testing (e.g., mediation between groups, longitudinal) to find an appropriate balance between model parsimony and model fit. This course introduces students to basic concepts and applications of this popular research method.

PSYC 639 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY INTERNSHIP
Short Title: I/O PSYCHOLOGY INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in organizational and/or personnel psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 640 - TOPICS IN HUMAN-COMPUTER INTERACTION
Short Title: TOPICS IN HCI
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 641 - SPECIAL TOPICS IN HUMAN-COMPUTER INTERACTION
Short Title: SPECIAL TOPICS IN HCI
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 649 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION INTERNSHIP
Short Title: HF/HCI PSYC INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in engineering psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 651 - TOPICS IN SOCIAL PSYCHOLOGY
Short Title: TOPICS IN SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 660 - PROFESSIONAL ISSUES
Short Title: PROFESSIONAL ISSUES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics on professional matters. Includes grant writing, licensing, and ethics in psychology.

PSYC 662 - NON-TRADITIONAL INTERFACES
Short Title: NON-TRADITIONAL INTERFACES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 462. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 662 if student has credit for PSYC 462.

PSYC 663 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 463. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 663 if student has credit for PSYC 463.
PSYC 664 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency: PSYC 464. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 664 if student has credit for PSYC 464.

PSYC 665 - SEMINAR IN GENES AND COGNITION
Short Title: SEMINAR IN GENES AND COGNITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will consist of reading and discussing papers on molecular genetic studies of various cognitive functions broadly construed. This will include studies of genes and attention, genes and working memory, and genes and executive function. Will also include readings on genes and disordered cognition (e.g., ADHD, Alzheimer's).

PSYC 671 - METHODS IN COGNITIVE NEUROSCIENCE
Short Title: METHODS COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues in functional neuroimaging and provides hands-on experience with experimental design, data acquisition, and analysis. Examines hemodynamic (PET, FMR), electrophysiologic (EEG, MEG), and other (e.g. neural stimulation, event-related optical) methods of measuring functional activation in the human brain related to cognitive operations. This course is usually offered at the University of Texas Medical School.

PSYC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 681 - PERCEPTUAL ORGANIZATION
Short Title: PERCEPTUAL ORGANIZATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 581
Description: Advanced graduate course. Perceptual organization, primarily in human vision but in other senses too. We examine theoretical issues underlying perceptual organization; principal phenomena; methods used to reveal perception of structure; neural basis of perception organization; theories of perceptual organization; and remaining problems in the field.

PSYC 699 - GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY
Short Title: CAPSTONE EXPERIENCE IN I-O
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is required for the MA in IO Psychology. It is a multi-semester, hands-on applied experience that can take the form of either an internship, an applied research experience, or a portfolio of work that reflects the integration of I-O science and practice. Instructor Permission Required. Repeatable for Credit.

PSYC 700 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for the master's thesis. Repeatable for Credit.

PSYC 800 - DISSERTATION RESEARCH
Short Title: DISSERTATION RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for the doctoral dissertation. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: PSYC

Program Description and Code
- Human-Computer Interaction and Human Factors: HCIF

2021-2022 General Announcements PDF Generated 09/22/21
Graduate Degree Description and Code
• Master of Human-Computer Interaction and Human Factors: MHCIHF

Graduate Degree Program Description and Code
• Degree Program in Human-Computer Interaction and Human Factors: HCIF

CIP Code and Description
1 • HCIF Major/Program: CIP Code/Title: 30.3101 - Human Computer Interaction
1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Human-Computer Interaction and Human Factors (MHCIHF) Degree

Program Learning Outcomes for the MHCIHF Degree
Upon completing the MHCIHF degree, students will be able to:

1. Have a clear understanding of the fundamental concepts in human factors and engineering psychology.
2. Have a clear understanding of human cognitive functions and limitations, and how those impact the design of systems.
3. Specify the design of an engineering human computer system so that it supports human capabilities.
4. Analyze critically and evaluate one’s own findings and those of others.
5. Communicate effectively ideas, methodologies, analyses, and interpretations of the research topic.

Requirements for the MHCIHF Degree
The MHCIHF degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MHCIHF degree must complete:

• A minimum of 11 courses (39 credit hours) to satisfy degree requirements.
• A minimum of 39 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1191) tab.
• An internship. All students in the Master’s program are required to intern in the summer between their two years of study.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the MHCIHF degree</td>
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Degree Requirements

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<td>PSYC 502 / STAT 509</td>
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<td>PSYC 503 / STAT 510</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS II</td>
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<td>PSYC 520</td>
<td>FOUNDATIONS OF COGNITIVE PSYCHOLOGY</td>
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<tr>
<td>PSYC 531</td>
<td>HF/HCI RESEARCH SEMINAR (4 semesters required, 1st semester)</td>
<td>1</td>
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<tr>
<td>PSYC 531</td>
<td>HF/HCI RESEARCH SEMINAR (4 semesters required, 2nd semester)</td>
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<td>PSYC 531</td>
<td>HF/HCI RESEARCH SEMINAR (4 semesters required, 3rd semester)</td>
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<tr>
<td>PSYC 531</td>
<td>HF/HCI RESEARCH SEMINAR (4 semesters required, 4th semester)</td>
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<td>PSYC 540</td>
<td>FOUNDATIONS OF ENGINEERING PSYCHOLOGY</td>
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<td>PSYC 541</td>
<td>HUMAN-COMPUTER INTERACTION</td>
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<td>PSYC 561</td>
<td>TEACHING IN PSYCHOLOGY</td>
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<tr>
<td>PSYC 609</td>
<td>METHODS IN HUMAN-COMPUTER INTERACTION</td>
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Internship Requirement

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<td>PSYC 595</td>
<td>HUMAN-COMPUTER INTERACTION AND HUMAN FACTORS PROFESSIONAL MASTER'S INTERNSHIP</td>
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Elective Requirements

Select 2 courses from the following: 6

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<td>PSYC 504</td>
<td>COMPUTER APPLICATIONS IN PSYCHOLOGY</td>
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<tr>
<td>PSYC 522</td>
<td>INFORMATION PROCESSING AND ATTENTION</td>
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Rice University

PSYC 524 MEMORY
PSYC 525 PSYCHOLINGUISTICS
PSYC 527 REASONING, DECISION MAKING, PROBLEM SOLVING
PSYC 530 FOUNDATIONS OF I-O PSYCHOLOGY
PSYC 535 HUMAN FACTORS/ERGONOMICS
PSYC 543 COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
PSYC 581 VISION SCIENCE
PSYC 601 MULTIVARIATE STATISTICS
PSYC 602 PSYCHOMETRICS
PSYC 630 ADVANCED TOPICS IN I/O
PSYC 634 PERSONNEL PSYCHOLOGY
PSYC 640 TOPICS IN HUMAN-COMPUTER INTERACTION
PSYC 662 NON-TRADITIONAL INTERFACES
PSYC 663 MEDICAL HUMAN FACTORS
PSYC 664 USABILITY ASSESSMENT

Capstone Requirement
PSYC 600 HCI & HF PROFESSIONAL MASTER’S CAPSTONE PROJECT 2

Total Credit Hours 39

Footnotes and Additional Information
1 All students in the Master’s program are required to intern in the summer between their two years of study. That internship is reflected in the student’s course of study as PSYC 595, and students should register for that summer course. Faculty in the HCI and HF area have relationships with multiple local and national companies and government labs that would be suitable. Students sponsored by their employer may return to that company for the summer internship, provided that the work was classified as human factors-related.

2 The capstone requirement, PSYC 600, is to be a project course, supervised jointly by all the HCI and HF faculty, and should be taken in the second semester of the second year.

Proposed Plan-of-Study
The following plan-of-study represents the lockstep five-semester sequence in which students pursuing the MHCIHF degree complete the required coursework.

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<td>TEACHING IN PSYCHOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

3rd Semester
PSYC 595 HUMAN-COMPUTER INTERACTION AND HUMAN FACTORS PROFESSIONAL MASTER’S INTERNSHIP 1

Credit Hours 10

4th Semester
PSYC 531 HF/HCI RESEARCH SEMINAR 1
PSYC 520 FOUNDATIONS OF COGNITIVE PSYCHOLOGY
Elective one
Elective one

Credit Hours 7

5th Semester
PSYC 531 HF/HCI RESEARCH SEMINAR 1
Elective two
Elective two
PSYC 600 HCI & HF PROFESSIONAL MASTER’S CAPSTONE PROJECT 2

Credit Hours 10

Total Credit Hours 39

Footnotes and Additional Information
1 All students in the Master’s program are required to intern in the summer between their two years of study. That internship is reflected in the student’s course of study as PSYC 595, and students should register for that summer course. Faculty in the HCI and HF area have relationships with multiple local and national companies and government labs that would be suitable. Students sponsored by their employer may return to that company for the summer internship, provided that the work was classified as human factors-related.

2 The capstone requirement, PSYC 600, is to be a project course, supervised jointly by all the HCI and HF faculty.

Department of Psychological Sciences Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Psychological Sciences, the home department for the Human-Computer Interaction and Human Factors program, publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Psychology_MHCIHF_Graduate_Handbook.pdf

Admission
Admission to graduate study in Human-Computer Interaction and Human Factors is open to qualified students holding a BS or a BA degree in a quantitative field from an accredited institution. The MHCIHF degree governing committee will evaluate the previous academic record and credentials of each applicant individually, and will make all admissions decisions.

Financial Aid
No financial aid is available from Rice University or the Psychological Sciences Department for students in the MHCIHF degree program.
Program Transfer Credit Guidelines

Students pursuing the MHCIHF degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree. Transferred courses must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/

Industrial Engineering

Contact Information

Industrial Engineering

https://mie.rice.edu
2036 Duncan Hall
713-348-4178

Andrew J. Schaefer
Program Director
andrew.schaefer@rice.edu

Eylem Tekin
Program Director
eylem.tekin@rice.edu

The Master of Industrial Engineering degree is a graduate degree program administered by the George R. Brown School of Engineering, with the participation of the Rice University Departments of Mechanical Engineering and Statistics, and the Rice Center for Operations Research.

The program is designed to explore modern industrial systems, which arise in fields such as manufacturing, services, supply chain management, energy, transportation and healthcare. Analyzing and optimizing their performance is very challenging; for example, the number of ways that Federal Express can route its vehicles vastly exceeds the number of atoms in the universe. These analyses are crucial; their financial impact typically exceeds the profit margins in many industries, such as transportation and retailing.

To meet these challenges, the Master of Industrial Engineering degree emphasizes improving the quality and reliability of complex systems. It provides students with a deep set of analytical and engineering skills to make data-driven decision needed in every major economic sector. Graduates will help industry, governments, and non-profits improve efficiency in changing and uncertain environments.

Industrial Engineering does not currently offer an academic program at the undergraduate level.

Master's Program

- Master of Industrial Engineering (MIE) Degree (p. 1195)

Coordinated Program

- Master of Industrial Engineering (MIE) Degree / Master of Business Administration (MBA) Degree (p. 1197)

Directors

Andrew J. Schaefer
Eylem Tekin

Professors

Michael D. Byrne, Psychological Sciences
Patricia DeLucia, Psychological Sciences
Fathi Ghorbel, Mechanical Engineering
Illya V. Hicks, Computational & Applied Mathematics
C. Fred Higgs III, Mechanical Engineering
Marcia K. O’Malley, Mechanical Engineering
Amit Pazgal, Business
Eduardo Salas, Psychological Sciences
Andrew J. Schaefer, Computational & Applied Mathematics
Laura Schaefer, Mechanical Engineering
Pol D. Spanos, Mechanical Engineering
Richard A. Tapia, Computational & Applied Mathematics
Yin Zhang, Computational & Applied Mathematics

Associate Professors

Leonardo Dueñas-Osorio, Civil and Environmental Engineering
Philip A. Ernst, Statistics
Philip T. Kortum, Psychological Sciences

Assistant Professors

Matthew Brake, Mechanical Engineering
Pedram Hassanzadeh, Mechanical Engineering
Joseph Huchette, Computational and Applied Mathematics
Santiago Segarra, Electrical and Computer Engineering

Professor in the Practice

John Dobelman, Statistics

Lecturer

Eylem Tekin, Industrial Engineering

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/SWKSCAT.cat? p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/SWKSCAT.cat)
Industrial Engineering (INDE)

INDE 501 - FUNDAMENTALS OF INDUSTRIAL ENGINEERING
Short Title: FUND INDUSTRIAL ENGINEERING
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to fundamental tools in industrial engineering. Topics include productivity analysis, material handling, logistics, design of experiments, quality control, location theory, warehouse design, supply chain management and scheduling. Instructor Permission Required.

INDE 509 - INTRODUCTION TO HUMAN FACTORS ENGINEERING
Short Title: INTRO TO HUMAN FACTORS ENG
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 501
Description: Analysis and design of engineering systems considering human characteristics and limitations. Design of control, displays, tools, workstations and groups. Human factors research methods. Instructor Permission Required.

INDE 511 - GRAPH ALGORITHMS
Short Title: GRAPH ALGORITHMS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 501
Description: Graph Algorithms in Operations Research. Topics include: spanning trees, graph search algorithms, shortest path problems, worst case time complexity analysis, computational complexity, dominating set problems, vertex and edge cover problems, python implementations, and other problems in graph optimization. Instructor Permission Required. Recommended Prerequisite(s): INDE 545 or CAAM 378

INDE 543 - MANUFACTURING PROCESSES AND SYSTEMS
Short Title: MANUFACTURING PROC AND SYS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 501
Description: Fundamentals of manufacturing processes and systems. Topics include machining, casting, 2D printing, material flow, capacities, bottlenecks, and just-in-time systems. Simulation and optimization of various manufacturing systems. Trade-offs among various processes. Instructor Permission Required.

INDE 545 - PRESCRIPTIVE ANALYTICS
Short Title: PRESCRIPTIVE ANALYTICS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of methods for combining mathematical models and large data sets to produce optimal decisions. Topics include decision analysis, dynamic programs, mathematical programs and various heuristics. Instructor Permission Required.

INDE 546 - COMPUTATIONAL PRESCRIPTIVE ANALYTICS
Short Title: COMP PRESCRIPTIVE ANALYTICS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 545
Description: A continuation of INDE 545 that focuses on computational approaches to prescriptive analytics. Topics include decomposition approaches to large-scale optimization, modeling languages, decision analysis and discrete-event simulation software. Emphasis will be placed on using relevant software on practical problems. Instructor Permission Required.

INDE 561 - SUPPLY CHAIN MANAGEMENT
Short Title: SUPPLY CHAIN MANAGEMENT
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 545
Description: Supply chain management is the integrated management of the flow of materials, products, services, and cash from the suppliers all the way to the customers and from the customers back to the suppliers. Due to the complex nature of today's supply chains, effective management of these flows is a challenging task. This course aims to familiarize students with the concepts and models that are useful in designing and managing effective and efficient supply chains. Topics include facility location and distribution models, forecasting, sales & operations planning, supply chain coordination, inventory management, transportation, supplier selection, pricing & revenue management, and sustainability in supply chains. Instructor Permission Required. Graduate/Undergraduate Equivalency: CAAM 421. Mutually Exclusive: Cannot register for INDE 561 if student has credit for CAAM 421.
INDE 562 - INTRODUCTION TO CONTINUOUS OPTIMIZATION
Short Title: INTRO TO CONTINUOUS OPT
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the formulation of unconstrained and constrained optimization models, and their numerical implementations to problems in science and engineering. Emphasis on Newton-type and interior-point methodologies. Instructor Permission Required. Recommended Prerequisite(s): INDE 545 or CAAM 378

INDE 567 - STOCHASTIC PROCESSES AND SIMULATION
Short Title: STOCH PROCESSES & SIMULATION
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the formulation of unconstrained and constrained optimization models, and their numerical implementations to problems in science and engineering. Emphasis on Newton-type and interior-point methodologies. Instructor Permission Required. Recommended Prerequisite(s): INDE 545 or CAAM 378

INDE 567 - DISCRETE-EVENT SIMULATION
Short Title: DISCRETE-EVENT SIMULATION
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (STAT 518 and STAT 519) or INDE 571
Description: Simulation of discrete-event dynamic systems. Topics include introduction to simulation models; modeling with Simio, a comprehensive simulation package with animation capabilities; statistical aspects such as input and output analysis, random variate generation, variance reduction techniques; optimization via simulation. Students who have taken CAAM 485 should consult their advisor before attempting to register for INDE 573. Department Permission Required. Graduate/Undergraduate Equivalency: CAAM 485.

INDE 567 - DATA SCIENCE AND MACHINE LEARNING
Short Title: DATA SCI & MACHINE LEARNING
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of data science and machine learning. Topics include introduction to scikit-learn, Keras and tensorflow2, linear and logistic regression, clustering, support vector machines, random forest trees, neural networks, deep learning, natural language processing. Instructor Permission Required. Recommended Prerequisite(s): Three semesters of calculus recommended. A background in some programming language would be extremely useful.

INDE 597 - TOPICS IN INDUSTRIAL ENGINEERING CAPSTONE EXPERIENCE
Short Title: MIE CAPSTONE EXPERIENCE
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: MIE students are required to write a field report related to one of the required core courses in the curriculum. Students should coordinate this with the INDE 590 instructor/capstone director, prepare a report relevant to the course material, and present it in class. Instructor Permission Required. Recommended Prerequisite(s): INDE 501 and INDE 545 and INDE 571. Repeatable for Credit.

INDE 573 - DISCRETE-EVENT SIMULATION
Short Title: DISCRETE-EVENT SIMULATION
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (STAT 518 and STAT 519) or INDE 571
Description: Simulation of discrete-event dynamic systems. Topics include introduction to simulation models; modeling with Simio, a comprehensive simulation package with animation capabilities; statistical aspects such as input and output analysis, random variate generation, variance reduction techniques; optimization via simulation. Students who have taken CAAM 485 should consult their advisor before attempting to register for INDE 573. Department Permission Required. Graduate/Undergraduate Equivalency: CAAM 485.

INDE 577 - DATA SCIENCE AND MACHINE LEARNING
Short Title: DATA SCI & MACHINE LEARNING
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of data science and machine learning. Topics include introduction to scikit-learn, Keras and tensorflow2, linear and logistic regression, clustering, support vector machines, random forest trees, neural networks, deep learning, natural language processing. Instructor Permission Required. Recommended Prerequisite(s): Three semesters of calculus recommended. A background in some programming language would be extremely useful.

INDE 590 - MASTER'S IN INDUSTRIAL ENGINEERING CAPSTONE EXPERIENCE
Short Title: MIE CAPSTONE EXPERIENCE
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: MIE students are required to write a field report related to one of the required core courses in the curriculum. Students should coordinate this with the INDE 590 instructor/capstone director, prepare a report relevant to the course material, and present it in class. Instructor Permission Required. Recommended Prerequisite(s): INDE 501 and INDE 545 and INDE 571. Repeatable for Credit.

INDE 567 - DATA SCIENCE AND MACHINE LEARNING
Short Title: DATA SCI & MACHINE LEARNING
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of data science and machine learning. Topics include introduction to scikit-learn, Keras and tensorflow2, linear and logistic regression, clustering, support vector machines, random forest trees, neural networks, deep learning, natural language processing. Instructor Permission Required. Recommended Prerequisite(s): Three semesters of calculus recommended. A background in some programming language would be extremely useful.

INDE 590 - MASTER'S IN INDUSTRIAL ENGINEERING CAPSTONE EXPERIENCE
Short Title: MIE CAPSTONE EXPERIENCE
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: MIE students are required to write a field report related to one of the required core courses in the curriculum. Students should coordinate this with the INDE 590 instructor/capstone director, prepare a report relevant to the course material, and present it in class. Instructor Permission Required. Recommended Prerequisite(s): INDE 501 and INDE 545 and INDE 571. Repeatable for Credit.
INDE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: INDE

Program Description and Code
- Industrial Engineering: INDE

Graduate Degree Description and Code
- Master of Industrial Engineering: MIE

Graduate Degree Program Description and Code
- Degree Program in Industrial Engineering: INDE

CIP Code and Description
- INDE Major/Program: CIP Code/Title: 14.3701 - Operations Research

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Industrial Engineering (MIE) Degree
Program Learning Outcomes for the MIE Degree

Upon completing the MIE degree, students will be able to:

1. Build physical and mathematical models of complex systems that arise in real-world situations.
2. Understand the flow of material from manufacturing to warehouses to customers through physical or mathematical models.
3. Produce data-driven and implementable solutions that improve the efficiency of real-world systems.
4. Communicate the solutions and insights generated by the models to a non-technical audience.

Requirements for the MIE Degree

The MIE degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MIE degree must complete:

- A minimum of 11 courses (31 credit hours) to satisfy degree requirements.
- A minimum of 31 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 9 courses (25 graduate semester credit hours), including the capstone course (INDE 590), must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1196) tab.
- A capstone course (INDE 590), which includes a company-provided or research project related to the core requirements in the curriculum.\footnote{Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/}
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

The Master of Industrial Engineering (MIE) is a non-thesis master’s degree intended for students who have completed a 4-year bachelor's program in engineering, or related field, and wish to join the workforce as practicing professionals, or continue on for further study. It offers preparation in advanced engineering topics in order to enhance an engineer's technical qualifications and increases competitiveness in the job market. The MIE degree program is open to students who have shown academic excellence in their undergraduate studies.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Credit Hours Required for MIE Degree</td>
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</table>

Degree Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
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<td>Core Requirements \footnote{Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: <a href="https://nces.ed.gov/ipeds/cipcode/%7D">https://nces.ed.gov/ipeds/cipcode/}</a></td>
</tr>
<tr>
<td>INDE 501</td>
<td>FUNDAMENTALS OF INDUSTRIAL ENGINEERING</td>
<td>3</td>
</tr>
</tbody>
</table>

Select a minimum of 1 course (or up to 2 courses) from the following: \footnote{Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/}

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>INDE 509</td>
<td>INTRODUCTION TO HUMAN FACTORS ENGINEERING</td>
<td>3-6</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
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<tr>
<td>First Year</td>
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<tr>
<td>1st Semester</td>
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<td>INDE 501</td>
<td>FUNDAMENTALS OF INDUSTRIAL ENGINEERING</td>
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<td>INDE 545</td>
<td>PRESCRIPTIVE ANALYTICS</td>
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<td>INDE 571</td>
<td>PROBABILITY AND STATISTICAL INFERENCE</td>
<td>3</td>
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<tr>
<td>INDE 572</td>
<td>STOCHASTIC PROCESSES AND SIMULATION</td>
<td>3</td>
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<td>INDE 590</td>
<td>MASTER'S IN INDUSTRIAL ENGINEERING CAPSTONE EXPERIENCE</td>
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</table>

Total Credit Hours 31

Footnotes and Additional Information

1. MIE students are required to complete a capstone course (INDE 590), which includes a project related to the core requirements in the curriculum. With the approval of the course instructor, the student must prepare a final report for the project, and present it in class. Topics must be approved no later than the end of the fourth week of the semester.

2. Students must take at least 1 of the following courses as a Core Requirement: INDE 509, MECH 503, or PSYC 535. A student may take an additional course from INDE 509, MECH 503, or PSYC 535 (in addition to the Core Requirement) to fulfill degree program requirements as a Technical Elective. Students may take either INDE 509 or PSYC 535, but not both, to fulfill degree program requirements.

3. The George R. Brown School of Engineering offers courses in the following subject codes: BIOE, CAAM, CEVE, CHBE, COMP, DSCI, ELEC, ENGI, GLHT, INDE, MECH, MSNE, RCEL, SSPB, and STAT.

Proposed Plan-of-Study

The following plan-of-study represents a lockstep three-semester sequence in which students pursuing the MIE degree complete the required coursework.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester</td>
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</tr>
<tr>
<td>INDE 545</td>
<td>PRESCRIPTIVE ANALYTICS</td>
<td>3</td>
</tr>
<tr>
<td>INDE 571</td>
<td>PROBABILITY AND STATISTICAL INFERENCE</td>
<td>3</td>
</tr>
<tr>
<td>INDE 572</td>
<td>STOCHASTIC PROCESSES AND SIMULATION</td>
<td>3</td>
</tr>
<tr>
<td>Elective One</td>
<td>Technical Elective (Elective One)</td>
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Credit Hours 9

2nd Semester

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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Elective One</td>
<td>Technical Elective (Elective One)</td>
<td>3</td>
</tr>
<tr>
<td>INDE 546</td>
<td>COMPUTATIONAL PRESCRIPTIVE ANALYTICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Credit Hours 10

Footnotes and Additional Information

1. The George R. Brown School of Engineering offers courses in the following subject codes: BIOE, CAAM, CEVE, CHBE, COMP, DSCI, ELEC, ENGI, GLHT, INDE, MECH, MSNE, RCEL, SSPB, and STAT.

2. Students must take at least 1 of the following courses as a Core Requirement: INDE 509, MECH 503, or PSYC 535. A student may take an additional course from INDE 509, MECH 503, or PSYC 535 (in addition to the Core Requirement) to fulfill degree program requirements as a Technical Elective. Students may take either INDE 509 or PSYC 535, but not both, to fulfill degree program requirements.

Policies for the MIE Degree

Industrial Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Industrial Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Industrial_Engineering_Graduate_Handbook.pdf

Admission

Admission to graduate study in Industrial Engineering is open to qualified students holding a BS or a BA degree in a quantitative field from an accredited institution. The MIE degree governing committee will evaluate the previous academic record and credentials of each applicant individually, and will make all admissions decisions.

Financial Aid

No financial aid is available from Rice University or the Industrial Engineering program for students in the MIE degree program.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.
Program Transfer Credit Guidelines

Students pursuing the MIE degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from another U.S. or international universities of similar standing as Rice may apply towards the degree. Transferred courses must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
• Requests for transfer credit will be considered by the Industrial Engineering Graduate Committee Chair, and the instructor of the equivalent Rice course.

Additional Information

For additional information, please see the Industrial Engineering website: https://engrprofmasters.rice.edu.

 Opportunities for the MIE Degree

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate · Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Industrial Engineering (MIE) degree. For additional information, students should contact their undergraduate major advisor and the MIE program director.

Additional Information

For additional information, please see the Industrial Engineering website: https://engrprofmasters.rice.edu.

Master of Industrial Engineering (MIE) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MIE Degree

Upon completing the MIE degree, students will be able to:

1. Build physical and mathematical models of complex systems that arise in real-world situations.
2. Understand the flow of material from manufacturing to warehouses to customers through physical or mathematical models.
3. Produce data-driven and implementable solutions that improve the efficiency of real-world systems.
4. Communicate the solutions and insights generated by the models to a non-technical audience.

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MIE/MBA Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

• Chemical Engineering (MChE)
• Computational and Applied Mathematics (MCAAM)
• Computer Science (MCS)
• Industrial Engineering (MIE)
• Materials Science and Nanoengineering (MMSNE)
• Mechanical Engineering (MME)
• Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

• A minimum of 69 credit hours in approved coursework*, including:
  • A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  • A minimum of 24 credit hours in the corresponding engineering discipline
  • A minimum of 6 credit hours in elective requirements*


• A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
• A minimum of 45 credit hours of business coursework
• All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

For additional information on these two degrees:  
1. Please see the Industrial Engineering website: https://engrprofmasters.rice.edu/  
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Coordinated MBA Degree Requirements
Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the Full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
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<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
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### Coordinated MBA Elective Requirements

Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.

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<th>Code</th>
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<td>Full-time MBA Work Experience Requirement</td>
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<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
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<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
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</table>

### Footnotes and Additional Information

1. To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Policies for the MIE/MBA Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Industrial Engineering website: https://engrprofmasters.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

### Opportunities for the MIE/MBA Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Industrial Engineering website: https://engrprofmasters.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

### Industrial-Organizational Psychology

**Contact Information**

Psychological Sciences
The Department of Psychological Sciences offers the Master of Industrial-Organizational Psychology degree, which examines the scientific consideration of people in the design of products, services, and systems. Industrial-Organizational (I-O) Psychology is the scientific consideration of a wide range of psychological factors critical to the workplace: e.g., the nature and necessity of technical, interpersonal, and self-management skills; how people work and within diverse and dynamic work environments; improving training in an aging workforce with greater technological demands; managing a diverse range of people and projects successfully and safely; and dealing with disruptive changes that inevitably face jobs and organizational cultures, ranging from mergers and acquisitions, to AI and automation.

Industrial-Organizational Psychology does not currently offer an academic program at the undergraduate level.

**Master's Program**

- Master of Industrial-Organizational Psychology (MIOP) Degree

**Chair, Department of Psychological Sciences**

Eduardo Salas

**Professors**

Margaret E. Beier
Patricia DeLucia
Michelle "Mikki" R. Hebl
Eden King
Frederick L. Oswald
Eduardo Salas

**Associate Professor**

Christopher P. Fagundes

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
PSYC 203 - INTRODUCTION TO COGNITIVE PSYCHOLOGY
Short Title: INTRO TO COGNITIVE PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to topics in cognitive psychology, including perception, attention, language, memory, and decision making. Required for psychology majors.

PSYC 231 - INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY
Short Title: INDUS & ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 101
Description: An overview of the principles, techniques, and theories of psychology applied in the industrial setting.

PSYC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 260 - UNDERGRADUATE PROFESSIONAL ISSUES IN PSYCHOLOGY
Short Title: UNDERGRAD PROF ISSUES IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will provide students interested in psychology with an opportunity to explore psychology as a major and a career. Through guest lecturers, group discussions, and class projects, students will learn about diverse fields and potential career paths in psychology. Instructor Permission Required.

PSYC 308 - MEMORY
Short Title: MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Critical review of traditional and contemporary approaches to the study of remembering and forgetting. Graduate/Undergraduate Equivalency: PSYC 524.

PSYC 309 - PSYCHOLOGY OF LANGUAGE
Short Title: PSYCHOLOGY OF LANGUAGE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Study of human and other animal communication. Includes the structure of human language, word meaning and semantic memory, psychological studies of syntax, bilingualism, language and thought, and language errors and disorders. Cross-list: LING 309.

PSYC 310 - PSYCHOLOGY OF AGING
Short Title: PSYCHOLOGY OF AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: This course focuses on the psychology of aging through a biological, cognitive, and socio-emotional framework. Topics to be covered include how mental capacities change over time, especially memory processing, differences between normal and pathological aging, neurobiological changes with age, dementias such as Alzheimer's disease, and individual differences in aging. There will be an emphasis on discussion of recent literature and developing research ideas in the field of psychology of aging.
PSYC 315 - INTRODUCTION TO SEMANTICS
Short Title: INTRODUCTION TO SEMANTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Cross-list: LING 315. Recommended Prerequisite(s): LING 200 or ANTH 200.

PSYC 321 - DEVELOPMENTAL PSYCHOLOGY
Short Title: DEVELOPMENTAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of behavioral changes with age in both human and nonhuman species. Recommended Prerequisite(s): PSYC 202 and PSYC 203.

PSYC 325 - LANGUAGE ACQUISITION
Short Title: LANGUAGE ACQUISITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: The aim of this course is to explore language development closely through a variety of theories and research findings. Students will become familiar with different theories concerning language development, and develop an understanding of relevant issues, theoretical positions and relevant methodologies in language development using critical thinking skills. Cross-list: LING 325.

PSYC 329 - PSYCHOLOGICAL TESTING
Short Title: PSYCHOLOGICAL TESTING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: Offers a detailed examination of psychological test development and analysis. Topics include an exploration of different forms of psychological tests (e.g. intelligence, attitudes, personality, clinical), reliability and validity of tests, and practical issues in testing such as test bias (e.g. gender differences).

PSYC 330 - PERSONALITY THEORY AND RESEARCH
Short Title: PERSONALITY THEORY & RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 340
Description: Examination of those aspects of personality emphasized by major theorists past and present.

PSYC 331 - PSYCHOLOGY OF GENDER
Short Title: PSYCHOLOGY OF GENDER
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of research and theory on gender in psychology. Cross-list: SWGS 331.

PSYC 332 - ABNORMAL BEHAVIOR
Short Title: ABNORMAL BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of the diagnosis and treatment of mental disorders.
PSYC 333 - MULTICULTURAL PSYCHOLOGY  
Short Title: MULTICULTURAL PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101  
Description: This seminar examines psychological research and theories that address important issues in the lives of diverse individuals. Readings, discussions, and films will be used to explore the acculturation process; stereotyping, prejudice, discrimination and racism; racial/ethnic identity development; and multicultural competence. Students are required to participate in a service learning project. Recommended Prerequisite(s): PSYC 202 and PSYC 321.

PSYC 339 - STATISTICAL METHODS-PSYCHOLOGY  
Short Title: STATISTICAL METHODS-PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 or PSYC 203  
Description: Introduction to quantitative and computer methods applicable to the analysis of experimental and correlational data. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 340 - RESEARCH METHODS - PSYCHOLOGY  
Short Title: RESEARCH METHODS - PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 and (PSYC 339 or SOSC 302)  
Description: A continuation of PSYC 339/SOSC 302, with emphasis on individual student experiments and the writing of research reports. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 342 - COMPUTER APPLICATIONS IN PSYCHOLOGY  
Short Title: COMPUTER APPLICATIONS IN PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 203  
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 504. Mutually Exclusive: Cannot register for PSYC 342 if student has credit for PSYC 504.

PSYC 345 - HEALTH PSYCHOLOGY  
Short Title: HEALTH PSYCHOLOGY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Distribution Group: Distribution Group II  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203  
Description: Contemporary theory and research in health psychology, including topics such as health behaviors, stress and coping, pain and its management, heart disease, psychoneuroimmunology, chronic illness, and dying. Recommended Prerequisite(s): PSYC 332 and PSYC 340.

PSYC 346 - STRESS AND HEALTH ACROSS THE LIFESPAN  
Short Title: STRESS/HEALTH ACROSS LIFESPAN  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This is an introductory course on psychobiological processes in animals and humans as they pertain to the development of stress responses and disease. In this course, we will review models of stress as well as the physiological processes implicated in bodily diseases. We will also review behavioral, psychological and pharmacological variables involved in stress processes. Recommended Prerequisite(s): PSYC 345
PSYC 351 - PSYCHOLOGY OF PERCEPTION  
**Short Title:** PERCEPTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 101 and PSYC 203  
**Description:** An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency: PSYC 521.

PSYC 353 - PSYCHOLOGY OF EMOTION AND MOTIVATION  
**Short Title:** PSYCHOLOGY OF EMOTION & MOTIVATION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 101 and PSYC 202  
**Description:** Study of motives and emotions as causes of human behavior; includes biological motives, aggression, emotions and emotional expression, and individual differences in motivation. Recommended Prerequisite(s): PSYC 203.

PSYC 354 - INTRODUCTION TO SOCIAL AND AFFECTIVE NEUROSCIENCE  
**Short Title:** INTRO TO SOC/AFFECTIVE NEURO  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 202  
**Description:** Overview of social and affective neuroscience research, including examination of the neurobiological mechanisms supporting social cognition; inter-personal processes; emotion and motivation; and emotion regulation. These topics will be examined in both healthy and affectively-disordered populations, with links made to the fields of health psychology and clinical neuroscience.

PSYC 362 - COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN  
**Short Title:** COGNITIVE NEUROSCIENCE  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 203  
**Description:** Survey of theory and research on how mental processes are carried out by the human brain, with an emphasis on relating measures of brain activity to cognitive functioning, methods surveyed included electro physiological recording techniques, functional imaging techniques and methods that involve lessoning or disrupting neural activity. Cross-list: NEUR 362.

PSYC 364 - COGNITIVE NEUROSCIENCE LAB  
**Short Title:** COGNITIVE NEUROSCIENCE LAB  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 362 (may be taken concurrently) or NEUR 362 (may be taken concurrently)  
**Description:** The objective is to equip the students of PSYC/NEUR 362 the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. The prerequisite may be taken the same semester as this class. Instructor Permission Required. Cross-list: NEUR 364. Graduate/Undergraduate Equivalency: PSYC 564. Mutually Exclusive: Cannot register for PSYC 364 if student has credit for PSYC 564.

PSYC 366 - METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE  
**Short Title:** METHODS IN SOC COG AFF NEURO  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (PSYC 202 or PSYC 203) and (PSYC 354 (may be taken concurrently) or PSYC 362 (may be taken concurrently))  
**Description:** This course will give students hands-on training in the research methods of social cognitive and affective neuroscience. Students will learn about the theoretical underpinnings of these allied fields; acquire, preprocess, and analyze human functional neuroimaging data (i.e. using fMRI); and interpret and write-up results. PSYC 354 or PSYC 362 may be taken concurrently.
PSYC 370 - INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS  
**Short Title:** INTRO TO HUMAN FACTORS & ERGO  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 203 and PSYC 320  
**Description:** Application of principles of psychology and human performance to the design of modern systems.

PSYC 375 - NEUROPSYCHOLOGY OF LANGUAGE AND MEMORY  
**Short Title:** NEUROPSYCH OF LANGUAGE/MEMORY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 203 and (PSYC 309 or LING 309 or LING 200 or ANTH 200) and (PSYC 362 or NEUR 362 or NEUR 380 or BIOE 380 or PSYC 380 or BIOL 380)  
**Description:** An introduction to the neural basis of language and memory, covering patient-based and neuroimaging approaches. Topics include the neural basis of speech perception, language comprehension, language production, short-term memory, working memory, semantic and episodic memory, and domain-specific memory (e.g., verbal, spatial, and emotional memory).

PSYC 380 - FUNDAMENTAL NEUROSCIENCE SYSTEMS  
**Short Title:** NEUROSYSTEMS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will provide a broad overview of the brain's neural systems that subserve perception, learning, and behavior. The course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Cross-list: NEUR 380. Graduate/Undergraduate Equivalency: PSYC 584. Recommended Prerequisite(s): PSYC 101. Mutually Exclusive: Cannot register for PSYC 380 if student has credit for PSYC 584.

PSYC 385 - NEUROSYSTEMS  
**Short Title:** NEUROSYSTEMS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 101 and PSYC 203  
**Description:** Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 609. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 409 if student has credit for PSYC 609.

PSYC 409 - METHODS IN HUMAN-COMPUTER INTERACTION  
**Short Title:** METHODS HUMAN-COMP INTERACTION  
**Department:** Psychological Sciences  
**Grade Mode:** Seminar  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 101 and PSYC 203  
**Description:** An introduction to the neural basis of language and memory, covering patient-based and neuroimaging approaches. Topics include the neural basis of speech perception, language comprehension, language production, short-term memory, working memory, semantic and episodic memory, and domain-specific memory (e.g., verbal, spatial, and emotional memory).

PSYC 411 - HISTORY OF PSYCHOLOGY  
**Short Title:** HISTORY OF PSYCHOLOGY  
**Department:** Psychological Sciences  
**Grade Mode:** Seminar  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** PSYC 203 and PSYC 320  
**Description:** Survey of evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 511. Mutually Exclusive: Cannot register for PSYC 411 if student has credit for PSYC 511.

PSYC 420 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION  
**Short Title:** ELECTION SYSTEMS  
**Department:** Psychological Sciences  
**Grade Mode:** Seminar  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** POLI 395  
**Description:** This multidisciplinary course will consider how elections are conducted to enhance participation, to accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be accurate and secure, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election. Cross-list: COMP 435, POLI 420.
PSYC 430 - COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
Short Title: COMP MODELING OF COG PROCESSES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency: PSYC 543. Recommended Prerequisite(s): PSYC 203 and COMP 200 (or equivalent). Mutually Exclusive: Cannot register for PSYC 430 if student has credit for PSYC 543.

PSYC 431 - ADVANCED INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY SEMINAR
Short Title: ADVANCED I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An emphasis on reading original published research. Topics covered include personnel selection, training, motivation, job attitudes, and groups. Instructor Permission Required. Mutually Exclusive: Cannot register for PSYC 431 if student has credit for PSYC 530.

PSYC 432 - BRAIN AND BEHAVIOR
Short Title: BRAIN AND BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203 and PSYC 362
Description: An in-depth examination of the neural basis of higher mental functions in humans, including perception, attention, memory, motor skill, and language. Claims and controversies in cognitive neuroscience will be discussed. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 435 - POLLUTION AND PSYCHOLOGICAL DEVELOPMENT
Short Title: POLLUTION & PSYCHOLOGICAL DEV
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, we will consider research on the effects of various pollutants and toxic substances on the cognitive, social, and emotional development of children. Expert guest speakers will contribute to the course as well. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 436 - ADVANCED ORGANIZATIONAL PSYCHOLOGY
Short Title: ADVANCED ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231 and PSYC 431
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 636. Mutually Exclusive: Cannot register for PSYC 436 if student has credit for PSYC 636.

PSYC 438 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 551. Recommended Prerequisite(s): PSYC 339 and PSYC 340 and should be majoring in Psychology or Business. Mutually Exclusive: Cannot register for PSYC 438 if student has credit for PSYC 551.

PSYC 439 - ADVANCED STATISTICAL METHODS FOR PSYCHOLOGY UNDERGRADUATES
Short Title: ADV STATISTICAL METHODS-PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: This course is intended as a second course in statistics for psychology and the social sciences. It builds on PSYC 339/SOSC 302. Advanced factorial ANOVA designs, mixed between- and within-subject designs, and multiple regression will be covered. This course is primarily for advanced psychology undergraduates contemplating enrollment in graduate school.
PSYC 440 - RESEARCH SEMINAR: INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY
Short Title: RESEARCH IN I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An examination of selected topics in industrial/organizational psychology, focusing on published and ongoing research by contemporary scholars. Topics will vary. Instructor Permission Required.

PSYC 441 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 441 if student has credit for PSYC 341/PSYC 541.

PSYC 445 - ADVANCED SEMINAR IN HEALTH PSYCHOLOGY
Short Title: ADV SEM IN HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 and PSYC 332 and (PSYC 339 or SOSC 302) and PSYC 340
Description: Consideration of research on psychological factors and health, with special consideration to the role of health beliefs in people's practice and nonpractice of health, illness, and sick-role behaviors. Topics will vary. Repeatable for credit with Permission of Department.

PSYC 452 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 552. Mutually Exclusive: Cannot register for PSYC 452 if student has credit for PSYC 552.

PSYC 455 - ADVANCED SEMINAR IN CLINICAL PSYCHOLOGY
Short Title: ADV SEM IN CLINICAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 202 or PSYC 203)
Description: Topics will vary. Repeatable for credit with Permission of Department.

PSYC 461 - REASONING, DECISION MAKING, PROBLEM SOLVING
Short Title: DECISION MAKING/PROB SOLVING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 339 or SOSC 302 or STAT 280 or STAT 300 or STAT 305 or STAT 310 or STAT 315 or DSCI 301 or ECON 307)
Description: Study of the higher mental processes. Includes problem solving, judgment, decision making, and reasoning. Graduate/Undergraduate Equivalency: PSYC 527. Mutually Exclusive: Cannot register for PSYC 461 if student has credit for PSYC 360/PSYC 527.

PSYC 462 - NON-TRADITIONAL INTERFACES
Short Title: NON-TRADITIONAL INTERFACES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 662. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 462 if student has credit for PSYC 662.
PSYC 463 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 663. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 463 if student has credit for PSYC 663.

PSYC 464 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency: PSYC 664. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 464 if student has credit for PSYC 664.

PSYC 465 - OLFATORY PERCEPTION
Short Title: OLFATORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

PSYC 470 - ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 370
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency: PSYC 540. Mutually Exclusive: Cannot register for PSYC 470 if student has credit for PSYC 540.

PSYC 475 - STEREOTYPING AND PREJUDICE
Short Title: STEREOTYPING AND PREJUDICE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

PSYC 480 - ADVANCED TOPICS
Short Title: ADVANCED TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 202 (may be taken concurrently) or PSYC 203)
Description: Topics will vary. Please see individual instructor for prerequisite requirements. Repeatable for different topics. Repeatable for Credit.
PSYC 485 - UNDERGRADUATE SUPERVISED RESEARCH
Short Title: UG SUPERVISED RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised empirical research. Research paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339, PSYC 340. Repeatable for Credit.

PSYC 487 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain’s three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Instructor Permission Required. Graduate/Undergraduate Equivalency: PSYC 587. Mutually Exclusive: Cannot register for PSYC 487 if student has credit for PSYC 587.

PSYC 488 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised reading of books and empirical papers on a topic of mutual interest to students and faculty. Term paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339 and PSYC 340. Repeatable for Credit.

PSYC 495 - SUMMER INTERNSHIP
Short Title: SUMMER INTERNSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides enrollment for various department summer internships. Instructor Permission Required. Repeatable for Credit.

PSYC 499 - HONORS THESIS
Short Title: HONORS THESIS
Department: Psychological Sciences
Grade Mode: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PSYC 339 or SOSC 302) and PSYC 340
Description: Sponsorship by faculty member required. Students must apply for the Honors Program. Instructor Permission Required. Repeatable for Credit.

PSYC 502 - ADVANCED PSYCHOLOGICAL STATISTICS I
Short Title: ADVANCED PSYC STATISTICS I
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to inferential statistics, with emphasis on analysis of variance. Students who do not meet registration requirements as Graduate and Psychology or MHCIHF (Master in Human-Computer Interaction and Human Factors) Majors must receive instructor permission to register. Cross-list: STAT 509.

PSYC 503 - ADVANCED PSYCHOLOGICAL STATISTICS II
Short Title: ADVANCED PSYC STATISTICS II
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 502 or STAT 509
Description: A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Cross-list: STAT 510.
PSYC 504 - COMPUTER APPLICATIONS IN PSYCHOLOGY  
**Short Title:** COMPUTER APPLICATIONS IN PSYC  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 342. Mutually Exclusive: Cannot register for PSYC 504 if student has credit for PSYC 342.

PSYC 507 - RESEARCH METHODS  
**Short Title:** RESEARCH METHODS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate-level treatment of a wide range of laboratory and field research methodologies.

PSYC 511 - HISTORY AND SYSTEMS OF PSYCHOLOGY  
**Short Title:** HISTORY & SYSTEMS OF PSYC  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Survey of the evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 411. Mutually Exclusive: Cannot register for PSYC 511 if student has credit for PSYC 411.

PSYC 520 - FOUNDATIONS OF COGNITIVE PSYCHOLOGY  
**Short Title:** FOUNDATIONS OF COGNITIVE PSYC  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An introduction to the basic topics in cognitive psychology, including perception, memory, psycholinguistics, concept formation, problem solving, and decision making.

PSYC 521 - PSYCHOLOGY OF PERCEPTION  
**Short Title:** PERCEPTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency: PSYC 351.

PSYC 522 - INFORMATION PROCESSING AND ATTENTION  
**Short Title:** INFO PROCESSING & ATTENTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An exploration of topics in attention, including information overload, selective attention, response conflict, and automatic/unconscious and controlled/conscious processes. The neural mechanisms underlying these processes will also be discussed.

PSYC 524 - MEMORY  
**Short Title:** MEMORY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Overview of issues and research in remembering and forgetting. Graduate/Undergraduate Equivalency: PSYC 308.

PSYC 525 - PSYCHOLINGUISTICS  
**Short Title:** PSYCHOLINGUISTICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Study of the psychology of language. Includes the study of speech production, reading, syntax, meaning, bilingualism, language and thought, and language errors and disorders.

PSYC 527 - REASONING, DECISION MAKING, PROBLEM SOLVING  
**Short Title:** DECISION MAKING/PROB SOLVING  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The study of higher mental processes. Includes problem solving, judgment, decision making, and reasoning. Graduate/Undergraduate Equivalency: PSYC 461. Mutually Exclusive: Cannot register for PSYC 527 if student has credit for PSYC 461.
PSYC 529 - COGNITIVE RESEARCH SEMINAR  
**Short Title:** COGNITIVE RESEARCH SEMINAR  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A weekly student-staff seminar on current and recent research about mental phenomena. Repeatable for Credit.

PSYC 530 - FOUNDATIONS OF I-O PSYCHOLOGY  
**Short Title:** FOUNDATIONS OF I-O PSYCHOLOGY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate-level introduction to the study of human behavior in the work setting. Mutually Exclusive: Cannot register for PSYC 530 if student has credit for PSYC 431.

PSYC 531 - HF/HCI RESEARCH SEMINAR  
**Short Title:** HF/HCI RESEARCH SEMINAR  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to students with a major in Human-Comp Inter & Humn Fctrs or Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A weekly student-staff seminar on various human factors and human-computer interaction topics. Repeatable for Credit.

PSYC 532 - HEALTH RESEARCH SEMINAR  
**Short Title:** HEALTH RESEARCH SEMINAR  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A weekly student-staff seminar on current and recent health and emotion-related research. Repeatable for Credit.

PSYC 533 - I-O PSYCHOLOGY RESEARCH SEMINAR  
**Short Title:** I-O PSYCHOLOGY RESEARCH SEM  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A weekly student-staff seminar on various industrial-organizational psychology topics. Repeatable for Credit.

PSYC 535 - HUMAN FACTORS/ERGONOMICS  
**Short Title:** HUMAN FACTORS/ERGONOMICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency: PSYC 430. Mutually Exclusive: Cannot register for PSYC 543 if student has credit for PSYC 430.
PSYC 546 - PSYCHONEUROIMMUNOLOGY
Short Title: PSYCHONEUROIMMUNOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Psychoneuroimmunology research

PSYC 547 - FOUNDATIONS OF HEALTH PSYCHOLOGY
Short Title: FOUNDATIONS-HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Foundations of Health Psychology research

PSYC 548 - INTERVENTIONS
Short Title: INTERVENTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will prepare students to conduct high-impact research across the translational continuum in the social, psychobiological, and behavioral sciences. In this course, students will gain a thorough grounding in the conduct of randomized controlled trials (RCTs) and develop competence in the planning, design, and execution of clinical trials involving behavioral interventions. After taking this course, students will be able to plan and conduct longitudinal observational studies and clinical trials that have the potential to change practice guidelines, health care policies, and third-party coverage for health-related outcomes. The first two weeks of the course will cover causal inference in experimental and observational studies and address various implications of counterfactual thinking. The remainder of the course will provide training in planning, designing, and conducting translational research with a focus on randomized controlled trials of health-related behavioral interventions. Each student will develop and write a research grant proposal that will serve as the course "Final." Recommended Prerequisite(s): This course has no specific course prerequisites. It is designed to be most useful to students with knowledge of basic (i.e., undergraduate level statistics and research methods) that are pertinent to the social, behavioral, and biomedical sciences.
Course URL: canvas.rice.edu/courses/33575 (http://canvas.rice.edu/courses/33575/)

PSYC 549 - PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Short Title: PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will take a developmental approach to understand psychopathology and aging. We will seek to evaluate the factors contributing to psychopathology that emerge across the lifespan. We will adopt a biopsychosocial model to address the roots of normal and abnormal adult development, & aging. This course will begin with an overview of the field; we will then work toward a sophisticated understanding anxiety disorders, aging & cognitive disorders, mood disorders, factitious and dissociative disorders, and personality disorders. Although we will cover nosological models of psychopathology, we will primarily focus on etiology.

PSYC 550 - FOUNDATIONS OF SOCIAL PSYCHOLOGY
Short Title: FOUNDATIONS OF SOCIAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of theories of social psychology with an emphasis on current empirical research.

PSYC 551 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 438. Mutually Exclusive: Cannot register for PSYC 551 if student has credit for PSYC 438.

PSYC 552 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 452. Mutually Exclusive: Cannot register for PSYC 552 if student has credit for PSYC 452.
PSYC 560 - PSYCHOLOGY PRESENTATIONS  
**Short Title:** PSYCHOLOGY PRESENTATIONS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Practicum on oral psychology presentation.

PSYC 561 - TEACHING IN PSYCHOLOGY  
**Short Title:** TEACHING IN PSYCHOLOGY  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Assistance in the teaching of undergraduate and occasionally graduate courses in psychology. Repeatable for Credit.

PSYC 563 - COGNITIVE PSYCHOLOGY INTERNSHIP  
**Short Title:** COGNITIVE PSY INTERNSHIP  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Supervised internship in cognitive psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 564 - COGNITIVE NEUROSCIENCE LAB  
**Short Title:** COGNITIVE NEUR LAB  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The objective is to equip the students of PSYC/NEUR 362 the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. Cross-list: NEUR 564. Graduate/Undergraduate Equivalency. PSYC 364. Mutually Exclusive: Cannot register for PSYC 564 if student has credit for PSYC 364.

PSYC 565 - HUMAN OLFACTION  
**Short Title:** HUMAN OLFACTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 465. Mutually Exclusive: Cannot register for PSYC 565 if student has credit for PSYC 465.

PSYC 571 - FIRST-YEAR PROJECT  
**Short Title:** FIRSTYEAR PROJECT  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research project undertaken in the first year of the graduate program. Repeatable for Credit.

PSYC 572 - SECOND-YEAR PROJECT  
**Short Title:** SECOND-YEAR PROJECT  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research project undertaken during the second year of the graduate program. Repeatable for Credit.

PSYC 573 - NON-THESIS GRADUATE RESEARCH  
**Short Title:** NON-THESIS GRAD RESEARCH  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research prior to achieving candidacy. Repeatable for Credit.

PSYC 574 - INTRODUCTION TO COGNITIVE NEUROSCIENCE  
**Short Title:** INTRO COGNITIVE NEUROSCIENCE  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Cross-list: NEUR 508.
PSYC 575 - ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION
Short Title: ATTENTION AND PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods, and the historical and philosophical context of contemporary neuroscience. Cross-list: NEUR 501.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

PSYC 576 - ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS
Short Title: HIGHER MENTAL FUNCTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and neuroimaging approaches to higher mental functions, including language, memory, executive functions, reasoning, and numerical processing. Cross-list: NEUR 502.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

PSYC 577 - INTRODUCTION TO FUNCTIONAL NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. Usually taught at the Texas Medical Center. Instructor Permission Required.

PSYC 578 - COGNITIVE NEUROPSYCHOLOGY: THEORIES AND METHODS
Short Title: COGNEURO: THEORIES AND METHODS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores different approaches in the field of Cognitive Neuropsychology. Topics include single-case studies, case series, voxel-lesion symptom mapping and computational neuropsychology. We will discuss how to do research with each of these techniques, how to draw inferences from neuropsychological data and critiques of the methodology.

PSYC 580 - DEVELOPMENTAL COGNITIVE NEUROSCIENCE
Short Title: DEVELOPMENTAL COGNEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar focusing on the neural/biological bases of both normal and abnormal human development through a survey of recent research in developmental cognitive neuroscience. Topics include perceptual, motive, cognitive, and language development as well as experimental research methods for studying the developing brain.

PSYC 581 - VISION SCIENCE
Short Title: VISION SCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced graduate seminar in the psychology of vision, covering the neural, psychophysical, and phenomenological approaches to visual perception.

PSYC 582 - EARLY SENSORY, PERCEPTUAL AND ATTENTIONAL DEVELOPMENT
Short Title: EARLY SENSORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a survey course for graduate students interested in the development of sensory systems, perception, and attention. There will be original empirical and theoretical readings from the literature on the development of these functions primarily during infancy. Neurobiological underpinnings for these functions will be debated and discussed.

PSYC 583 - THEORY, CONTENT, AND EXECUTION IN COGNITIVE NEUROSCIENCE
Short Title: COGNEURO THEORY/CONTENT/EXECUT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The particular combination of issues in cognitive neuroscience in any one course will vary depending on the background and needs of the students registered for that course and the nature of the important articles in journals covering these areas. Instructor Permission Required. Repeatable for Credit.
PSYC 584 - FUNDAMENTAL NEUROSCIENCE SYSTEMS  
**Short Title:** NEUROSYSTEMS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. This course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Graduate/Undergraduate Equivalency: PSYC 380. Mutually Exclusive: Cannot register for PSYC 584 if student has credit for PSYC 380.

PSYC 585 - FUNCTIONAL MAGNETIC RESONANCE IMAGING LABORATORY  
**Short Title:** FMRI LABORATORY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Laboratory course that provides comprehensive introduction to the practical aspects of planning conducting and analyzing Blood Oxygen Dependent Functional Magnetic Resonance Imaging (BOLD fMRI) data. BOLD fMRI is a methodology that allows non-invasive measurements of the neural processing underlying human perception/cognition. Course taught at Baylor College of Medicine for Advanced fMRI.

PSYC 586 - SOCIAL AND AFFECTIVE NEUROSCIENCE  
**Short Title:** SOCIAL AND AFFECTIVE NEURO  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Review of the field of social and affective neuroscience, including conceptual foundations and methodology. Review and discussion of contemporary research on the neurobiological supporting social cognition and emotion in both healthy and affectively-disordered populations.

PSYC 587 - FUNCTIONAL HUMAN NEUROANATOMY  
**Short Title:** FUNCTIONAL NEUROANATOMY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain’s three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Graduate/Undergraduate Equivalency: PSYC 487. Mutually Exclusive: Cannot register for PSYC 587 if student has credit for PSYC 487.

PSYC 590 - ADVANCED TOPICS IN NEUROSCIENCE  
**Short Title:** ADVANCED TOPICS - NEUROSCIENCE  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics will vary. Repeatable for Credit.

PSYC 595 - HUMAN-COMPUTER INTERACTION AND HUMAN FACTORS PROFESSIONAL MASTER'S INTERNSHIP  
**Short Title:** HCI&HF PROF MASTERS INTERNSHIP  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** PSYC 503  
**Description:** Supervised internship in Human-Computer Interaction and Human Factors Professional Master's Program. Instructor Permission Required.

PSYC 600 - HCI & HF PROFESSIONAL MASTER'S CAPSTONE PROJECT  
**Short Title:** HCI&HF PROF MASTER'S CAPSTONE  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 6  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** PSYC 503  
**Description:** This course allows students to integrate all of the knowledge they have gained in their HCI/HF professional master's coursework in the form of a capstone project in the area of human-computer interaction and human factors. The capstone may be either research focused or application focused. Department Permission Required.
PSYC 601 - MULTIVARIATE STATISTICS  
Short Title: MULTIVARIATE STATISTICS  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides an overview of a wide range of concepts and skills for conducting data analysis on multivariate data sets encountered in psychology. Issues involve preparing the data set, selecting and conducting the appropriate analysis, interpreting the output from statistical programs, and presenting complex analyses and results in a clear manner.

PSYC 602 - PSYCHOMETRICS  
Short Title: PSYCHOMETRICS  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Test theory, including reliability, validity, item response theory, and generalizability theory. In addition, the course offers hands-on experience with analysis software and discussion of practical issues such as test bias, item writing, and scale construction.

PSYC 609 - METHODS IN HUMAN-COMPUTER INTERACTION  
Short Title: METHODS HUMAN-COMP INTERACTION  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 409. Mutually Exclusive: Cannot register for PSYC 609 if student has credit for PSYC 409.

PSYC 620 - ADVANCED TOPICS IN COGNITIVE PSYCHOLOGY  
Short Title: ADV TOPICS - COGNITIVE PSYC  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Topics will vary. Repeatable for Credit.

PSYC 621 - TOPICS IN MEMORY  
Short Title: TOPICS IN MEMORY  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Topics will vary. Repeatable for Credit.

PSYC 622 - TOPICS IN PSYCHOLINGUISTICS  
Short Title: TOPICS IN PSYCHOLINGUISTICS  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: In-depth, consideration of specialized topics in the psychology of language. Topics vary from year to year. Repeatable for Credit.

PSYC 624 - SOCIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR  
Short Title: SOCIAL/ORG PSYC RESEARCH SEM  
Department: Psychological Sciences  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Weekly seminar to discuss recent research in social/organizational psychology. Repeatable for Credit.

PSYC 625 - COGNITIVE NEUROSCIENCE RESEARCH SEMINAR  
Short Title: COGNEURO RESEARCH SEMINAR  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Weekly seminar to discuss recent research in cognitive neuroscience. Instructor Permission Required. Repeatable for Credit.

PSYC 626 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION RESEARCH SEMINAR  
Short Title: HF/HCI RESEARCH SEMINAR  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Weekly seminar to discuss recent research in human factors/human-computer interaction. Instructor Permission Required. Repeatable for Credit.

PSYC 627 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR  
Short Title: I/O PSYC RESEARCH SEMINAR  
Department: Psychological Sciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Weekly seminar to discuss recent research in industrial/organizational psychology. Instructor Permission Required. Repeatable for Credit.
PSYC 628 - MEMORY RESEARCH SEMINAR
Short Title: MEMORY RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in human memory. Repeatable for Credit.

PSYC 629 - PSYCHOLINGUISTICS RESEARCH SEMINAR
Short Title: PSYCHOLINGUISTICS SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in psycholinguistics. Repeatable for Credit.

PSYC 630 - ADVANCED TOPICS IN I/O
Short Title: ADVANCED TOPICS IN I/O
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Topics will vary. Repeatable for different topics. Repeatable for Credit.

PSYC 631 - FOUNDATIONS OF INDIVIDUAL DIFFERENCES
Short Title: INDIVIDUAL DIFFERENCES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 436. Mutually Exclusive: Cannot register for PSYC 636 if student has credit for PSYC 436.

PSYC 632 - LEADERSHIP
Short Title: LEADERSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examination of the major psychological approaches to the study of leadership. Emphasis is on theory and practice in formal organizations.

PSYC 634 - PERSONNEL PSYCHOLOGY
Short Title: PERSONNEL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Examination of the theory, research, and applications in personnel selection, including job analysis, job performance, evaluation of performance, validation of selection methods, and training.

PSYC 635 - MULTILEVEL MODELING IN PSYCHOLOGICAL RESEARCH
Short Title: MULTILEVEL MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Psychological data often have a nested structure (e.g., students within classrooms, time points within individuals). Multilevel modeling of such data yields results that are more appropriate and interpretable than traditional statistical methods. Students will gain both practical and conceptual knowledge of this popular methodology.

PSYC 636 - ORGANIZATIONAL PSYCHOLOGY
Short Title: ORGANIZATIONAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 436. Mutually Exclusive: Cannot register for PSYC 636 if student has credit for PSYC 436.

PSYC 637 - META-ANALYSIS IN PSYCHOLOGICAL RESEARCH
Short Title: META-ANALYSIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Meta-analysis is a popular tool for statistically aggregating effects across related psychological studies. Course topics traverse a wide range of issues, including developing and using a coding sheet, fixed- vs. random-effects models, analysis moderator effects, correcting for statistical artifacts, dealing with dependent outcomes and outliers, and detecting publication bias.
PSYC 638 - STRUCTURAL EQUATION MODELING  
**Short Title:** STRUCTURAL EQUATION MODELING  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Structural equation modeling attempts to provide improved estimates of construct-level relationships. It also allows for complex hypothesis testing (e.g., mediation between groups, longitudinal) to find an appropriate balance between model parsimony and model fit. This course introduces students to basic concepts and applications of this popular research method.  

PSYC 639 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY INTERNSHIP  
**Short Title:** I/O PSYCHOLOGY INTERNSHIP  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Supervised internship in organizational and/or personnel psychology. Instructor Permission Required. Repeatable for Credit.  

PSYC 640 - TOPICS IN HUMAN-COMPUTER INTERACTION  
**Short Title:** TOPICS IN HCI  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics will vary. Repeatable for Credit.  

PSYC 641 - SPECIAL TOPICS IN HUMAN-COMPUTER INTERACTION  
**Short Title:** SPECIAL TOPICS IN HCI  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics will vary. Repeatable for Credit.  

PSYC 649 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION INTERNSHIP  
**Short Title:** HF/HCI PSYC INTERNSHIP  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Supervised internship in engineering psychology. Instructor Permission Required. Repeatable for Credit.  

PSYC 651 - TOPICS IN SOCIAL PSYCHOLOGY  
**Short Title:** TOPICS IN SOCIAL PSYCHOLOGY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics will vary. Repeatable for Credit.  

PSYC 660 - PROFESSIONAL ISSUES  
**Short Title:** PROFESSIONAL ISSUES  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Discussion of selected topics on professional matters. Includes grant writing, licensing, and ethics in psychology.  

PSYC 662 - NON-TRADITIONAL INTERFACES  
**Short Title:** NON-TRADITIONAL INTERFACES  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 462. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 662 if student has credit for PSYC 462.  

PSYC 663 - MEDICAL HUMAN FACTORS  
**Short Title:** MEDICAL HUMAN FACTORS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 463. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 663 if student has credit for PSYC 463.
PSYC 664 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency: PSYC 464. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 664 if student has credit for PSYC 64.

PSYC 665 - SEMINAR IN GENES AND COGNITION
Short Title: SEMINAR IN GENES AND COGNITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will consist of reading and discussing papers on molecular genetic studies of various cognitive functions broadly construed. This will include studies of genes and attention, genes and working memory, and genes and executive function. Will also include readings on genes and disordered cognition (e.g., ADHD, Alzheimer's).

PSYC 671 - METHODS IN COGNITIVE NEUROSCIENCE
Short Title: METHODS COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues in functional neuroimaging and provides hands-on experience with experimental design, data acquisition, and analysis. Examines hemodynamic (PET, FMR), electrophysiologic (EEG, MEG), and other (e.g. neural stimulation, event-related optical) methods of measuring functional activation in the human brain related to cognitive operations. This course is usually offered at the University of Texas Medical School.

PSYC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 681 - PERCEPTUAL ORGANIZATION
Short Title: PERCEPTUAL ORGANIZATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 581
Description: Advanced graduate course. Perceptual organization, primarily in human vision but in other senses too. We examine theoretical issues underlying perceptual organization; principal phenomena; methods used to reveal perception of structure; neural basis of perception organization; theories of perceptual organization; and remaining problems in the field.

PSYC 699 - GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY
Short Title: CAPSTONE EXPERIENCE IN I-O
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is required for the MA in IO Psychology. It is a multi-semester, hands-on applied experience that can take the form of either an internship, an applied research experience, or a portfolio of work that reflects the integration of I-O science and practice. Instructor Permission Required. Repeatable for Credit.

PSYC 700 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for the master’s thesis. Repeatable for Credit.

PSYC 800 - DISSERTATION RESEARCH
Short Title: DISSERTATION RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for the doctoral dissertation. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: PSYC

Program Description and Code
- Industrial-Organizational Psychology: IOPS
Graduate Degree Description and Code
- Master of Industrial-Organizational Psychology: MIOP

Graduate Degree Program Description and Code
- Degree Program in Industrial-Organizational Psychology IOPS

CIP Code and Description
- IOPS Major/Program: CIP Code/Title: 42.2804 - Industrial and Organizational Psychology

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Industrial-Organizational Psychology (MIOP) Degree

Program Learning Outcomes for the MIOP Degree

Upon completing the MIOP degree, students will be able to:

1. Achieve knowledge of psychological theories and principles, including individual differences, psychometrics, organizational theories and social and personality theories.
2. Propose and design studies and projects that apply principles and knowledge to understand and predict human behavior in organizations.
3. Develop quantitative skills to analyze psychological data to solve problems and support scientific and practical inferences.
4. Demonstrate ability to interact and communicate orally and in writing with lay individuals in organizational settings the scientific knowledge and products of the field.
5. Appreciate the role of an I-O Psychologist as an internal or external consultant to organizations and their leadership.

Requirements for the MIOP Degree

The MIOP degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MIOP degree must complete:

- A minimum of 12 courses (44-52 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 44 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1220) tab.
- A capstone experience. (This is to be a year-long, hands-on applied experience that can take the form of either an internship, an applied research experience, or a portfolio of work that reflects the integration of I-O science and practice.)
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
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</thead>
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Degree Requirements

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<tr>
<td>PSYC 502 / STAT 509</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS I</td>
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<td>ADVANCED PSYCHOLOGICAL STATISTICS II</td>
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<tr>
<td>PSYC 530</td>
<td>FOUNDATIONS OF I-O PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 533</td>
<td>I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 1st semester)</td>
<td>1-3</td>
</tr>
<tr>
<td>PSYC 533</td>
<td>I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 2nd semester)</td>
<td>1-3</td>
</tr>
<tr>
<td>PSYC 533</td>
<td>I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 3rd semester)</td>
<td>1-3</td>
</tr>
<tr>
<td>PSYC 533</td>
<td>I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 4th semester)</td>
<td>1-3</td>
</tr>
<tr>
<td>PSYC 634</td>
<td>PERSONNEL PSYCHOLOGY</td>
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</tr>
<tr>
<td>PSYC 636</td>
<td>ORGANIZATIONAL PSYCHOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

|   | **Elective Requirements**                                           |              |
|   | **Select 5 from the following:**                                   | 15           |
| PSYC 507 | RESEARCH METHODS |              |
| PSYC 550 | FOUNDATIONS OF SOCIAL PSYCHOLOGY |              |
| PSYC 601 | MULTIVARIATE STATISTICS |              |
| PSYC 602 | PSYCHOMETRICS |              |
| PSYC 630 | ADVANCED TOPICS IN I/O |              |
| PSYC 631 | FOUNDATIONS OF INDIVIDUAL DIFFERENCES |              |
| PSYC 632 | LEADERSHIP |              |
| PSYC 637 | META-ANALYSIS IN PSYCHOLOGICAL RESEARCH |              |
| PSYC 651 | TOPICS IN SOCIAL PSYCHOLOGY |              |

Capstone Requirement

1
2
**Master of Industrial-Organizational Psychology (MIOP) Degree**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>PSYC 699</td>
<td>GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY (3 semesters required, 1st semester)</td>
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<td>PSYC 699</td>
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<tr>
<td>PSYC 699</td>
<td>GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY (3 semesters required, 3rd semester)</td>
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</table>

**Total Credit Hours** 44-52

**Footnotes and Additional Information**

1. Other courses may be chosen to fulfill Elective Requirements in conjunction with the MIOP degree program advisor.
2. All students in the MIOP degree program are required to engage in a capstone experience, by taking PSYC 699. This is to be a year-long (3 semester), hands-on applied experience that can take the form of either an internship, an applied research experience, or a portfolio of work that reflects the integration of I-O science and practice.

**Proposed Plan-of-Study**

The following plan-of-study represents the lockstep four-semester sequence in which students pursuing the MIOP degree complete the required coursework.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>First Year</td>
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<td></td>
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<tr>
<td>1st Semester</td>
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<tr>
<td>PSYC 502</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS I</td>
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</tr>
<tr>
<td>PSYC 530</td>
<td>FOUNDATIONS OF I-O PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 533</td>
<td>I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 1st semester)</td>
<td>1-3</td>
</tr>
<tr>
<td>Elective one</td>
<td>Elective one</td>
<td>3</td>
</tr>
</tbody>
</table>

| Credit Hours | 11-13 |

| 2nd Semester |                                                 |              |
|             |                                                 |              |
| PSYC 503    | ADVANCED PSYCHOLOGICAL STATISTICS II             | 3            |
| PSYC 533    | I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 2nd semester) | 1-3          |
| PSYC 634    | PERSONNEL PSYCHOLOGY                             | 3            |
| PSYC 636    | ORGANIZATIONAL PSYCHOLOGY                       | 3            |

| Credit Hours | 10-12 |

| 3rd Semester |                                                 |              |
|             |                                                 |              |
| PSYC 699    | GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY (3 semesters required, 1st semester) | 3            |

| Credit Hours | 3 |

| Second Year  |                                                 |              |
| 1st Semester |                                                 |              |
| PSYC 533    | I-O PSYCHOLOGY RESEARCH SEMINAR (4 semesters required, 3rd semester) | 1-3          |
| PSYC 699    | GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY (3 semesters required, 2nd semester) | 3            |
| Elective two | Elective two                                    | 3            |

**Policies for the MIOP Degree**

**Department of Psychological Sciences Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Psychological Sciences, the home department for the Industrial-Organizational Psychology program, publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Psychology_MIOP_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Psychology_MIOP_Graduate_Handbook.pdf)

**Admission**

Admission to graduate study in Industrial-Organizational Psychology is open to qualified students holding a BS or a BA degree in a quantitative field from an accredited institution. The MIOP degree governing committee will evaluate the previous academic record and credentials of each applicant individually, and will make all admissions decisions.

**Financial Aid**

No financial aid is available from Rice University or the Psychological Sciences Department for students in the MIOP degree program.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see [Transfer Credit](#). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the MIOP degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree. Transferred courses must be comparable in content and depth to the corresponding course at Rice, and must not have counted toward another degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Psychological Sciences website: [https://psychology.rice.edu/](https://psychology.rice.edu/)
Opportunities for the MIOP Degree

Additional Information
For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/.

Jewish Studies

Contact Information
Jewish Studies
https://jewishstudies.rice.edu/
120 Rayzor Hall
713-348-4512

Matthias Henze
Program Director
mhenze@rice.edu

Jewish Studies is an interdisciplinary field that crosses traditional boundaries between academic fields and departments. Courses in Jewish Studies allow students to study Judaism as it has evolved from an ancient set of shared religious practices into the pluralistic religion and culture that it is today. In both the humanities and social sciences, Jewish Studies broadly examines the texts, history, languages, philosophy, literature, and culture of the Jewish people from the ancient to the modern. The study of Jewish life and culture provides an opportunity to explore the continuities and diversity of Judaism as it has been lived and practiced for over three millennia all over the world.

Diversity of thought is a hallmark of Jewish culture dating back to the earliest Jewish texts, and we strive to follow this model in our courses. The diverse and interdisciplinary nature of the Program in Jewish Studies allows undergraduates the opportunity to enrich their major fields of study with a specific focus on Judaism and Jewish culture. The Program in Jewish Studies at Rice also forms an important bridge to the community, making use of the rich resources available in Houston, engaging with local institutions, and participating in timely public discussions.

Minor

• Minor in Jewish Studies (p. 1223)

Jewish Studies does not currently offer an academic program at the graduate level.

Director
Matthias Henze

Associate Director
Joshua Furman

Professors
Gisela Heffes
Matthias Henze
Richard A. Lavenda
Michael R. Maas
Paula A. Sanders

Associate Professors
Martin Blumenthal-Barby
G. Daniel Cohen
Maya Soifer Irish
Susan Lurie
Astrid Oesmann
Brian Ogren

Lecturer
Joshua Furman

Postdoctoral Fellows
Daniella Farah
Tamar Sella

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Jewish Studies (JWST)

JWST 120 - ISRAEL: LANGUAGE AND CULTURE I
Short Title: ISRAEL: LANGUAGE AND CULTURE I
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: This course will combine a study of basic Hebrew vocabulary and grammar with literature, film, and popular culture from Israel. It will explore the history of Israel through a study of its culture and language, including poetry, songs, movies, and television.

JWST 121 - ISRAEL: LANGUAGE AND CULTURE II
Short Title: ISRAEL: LANGUAGE AND CULTURE II
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: This course is a continuation of JWST 120, but is open to any student who can read basic Hebrew. It will explore Israeli culture through literature, music, current events, and film.
JWST 201 - GREAT BOOKS OF JEWISH HISTORY AND CULTURE
Short Title: GREAT BOOKS OF JEWISH CULTURE
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Jewish people have often understood themselves as the "people of the book," because of the Jewish tradition's reliance on texts and textual study as a central component of religious culture and practice. This course will take the idea of the book as a starting point for a survey of Jewish history and culture. Spanning the biblical period to the present, we will read primary texts important to Jewish life and culture as well as scholarship from disciplines as varied as religion, history, anthropology, sociology, comparative literature, philosophy, and gender and sexuality studies. In doing so, we will learn about the varied communities that produced these texts; the languages they spoke and read; their particular religious and cultural practices; and how they have understood themselves in the context of other social and political communities over time, including in the ancient, medieval, and modern eras.

JWST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

JWST 317 - JEWISH GRAPHIC NOVEL
Short Title: JEWISH GRAPHIC NOVEL
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine contemporary works that combine image and text to depict Jewish history, culture, community, and identity in the form of the graphic novel.

JWST 318 - ISRAELI WOMEN WRITERS
Short Title: ISRAELI WOMEN WRITERS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the last 25 years there has been an explosion of women's poetry and fiction in Israel. In this course we will explore Israeli women's writing since the inception of the state of Israel and examine what the work of contemporary women writers means for Israeli culture, society, and politics. Cross-list: SWGS 318.

JWST 325 - ARCHIVAL RESEARCH AND HISTORICAL METHODS: JEWISH HOUSTON
Short Title: JEWISH HOUSTON
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Working with rare documents and materials in the Woodson Research Center, students will learn how to process archival collections, write finding aids, and conduct oral history interviews. By semester's end, each student will produce a major work of original research on a topic of interest in Houston/South Texas Jewish history.

JWST 338 - BECOMING AMERICANS: THE JEWISH IMMIGRANT EXPERIENCE IN THE UNITED STATES
Short Title: BECOMING AMERICANS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the history of the American Jewish immigrant experience from colonial times to the present as a means of trying to understand how newcomers navigate the processes of adaptation, acculturation, and integration into American life. We will travel to Galveston and New York City to visit significant historical sites and immigrant communities.
JWST 348 - SEX AND GENDER IN MODERN JEWISH CULTURE
Short Title: SEX & GENDER IN JEWISH CULTURE
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How has Jewish identity historically been constructed as gendered, and how has that affected Jewish self-perception and representation as well as the representations of others? This course explores the intersection between gender and Jewishness from several different historical and cultural perspectives, using literature, film, and philosophy. Cross-list: SWGS 348. Mutually Exclusive: Cannot register for JWST 348 if student has credit for RELI 349/SWGS 349.

JWST 351 - HOLOCAUST REPRESENTATION IN LITERATURE, ART, AND FILM
Short Title: HOLOCAUST REPRESENTATION
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the representation of the Holocaust in literature, art, and film. Is the Holocaust representable? What literary and artistic techniques and devices have been employed to represent the unrepresentable? Through Holocaust narrative, poetry, fiction, art, memorials, documentary and narrative film, we will explore these questions. Cross-list: FILM 351. Mutually Exclusive: Cannot register for JWST 351 if student has credit for FILM 349/RELI 349.

JWST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: Courses from various subjects may apply towards this program

Program Description and Code
- Jewish Studies: JWST

Undergraduate Minor Description and Code
- Minor in Jewish Studies: JWST

CIP Code and Description
- JWST Minor: CIP Code/Title: 38.0206 - Jewish/Judaic Studies

Minor in Jewish Studies

Program Learning Outcomes for the Minor in Jewish Studies

Upon completing the minor in Jewish Studies, students will be able to:

1. Demonstrate knowledge of key Jewish religious traditions, texts, and figures throughout history, from the ancient to the contemporary, as well as the place of those traditions, texts, and figures within specific historical, geographical, or sociopolitical contexts.
2. Demonstrate knowledge of Jewish history and culture during different time periods and in different geographical locations.
3. Demonstrate the ability to understand and apply theories and methods from multiple disciplines—including religious studies, literature, history, film, and sociology—to address key issues or undertake research in the field of Jewish studies; synthesize theories and methods from multiple disciplines to address questions within the field of Jewish studies.
4. Demonstrate the ability to read and interpret primary and secondary texts critically, including ancient as well as modern literature, religious texts, film, and modern scholarship; demonstrate the ability to use these texts to develop and support evidence-based research questions and arguments in discussions, verbal presentations, and in research papers.
5. Demonstrate the ability to communicate effectively in writing and orally at the college level; this includes demonstrating the ability to communicate in a critical, scholarly manner by developing evidence-based research questions and arguments, using and citing evidence to support argumentation, and writing and speaking clearly and correctly.

Requirements for the Minor in Jewish Studies

Students pursuing the minor in Jewish Studies must complete:

- A minimum of 6 courses (18-21 credit hours, depending on course selection) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 3 courses (9 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1225) tab.
- A minimum of 2 courses from Hebrew (HEBR) course offerings.
- A maximum of 2 courses from Religion (RELI) course offerings.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/)). Students
and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
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**Minor Requirements**

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<tbody>
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<td></td>
<td>Core Requirement</td>
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<tr>
<td>Select 1 course from the following:</td>
<td>3-4</td>
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<tr>
<td>HIST 374</td>
<td>JEWISH HISTORY, 1500-1948</td>
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<tr>
<td>JWST 201</td>
<td>GREAT BOOKS OF JEWISH HISTORY AND CULTURE</td>
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<tr>
<td>RELI 108</td>
<td>INTRODUCTION TO JUDAISM</td>
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<tr>
<td>RELI 341</td>
<td>AMERICAN JUDAISM: RELIGION AND THOUGHT</td>
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<tr>
<td></td>
<td>Elective Requirements</td>
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<tr>
<td>Select 1 elective course from Language and Literature (see course list below)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Select 1 elective course from History and Culture (see course list below)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Select 1 elective course from Thought, Philosophy, and Ethics (see course list below)</td>
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<tr>
<td>Select 2 additional elective courses (see course lists below)</td>
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**History and Culture**

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<tr>
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<tr>
<td></td>
<td>History and Culture</td>
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<tr>
<td>Select at least 1 course from the following:</td>
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<tr>
<td>FWIS 124</td>
<td>WITNESSING THE HOLOCAUST</td>
<td></td>
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<tr>
<td>FWIS 158</td>
<td>THE HOLOCAUST IN HISTORICAL PERSPECTIVE</td>
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<tr>
<td>GERM 336</td>
<td>NATIONAL SOCIALISM AND FILM</td>
<td></td>
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<tr>
<td>GERM 351 / HART 387</td>
<td>HOLOCAUST MEMORY IN MODERN GERMANY</td>
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<tr>
<td>HART 435 / HIST 443 / MDEM 435</td>
<td>MULTICULTURAL EUROPE, 1400-1700</td>
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<tr>
<td>HIST 201 / RELI 203</td>
<td>JUDAISM OF JESUS AND HILLEL</td>
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<tr>
<td>HIST 205 / MDEM 205</td>
<td>MEDIEVAL MEDITERRANEAN WORLD</td>
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<td>HIST 316</td>
<td>JEWS AND CHRISTIANS IN THE MEDIEVAL ISLAMIC WORLD</td>
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<td>HIST 324 / MDEM 324</td>
<td>CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN</td>
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<tr>
<td>HIST 357 / MDEM 357</td>
<td>JEWS AND CHRISTIANS IN MEDIEVAL EUROPE</td>
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<tr>
<td>HIST 374</td>
<td>JEWISH HISTORY, 1500-1948</td>
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<tr>
<td>JWST 201</td>
<td>GREAT BOOKS OF JEWISH HISTORY AND CULTURE</td>
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<tr>
<td>JWST 301</td>
<td>JEWISH FOOD: RELIGION, CULTURE, AND CONSUMPTION FROM THE BIBLE TO BAGELS</td>
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<tr>
<td>JWST 325</td>
<td>ARCHIVAL RESEARCH AND HISTORICAL METHODS: JEWISH HOUSTON</td>
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</tbody>
</table>
The courses used to meet the Jewish Studies minor are open to all students at Rice from all backgrounds. Our classes meet student interests in Jewish experience and its importance for history, literature, art, politics, law, and philosophy.

### Thought, Philosophy, and Ethics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>JWST 338</td>
<td>BECOMING AMERICANS: THE JEWISH IMMIGRANT EXPERIENCE IN THE UNITED STATES</td>
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<tr>
<td>JWST 351 / FILM 351</td>
<td>HOLOCAUST REPRESENTATION IN LITERATURE, ART, AND FILM</td>
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<tr>
<td>MDEM 377 / HART 377</td>
<td>MEDIEVAL MANUSCRIPTS</td>
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<tr>
<td>RELI 104 / MDEM 103</td>
<td>INTRODUCTION TO JEWISH MYSTICISM</td>
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<tr>
<td>RELI 108</td>
<td>INTRODUCTION TO JUDAISM</td>
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<tr>
<td>RELI 122</td>
<td>THE BIBLE AND ITS INTERPRETERS</td>
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<tr>
<td>RELI 215 / FILM 215</td>
<td>MYSTIC CINEMA: KABBALAH IN FILM</td>
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<td>RELI 302</td>
<td>PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE</td>
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<td>RELI 383</td>
<td>THE DEAD SEA SCROLLS</td>
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<td>RELI 385 / HIST 381</td>
<td>GOD, TIME AND HISTORY</td>
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<td>RELI 392</td>
<td>JERUSALEM: HOLY CITY IN TIME AND IMAGINATION</td>
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<tr>
<td>SOCI 363</td>
<td>AFRICAN AMERICAN-JEWISH RELATIONS: RACE, RELIGION, POLITICS, AND POPULAR CULTURE</td>
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</table>

Select at least 1 course from the following:

- GERM 352 POLITICS OF THE FLESH IN GERMAN LITERATURE, THOUGHT AND FILM
- HART 435 / HIST 443 / MDEM 435 MULTICULTURAL EUROPE, 1400-1700
- MDEM 116 / RELI 116 MYSTICISM THROUGHOUT THE AGES
- RELI 104 / MDEM 103 INTRODUCTION TO JEWISH MYSTICISM
- RELI 122 THE BIBLE AND ITS INTERPRETERS
- RELI 302 PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE
- RELI 318 THE BIBLE: A BRIEF INTELLECTUAL HISTORY
- RELI 341 AMERICAN JUDAISM: RELIGION AND THOUGHT
- RELI 363 JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT
- RELI 381 THE MESSIAH
- RELI 385 / HIST 381 GOD, TIME AND HISTORY

### Program Restrictions

Students pursuing the minor in Jewish Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

### Program Transfer Credit Guidelines

Students pursuing the minor in Jewish Studies should be aware of the following program-specific transfer credit guidelines:

- No more than 3 courses (9 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Jewish Studies (JWST) are broad in theme and scope and prompt students to consider the ways in which the study of Jewish history, culture, and religious practice inform the general study of the Humanities. Like the field of Jewish Studies itself, these courses are interdisciplinary in nature and offer students tools for making critical arguments about what Jewish history and culture can teach us about broader historical and cultural questions. Most of these courses are introductions to basic elements of the study of Judaism and Jewish culture.

### Additional Information

For additional information, please see the Jewish Studies website: https://jewishstudies.rice.edu.

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2021-2022 General Announcements PDF Generated 09/22/21
Opportunities for the Minor in Jewish Studies

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Jewish Studies website: https://jewishstudies.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

Kinesiology

Contact Information
Kinesiology
https://kinesiology.rice.edu/
S203 Tudor Fieldhouse
713-348-8816
Heidi Y. Perkins
Department Chair
hperkins@rice.edu

Rice’s Department of Kinesiology is the home of two academic majors, i.) Health Sciences and ii.) Sports Medicine and Exercise Physiology.

Major in Health Sciences
The goal of the health sciences major is to provide students with a fundamental background in health promotion and disease prevention. This background will enable them to understand the role that health promotion plays in society and the mechanisms that affect public and community health, while also considering the complexities of maintaining an optimal level of personal health. The health sciences major is viewed as an excellent option for undergraduate students who are preparing to enter graduate school in public health, health promotion, and health education, as well as other health-related graduate or professional programs, such as medicine or dentistry.

Major in Sports Medicine and Exercise Physiology
The goal of the sports medicine and exercise physiology major is to provide a strong foundation in basic science and interface this with the study of the human body and application to human movement, performance, and exercise. This major provides a foundation for continued studies in graduate school, allied health, physical therapy, or medicine. Graduates are also prepared to pursue exercise or wellness careers in fitness or sport settings.

Bachelor's Programs
- Bachelor of Arts (BA) Degree with a Major in Health Sciences (p. 1118)
- Bachelor of Arts (BA) Degree with a Major in Sports Medicine and Exercise Physiology (p. 2004)

Kinesiology does not currently offer an academic program at the graduate level.

Chair
Heidi Y. Perkins

Professors Emeriti
Bruce Etnyre
Nicholas K. Iammarino
Eva J. Lee
Dale W. Spence

Teaching Professor
Heidi Y. Perkins

Associate Teaching Professor
Augusto X. Rodriguez

Assistant Teaching Professors
Cassandra S. Diep
Laura Kabiri
Amanda Perkins Ball

Clinical Professor
Brian Gibson

Lecturers
Lisa Basgall
Nicholas K. Iammarino

Part-Time Lecturers
Roberta Anding
Jaime Aparicio
Steven L. Jones
Sylvia Lawler
Nathan Parker
Wendy Schell
P. Burke Wilson

Adjunct Faculty
Karen Basen-Engquist
Daniel C. Hughes
Thomas Krouskop
Alexis Ortiz
Dawn Stuckey
Armin Weinberg

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
Emergency Med Studies/Practice (EMSP)

EMSP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EMSP 281 - EMT-B: INTRODUCTION TO EMERGENCY CARE
Short Title: EMT-B INTRO TO EMERGENCY CARE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is a state-sanctioned EMT-B Certification course which includes practical and didactic exploration into pre-hospital care. This class culminates with a national certification to practice pre-hospital care on the EMT-B level. This course will discuss anatomy, body systems, and the biochemical basis of emergency intervention in addition to practical application of EMT-B skills. Formerly HEAL 308 and BIOS 281 and NSCI 281. Instructor Permission Required.

EMSP 282 - ADVANCED EMT
Short Title: ADVANCED EMT
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of EMSP 281, Emergency Care. Formerly BIOS 282, HEAL 310, and NSCI 282. Instructor Permission Required.

EMSP 375 - EMS INCHARGE LEADERSHIP COURSE
Short Title: EMS INCHARGE LEADERSHIP COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students preparing to hold leadership positions in EMS will expand their competency in emergency services, including emergency management and incident response, in addition to improving patient care and leadership skills. Participants will achieve certification in national emergency services courses, and will work as a team to manage a major event. Formerly UNIV 275. Instructor Permission Required.

EMSP 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EMSP 491 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 491 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 491. Instructor Permission Required. Repeatable for Credit.

EMSP 492 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 492 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 492. Instructor Permission Required. Repeatable for Credit.

EMSP 499 - EMT TEACHING PRACTICUM
Short Title: EMT TEACHING PRACTICUM
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is open to an undergraduate student who serves as an instructor for the Emergency Medical Technician course. As an instructor, he/she would need to participate in course planning, course assignments, and student evaluation. They would also be expected to present course material through preparing and delivering lectures, presentations, and practical skills instructions. Grade would be assigned based on student self-evaluation, class evaluation, and primary instructor assessment. Formerly NSCI 289. Instructor Permission Required. Repeatable for Credit.
Health Sciences (HEAL)

HEAL 103 - NUTRITION
Short Title: NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Concepts underlying the science of nutrition: food composition, calories and needs for energy, special nutrients, and nutritional deficiencies.

HEAL 119 - INTRODUCTION TO HEALTH AND WELLNESS
Short Title: INTRO TO HEALTH & WELLNESS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed to help students develop a greater understanding and appreciation of health and well being, as it relates to themselves and others around them, and for students to apply health and wellness knowledge in their personal life to improve their health.

HEAL 132 - MEDICAL TERMINOLOGY
Short Title: MEDICAL TERMINOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the student interested in medical and health professions to a large vocabulary of medical language which develops skills in understanding and remembering new words. It describes word origins, basic terms in anatomy and terms pertaining to each body system as well as pharmacology and medical equipment, and many frequently used medical terms, abbreviations and symbols.

HEAL 208 - CHEMICAL ALTERATIONS OF BEHAVIOR
Short Title: CHEM ALTERATIONS OF BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of social, cultural psychological, physiological causes and effects of drug use and abuse. Individual, family, and community factors related to prevention and treatment will be addressed.

HEAL 212 - CONSUMER HEALTH AND THE MEDIA
Short Title: CONSUMER HEALTH AND THE MEDIA
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of factual information and guidelines that enable consumers to act intelligently in selecting health products and services, with emphasis on the economic aspects of health.

HEAL 222 - PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH
Short Title: PRIN PUBLIC&COMMHEALTH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Principles of Public & Community Health examines aspects of the community that relate to health including health issues within community subgroups; identification and analysis of community health programs; organizational patterns and functions of voluntary and governmental health agencies and coordination of community health programs.

HEAL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HEAL 306 - HUMAN SEXUALITY
Short Title: HUMAN SEXUALITY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to explore the physiological, psychological, and sociological parameters of human sexuality, while providing accurate information and helping students develop healthy attitudes toward sexuality. Cross-list: SWGS 306.
HEAL 313 - FOUNDATIONS OF HEALTH PROMOTION AND EDUCATION
Short Title: FOUNDATIONS HEALTH PROMO&EDUC
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Foundations of Health Promotion/Health Education is designed to introduce students to the discipline of health education and the practice of health promotion. The course explores critical issues in the field of health promotion, accountability and professional preparation, professional ethics, credentialing and the changing technology in the field. Intended for Health Sciences majors only.

HEAL 350 - UNDERSTANDING CANCER
Short Title: UNDERSTANDING CANCER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of cancer from a biological, psychological and sociological perspective with emphasis on cancer epidemiology, prevention, and early detection.

HEAL 360 - VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE
Short Title: VIOLENCE IN AMERICA
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course presents an overview of issues concerning violence using a public health perspective. Information will be presented and discussed concerning several domains pertinent to violence, including family violence, intimate partner violence, community violence, and workplace harassment.

HEAL 375 - THE BUILT ENVIRONMENT AND PUBLIC HEALTH
Short Title: ENVIRONMENT AND PUBLIC HEALTH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course reviews topics involved in characterizing the built environment and workplace harassment. This course will culminate in a comprehensive, in-depth look our current health delivery system intended to introduce the student to the discipline of health promotion, planning & management (c) broader functions such as accessibility, quality of health care providers; and organizational patterns of health care facilities. Recommended Prerequisite(s): HEAL 222.
HEAL 422 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORY&MODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate/Undergraduate Equivalency: HEAL 522. Mutually Exclusive: Cannot register for HEAL 422 if student has credit for HEAL 522.

HEAL 460 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data. Graduate/Undergraduate Equivalency: HEAL 560. Mutually Exclusive: Cannot register for HEAL 460 if student has credit for HEAL 560.

HEAL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HEAL 495 - INDEPENDENT RESEARCH IN HEALTH SCIENCES
Short Title: INDEPENDENT RESEARCH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Repeatable for Credit.

HEAL 498 - SPECIAL TOPICS IN HEALTH SCIENCES
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces mental health, substance use, and recovery from a public health perspective. Social, biological, and behavioral science approaches to addressing mental health challenges are examined. Course work includes readings and lectures and an experiential learning activity to provide a real-world perspective on substance use and mental health. Spring 2021 Topic: Introduction to Public Mental Health Repeatable for Credit.

HEAL 499 - TEACHING PRACTICUM IN HEALTH SCIENCES
Short Title: TEACH PRACTICUM HEALTH SCIENCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Health Sciences, and at least an "A-" in the course serving as the practicum. Repeatable for Credit.
HEAL 507 - EPIDEMIOLOGY
Short Title: EPIDEMIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 407. Mutually Exclusive: Cannot register for HEAL 507 if student has credit for HEAL 407.

HEAL 522 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORY&MODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 422. Mutually Exclusive: Cannot register for HEAL 522 if student has credit for HEAL 422.

HEAL 560 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 460. Mutually Exclusive: Cannot register for HEAL 560 if student has credit for HEAL 460.

HEAL 580 - DISPARITIES IN HEALTH IN AMERICA
Short Title: DISPARITIES IN HEALTH IN AMER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores social, behavioral, and medical determinants (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 380. Mutually Exclusive: Cannot register for HEAL 580 if student has credit for HEAL 380.

HEAL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Kinesiology (KINE)

KINE 120 - SCIENTIFIC FOUNDATIONS OF KINESIOLOGY
Short Title: FOUNDATIONS OF KINESIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to studies in the areas of human movement: anatomy and physiology, exercise physiology, biomechanics, motor learning and control, and psychological aspects of sport and exercise.

KINE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
KINE 300 - HUMAN ANATOMY WITH LAB
Short Title: HUMAN ANATOMY WITH LAB
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to normal human anatomy structure and function. All major body systems will be examined in both lecture and laboratory format using a variety of physical and virtual models.

KINE 301 - HUMAN PHYSIOLOGY
Short Title: HUMAN PHYSIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the fundamental principles of human physiology at the cell, tissue, organ, organ system, and organism levels. Emphasis will be placed on mechanisms of function and homeostasis as achieved through the coordinated function of homeostatic control systems.

KINE 302 - BIOMECHANICS
Short Title: BIOMECHANICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: An introduction to the discipline of mechanics as it applies to biological systems. Primary emphasis is placed on humans and other vertebrate species. Topics covered include the kinematics and kinetics of movement, material and functional properties of musculoskeletal tissues and the integration of musculoskeletal function from molecules and cells to whole animals. Recommended prerequisite(s): KINE 321.

KINE 310 - PSYCHOLOGICAL ASPECTS OF SPORT AND EXERCISE
Short Title: PSYC OF SPORT & EXERCISE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Examine the psychological foundations that underlie sport and exercise participation. Recommended Prerequisite(s): PSYC 101.

KINE 311 - MOTOR LEARNING
Short Title: MOTOR LEARNING
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to provide a basic understanding of the theories related to skill acquisition, development, and movement. Learners develop an understanding of the cognitive, behavioral, and neurological concepts needed to become skilled at movements. The course will also incorporate laboratory experiences in the physiological, neurological, and psychological factors of human movement.

KINE 319 - STATISTICS FOR THE HEALTH PROFESSIONAL
Short Title: STATS FOR HEALTH PROFESSIONAL
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 301
Description: This course provides a hands-on laboratory to demonstrate and apply in-depth human physiology concepts. Students will collect, analyze, and report data on physiological variables. Findings will be applied to key human physiology concepts including homeostasis, isolated and integrated functions of body systems, and response to activity and exercise.

KINE 320 - HUMAN PHYSIOLOGY LAB
Short Title: HUMAN PHYSIOLOGY LAB
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 301
Description: This course provides a hands-on laboratory to demonstrate and apply in-depth human physiology concepts. Students will collect, analyze, and report data on physiological variables. Findings will be applied to key human physiology concepts including homeostasis, isolated and integrated functions of body systems, and response to activity and exercise.

KINE 321 - EXERCISE PHYSIOLOGY
Short Title: EXERCISE PHYSIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300 and KINE 301
Description: This course examines the acute and chronic effects of exercise on physiological functions. Topics include nutrition, energy transfer, fatigue, metabolism, disease, aging, preventative medicine, genetics, elite performance, ergogenic aids, exercise testing, and specificity of training.
KINE 326 - PHYSICAL ACTIVITY EPIDEMIOLOGY  
Short Title: PHYSICAL ACTIVITY EPIDEMIOLOGY  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course provides an epidemiological foundation to exercise and physical activity research related to public health. The course is designed to present evidence of the positive effects of physical activity and exercise in preventing disease, disability, and increasing quality of life.

KINE 351 - ADVANCED HUMAN ANATOMY LAB  
Short Title: ADVANCED HUMAN ANATOMY LAB  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 300  
Description: Study of the pro-sections and cadavers are used for learning and understanding human anatomy in a gross anatomy examination laboratory at BCM in the Texas Medical Center. Hands-on examination of human anatomy in this course provides supplemental practical experience for lectures in KINE 300, Human Anatomy courses.

KINE 375 - SPORTS MEDICINE & EXERCISE PHYSIOLOGY INTERNSHIP  
Short Title: SPORTS MEDICINE INTERNSHIP  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 1-3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Internship experience for upperclassmen in the Sports Medicine and Exercise Physiology major. Department Permission Required. Repeatable for Credit.

KINE 403 - SPORT NUTRITION  
Short Title: SPORTS NUTRITION  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): HEAL 103  
Description: This course will address current scientific knowledge about common macronutrients, micronutrients, and supplements, and how they may enhance athletic performance. The course will also focus on the role of nutritional timing, volume, and periodization to achieve practical results in endurance, strength, power and speed. Recommended Prerequisite(s): KINE 321.

KINE 410 - CASE STUDIES IN HUMAN PERFORMANCE  
Short Title: CASE STUDIES HUMAN PERFORMANCE  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An advanced, multidisciplinary consideration of how humans perform. Class work will center around problem solving using a case study methodology.

KINE 412 - MOTOR CONTROL  
Short Title: MOTOR CONTROL  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Exploration of the neuropsychological, behavioral, and biomechanical aspects of human movement and development.

KINE 415 - PSYCHOLOGICAL ASPECTS OF SPORTS INJURY & REHABILITATION  
Short Title: PSYCHOLOGY OF SPORT INJURY  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course examines the psychological factors involved in sport-related injuries and the rehabilitation process. Topics include personal and situational factors influencing injury and recovery, adherence to rehabilitation programs, social support, returning to play after injury, and the application of psychological interventions to optimize the recovery process. Recommended Prerequisite(s): KINE 310

KINE 419 - MOVEMENT DISORDERS  
Short Title: MOVEMENT DISORDERS  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 300 and KINE 301 and KINE 311  
Description: This course offers an in-depth look into selected developmental, degenerative, and hyperkinetic movement disorders resulting in abnormal muscle tone and/or motor control. Multiple aspects of each disorder (presentation, treatment, and progression) will be considered through a variety of sources.
KINE 421 - ADVANCED TOPICS IN EXERCISE PHYSIOLOGY AND PREVENTIVE MEDICINE
Short Title: ADV TOPICS IN EX PHY & MED
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 321 and KINE 323
Description: This course is a seminar style course that examines acute and chronic effects of exercise stimuli on physiological adaptation as relevant to health, disease and human performance. Topics will vary depending on current issues in exercise physiology. Examples include metabolism, fatigue, diabetes, genetics, muscular dystrophy, orthopedics, cancer and cardiovascular disease. The course is intended for those with a background in biology and/or physiology and interest in exercise and health.

KINE 430 - SPORTS INJURY: EVALUATION, MANAGEMENT, AND TREATMENT
Short Title: SPORTS INJURY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: Upper level course designed to provide students with practical application of basic science knowledge obtained in lower level courses within the department of Kinesiology. The course will address the management of common sports injuries from time of injury to return to play. At the end of the course, students will have a comprehensive understanding of athletic injuries and their management.

KINE 440 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319
Description: Designed to introduce students to research methods, statistical techniques, and topics appropriate for experimental research.

KINE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

KINE 490 - SEMINAR IN SPORTS MEDICINE
Short Title: SEMINAR IN SPORTS MEDICINE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Consider issues related to athletic injury including mechanisms, assessment, management, and rehabilitation.

KINE 495 - INDEPENDENT RESEARCH IN SPORTS MEDICINE & EXERCISE PHYSIOLOGY
Short Title: INDEPENDENT RESEARCH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Recommended Prerequisite(s): KINE 319 and KINE 440. Repeatable for Credit.

KINE 498 - SPECIAL TOPICS IN SPORTS MEDICINE
Short Title: SPECIAL TOPICS IN SPORTS MED
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Kinesiology or Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 301
Description: This course provides a laboratory experience designed to demonstrate and apply concepts from human physiology. Students will collect, analyze, and report data on various physiological variables. Key concepts and application include, homeostasis, isolated and integrated functions of body systems, and response to exercise. Spring 2021 Topic: Human Physiology Lab. Instructor Permission Required. Repeatable for Credit.
KINE 499 - TEACHING PRACTICUM IN SPORTS MEDICINE & EXERCISE PHYSIOLOGY
Short Title: TEACHING PRACTICUM
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Sports Medicine & Exercise Physiology, and at least an "A-" in the course serving as the practicum. Repeatable for Credit.

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for Emergency Medical Services/Practice: EMSP
- Course offerings/subject code for Health Sciences: HEAL
- Course offerings/subject code for Kinesiology: KINE

Department Description and Code
- Kinesiology: KINE

Undergraduate Degree Description Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Health Sciences: HESC
- Major in Sports Medicine and Exercise Physiology: SMEP

CIP Code and Description
1. HESC Major/Program: CIP Code/Title: 51.0001 - Health and Wellness, General
2. SMEP Major/Program: CIP Code/Title: 26.0908 - Exercise Physiology and Kinesiology

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

The Center for Languages and Intercultural Communication (CLIC) focuses on developing Rice students' communicative, interactional, and intercultural abilities and knowledge in non-native and heritage languages. Thus, CLIC seeks to provide a broad and critical educational experience that promotes multilingualism and helps students become culturally competent and interact successfully, appropriately, and respectfully with people from different countries and sociocultural backgrounds.

The Center for Languages and Intercultural Communication supports students pursuing language-related degrees in other departments, including Transnational Asian Studies (p. 266), Modern and Classical Literatures and Cultures (p. 1465), History (p. 1119), and Linguistics (p. 1334).

Certificates
- Certificate in Language and Intercultural Communication - Arabic (p. 1271)
- Certificate in Language and Intercultural Communication - Chinese (p. 1273)
- Certificate in Language and Intercultural Communication - French (p. 1275)
- Certificate in Language and Intercultural Communication - German (p. 1277)
- Certificate in Language and Intercultural Communication - Hindi (p. 1278)
- Certificate in Language and Intercultural Communication - Italian (p. 1280)
- Certificate in Language and Intercultural Communication - Japanese (p. 1282)
- Certificate in Language and Intercultural Communication - Korean (p. 1284)
- Certificate in Language and Intercultural Communication - Portuguese (p. 1286)
- Certificate in Language and Intercultural Communication - Russian (p. 1288)
- Certificate in Language and Intercultural Communication - Spanish (p. 1290)

The Center for Languages and Intercultural Communication does not currently offer an academic program at the graduate level.

Director of Language Instruction
Hélade Scutti Santos

Teaching Professor
Meng Yeh, Chinese

Associate Teaching Professor
Luziris Pineda Turi, Spanish

Lecturers
Fatima Baig, German
Charla Bennaji, Spanish
Aymara Boggiano, French, Spanish
Arabic (ARAB)

ARAB 141 - FIRST YEAR ARABIC I
Short Title: FIRST YEAR ARABIC I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Arabic (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ARAB 141 if student has credit for ARAB 161.

ARAB 142 - FIRST YEAR ARABIC II
Short Title: FIRST YEAR ARABIC II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARAB 141
Description: Continuation of ARAB 141. Development of interactional competence in Arabic (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ARAB 142 if student has credit for ARAB 262.

ARAB 222 - AP CREDIT IN ARABIC LANGUAGE
Short Title: AP/OTH CREDIT ARABIC LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement and International Baccalaureate exams. This credit counts toward the total credit hours required for graduation. Credit may not be received for both ARAB 222 and ARAB 141. Does not receive distribution credit.

ARAB 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARAB 263 - SECOND YEAR ARABIC I
Short Title: SECOND YEAR ARABIC I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARAB 142
Description: Continuation of ARAB 142. Development of interactional competence in Arabic (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ARAB 263 if student has credit for ARAB 201.
ARAB 264 - SECOND YEAR ARABIC II
Short Title: SECOND YEAR ARABIC II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Continuation of ARAB 263. Development of interactional competence in Arabic (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ARAB 264 if student has credit for ARAB 202.

ARAB 301 - THIRD YEAR ARABIC I
Short Title: THIRD YEAR ARABIC I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARAB 264
Description: Continuation of ARAB 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

ARAB 302 - THIRD YEAR ARABIC II
Short Title: THIRD YEAR ARABIC II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARAB 301
Description: Continuation of ARAB 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

ARAB 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHINESE (CHIN)

CHIN 141 - FIRST YEAR CHINESE I
Short Title: FIRST YEAR CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of CHIN 141, for students whose home language is not Chinese. Development of interactional competence in Chinese, (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for CHIN 141 if student has credit for CHIN 101/CHIN 222.

CHIN 142 - FIRST YEAR CHINESE II
Short Title: FIRST YEAR CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHIN 141
Description: Continuation of CHIN 141, for students whose home language is not Chinese. Development of interactional competence in Chinese, (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit.

CHIN 206 - ACCELERATED SECOND-YEAR CHINESE FOR HERITAGE LEARNERS
Short Title: ACCEL CHIN - HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Intensive second-year Chinese course for students with an intermediate level in spoken Chinese who lack knowledge of Chinese characters. This course covers the equivalents of CHIN 263 and 264 with a greater emphasis on reading and writing. Students will be prepared for CHIN 301 or 311 upon completion of the course. Mutually Exclusive: Credit cannot be earned for this course AND CHIN 263 and/or CHIN 264. CHIN 206 covers the same material as 263 and 264 combined. Mutually Exclusive: Cannot register for CHIN 206 if student has credit for CHIN 263/CHIN 264.
CHIN 211 - ACCELERATED ELEMENTARY CHINESE I  
Short Title: ACCEL ELEMENTARY CHINESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: For students with some background in spoken Chinese but with limited reading and writing ability. Introduces the Chinese writing system and the use of Chinese dictionaries. Students will be familiar with approximately 350 characters at the end of the course, and able to perform communicative tasks appropriate to this range of characters. Placement Test is Required. Effective May 15, 2019, this course does not carry D1 credit.

CHIN 212 - ACCELERATED ELEMENTARY CHINESE II  
Short Title: ACCEL ELEMENTARY CHINESE II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): CHIN 211  
Description: Increasing attention paid to more formal narrative texts. Writing focused on personal needs, with some attention to social correspondence. Students will be familiar with approximately 500 characters at the end of the course, and able to perform communicative tasks appropriate to this range of characters. Effective May 15, 2019, this course does not carry D1 credit.

CHIN 222 - AP/OTH CREDIT IN CHINESE LANGUAGE  
Short Title: AP/OTH CREDIT CHINESE LANGUAGE  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Transfer  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for CHIN 222 if student has credit for CHIN 101/CHIN 141.

CHIN 263 - SECOND YEAR CHINESE I  
Short Title: SECOND YEAR CHINESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): CHIN 142  
Description: Continuation of CHIN 142, for students whose native language is not Chinese. Development of interactional competence in Chinese, (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for CHIN 263 if student has credit for CHIN 201/CHIN 206.

CHIN 264 - SECOND YEAR CHINESE II  
Short Title: SECOND YEAR CHINESE II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): CHIN 263  
Description: Continuation of CHIN 263, for students whose native language is not Chinese. Development of interactional competence in Chinese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for CHIN 264 if student has credit for CHIN 202/CHIN 206.

CHIN 301 - THIRD YEAR CHINESE I  
Short Title: THIRD YEAR CHINESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): CHIN 264  
Description: Continuation of Chinese 264, for students whose home language is not Chinese. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced. Upon completion students are expected to be able to write approximately 650 characters and be able to perform communicative tasks appropriate to this range of tasks.
CHIN 302 - THIRD YEAR CHINESE II
Short Title: THIRD YEAR CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 301
Description: Continuation of CHIN 301, for students whose home language is not Chinese. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced. Upon completion, students expected to be able to write approximately 800 characters and perform communicative tasks appropriate to this range of characters.

CHIN 311 - ACCELERATED INTERMEDIATE CHINESE I
Short Title: ACCEL INTERMEDIATE CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 212 or CHIN 206
Description: Emphasis on reading narrative texts, and understanding authentic oral texts. Writing assignments stress skills necessary for basic personal needs and tasks necessary for writing social correspondence. At the completion of 311, students will be able to write approximately 800 Chinese characters, and be able to perform communicative tasks appropriate to this range of characters.

CHIN 312 - ACCELERATED INTERMEDIATE CHINESE II
Short Title: ACCEL INTERMEDIATE CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 311
Description: Continuation of CHIN 311. More emphasis on reading narratives, comprehending authentic oral texts, and speaking in more formal contexts. Writing assignments stress skills necessary for expressing arguments on socio-cultural topics. At the completion of CHIN 312, students will be able to write approximately 1000 Chinese characters.

CHIN 319 - SPECIAL TOPICS: ADVANCED CHINESE I
Short Title: SPECIAL TOPICS: ADV CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 301 or CHIN 311
Description: This course helps students develop an advanced level of proficiency in Chinese through the analysis and use of the target language in the context of specific topics of interest that will vary.

CHIN 320 - SPECIAL TOPICS: ADVANCED CHINESE II
Short Title: SPECIAL TOPICS: ADV CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 319
Description: This is a continuation of CHIN 319. This course helps students develop an advanced level of proficiency in Chinese through the analysis and use of the target language in the context of specific topics of interest that will vary.

CHIN 330 - INTRODUCTION TO TRADITIONAL CHINESE POETRY
Short Title: INTRO TO TRAD CHINESE POETRY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation. Cross-list: ASIA 330, MDEM 370.
CHIN 332 - MODERN CHINESE LITERATURE AND ITS MOVIE ADAPTATIONS
Short Title: FILM & MODERN CHINESE LIT
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of modern Chinese literature through the visual imagery of Chinese films to show how and why different time periods and different media affect the theme of a story. One third covers movie adaptations of classical Chinese literature. Films subtitled in English, shown outside of class. All readings in English translation. Cross-list: ASIA 334.

CHIN 334 - TRADITIONAL CHINESE TALES AND SHORT STORIES
Short Title: TRADITIONAL CHINESE TALES
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Learning Chinese literature and culture through reading vernacular stories, fantastic tales, biographies, and philosophical parables. Discussion topics: literature and Confucianism, Taoism and Buddhism; literature and history; self and other; fantastic world and reality; women as domestic aliens and aliens portrayed as women, etc. Readings are in English translation. Cross-list: ASIA 334.

CHIN 335 - INTRODUCTION TO CLASSICAL CHINESE NOVELS
Short Title: CLASSICAL CHINESE NOVELS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings in English translation. Cross-list: ASIA 335, MDEM 375.

CHIN 401 - FOURTH YEAR CHINESE I
Short Title: FOURTH YEAR CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 302 or CHIN 312
Description: Continuation of CHIN 302, emphasis on developing oral fluency at the discourse level and cultivating advanced writing skill. Students will read and discuss a variety of social, political and economic issues. Upon completion, students are expected to be able to write approx. 1000 characters.

CHIN 402 - FOURTH YEAR CHINESE II
Short Title: FOURTH YEAR CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 401
Description: Continuation of CHIN 401, emphasis on strengthening speaking and writing skills at the advance level with more authentic readings selected from newspapers, literary works and academic texts. Upon completion, students are expected to be able to write approx. 1200 characters.

CHIN 422 - THE ORIGINAL BEAUTY OF CHINESE LITERATURE
Short Title: ORIGINAL BEAUTY OF CHINESE LIT
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will expose students to the best literary works created in the Chinese tradition, both classical and modern, and give them a general introduction to different genres, including poetry, fiction, drama, and philosophical essays. It will improve their language proficiency through reading original texts of Chinese literature. Cross-list: ASIA 422.

CHIN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
French Studies (FREN)

FREN 106 - ACCELERATED FIRST-YEAR FRENCH
Short Title: ACCEL 1ST YR FRENCH
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year French for students with previous knowledge of another romance language, or limited previous French knowledge with a significant (1+ year) gap in study. Covers equivalent of FREN 141 and 142. Upon completion, students are prepared for FREN 263 or Rice-in-France. Mutually exclusive: cannot earn credit for FREN 141/142. Mutually Exclusive: Cannot register for FREN 106 if student has credit for FREN 141/FREN 142.

FREN 141 - FIRST YEAR FRENCH I
Short Title: FIRST YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in French (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 141 if student has credit for FREN 101/FREN 106/FREN 222.

FREN 142 - FIRST YEAR FRENCH II
Short Title: FIRST YEAR FRENCH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 141
Description: Continuation of FREN 141. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 142 if student has credit for FREN 106/FREN 262.

FREN 222 - AP/OTH CREDIT FRENCH LANGUAGE
Short Title: AP/OTH CREDIT FRENCH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for FREN 222 if student has credit for FREN 141.

FREN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FREN 263 - SECOND YEAR FRENCH I
Short Title: SECOND YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 106 or FREN 142
Description: Continuation of FREN 142. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 263 if student has credit for FREN 201.

FREN 264 - SECOND YEAR FRENCH II
Short Title: SECOND YEAR FRENCH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 263
Description: Continuation of FREN 263. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 264 if student has credit for FREN 202.
FREN 301 - ADVANCED GRAMMAR AND ITS LITERARY AND CULTURAL APPLICATIONS
Short Title: ADV GRAM & LIT & CULTURAL APP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Offered every semester, this course is an integrated study of literary and cultural texts as a springboard for advanced level refinements of grammar. Recommended Prerequisite(s): FREN 202 or 264 or Placement Test.

FREN 302 - WRITING WORKSHOP
Short Title: WRITING WORKSHOP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is offered annually and is required of all majors. It emphasizes composition and exposition through the practice of such genres as narration, description, portrait, essay, and "commentaire compo". Formerly FREN 336. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or FREN 301 or Placement Test. Mutually Exclusive: Cannot register for FREN 302 if student has credit for FREN 336.

FREN 305 - LITERARY AND CULTURAL ANALYSIS: THE ART OF READING
Short Title: LITERARY AND CULTURAL ANALYSIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the unique critical skills necessary for reading and analysis across the arts and social sciences. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 307 - THE MANY FACETS OF FRENCH CULTURAL IDENTITY
Short Title: FRENCH CULTURAL IDENTITY I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: With the help of nine French films and selected readings, we will discuss what it means to be French today. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 308 - BEAUTY AND THE BEAST(S): SEX, VIOLENCE, AND FOLKTALES IN THE AFRICAN DIASPORA
Short Title: BEAUTY AND THE BEAST(S)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex and gender in folktales and fairytales from the African diaspora to the Americas. In so doing, this course will also put European and African folklore in conversation with the New World's oral traditions. Taught in English.

FREN 311 - MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE
Short Title: PRE-REV FRENCH LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of French culture, literature, and artifacts from the Middle Ages until the Revolution. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 312 - MAJOR LITERARY WORKS AND ARTIFACTS OF POST-REVOLUTIONARY FRANCE
Short Title: MAJ LIT WORKS POST-REV FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of 19th and 20th century poetry, fiction, and cinema through the major literary and artistic movements: romanticism, realism, symbolism, Dada, surrealism, and existentialism. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 313 - MAJOR LITERARY WORKS AND ARTIFACTS OF THE FRANCOPHONE WORLD

Short Title: MAJ LITERARY WORKS & ARTIFACTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the artistic, historical, and philosophical textures of French cultures outside Europe, focusing especially on Africa North and South of the Sahara, the Caribbean, North America, and on the evolution of the concept of "francophonie" since World War II. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 321 - INTRODUCTION TO FRENCH SOCIETY AND CULTURE

Short Title: INTRO FRENCH SOCIETY & CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides grounding in social, political, cultural, and economic aspects of contemporary France. The course will focus on themes such as youth culture, Europeanization, immigration, and gender debates. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 323 - FROM EXISTENTIALISM TO CYBERPUNK

Short Title: EXISTENTIALISM TO CYBERPUNK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Films and novels. Investigations of human consciousness, subjectivity and identity – from Sartre's existentialism of the "absurd", through Robbe-Grillet's "anti-humanism", to the cyberpunk science-fictional studies of "post-humanity", genetic manipulation, environmental collapse and post-religious mysticism, by contemporary figures like Dantec and Houellebecq. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 324 - FROM DECOLONIZATION TO GLOBALIZATION

Short Title: FROM DECOLONI TO GLOBALIZATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: POLI 324, RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for FREN 324 if student has credit for FREN 524/RELI 604.

FREN 325 - FRENCH THEORY, IN ENGLISH

Short Title: FRENCH THEORY, IN ENGLISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to contemporary French theory and philosophy in their historical context, from decolonization and the Cold War to the present. Along the way, we will discuss French phenomenology, Marxism, structuralism, feminism, post-structuralism, and post-continental philosophy, including their impact on US culture. Taught in English.

FREN 332 - FRENCH PHONETICS

Short Title: FRENCH PHONETICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Acquisition of French phonetic system through intensive class and laboratory practice. Contrast analysis of the French and English phonetic systems. Minimal use of technical terminology. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 337 - SHAKESPEARE IN THE CARIBBEAN: POST/COLONIAL READINGS
Short Title: SHAKESPEARE IN THE CARIBBEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Under-Level
Description: This course examines English translations of Caribbean and Latin American writers’ retellings of Shakespeare’s The Tempest. Students will explore the construction of identity (including race and gender) and otherness since the beginning of the colonial project (1492). We will question the relationship between colonized and colonizer, and tropes such as the Master/Slave relationship. Taught in English.

FREN 340 - GENDER AROUND THE WORLD
Short Title: GENDER AROUND THE WORLD
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the challenges of defining gender, race, and identity in Africa, Asia, and the Caribbean, or the Global South as this area is also known. The nations of the Global South are newly industrialized or in the process of industrializing and have had to battle the widespread effects of colonialism and globalization. Students will investigate the pervasiveness of stereotypes in literature, film, popular culture and the media in western and non-western contexts. We will examine theories from the Global South to avoid the simplification of Eurocentric analysis. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test

FREN 350 - PARIS
Short Title: PARIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the history of Paris as a cultural, intellectual, and economic center through texts, music and films. Students earn 3 credits for the course, or 4 credits if participating in a supplementary 10-day study trip to France at the end of the semester in May. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 351 - PROVINCES OF FRANCE
Short Title: PROVINCES OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the amazing diversity in the history, languages, economic bases, traditions, and cultures of the original provinces in order to arrive at a better understanding of France as it exists today. For an additional credit hour, students may participate in a two week on site visit to a location in France. The location will vary; contact the instructor or the department for details. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 355 - MODERN SHORT STORY: TOWARDS AN ETHICS OF FICTION
Short Title: MODERN SHORT STORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of great modern short fiction with emphasis on reading as an ethical enterprise. Selected critical essays complement works from Melville to Maupassant, Flaubert to Kafka to O’Connor as we talk about alienation and solitude, death and violence and the vicissitudes of family. Taught in English. Cross-list: ENGL 355. Recommended Prerequisite(s): Any 200-level course or above in English or French Studies, or EURO 101 or EURO 102

FREN 356 - TRANSLATION AS INTERPRETATION: CLOSE ENCOUNTERS WITH POETS OF THE MODERN AGE
Short Title: TRANSLATION AS INTERPRETATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course dedicated to reading closely some of the great poets of the modern period — from Hugo to Baudelaire to Prévôt—and to the art of translation as a tool for reflecting on the subtleties of the French language and the special shape of the poetic. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 370 - WOMEN IN TALES OF THE FANTASTIC
Short Title: WOMEN IN TALES OF FANTASTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore those stories “behind the story” of the 19th century—that strange and often misunderstood genre, the “fantastic tale.” Reading such writers as Gautier, Balzac, and Maupassant, we will discuss this genre’s anxieties about madness and machines, misbehaving objects, and especially about women and their bodies. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 380 - FLAUBERT AND THE ART OF TRANSLATION: EXPERIMENTS IN WRITING
Short Title: WRITING FLAUBERT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Flaubert was both a romantic and a realist who achieved the acutely modern through legend and myth in prose that was poetic. This will be a course in which he anchors our study of short, innovative prose works of the 19th century, encountered, each one, through the imaginative art of translation. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 401 - TRANSLATION
Short Title: TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the theory and practice of translation. Includes translation of modern texts from and into English. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 402 - GLOBAL FRENCH CINEMA (IN ENGLISH)
Short Title: GLOBAL FRENCH CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Cinema from France and the French-speaking world (especially Africa) - both the canon of "art" cinema and smash successes of commercial "entertainment." Discussion of this distinction. Critical and theoretical discourse in film studies with special attention to French contributions. Globalization in cinema. Recommended Prerequisite(s): Completion of one 300-level course.

FREN 403 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Independent Study
Course Type: Independent Study
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with the department for additional information. Taught in French. Instructor Permission Required. Repeatable for Credit.

FREN 404 - BEGINNINGS OF THE LANGUAGE AND LITERATURE OF FRANCE
Short Title: THE LANG AND LIT OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes and external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Student will acquire a reading knowledge of Old French. Course taught in French. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 404. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 407 - CINEMA IN FRENCH
Short Title: CINEMA IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cinema In French -- In France and the French-speaking world (especially Africa): both the canon of "auteurs" of "high culture" and commercial "mere entertainment." Discussion of this distinction, and introduction to critical and theoretical discourse in film studies. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 409 - NOVELS AND FILMS
Short Title: NOVELS AND FILMS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Comparison between French novels from the 16th to the 20th centuries and movies that have been based on them, in some cases more than one movie based on a given novel. The class will read each novel in question and then examine how the director perceived it when making the film. For example, La Reine Margot, Tous les Matins du Monde, Liaisons Dangereuses, Madame Bovary, Cyrano de Bergerac, Hiroshima mon amour. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 411 - THE LEGACY OF COURTLY LITERATURE
Short Title: LEGACY OF COURTLY LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the various ways that courtly literature has evolved into modern times and stages through which the themes have passed. We will study courtly themes in literature (French, English, Spanish, German, Italian), film, art, and music from the Middle Ages to modern times. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 412 - SAINTS AND SINNERS
Short Title: SAINTS AND SINNERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of sanctity and sin in medieval culture through literary and some historical texts. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 413 - BLACK VENUS/VÉNUS NOIRE: REPRESENTATIONS OF BLACK WOMEN IN THE LONG 19TH CENTURY
Short Title: BLACK VENUS/VÉNUS NOIRE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the mythology of the black woman's body in the French/Francophone imaginary, namely in the literary rewriting of the "primitive" in the long 19th century. Students will examine how this eroticized body bears traces of its social, political and cultural codification and symbolizes anxieties born out of the colonial encounter. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 414 - SEX AND RACE IN THE FRENCH ATLANTIC
Short Title: SEX AND RACE - FRENCH ATLANTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex, gender, and race in folktales and fairy tales in French from the Americas. In so doing, this course will also put European and African folklore in conversation with the New World's oral traditions. Effective May 15, 2021, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 416 - LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR
Short Title: LIT & CULTURE OF MIDDLE AGES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages but also in other medieval literatures of Western Europe. Includes discussion of the legend’s influence in diverse areas even in modern times. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Cross-list: MDEM 425. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor. Mutually Exclusive: Cannot register for FREN 415 if student has credit for FREN 515.

FREN 415 - COURTLY LOVE IN MEDIEVAL FRANCE
Short Title: COURTLY LOVE MEDIEVAL FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 425. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor. Mutually Exclusive: Cannot register for FREN 415 if student has credit for FREN 515.

FREN 450 - POETRY AND POETICS IN THE 19TH CENTURY
Short Title: POETRY & POETICS 19TH CENTURY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the poetry and prose poetry of the 19th century from the Romantic period to the Symbolist era, through such writers as Desbordes-Valmore, Lamartine, Musset, Vigny, Hugo, Nerval, Baudelaire, Verlaine, Rimbaud, and Mallarme. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 424 - WOMEN IN FRANCE
Short Title: WOMEN IN FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies women in education, the workplace, politics, and in social and cultural institutions in French society. The class explores the history of the French women's movement and analyzes French concepts of gender and feminism in comparison to American models. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: SWGS 424. Recommended Prerequisite(s): Completion of one 300 level course or permission of instructor.
FREN 451 - FRANCE - AMERICA: IMAGE AND EXCHANGE
Short Title: FRANCE-AMER: IMAGE & EXCHANGE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This undergraduate course analyzes French and American culture and identity through transatlantic encounters. We study French intellectuals (Tocqueville, Beauvoir, Baudrillard) who traveled to the US, and images of America in French novels, comic strips, films. We also examine American gazes toward the French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 452 - WORLD WAR TWO IN FRENCH HISTORY, LITERATURE, AND FILM
Short Title: WORLD WAR TWO IN FRENCH HIST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies the history and memory of World War Two in France. Students will learn how literature and film contributed to the making and undoing of national myths about collaboration and resistance and participation in the Holocaust. How has contemporary French society reconciled with this dark period of history? Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 453 - IMMIGRATION AND CITIZENSHIP IN CONTEMPORARY FRANCE
Short Title: IMMIGRATION AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the impact of immigration on contemporary French society and analyzes debates over citizenship, integration, and multiculturalism. Taught in French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 459 - THE BATTLES OF ALGIERS: FROM CHARLES X TO CHARLIE-HEBDO
Short Title: THE BATTLES OF ALGIERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical, literary, and visual materials from the 19th century to the present will illustrate the global perception of a war that left an indelible inscription in contemporary debates on democracy and reform. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 460 - WOMEN IN FICTION AND HISTORY: NOTIONS OF THE FEMININE SINCE THE FRENCH REVOLUTION
Short Title: WOMEN, FRENCH FICTION, HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading closely lyric, fictional, historical, and critical texts from Olympe de Gouges and Baudelaire to Rachilde and Irigaray, we will explore how women have been represented (and misrepresented) since the French Revolution, and how notions of the feminine since the 18th century still plague women’s place and power in the 21st. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
### FREN 478 - THE CARIBBEAN IN FRENCH
**Short Title:** THE CARIBBEAN IN FRENCH  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This is the undergraduate senior version of the graduate level seminar FREN/ARCR 578. Both the course's reading list and the length of the research are adjusted to accommodate undergraduate needs. The seminar examines the history, political writings, literature and the arts of the French Caribbean from the beginning of colonization to the present. It will include figures such as Saint-John Perse, Roumain, Césaire, Fanon, Deprestre, Schwarz-Bart, Warner-Vieyra, Glissant, Condé, Chamoiseau, Laferrière, as well as the Caribbean arts and film. Taught in English. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: ARCR 478. Mutually Exclusive: Cannot register for FREN 478 if student has credit for FREN 578.

### FREN 493 - FALL HONOR THESIS
**Short Title:** FALL HONOR THESIS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3-6  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.

### FREN 494 - SPRING HONOR THESIS
**Short Title:** SPRING HONOR THESIS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3-6  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.

### FREN 495 - THE FRENCH AVANT-GARDE: SYMBOLISM, DADAISM, SURREALISM, CONTEMPORARY CINEMA
**Short Title:** THE FRENCH AVANT-GARDE  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Short texts and films by Baudelaire, Verlaine, Rimbaud, Mallarmé, Jarry, Apollinaire, Breton, Artaud, Bataille, Robbe-Grillet, Catherine Breillat, Virginie Despentes. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

### GERM (GERM)

#### GERM 106 - ACCELERATED FIRST YEAR GERMAN
**Short Title:** ACCEL 1ST YEAR GERMAN  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Alternate first-year German course for students with some background in German or related language. This is an intensive course covering the equivalents of GERM 141 and GERM 142. Students will be prepared for GERM 263 upon completion of the course. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for GERM 106 if student has credit for GERM 141/GERM 142.

#### GERM 141 - FIRST YEAR GERMAN I
**Short Title:** FIRST YEAR GERMAN I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Development of interactional competence in German (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for GERM 141 if student has credit for GERM 101/GERM 106/GERM 222.
GERM 142 - FIRST YEAR GERMAN II
Short Title: FIRST YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 141
Description: Continuation of GERM 141. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 142 if student has credit for GERM 106/GERM 262.

GERM 222 - AP/OTH CREDIT IN GERMAN LANGUAGE
Short Title: AP/OTH CREDIT GERMAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for GERM 222 if student has credit for GERM 141.

GERM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GERM 263 - SECOND YEAR GERMAN II
Short Title: SECOND YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 142
Description: Continuation of GERM 142. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 263 if student has credit for GERM 201.

GERM 264 - SECOND YEAR GERMAN II
Short Title: SECOND YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 263
Description: Continuation of GERM 263. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 264 if student has credit for GERM 202.
Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)

GERM 280 - HISTORY OF CINEMA AND MEDIA I: INVENTION TO 1945
Short Title: HISTORY OF CINEMA AND MEDIA I
Department: Modrn & Classsic Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will introduce students to the history of cinema from its inception to 1945 by considering individual cinematic artifacts in their technological, economic, aesthetic, political, and social contexts. Cross-list: CMST 201.

GERM 301 - THIRD YEAR GERMAN I
Short Title: THIRD YEAR GERMAN I
Department: Modrn & Classsic Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary German speaking cultures through the use of authentic materials (film, media, literature). Taught in German. Recommended Prerequisite(s): GERM 264 or Instructor Permission.

GERM 302 - THIRD YEAR GERMAN II
Short Title: THIRD YEAR GERMAN II
Department: Modrn & Classsic Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on complex topics in contemporary German speaking cultures through the use of authentic materials (film, media, literature). Taught in German. Recommended Prerequisite(s): GERM 301 or Permission of Instructor.
GERM 303 - GERMAN FOR PROFESSIONALS: BUSINESS AND RESEARCH
Short Title: GERMAN FOR PROFESSIONALS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to current issues and language use in German technology, business, and international relations, and it explores these issues in larger cultural contexts. Assignments allow students to explore areas of individual interest and encourage exploration of international career opportunities including GERM 399 The German Studies Internship. Taught in German.

GERM 305 - ENLIGHTENMENT AND ROMANTICISM (1750-1850)
Short Title: ENLIGHTENMENT (1750-1850)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the major social, political and cultural developments in the period between 1700-1850, which contributed to the emergence of modern German cultural identity within the European context. Covers wide range of theoretical and literary works by Kant, Lessing, Schiller, Goethe, Eichendorff, Hoffmann, Heine, and others. Taught in German.

GERM 306 - REALISM TO MODERNITY (1850-PRESENT)
Short Title: REALISM TO MODERNITY (1850-PRES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: German history and culture during the late 19th and the 29th century have been rather turbulent: From Wilhelminian empire to Weimar democracy to Hitler fascism to socialist division to German reunification to entry into the European Union. All these political changes will be commented on by cultural reflections in textual and filmic forms. Literary texts will include Fontane, Mann, Kafka, Boll, Grass, Wolf and Maron. Taught in German.

GERM 307 - FOLK AND FAIRY TALE IN GERMAN: TRADITION, STRUCTURE, ARTISTRY
Short Title: FOLK & FAIRY TALE IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The folk tales collected by the Brothers Grimm still exhibit all the principle characteristics and functions of oral literature, i.e. the reproduction of an audience's cultural identity and the securing of that identity. Nevertheless, these characteristics are still preserved in fairy tales written by specific authors for a reading audience. Examples of the latter are mainly from authors of Romanticism and Realism. Taught in German.

GERM 309 - GERMAN POETRY
Short Title: GERMAN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "If the soul speaks out, alas! it is no longer the soul that speaks" - in Schiller's famous line one of the many fascinating paradoxes of lyric poetry is expressed. With the tradition of the "Lied," poems set to music, German poetry of the Classical-Romantic epoch was soon to become the epitome of lyric poetry as such. There were, however, poems of quite different kinds before and after Goethe, Eichendorff, and Heine. Without neglecting the Classical-Romantic period, the course will explore the history of lyric expression in German literature from the early modern period to the present in both poems and theoretical texts. Taught in German.

GERM 311 - BERLIN: PAST AND PRESENT
Short Title: BERLIN: PAST AND PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course introduces students to German history and culture as mirrored in the history of the city that is "always in progress and never accomplished." With an emphasis on the period from the 1920's to the present, class discussions encompass literature and theory, politics and social life, as well as architecture, fine arts and film. Taught in German.
GERM 320 - TWENTIETH CENTURY GERMAN THOUGHT AND LITERATURE IN GERMAN
Short Title: 20TH CENTURY GERMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on the way in which major events of twentieth century German history and culture – especially World War I, the founding of the Weimar Republic, and National Socialism and the Holocaust – have been dealt with in literature, philosophy, and the social sciences.

GERM 321 - BERLIN: RESIDENCE, METROPOLIS, CAPITAL
Short Title: BERLIN:RESIDENCE,METRO,CAPITAL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course offers an introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Berlin has always been a city of contradictions: from imperial glamour to proletarian slums, from the Roaring Twenties to Hitler's seizure of power. Emerging from the ruins of WWII Berlin became both the capital of Socialism and the display window of the Free World. After the fall of the wall, Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English. Cross-list: HUMA 324.

GERM 322 - MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY
Short Title: MARX,FREUD,EINSTEIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Like no others, these three thinkers of the 19th and 20th centuries have influenced the intellectual, historical, social and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English. Cross-list: HUMA 322.

GERM 324 - THE GERMAN FAIRY TALE: OLD AND NEW
Short Title: GERMAN FAIRY TALE: OLD & NEW
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "literary" fairy tale from Goethe and the Romantics to the 20th century. Collection of the Brothers Grimm and the subsequent development of the "literary" fairy tale from Goethe and the Romantics to the 20th century. Taught in English. Cross-list: HUMA 324.

GERM 325 - MODERN GERMAN WRITERS: KAFKA
Short Title: MODERN GERMAN WRITERS: KAFKA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Goethe's vision of "world-literature" came true in the twentieth century. German authors, among them Kafka, transcended the confines of national traditions and redefined the concepts of literature and authorship in view of a modern globally dispersed audience. Topics may vary. Taught in English. Cross-list: HUMA 325. Repeatable for Credit.

GERM 326 - GERMAN EXPRESSIONISM IN EUROPEAN CONTEXT:
HISTORY, LITERATURE AND FINE ARTS
Short Title: GERMAN EXPRESSIONISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the "literary" fairy tale from Goethe and the Romantics to the 20th century. Taught in English. Cross-list: HUMA 372.

GERM 327 - MODERN GERMAN WRITERS: KAFKA
Short Title: MODERN GERMAN WRITERS: KAFKA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Like no others, these three thinkers of the 19th and 20th centuries have influenced the intellectual, historical, social and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English. Cross-list: HUMA 322.
GERM 328 - GERMAN ADAPTATIONS: TEXT TO FILM
Short Title: GERMAN ADAPTATIONS: TEXT-FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Prominent novels of the 20th century will be studied for their possibilities or impossibilities of rendition from print medium to cinematic medium. From the myriad of adaptations we will concentrate on Thomas Mann: Tod in Venedig; Franz Kafka: Das Schloss; Klaus Mann: Mephisto; Gunter Grass: Die Blechtrommel; H. Boll: Katharina Blum; Jurek Becker. Jacob der Lugner. All films are subtitled in English. Taught in English. Cross-list: HUMA 328.

GERM 329 - LITERATURE OF THE HOLOCAUST AND EXILE
Short Title: LIT OF HOLOCAUST & EXILE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of the time, i.e., Th. and H. Mann, Brecht, Benjamin, Werfel, Doblin, J. Roth, S. Zweig, N. Sachs, Celan, Auslander. Taught in English. Cross-list: HUMA 329.

GERM 330 - LITERATURE AND FILM IN EAST GERMANY: BEHIND THE IRON CURTAIN
Short Title: LIT AND FILM: EAST GERMANY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will introduce students to the literature and filmic culture of East Germany, as well as to its social, political, and cultural context. It will also ask how literature and film not only reflect history but also respond to history by mobilizing their own political force.

GERM 333 - NIETZSCHE: PHILOSOPHY, POLITICS, HISTORY
Short Title: NIETZSCHE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Situates Nietzsche's thought on language, history, and the body within its historical context, and examines the validity of his arguments in a world increasingly challenged by scientific knowledge. Focuses on Nietzsche's views on truth, genealogy, nihilism, morality, and science, which continue to be relevant for current debates within the humanities. Taught in English.

GERM 334 - NATIONALISM AND CITIZENSHIP
Short Title: NATIONALISM AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical review of modern concepts of nationalism and citizenship. Topics include: theories of nationalism and citizenship, space and territory, identity, monuments, the emergence of nation states, multicultural democracy, transnationalism, and political belonging. Course provides links between political theory, public policy, literature, visual culture, architecture, and historical anthropology.

GERM 335 - GERMAN FILM (IN ENGLISH)
Short Title: GERMAN FILM (IN ENGLISH)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores filmic representations of communities, their complex mechanisms of inclusion and exclusion, their inevitable dynamics of otherness, as well as practices of modern states toward communal regulation and control. While communities biologically denote the interaction of organisms sharing an environment, we will examine the practices of power that states wield toward the maximization of “life.” Hence the questions of biopower, health politics, eugenics, sexism, racism, and genocide. How do films negotiate the precarious politics of communal life, what are their strategies for resistance, and what their moments of complicity? We will explore how film reflects communal life in twentieth-century German history, but also, and perhaps primarily, how film responds to that history by generating its own speaking power and mobilizing its own political force. Mutually Exclusive: Cannot register for GERM 335 if student has credit for FSEM 136/GERM 136.
GERM 336 - NATIONAL SOCIALISM AND FILM
Short Title: NATIONAL SOCIALISM AND FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores films made in Nazi Germany as well as films about Nazi Germany and the corresponding crisis of justice in the mid-twentieth century. We will analyze cinematic responses to the rise of the fascist movement, World War II, the Holocaust, and the post-war years. Particular attention will be paid to the value of film as propagandistic tool, ways in which it can configure and contest our image of national identity, and the relation between mass manipulation and mass murder. Taught in English. Mutually Exclusive: Cannot register for GERM 336 if student has credit for FSEM 132/GERM 132.

GERM 337 - VIENNA 1800 TO THE PRESENT - LASTING CENTER OF GERMAN CULTURE
Short Title: VIENNA 1800 TO THE PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Despite Vienna's drastic political changes from 1800 to 2000, it is still synonymous with German culture in its fusion of literature, music and the fine arts.

GERM 338 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN
Short Title: NEW GERM FILM: HITLER'S CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerrie, Garnier, Tykwer, and others. The first 20 years of German film were oriented on coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: HUMA 373, SWGS 361.

GERM 339 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY
Short Title: FROM EXPRESSIONISM TO FASCISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. Cross-list: HART 398.

GERM 340 - WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS
Short Title: WALTER BENJAMIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English. Cross-list: HUMA 340.

GERM 341 - A SHORT HISTORY OF GERMAN THOUGHT ON HISTORY
Short Title: GERMAN THOUGHT ON HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From early modern times onward history has played and still plays a crucial role in German thought. Why? An answer to this question is to be sought in history; in authors such as Lessing, Kant, Hegel, Marx, and Nietzsche who contributed to what in German is called "Philosophy of History."
GERM 345 - FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945
Short Title: GERMAN HISTORY, 1890-1945
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, and political culture, the Nazi social revolution, and the Holocaust. Taught in English. Cross-list: HIST 355.

GERM 349 - GERMAN POLITICAL THOUGHT
Short Title: GERMAN POLITICAL THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar in political thought. Traces the development and influence of one of the most important traditions of modern political thought from the Enlightenment to the present. Topics include: natural law, public sphere, intellectuals and the modern state, civil society, mass democracy. Reading intensive and research oriented. Taught in English.

GERM 351 - HOLOCAUST MEMORY IN MODERN GERMANY
Short Title: HOLOCAUST MEMORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course traces and examines forms of Holocaust memory and memorialization in film, literature, art, architecture, city planning, museums, and memorials in Germany. For an additional credit hour, students will participate in a week-long trip to Berlin. Instructor Permission Required. Cross-list: HART 387.

GERM 352 - POLITICS OF THE FLESH IN GERMAN LITERATURE, THOUGHT AND FILM
Short Title: THE POLITICS OF THE FLESH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the complex relation between the sphere of politics and the human body as negotiated in German literature, thought and film. We will examine the practices of power that states wield toward the maximization of "life" and discuss such pressing issues as biopower, eugenics, racism, sexism and genocide. Taught in English.

GERM 361 - THE AGE OF GOETHE: POETRY AND TRUTH
Short Title: AGE OF GOETHE: POETRY & TRUTH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The "Age of Goethe" is generally referred to as the "classical" decade of German literature and culture. It was, however, by no means exclusively the age of Goethe and Schiller, but also of Kant and Herder, Holderlin and Kleist, and the beginning of the Romantic movement. While German intellectuals debated revolution in the lofty realm of letters, their French contemporaries took to the streets and staged a political revolution that culminated in the execution of their king. Germany as the "land of the poets and philosophers" is a myth indeed, and a rather ambivalent one, too. The course explores the age of Goethe, its "poetry" and its "truth," by way of reading key texts of that period in their intellectual, historical, and political contexts. Taught in German.

GERM 362 - NEW REALITIES: LITERATURE AND POLITICS IN THE 19TH CENTURY
Short Title: 19TH C. LITERATURE & POLITICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In German arts and letters, the nineteenth century is usually referred to as the age of Realism. As a reaction to Neo-Classicism, Romanticism, and Idealism, intellectual life turned towards the new realities in the sciences as well as society and politics. Industrialization, urbanization, the social question, women's liberation and the founding of the "Reich" created a new sense of reality and gave way to new forms of expression in literature and the arts. While optimism regarding the process of mankind prevailed, pessimism spread amongst the more thoughtful. Readings include texts by Heine, Fontaine, Keller, Hauptmann, Marx, Schopenhauer and Nietzsche. Taught in German.
GERM 363 - THE WEIMAR REPUBLIC, 1919-1933  
Short Title: THE WEIMAR REPUBLIC, 1919-1933  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Seminar in Germany's first democracy and one of the most formative moments of modernity. Covers political culture, constitutional conflict, literary and intellectual movements and urban visual culture from the end of the First World War and the spectacular modernity of 1920s Berlin to the rise of the Nazis. Taught in German.

GERM 364 - THE EXPRESSIONIST VISION OF "NEW MAN"  
Short Title: EXPRESSIONIST VISION  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Inspired by Nietzsche's concept of the "Superman," the Expressionist writers and artists (roughly between 1910 and 1920) strived towards a total renewal of society. They attached its patriarchal foundation, blamed the anonymity of the metropolitan mass society with the newly formed proletariat on hand and the materialistic life-style on the other for the general dissociation of individuals. The major literary forms were poetry and drama, which were either activist or experimenting with newly created metaphors. The prose employs the genre of the grotesque. The visual artists are influenced by van Gogh. As a totally new medium, the film incorporates all these aspects and elements. Taught in German.

GERM 360 - GERMAN HISTORY IN FILM: INTERNATIONAL PERSPECTIVES  
Short Title: GERMAN HISTORY IN FILM  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores how German history and its effects on Europe and the world have been presented in international film. Special attention will be paid to films dealing with traumatic moments and developments before, during and after World War I, World War II, the Holocaust and the Cold War.

GERM 380 - GERMAN HISTORY IN FILM: INTERNATIONAL  
Short Title: GERMAN HISTORY IN FILM  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores film in the context of German politics and history. It examines why film has been such a contested subject in German philosophy and the social sciences. Assignments will include films from the Weimar Republic and Nazi Germany to postwar New German Cinema and today's filmic presentation of German history and politics. Selected directors include: Maren Ade, Rainer Werner Fassbinder, Florian Henckel von Donnersmarck, Werner Herzog, Fritz Lang, Margarete von Trotta, and Tom Tykwer. The course also provides an introduction to German film theory examining selected works by Theodor W. Adorno, Walter Benjamin, Siegfried Kracauer, and Georg Lukács. Taught in German.

GERM 399 - THE GERMAN STUDIES INTERNSHIP  
Short Title: THE GERMAN STUDIES INTERNSHIP  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The Office of the Dean of humanities and relevant faculty from German Studies match students individually with one of a variety of projects in the areas of diplomacy, engineering, pedagogy, public culture. Students conduct research or related activities under the guidance of on-site supervisor and the section instructor on record. Instructor Permission Required.

GERM 401 - TOPICS IN GERMAN LITERATURE AND CULTURE  
Short Title: TOPICS IN GERMAN  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will work with sophisticated texts to enable students to bring their proficiency in the various modalities of German to the advanced level. Taught in German. Repeatable for Credit.

GERM 402 - GERMAN TRANSLATION  
Short Title: GERMAN TRANSLATION  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Advanced seminar on German-English translations. With stylistic exercises covering a broad range of genres: poetry, novels, essays, historical documents, legal documents, journalism, etc. Taught in German. Effective May 15, 2019, this course does not carry D1 credit.

GERM 410 - THE POLITICS OF GERMAN FILM (IN GERMAN)  
Short Title: THE POLITICS OF GERMAN FILM  
Department: Modrn & Classsicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores film in the context of German politics and history. It examines why film has been such a contested subject in German philosophy and the social sciences. Assignments will include films from the Weimar Republic and Nazi Germany to postwar New German Cinema and today's filmic presentation of German history and politics. Selected directors include: Maren Ade, Rainer Werner Fassbinder, Florian Henckel von Donnersmarck, Werner Herzog, Fritz Lang, Margarete von Trotta, and Tom Tykwer. The course also provides an introduction to German film theory examining selected works by Theodor W. Adorno, Walter Benjamin, Siegfried Kracauer, and Georg Lukács. Taught in German.
GERM 411 - THE POETICS OF JUSTICE IN GERMAN LITERATURE, THOUGHT, AND FILM
Short Title: THE POETICS OF JUSTICE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar will introduce students to the ongoing concern with law and its relation to justice in German literature, thought, and film. We will examine works that stage actual and figurative trials, and will ask how these enactments serve as a catalyst for civilization's most pressing normative questions.

GERM 420 - GERMAN POLITICS/CULTURE AFTER 1945
Short Title: GERM. POLI/CULTURE AFTER 1945
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar on German culture and politics after the Second World War – from the foundation of the Federal Republic, the separation of the two Germanys, and the student revolts of 1968 to 1970s terrorism, the fall of the Berlin Wall, and Germany's present role in the international community. Taught in German.

GERM 425 - VIENNA AND ITS PEOPLE
Short Title: VIENNA AND ITS PEOPLE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will look at the people of Vienna from the turn of the century to the present. Our readings, film viewings and discussions will introduce us to the Viennese as people of all classes and ethnic and national groups. Taught in German. Recommended Prerequisite(s): Intermediate high proficiency (speaking & writing).

GERM 430 - GERMAN INTELLECTUAL HISTORY
Short Title: GERMAN INTELLECTUAL HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced Seminar on key topics in modern German intellectual history, including history of science and scholarship, from 1700 to the present. Ideal preparation for graduate school in the humanities. Taught in German.

GERM 435 - CONCEPTS OF HISTORY FROM G.E. LESSING TO W. BENJAMIN
Short Title: CONCEPTS OF HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The twentieth-century Italian philosopher Benedetto Croce called philosophy of history (Geschichtsphilosophie) a "German discipline." There is indeed a long and rich tradition of texts in German thought that focus on making sense of the seemingly senseless, on speculating about the origin, the course, the aim, or, quite generally, the "meaning" of history. Based on selected texts by Lessing, Kant, Heine, Hegel, Nietzsche, Ranke, Burckhardt, Benjamin, and others, the course discusses different concepts of history from the early eighteenth to the twentieth century. Taught in German.

GERM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GERM 491 - FALL - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: FALL-IND WRK GERM LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 492 - SPRING - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: SPRING-IND WRK GERM LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.
GERM 494 - SPRING HONORS THESIS  
Short Title: SPRING HONOR THESIS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Department Permission Required.

GERM 542 - FIRST-YEAR GERMAN II FOR GRADUATE STUDENTS  
Short Title: 1ST YR GERMAN II FOR GRAD STUD  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course builds on GERM 541. Based on an active student-centered critical-thinking approach, this course wants to make students aware of language use in context and socioculturally significant interactions. The emphasis is on interactional communication, reading, writing, translations, and intercultural awareness and understanding.  
Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)
**HEBR 142 - FIRST YEAR HEBREW II**
*Short Title:* FIRST YEAR HEBREW II  
*Department:* Cntr Lang & Intercultural Comm  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Continuation of HEBR 141. Development of interactional competence in Hebrew (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): HEBR 101 or HEBR 141 or Placement Test. Mutually Exclusive: Cannot register for HEBR 142 if student has credit for HEBR 262.

**HEBR 238 - SPECIAL TOPICS**
*Short Title:* SPECIAL TOPICS  
*Department:* Cntr Lang & Intercultural Comm  
*Grade Mode:* Standard Letter  
*Course Type:* Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**HEBR 263 - SECOND YEAR HEBREW I**
*Short Title:* SECOND YEAR HEBREW I  
*Department:* Cntr Lang & Intercultural Comm  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Distribution Group:* Distribution Group I  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Continuation of HEBR 142. Development of interactional competence in Hebrew (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Recommended Prerequisite(s): HEBR 201 or HEBR 142 or Placement Test. Mutually Exclusive: Cannot register for HEBR 263 if student has credit for HEBR 262.

**HEBR 264 - SECOND YEAR HEBREW II**
*Short Title:* SECOND YEAR HEBREW II  
*Department:* Cntr Lang & Intercultural Comm  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Distribution Group:* Distribution Group I  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Continuation of HEBR 263. Development of interactional competence in Hebrew (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Recommended Prerequisite(s): HEBR 202 or HEBR 263 or Placement Test. Mutually Exclusive: Cannot register for HEBR 264 if student has credit for HEBR 202.

**HEBR 477 - SPECIAL TOPICS**
*Short Title:* SPECIAL TOPICS  
*Department:* Cntr Lang & Intercultural Comm  
*Grade Mode:* Seminar, Lecture, Laboratory, Internship/Practicum  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**Hindi (HIND)**

**HIND 106 - ACCELERATED FIRST YEAR HINDI**
*Short Title:* ACCEL FIRST YEAR HINDI  
*Department:* Cntr Lang & Intercultural Comm  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Alternate first year Hindi for students who have some knowledge of spoken Hindi. This is an intensive course covering the equivalents of HIND 141 and 142. Students will be prepared for HIND 263 upon completion of the course. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for HIND 106 if student has credit for HIND 141/HIND 142.
HIND 141 - FIRST YEAR HINDI I
Short Title: FIRST YEAR HINDI I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Hindi (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for HIND 141 if student has credit for HIND 106/HIND 161.

HIND 142 - FIRST YEAR HINDI II
Short Title: FIRST YEAR HINDI II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 141
Description: Continuation of HIND 141. Development of interactional competence in Hindi (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for HIND 142 if student has credit for HIND 106/HIND 262.

HIND 206 - ACCELERATED SECOND YEAR HINDI
Short Title: ACCEL 2ND YEAR HINDI
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 106
Description: Alternate second year Hindi course for students who have completed first year Hindi or have a comparable level in Hindi. This is an intensive course covering the equivalents of HIND 263 & 264. Upon completion, students will be prepared for the third year Hindi course. Mutually Exclusive: Cannot register for HIND 206 if student has credit for HIND 263/HIND 264.

HIND 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HIND 263 - SECOND YEAR HINDI I
Short Title: SECOND YEAR HINDI I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 142
Description: Continuation of HIND 142. Development of interactional competence in Hindi (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for HIND 263 if student has credit for HIND 206.

HIND 264 - SECOND YEAR HINDI II
Short Title: SECOND YEAR HINDI II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 263
Description: Continuation of HIND 263. Development of interactional competence in Hindi (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for HIND 264 if student has credit for HIND 206.

HIND 301 - THIRD YEAR HINDI I
Short Title: THIRD YEAR HINDI I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HIND 264
Description: Continuation of HIND 264. Emphasis on developing reading and writing ability as more authentic materials and soci-cultural topics are introduced.
ITAL 101/ITAL 106/ITAL 222.

Mutually Exclusive: Cannot register for ITAL 141 if student has credit for required. Effective May 15, 2019, this course does not carry D1 credit. No prior knowledge of this language is necessary. Placement Test is centered, critical-thinking approach to language analysis/acquisition. Interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition.

ITAL 106 - ACCELERATED FIRST YEAR ITALIAN

Short Title: ACCELERATED FIRST YEAR ITALIAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternative first year Italian for students who have already completed two semesters of French or Spanish. This is an intensive course covering the equivalents of ITAL 141 and ITAL 142. Students will be prepared for ITAL 263 upon completion of the course. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ITAL 106 if student has credit for ITAL 141/ITAL 142.

ITAL 141 - FIRST YEAR ITALIAN I

Short Title: FIRST YEAR ITALIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Italian (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ITAL 141 if student has credit for ITAL 101/ITAL 106/ITAL 222.

ITAL 142 - FIRST YEAR ITALIAN II

Short Title: FIRST YEAR ITALIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ITAL 141
Description: Continuation of ITAL 141. Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ITAL 142 if student has credit for ITAL 106/ITAL 262.

ITAL 222 - AP/OTH CREDIT IN ITALIAN LANGUAGE

Short Title: AP/OTH CREDIT ITALIAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for ITAL 222 if student has credit for ITAL 101/ITAL 141.

ITAL 263 - SECOND YEAR ITALIAN I

Short Title: SECOND YEAR ITALIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ITAL 106 or ITAL 142
Description: Continuation of ITAL 142. Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ITAL 263 if student has credit for ITAL 201.
ITAL 264 - SECOND YEAR ITALIAN II
Short Title: SECOND YEAR ITALIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ITAL 263
Description: Continuation of ITAL 263. Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ITAL 264 if student has credit for ITAL 202.

ITAL 301 - THIRD YEAR ITALIAN I
Short Title: THIRD YEAR ITALIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ITAL 264
Description: A continuation of ITAL 264. This course helps students develop an ADVANCED level of proficiency in Italian through the analysis and use of the target language in the context of specific topics of interest that will vary.

ITAL 302 - THIRD YEAR ITALIAN II
Short Title: THIRD YEAR ITALIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ITAL 301
Description: A continuation of ITAL 301. This course helps students develop an ADVANCED level of proficiency in Italian through the analysis and use of the target language in the context of specific topics of interest that will vary.

ITAL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Japanese (JAPA)

JAPA 141 - FIRST YEAR JAPANESE I
Short Title: FIRST YEAR JAPANESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): JAPA 141
Description: Continuation of JAPA 141. Development of interactional competence in Japanese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Japanese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for JAPA 141 if student has credit for JAPA 101/JAPA 222.

JAPA 142 - FIRST YEAR JAPANESE II
Short Title: FIRST YEAR JAPANESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): JAPA 141
Description: Continuation of JAPA 141. Development of interactional competence in Japanese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Japanese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for JAPA 142 if student has credit for JAPA 262.

JAPA 222 - AP/OTH CREDIT IN JAPANESE LANGUAGE
Short Title: AP/OTH CREDIT JAPANESE LANG.
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for JAPA 222 if student has credit for JAPA 101/JAPA 141.
JAPA 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

JAPA 263 - SECOND YEAR JAPANESE I  
Short Title: SECOND YEAR JAPANESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): JAPA 142  
Description: Continuation of JAPA 142. Development of interactional competence in Japanese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Japanese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for JAPA 263 if student has credit for JAPA 201.

JAPA 264 - SECOND YEAR JAPANESE II  
Short Title: SECOND YEAR JAPANESE II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): JAPA 263  
Description: Continuation of JAPA 263. Development of interactional competence in Japanese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Japanese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for JAPA 264 if student has credit for JAPA 202.

JAPA 301 - THIRD YEAR JAPANESE I  
Short Title: THIRD YEAR JAPANESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): JAPA 264  
Description: Continuation of JAPA 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

JAPA 302 - THIRD YEAR JAPANESE II  
Short Title: THIRD YEAR JAPANESE II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): JAPA 301  
Description: Continuation of JAPA 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

JAPA 401 - FOURTH YEAR JAPANESE I  
Short Title: FOURTH YEAR JAPANESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): JAPA 402  
Description: Continuation of JAPA 402. Emphasis on strengthening speaking and writing skills at the advanced level with more authentic materials and socio-cultural topics are introduced.

JAPA 402 - FOURTH YEAR JAPANESE II  
Short Title: FOURTH YEAR JAPANESE II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): JAPA 401  
Description: Emphasis on developing oral fluency at the discourse level and cultivating advanced writing skill. Students will read and discuss a variety of topics including history and social issues.

JAPA 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): JAPA 201  
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
Korean (KORE)

KORE 106 - ACCELERATED FIRST YEAR KOREAN
Short Title: ACCELERATED 1ST YR KOREAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first year Korean course for students with some background in Korean. This is an intensive course covering the equivalents of KORE 141 and 142. Students will be prepared for KORE 263 upon completion of the course. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for KORE 106 if student has credit for KORE 141/KORE 142.

KORE 141 - FIRST YEAR KOREAN I
Short Title: FIRST YEAR KOREAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Korean (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for KORE 141 if student has credit for KORE 106.

KORE 142 - FIRST YEAR KOREAN II
Short Title: FIRST YEAR KOREAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 141
Description: Continuation of KORE 141. Development of interactional competence in Korean (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for KORE 142 if student has credit for KORE 106/KORE 262.

KORE 206 - ACCELERATED SECOND YEAR KOREAN
Short Title: ACCEL 2ND YEAR KOREAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 106
Description: Alternate second year Korean for students who have some background in the language, especially heritage students. This is an intensive course covering the equivalents of KORE 263 and 264. Mutually Exclusive: Cannot register for KORE 206 if student has credit for KORE 263/KORE 264.

KORE 222 - AP/OTH CREDIT IN KOREAN LANGUAGE
Short Title: AP/OTH CREDIT KOREAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for KORE 222 if student has credit for KORE 141 or KORE 106.

KORE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

KORE 263 - SECOND YEAR KOREAN I
Short Title: SECOND YEAR KOREAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 106 or KORE 142
Description: Continuation of KORE 142. Development of interactional competence in Korean (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for KORE 263 if student has credit for KORE 201/KORE 206.
KORE 264 - SECOND YEAR KOREAN II
Short Title: SECOND YEAR KOREAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 263
Description: Continuation of KORE 263. Development of interactional competence in Korean (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for KORE 264 if student has credit for KORE 202/KORE 206.

KORE 301 - THIRD YEAR KOREAN I
Short Title: THIRD YEAR KOREAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KORE 206 or KORE 264
Description: Continuation of KORE 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

KORE 302 - THIRD YEAR KOREAN II
Short Title: THIRD YEAR KOREAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KORE 301
Description: Continuation of KORE 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

KORE 401 - CURRENT ISSUES IN KOREA THROUGH MULTIMODAL TEXTS
Short Title: CURRENT ISSUES IN KOREA
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KORE 302
Description: In this course, ‘Current Issues in Korea through Multimodal Texts’, students engage in close and critical analysis of key social, historical, and cultural events and issues portrayed in the news, articles, and popular media. Students are prepared to write essays and participate in critical discussions about the topics covered.

KORE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Portuguese (PORT)
PORT 106 - ACCELERATED FIRST YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL FIRST YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year Portuguese for students who have a good command of Spanish. This is an intensive course covering the equivalents of PORT 141 and 142. Students will be prepared for PORT 206 upon completion of the course. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 106 if student has credit for PORT 142/PORT 222.
PORT 141 - FIRST YEAR PORTUGUESE I  
Short Title: FIRST YEAR PORTUGUESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Development of interactional competence in Portuguese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 141 if student has credit for PORT 222.

PORT 142 - FIRST YEAR PORTUGUESE II  
Short Title: FIRST YEAR PORTUGUESE II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): PORT 141  
Description: Continuation of PORT 141. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 142 if student has credit for PORT 106/PORT 262.

PORT 206 - ACCELERATED SECOND YEAR PORTUGUESE FOR SPANISH SPEAKERS  
Short Title: ACCEL SECOND YEAR PORTUGUESE  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): PORT 106  
Description: Alternate second year Portuguese for students who have a very good command of Spanish. This intensive course covers the equivalent of PORT 263 and PORT 264. It will focus on the development of interactional competence in Portuguese to communicate satisfactorily with Portuguese speakers. Mutually Exclusive: Cannot register for PORT 206 if student has credit for PORT 263/PORT 264.

PORT 222 - AP/OTH CREDIT IN PORTUGUESE LANGUAGE  
Short Title: AP/OTH CREDIT PORT LANGUAGE  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Transfer  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 141 or PORT 106. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 106/PORT 141.

PORT 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PORT 263 - SECOND YEAR PORTUGUESE I  
Short Title: SECOND YEAR PORTUGUESE I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): PORT 142  
Description: Continuation of PORT 142. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 263 if student has credit for PORT 201/PORT 206.
PORT 264 - SECOND YEAR PORTUGUESE II
Short Title: SECOND YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 263
Description: Continuation of PORT 263. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 264 if student has credit for PORT 202/PORT 206.

PORT 301 - THIRD YEAR PORTUGUESE I
Short Title: THIRD YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 263 or PORT 264
Description: Continuation of PORT 206 or PORT 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

PORT 302 - BRASIL: CULTURA E SOCIEDADE
Short Title: BRASIL: CULTURE AND SOCIETY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 263
Description: Continuation of PORT 263. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 264 if student has credit for PORT 202/PORT 206.

PORT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Russian (RUSS)
RUSS 141 - FIRST YEAR RUSSIAN I
Short Title: FIRST YEAR RUSSIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Russian (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for RUSS 142 if student has credit for RUSS 222.

RUSS 142 - FIRST YEAR RUSSIAN II
Short Title: FIRST YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RUSS 141
Description: Development of interactional competence in Russian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for RUSS 142 if student has credit for RUSS 262.

RUSS 222 - AP/OTH CREDIT IN RUSSIAN LANGUAGE
Short Title: AP/OTH CREDIT RUSSIAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for RUSS 222 if student has credit for RUSS 141. Mutually Exclusive: Cannot register for RUSS 222 if student has credit for RUSS 141.
RUSS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

RUSS 263 - SECOND YEAR RUSSIAN I
Short Title: SECOND YEAR RUSSIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RUSS 142
Description: Continuation of RUSS 142. Development of interactional competence in Russian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for RUSS 263 if student has credit for RUSS 201.

RUSS 264 - SECOND YEAR RUSSIAN II
Short Title: SECOND YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RUSS 263
Description: Continuation of RUSS 263. Development of interactional competence in Russian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for RUSS 264 if student has credit for RUSS 202.

RUSS 301 - THIRD YEAR RUSSIAN I
Short Title: THIRD YEAR RUSSIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RUSS 264
Description: Continuation of RUSS 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

RUSS 302 - THIRD YEAR RUSSIAN II
Short Title: THIRD YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RUSS 301
Description: Continuation of RUSS 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

RUSS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Spanish (SPAN)
SPAN 141 - FIRST YEAR SPANISH I
Short Title: FIRST YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Spanish (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 141 if student has credit for SPAN 161/SPAN 222.
SPAN 142 - FIRST YEAR SPANISH II
Short Title: FIRST YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 141
Description: Continuation of SPAN 141. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 142 if student has credit for SPAN 262.

SPAN 204 - INTERMEDIATE SPANISH FOR HERITAGE LEARNERS
Short Title: INT SPAN HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is for students who have been exposed to Spanish at home, through relatives and/or in the community and who wish to improve their confidence and intermediate fluency by expanding their formal knowledge of the language and of Hispanic cultures. Authentic materials such as short stories, poetry, films and articles will be used to develop reading, writing, speaking and listening skills. Placement Test is required.

SPAN 222 - AP/OTH CREDIT IN SPANISH LANGUAGE
Short Title: AP/OTH CREDIT SPANISH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 222 if student has credit for SPAN 101/SPAN 141/SPAN 161.

SPAN 225 - AP/OTH CREDIT IN INTERMEDIATE SPANISH
Short Title: AP/OTH CREDIT INTERM. SPAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 225 if student has credit for SPAN 201/SPAN 263.

SPAN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPAN 263 - SECOND YEAR SPANISH I
Short Title: SECOND YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 263 if student has credit for SPAN 201/SPAN 225.

SPAN 264 - SECOND YEAR SPANISH II
Short Title: SECOND YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 142
Description: Continuation of SPAN 142. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. This course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for SPAN 264 if student has credit for SPAN 202.
SPAN 303 - ADVANCED SPANISH FOR HERITAGE STUDENTS  
Short Title: ADV SPAN HERITAGE STUDENTS  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): SPAN 204  
Description: SPAN 303 aims to bring students to advanced proficiency in Spanish, enabling them to interact confidently in a wide variety of contexts, while providing them with cultural insights about the Hispanic world. It is designed for students who come with heritage exposure and at least intermediate proficiency in Spanish.

SPAN 321 - SPECIAL TOPICS: ADVANCED SPANISH I  
Short Title: SPECIAL TOPICS: ADV SPANISH I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): SPAN 264  
Description: This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 322 - SPECIAL TOPICS: ADVANCED SPANISH II  
Short Title: SPECIAL TOPICS: ADV SPANISH II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): SPAN 321  
Description: This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 323 - SPANISH PROFESSIONAL PRACTICUM I  
Short Title: SPANISH PROFESSIONAL PRAC I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This hybrid course combines practicum hours and course hours (whether face to face or online) for students who are interested in using their Spanish-language skills in professional settings. Practicum working hours to be determined between student and instructor. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required.

SPAN 324 - SPANISH PROFESSIONAL PRACTICUM II  
Short Title: SPANISH PROFESSIONAL PRAC II  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course provides experiential learning for student show are interested in expanding their interactional and intercultural competence in Spanish in professional settings. Students participate as apprentices which includes working in contextualized strategic scenarios (simulated and/or real) such as simulations, shadowing professionals, work-related tasks, and case studies. Department Permission Required.

SPAN 325 - SPECIAL TOPICS: ADVANCED SPANISH III  
Short Title: SPECIAL TOPICS:ADV SPANISH III  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This is a continuation of SPAN 323 or SPAN 324. Students develop an advanced level of proficiency and interactional competence in Spanish through analysis and use of the target language in the study abroad context. Students will facilitate class discussions with students in SPAN 322; collect samples of interactional and sociolinguistic data in various settings, and analyze and classify collected data. Department Permission Required.

SPAN 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**Description and Code Legend**

**Note:** Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**

- Course offerings/subject code: CLIC

**Center Description and Code**

- Center for Languages and Intercultural Communication: CLIC

**Undergraduate Certificate Descriptions and Codes**

- Certificate in Language and Intercultural Communication - Arabic: LAR
- Certificate in Language and Intercultural Communication - Chinese: LZH
Certificate in Language and Intercultural Communication - Arabic

Program Learning Outcomes for the Certificate in Language and Intercultural Communication

Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Arabic

Students pursuing the Certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- An Experiential Learning opportunity through an approved program.
- An Outcomes Assessment to evaluate language proficiency.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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Certificate Requirements

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<td>Required Courses in Target Language</td>
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<td>Select 2 courses from Arabic course offerings (ARAB) at the 200-level or above ¹, ²</td>
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</tr>
<tr>
<td></td>
<td>Select 2 courses from Arabic course offerings (ARAB) at the 300-level or above ¹</td>
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<tr>
<td></td>
<td>Experiential Learning</td>
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<td></td>
<td>Complete an approved program ³</td>
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<tr>
<td></td>
<td>Outcomes Assessment</td>
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<tr>
<td></td>
<td>Complete an oral exam and a 500-word essay written in Arabic ⁴</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
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</tr>
</tbody>
</table>

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Footnotes and Additional Information
1 Students pursuing the Certificate in Language and Intercultural Communication - Arabic should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) to count towards the certificate.
2 ARAB 222, AP/OTH Credit Arabic Language, will not fulfill this requirement.
3 In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/).
4 In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

Policies for the Certificate in Language and Intercultural Communication - Arabic

Language Placement Testing
Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

Program Restrictions and Exclusions
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
- Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  - the appropriate transfer credit request form from the Office of the Registrar.
  - a program description for courses taken abroad or catalog description for courses taken in the United States.
  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
- CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, "for-profit" universities, or two-year colleges.
- Students should be aware that the approval process takes about one week and should plan accordingly.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu.
Opportunities for the Certificate in Language and Intercultural Communication - Arabic

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Certificate in Language and Intercultural Communication - Chinese

Program Learning Outcomes for the Certificate in Language and Intercultural Communication
Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Chinese
Students pursuing the Certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- An Experiential Learning opportunity through an approved program.
- An Outcomes Assessment to evaluate language proficiency.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Certificate in Language and Intercultural Communication - Chinese</td>
<td>12</td>
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### Certificate Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses in Target Language</td>
<td></td>
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<tr>
<td></td>
<td>Select 2 courses from Chinese course offerings (CHIN) at the 200-level or above</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from Chinese course offerings (CHIN) at the 300-level or above</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Experiential Learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete an approved program</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Outcomes Assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete an oral exam and a 500-word essay written in Chinese</td>
<td>4</td>
</tr>
</tbody>
</table>

|      | Total Credit Hours | 12 |

### Footnotes and Additional Information

1. Students pursuing the Certificate in Language and Intercultural Communication - Chinese should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) to count towards the certificate.
2. CHIN 222, AP/OTH Credit Chinese Language, will not fulfill this requirement.
3. In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/)
In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

Policies for the Certificate in Language and Intercultural Communication - Chinese

Language Placement Testing
Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

Program Restrictions and Exclusions
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
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- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  - the appropriate transfer credit request form from the Office of the Registrar.
  - a program description for courses taken abroad or catalog description for courses taken in the United States.
  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
- CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, "for-profit" universities, or two-year colleges.
- Students should be aware that the approval process takes about one week and should plan accordingly.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

Opportunities for the Certificate in Language and Intercultural Communication - Chinese

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
Scholarships
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Certificate in Language and Intercultural Communication - French

Program Learning Outcomes for the Certificate in Language and Intercultural Communication

Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - French

Students pursuing the Certificate in Language and Intercultural Communication must complete:

• A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
• An Experiential Learning opportunity through an approved program.
• An Outcomes Assessment to evaluate language proficiency.
• A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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</tr>
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<td></td>
<td>Select 2 courses from French course offerings (FREN) at the 200-level or above</td>
<td>6</td>
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<td></td>
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<td>6</td>
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<tr>
<td></td>
<td>Experiential Learning</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Outcomes Assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete an oral exam and a 500-word essay written in French</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours

12

Footnotes and Additional Information

1 Students pursuing the Certificate in Language and Intercultural Communication - French should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) or the Modern and Classical Literatures and Cultures Department to count towards the certificate.

2 FREN 222, AP/OTH Credit French Language, will not fulfill this requirement.

3 In order to meet the Experiential Learning requirement for the Certificate, students can chose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/)

4 In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

Policies for the Certificate in Language and Intercultural Communication - French

Language Placement Testing

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.
The Language Placement Test is not required for 300-level and 400-level courses in French (FREN).

**Program Restrictions and Exclusions**
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

**Transfer Credit**
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

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  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
- CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, “for-profit” universities, or two-year colleges.
- Students should be aware that the approval process takes about one week and should plan accordingly.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process ([https://registrar.rice.edu/facstaff/courseprocess/](https://registrar.rice.edu/facstaff/courseprocess/)). Additionally, as part of an annual roll call ([https://registrar.rice.edu/facstaff/distribution_credit/](https://registrar.rice.edu/facstaff/distribution_credit/)) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

**Additional Information**
For additional information, please see the Center for Languages and Intercultural Communication website: [https://clic.rice.edu/](https://clic.rice.edu/).

**Opportunities for the Certificate in Language and Intercultural Communication - French**

**Academic Honors**
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) ([summa cum laude](https://humanities.rice.edu/student-life), [magna cum laude](https://humanities.rice.edu/student-life), and [cum laude](https://humanities.rice.edu/student-life)) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Scholarships**
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

**Additional Information**
For additional information, please see the Center for Languages and Intercultural Communication website: [https://clic.rice.edu/](https://clic.rice.edu/)

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.
Certificate in Language and Intercultural Communication - German

Program Learning Outcomes for the Certificate in Language and Intercultural Communication

Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - German

Students pursuing the Certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- An Experiential Learning opportunity through an approved program.
- An Outcomes Assessment to evaluate language proficiency.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

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<th>Code</th>
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<th>Credit Hours</th>
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Certificate Requirements

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses in Target Language</td>
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<tr>
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<td>Select 2 courses from German course offerings (GERM) at the 200-level or above</td>
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<tr>
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<td>Experiential Learning</td>
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<td>Outcomes Assessment</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>12</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. Students pursuing the Certificate in Language and Intercultural Communication - German should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) or the Modern and Classical Literatures and Cultures Department to count towards the certificate.

2. GERM 222, AP/OTH Credit German Language, will not fulfill this requirement.

3. In order to meet the Experiential Learning requirement for the Certificate, students can chose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate.

4. In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

Policies for the Certificate in Language and Intercultural Communication - German

Language Placement Testing

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

The Language Placement Test is not required for 300-level and 400-level courses in German (GERM).

Program Restrictions and Exclusions

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.
Transfer Credit
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Additional Information
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Opportunities for the Certificate in Language and Intercultural Communication - German

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Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

Certificate in Language and Intercultural Communication - Hindi

Program Learning Outcomes for the Certificate in Language and Intercultural Communication
Upon completing the certificate in Language and Intercultural Communication, students will be able to:
1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Hindi

Students pursuing the Certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- An Experiential Learning opportunity through an approved program.
- An Outcomes Assessment to evaluate language proficiency.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<tr>
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Certificate Requirements

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<tbody>
<tr>
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</table>

Select 2 courses from Hindi course offerings (HIND) at the 200-level or above ¹ 6
Select 2 courses from Hindi course offerings (HIND) at the 300-level or above ¹ 6

Experiential Learning

Complete an approved program ²

Outcomes Assessment

Complete an oral exam and a 500-word essay written in Hindi ³

Footnotes and Additional Information

¹ Students pursuing the Certificate in Language and Intercultural Communication - Hindi should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) to count towards the certificate.
² In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/).
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Policies for the Certificate in Language and Intercultural Communication - Hindi

Language Placement Testing

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

Program Restrictions and Exclusions

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

Transfer Credit

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  - the appropriate transfer credit request form from the Office of the Registrar.
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  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
• CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, “for-profit” universities, or two-year colleges.
• Students should be aware that the approval process takes about one week and should plan accordingly.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

Opportunities for the Certificate in Language and Intercultural Communication - Hindi

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Certificate in Language and Intercultural Communication - Italian

Program Learning Outcomes for the Certificate in Language and Intercultural Communication
Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Italian
Students pursuing the Certificate in Language and Intercultural Communication must complete:

• A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
• An Experiential Learning opportunity through an approved program.
• An Outcomes Assessment to evaluate language proficiency.
• A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.
This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<th>Code</th>
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### Certificate Requirements

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<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Required Courses in Target Language</td>
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<tr>
<td></td>
<td>Select 2 courses from Italian course offerings (ITAL) at the 200-level or above</td>
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<tr>
<td></td>
<td>Select 2 courses from Italian course offerings (ITAL) at the 300-level or above</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Experiential Learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete an approved program</td>
<td>3</td>
</tr>
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<td></td>
<td>Outcomes Assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete an oral exam and a 500-word essay written in Italian</td>
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</tr>
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</table>

### Total Credit Hours

<table>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>12</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. Students pursuing the Certificate in Language and Intercultural Communication - Italian should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) or the Modern and Classical Literatures and Cultures Department to count towards the certificate.
2. ITAL 222, AP/OTH Credit Italian Language, will not fulfill this requirement.
3. In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/)
4. In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student’s official Rice academic transcript.

### Policies for the Certificate in Language and Intercultural Communication - Italian

#### Placement Testing

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

#### Program Restrictions and Exclusions

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
- Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  - the appropriate transfer credit request form from the Office of the Registrar.
  - a program description for courses taken abroad or catalog description for courses taken in the United States.
  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
• CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, “for-profit” universities, or two-year colleges.
• Students should be aware that the approval process takes about one week and should plan accordingly.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

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Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

Opportunities for the Certificate in Language and Intercultural Communication - Italian

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/

Certificate in Language and Intercultural Communication - Japanese

Program Learning Outcomes for the Certificate in Language and Intercultural Communication
Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Japanese
Students pursuing the Certificate in Language and Intercultural Communication must complete:

• A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
• An Experiential Learning opportunity through an approved program.
• An Outcomes Assessment to evaluate language proficiency.
• A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable,
the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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<td>Total Credit Hours Required for the Certificate in Language and Intercultural Communication - Japanese</td>
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**Certificate Requirements**

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<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Required Courses in Target Language</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from Japanese course offerings (JAPA) at the 200-level or above</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from Japanese course offerings (JAPA) at the 300-level or above</td>
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</tr>
<tr>
<td></td>
<td>Experiential Learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complete an approved program</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outcomes Assessment</td>
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<tr>
<td></td>
<td>Complete an oral exam and a 500-word essay written in Japanese</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>12</td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

1. Students pursuing the Certificate in Language and Intercultural Communication - Japanese should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) to count towards the certificate.
2. JAPA 222, AP/OTH Credit Japanese Language, will not fulfill this requirement.
3. In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at [https://clic.rice.edu/certificate](https://clic.rice.edu/certificate).
4. In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

**Policies for the Certificate in Language and Intercultural Communication - Japanese**

**Language Placement Testing**

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

**Program Restrictions and Exclusions**

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
- Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  - the appropriate transfer credit request form from the Office of the Registrar.
  - a program description for courses taken abroad or catalog description for courses taken in the United States.
  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.

- CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, “for-profit” universities, or two-year colleges.
- Students should be aware that the approval process takes about one week and should plan accordingly.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process [https://registrar.rice.edu/facstaff/courseprocess/]. Additionally, as part of an annual roll call [https://registrar.rice.edu/facstaff/distribution_credit/] coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

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Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

Opportunities for the Certificate in Language and Intercultural Communication - Japanese

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships

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Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Certificate in Language and Intercultural Communication - Korean

Program Learning Outcomes for the Certificate in Language and Intercultural Communication

Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Korean

Students pursuing the Certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- An Experiential Learning opportunity through an approved program.
- An Outcomes Assessment to evaluate language proficiency.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

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Total Credit Hours Required for the Certificate in Language and Intercultural Communication - Korean 12
**Certificate Requirements**

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<td>Required Courses in Target Language</td>
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<td></td>
<td>Select 2 courses from Korean course offerings (KORE) at the 200-level or above</td>
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<td></td>
<td>Select 2 courses from Korean course offerings (KORE) at the 300-level or above</td>
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<tr>
<td></td>
<td>Experiential Learning</td>
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<td></td>
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<tr>
<td></td>
<td>Outcomes Assessment</td>
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<td></td>
<td>Complete an oral exam and a 500-word essay written in Korean</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>12</td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

1. Students pursuing the Certificate in Language and Intercultural Communication - Korean should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) to count towards the certificate.

2. KORE 222, AP/OTH Credit Korean Language, will not fulfill this requirement.

3. In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at [https://clic.rice.edu/certificate](https://clic.rice.edu/certificate).

4. In order to meet the Outcomes Assessment requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at [https://clic.rice.edu/certificate](https://clic.rice.edu/certificate).

**Policies for the Certificate in Language and Intercultural Communication - Korean**

**Language Placement Testing**

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

**Program Restrictions and Exclusions**

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have declared a major.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
- Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
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- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
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**Distribution Credit Information**

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Opportunities for the Certificate in Language and Intercultural
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Academic Honors
The university recognizes academic excellence achieved over an
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Intercultural Communication website: https://clic.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/
student-life/) for tables of fellowships, prizes, and internships/practica
that may be relevant to this program.

Certificate in Language and
Intercultural Communication -
Portuguese

Program Learning Outcomes for the
Certificate in Language and Intercultural
Communication

Upon completing the certificate in Language and Intercultural
Communication, students will be able to:

1. Speak in the target language with or to native speakers with
   enough fluency and minimal obstacles for both the student and the
   interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex,
   and context appropriate manner.
3. Understand key socio-cultural differences associated with the target
   language.

Requirements for the Certificate in Language and Intercultural
Communication - Portuguese

Students pursuing the Certificate in Language and Intercultural
Communication must complete:

• A minimum of 4 courses (12 credit hours) to satisfy certificate
  requirements.
• An Experiential Learning opportunity through an approved program.
• An Outcomes Assessment to evaluate language proficiency.
• A minimum overall GPA of 2.00 in required coursework with a
  minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to
fulfilling the certificate requirements outlined below, candidates will be
required to complete successfully the degree program to which they have
been admitted in order to receive this certificate. Upon completion, the
certificate is awarded at the same time as the conferral of the student’s
Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate.
In certain instances, courses not on this official list may be substituted
upon approval of the certificate’s academic advisor, or where applicable,
the Program Director. (Course substitutions must be formally applied and
entered into Degree Works by the certificate’s Official Certifier (https://
registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students
and their academic advisors should identify and clearly document the
courses to be taken.

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Footnotes and Additional Information
1 Students pursuing the Certificate in Language and Intercultural Communication - Portuguese should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) or the Modern and Classical Literatures and Cultures Department to count towards the certificate.
2 PORT 222, AP/OTH Credit Portuguese Language, will not fulfill this requirement.
3 In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/)
4 In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

Policies for the Certificate in Language and Intercultural Communication - Portuguese

Language Placement Testing
Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

The Language Placement Test is not required for course offerings from Spanish and Portuguese (SPPO) or Latin American Studies (LASR).

Program Restrictions and Exclusions
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

• The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
• Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
• Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
• When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  • the appropriate transfer credit request form from the Office of the Registrar.
  • a program description for courses taken abroad or catalog description for courses taken in the United States.
  • a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
• CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, "for-profit" universities, or two-year colleges.
• Students should be aware that the approval process takes about one week and should plan accordingly.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students' critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students' own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely
through understanding the language of history and culture that students can understand these.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

Opportunities for the Certificate in Language and Intercultural Communication - Portuguese

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information
For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Certificate in Language and Intercultural Communication - Russian

Program Learning Outcomes for the Certificate in Language and Intercultural Communication

Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Russian

Students pursuing the Certificate in Language and Intercultural Communication must complete:

• A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
• An Experiential Learning opportunity through an approved program.
• An Outcomes Assessment to evaluate language proficiency.
• A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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Footnotes and Additional Information

1 Students pursuing the Certificate in Language and Intercultural Communication - Russian should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) to count towards the certificate.

2021-2022 General Announcements PDF Generated 09/22/21
RUSS 222, AP/OTH Credit Russian Language, will not fulfill this requirement.

In order to meet the Experiential Learning requirement for the Certificate, students can choose from an array of options, including traditional study abroad, internships, and coursework to complete this requirement. These options are described in more detail at https://clic.rice.edu/certificate (https://clic.rice.edu/certificate/).

In order to meet the Outcomes Assessment requirement for the Certificate, students will complete an examination consisting of oral and written assessments in the target language. After completing the Certificate requirements and as a result of the assessment, students are placed at their level of proficiency following the Common European Framework of Reference for Languages (CEFR). The CEFR level reached will be noted in an official letter from CLIC, as well as via a notation on the student's official Rice academic transcript.

**Policies for the Certificate in Language and Intercultural Communication - Russian**

**Language Placement Testing**

Students are required to take a Language Placement Test to ensure that they are placed in the appropriate course in their target language. Placement tests are administered online prior to and during both fall and spring registration.

**Program Restrictions and Exclusions**

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may declare their intent to pursue a university certificate only after they have first declared a major.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
- Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  - the appropriate transfer credit request form from the Office of the Registrar.
  - a program description for courses taken abroad or catalog description for courses taken in the United States.
  - a course syllabus for the course they wish to take or have taken, or a web address of the program if one is available.
- CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, “for-profit” universities, or two-year colleges.
- Students should be aware that the approval process takes about one week and should plan accordingly.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

**Additional Information**

For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/.
Opportunities for the Certificate in Language and Intercultural Communication - Russian

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships

The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information

For additional information, please see the Center for Languages and Intercultural Communication website: https://clic.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Certificate in Language and Intercultural Communication - Spanish

Program Learning Outcomes for the Certificate in Language and Intercultural Communication

Upon completing the certificate in Language and Intercultural Communication, students will be able to:

1. Speak in the target language with or to native speakers with enough fluency and minimal obstacles for both the student and the interlocutor, even in spontaneous situations.
2. Write in the target language in a clear, detailed, relatively complex, and context appropriate manner.
3. Understand key socio-cultural differences associated with the target language.

Requirements for the Certificate in Language and Intercultural Communication - Spanish

Students pursuing the Certificate in Language and Intercultural Communication must complete:

- A minimum of 4 courses (12 credit hours) to satisfy certificate requirements.
- An Experiential Learning opportunity through an approved program.

- An Outcomes Assessment to evaluate language proficiency.
- A minimum overall GPA of 2.00 in required coursework with a minimum grade of C (2.00 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student's Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate's academic advisor; or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the certificate's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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Total Credit Hours Required for the Certificate in Language and Intercultural Communication - Spanish

Certificate Requirements

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Required Courses in Target Language

Select 2 courses from Spanish course offerings (SPAN) at the 200-level or above

Select 2 courses from Spanish course offerings (SPAN) at the 300-level or above

Experiential Learning

Complete an approved program

Outcomes Assessment

Complete an oral exam and a 500-word essay written in Spanish

Total Credit Hours

12

Footnotes and Additional Information

1 Students pursuing the Certificate in Language and Intercultural Communication - Spanish must take at least one course numbered SPAN 330 (or SPPO 330) or above. If students place into SPAN 264 or higher, they must register for two courses numbered SPAN 330 (or SPPO 330) or above. Additionally, all Latin American Studies course offerings (LASR) can fulfill this requirement. Students pursuing the Certificate in Language and Intercultural Communication - Spanish should consult with the Certificate advisor to identify appropriate courses not offered through the Center for Languages and Intercultural Communication (CLIC) or the Modern and Classical Literatures and Cultures Department to count towards the certificate.

2 SPAN 222, AP/OTH Credit Spanish Language, will not fulfill this requirement.
Communication should be aware of the following program-specific Students pursuing the Program Transfer Credit Guidelines credit possibilities.

For Rice University’s policy regarding transfer credit, see Transfer Credit. Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the certificate in Language and Intercultural Communication should be aware of the following program-specific transfer credit guidelines:

- The Center for Languages and Intercultural Communication (CLIC) will determine equivalency for foreign language classes taken at other colleges or universities and approve them for transfer credit.
- Students wanting Rice equivalent credit should obtain approval in writing from CLIC before taking language courses outside of Rice.
- Students who study abroad should have their transfer credits pre-approved by CLIC before they commit to a study-abroad program.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

- When requesting Rice equivalent credit for foreign language acquisition courses, students should submit no less than the following to CLIC for approval:
  - the appropriate transfer credit request form from the Office of the Registrar.
  - a program description for courses taken abroad or catalog description for courses taken in the United States.
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- CLIC does not award Rice equivalent course transfer credit for online courses or coursework taken at community colleges, online universities, “for-profit” universities, or two-year colleges.
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Distribution courses from the Center for Languages and Intercultural Communication (CLIC) are broad in theme and scope. Students in these courses will develop increased intercultural and interactional competence, which includes a critical understanding of the sociolinguistic and sociocultural aspects shared by the community of users of the target language. These courses encourage students to probe the modes of knowledge and inquiry characteristic of the humanities. A central component of these courses is the development of students’ critical thinking and analytical abilities. This is accomplished through the analysis of spoken and written interactions which allows students to understand linguistic forms, uses of vocabulary, varieties of intonation, social situations and their effects on language use, and language behavior in different situations. The ultimate goals are to question students’ own sociolinguistic and sociocultural norms and give them the tools to appropriately engage with the target language communities. These courses will also provide students with the essential knowledge and tools for thinking critically about history and culture, and for understanding the centrality of such capacity to informed participation in social, political, and professional life since it is precisely through understanding the language of history and culture that students can understand these.

Additional Information

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Opportunities for the Certificate in Language and Intercultural Communication - Spanish

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Scholarships
The Center for Languages and Intercultural Communication invests in students participating in experiential learning programs by occasionally offering scholarships to offset the cost. When funding is available, the scholarships are offered in the spring semester for study abroad or experiential learning programs taking place the following summer or academic year.

Additional Information
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See https://humanities.rice.edu/student-life/ for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Latin American Studies

Contact Information
Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
emden@rice.edu

Latin American Studies is an interdisciplinary major offered by the Modern and Classical Literatures and Cultures (MCLC) Department, designed to further understanding of the cultures, histories, and politics of Latin America as viewed from regional and global perspectives.

This major draws from courses and faculty from a wide range of departments and programs, including Anthropology, Architecture, Art History, English, French Studies, History, Spanish and Portuguese, Political Science, and Sociology. This major provides a challenging context for students to develop core skills in interdisciplinarity, language, communication (written and oral), theory, research methodologies, and geography.

Bachelor's Program
• Bachelor of Arts (BA) Degree with a Major in Latin American Studies (p. 1294)
LASR 374 - FEMINIST AND QUEER THEORY IN THE AFRICAN DIASPORA
Short Title: FEM THEORY IN AFRICAN DIASPORA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an interdisciplinary overview of the body of Black feminist and queer theory that has emerged within the last forty years. We will examine these frameworks in order to understand how racial difference shapes gender and sexual identities. This is a seminar that emphasizes research and discussion. Cross-list: SWGS 374.

LASR 375 - LATINA AND AFRICAN AMERICAN WOMEN'S ACTIVISM IN THE URBAN METROPOLIS
Short Title: WOMEN'S ACTIVISM URBAN METRO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will investigate the contemporary writings of Latina and African American women in urban spaces across the U.S. Understanding these women's experiences in relationship to each other will reveal the shared, yet distinct, trajectories that orient their struggle to resist poverty, racism, homophobia, and sexual and reproductive violence. Cross-list: SWGS 375.

LASR 376 - CHICANA AND LATINA EXPERIENCE THRU FILM
Short Title: CHICANA/LATINA EXP THRU FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the Chicana and Latina experience in the U.S. We examine these women's response to each other and forces of conquest, capitalism, and patriarchy. Novels, oral life histories, film, and art will be used to interrogate these women's conceptualization and assertion of feminism, activism, and history. Cross-list: SWGS 376.

LASR 378 - LATIN AMERICAN POLITICAL THOUGHT: IDENTITY, LIBERATION, MODERNITY
Short Title: LATIN AM. POLITICAL THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course gives students an overview of the main thinkers, currents, concepts, and topics in Latin American and Latinx political thought. It is organized around three modules that address central topics: identity & transculturation; liberation; and modernity. Taught in English. Counts toward the minor in PLST.
LASR 390 - RECLAIMING THE FUTURE: CONTEMPORARY TECHNOLOGY, CULTURE & SOCIETY IN LATIN AMERICA
Short Title: TECH CULTURE & SOC IN LATIN AM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is the role of technology in helping Latin America articulate a post-neoliberal future? This course examines the past, present, and future of the relation between technology and society in Latin America, focusing on contemporary efforts in popular culture and media to syncretize old and new forms of knowledge and techno-social production. Taught in English.

LASR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LASR 490 - INDEPENDENT STUDY IN LATIN AMERICAN STUDIES
Short Title: INDEPENDENT STUDIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable-credit course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Language may be in English or Spanish. Instructor permission required. Repeatable for credit. Instructor Permission Required. Repeatable for Credit.

LASR 491 - LATIN AMERICAN STUDIES CAPSTONE
Short Title: LATIN AMERICAN STUDIES CAPSTN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will write original seminar paper on Latin America incorporating reading and research in English and in the Spanish or Portuguese language sources; to be drawn from their research conducted during a study abroad semester in Latin America.

LASR 492 - DIRECTED RESEARCH
Short Title: DIRECTED RESEARCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation on any aspect of Latin America, Latin American studies, or U. S. Latinx studies. This course includes directed research and/or a research project. Student will work independently with only minimal faculty supervision. Permission of the instructor is required. Instructor Permission Required. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for Latin American Studies: LASR

Department Description and Code
- Modern and Classical Literatures and Cultures: MCLC

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Latin American Studies: LASR

CIP Code and Description ¹
- LASR Major/Program: CIP Code/Title: 05.0107 - Latin American Studies

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Latin American Studies

Program Learning Outcomes for the BA Degree with a Major in Latin American Studies

Upon completing the BA degree, students majoring in Latin American Studies will be able to:

1. Demonstrate the ability to speak and read fluently, and conduct research in a foreign language.
2. Interpret the historic, cultural, and political dynamics that comprise a specific region selected by the student for in-depth study.
3. Apply critical perspectives on legacies and ongoing forces that are local and global in scope from the field of Latin American Studies.
4. Define a research problem and analyze it from several different disciplinary fields, including appropriate theory, methodology, and concepts for the topic.
Requirements for the BA Degree with a Major in Latin American Studies

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Latin American Studies must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1297) tab.
- At least 1 semester studying abroad.
- A language competency requirement.
- A capstone requirement.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<td>Total Credit Hours Required for the BA Degree with a Major in Latin American Studies</td>
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### Degree Requirements

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<td>Core Requirement</td>
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<td>LASR 158 /</td>
<td>INTRODUCTION TO LATIN AMERICAN STUDIES</td>
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<td>SPPO 158</td>
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<td>Elective Requirements</td>
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<td>Select 8 courses from department approved electives (see course list below)</td>
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<td>LASR 491</td>
<td>LATIN AMERICAN STUDIES CAPSTONE</td>
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</table>

|            | Total Credit Hours Required for the Major in Latin American Studies | 30           |
|            | Additional Credit Hours to Complete Degree Requirements              | 59           |

|            | University Graduation Requirements (p. 29) | 31           |
|            | Total Credit Hours                        | 120          |

### Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. This course both introduces and structures the major. This course is taught in English, with discussion sections available in Spanish or Portuguese pending student interest.
2. At least 2 courses (6 credit hours) must be in the humanities and at least 2 courses (6 credit hours) must be in the social sciences.
3. Students must spend at least one semester studying at a Rice-approved, semester-abroad program in which the primary language of instruction is Spanish, Portuguese, or under special circumstances French. Courses taken abroad may count toward completing the Latin American Studies major and toward meeting the distribution requirements. Study abroad courses cannot count for more than 4 courses (12 credit hours) toward the major. While the semester abroad is ideal, under very special circumstances, the advisor to the major can approve a 12-week summer program as the equivalent of a semester, provided the program allows students to complete at least 3 courses (9 credit hours).
4. Students must demonstrate language competence at three different stages:
   - Prior to study abroad - students will be examined by Center for Languages and Intercultural Communication (CLIC) faculty trained in proficiency testing to ensure that the students have adequate language competence for studying abroad—adequate at this stage meaning at least Intermediate-High according to proficiency standards set by the American Council on the Teaching of Foreign Languages (ACTFL).
   - After study abroad - students will be tested for proficiency at the Advanced-Low level, according to ACTFL Guidelines. Proficiency at the Advanced-Low level is desirable, but not required.
   - Writing the capstone research paper - students must demonstrate to the satisfaction of the colloquium director their ability to do research in a foreign language.

5. The capstone is completed following the semester abroad. Students will enroll in LASR 491, which is taught by a faculty member from either Humanities or Social Sciences. As directed by this faculty member, students will write a research paper on a Latin American topic of their choice. During the course, students will be exposed to different research methodologies, theories appropriate to their field of study, and instruction on how best to incorporate research and sources that emerged from their study abroad. Interdisciplinary modes of research and writing will be a major feature of LASR 491. Students will be expected to highlight the interdisciplinary nature of their research in their completed paper. In addition, students enrolled in the capstone course will be expected to workshop their writing at different times during the semester. The completed research paper will be evaluated by the faculty member teaching LASR 491 and one other instructor appropriate to the topic. With the approval of the faculty member teaching LASR 491, this research paper may be written in English.
Course List to Satisfy Requirements

Elective Requirements

Students must complete a total of 8 courses (24 credit hours) from the following department approved electives, which will focus on a specific region, area, or country in Latin America. This area focus will shape each student’s proposed course of study. Each course of study and an area focus must be approved by the advisor to the major. At least 2 courses (6 credit hours) must be in the humanities and at least 2 courses (6 credit hours) must be in the social sciences.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<td>ANTH 290</td>
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<td>ANTH 361</td>
<td>LATIN AMERICAN TOPICS</td>
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<td>ANTH 392</td>
<td>KINGS, QUEENS, AND COMMONERS: THE ARCHAEOLOGY OF ANCIENT Mesoamerican</td>
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<td>ANTH 394</td>
<td>THE ARCHAEOLOGY OF SLAVERY AND THE AFRICAN DIASPORA</td>
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<tr>
<td>ARCH 315 / HART 310</td>
<td>BRAZIL BUILT: THE CLINIC, THE TROPICAL, AND THE AESTHETIC</td>
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<td>ARCH 323</td>
<td>SEMINAR IN ARCHITECTURE</td>
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<td>ARCH 452 / HART 463</td>
<td>PRACTICING UTOPIA: ARCHITECTURE, Eugenics and the Modern Latin City</td>
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<td>RACE, CLASS, GENDER IN EDUCATION</td>
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<td>INTRODUCTION TO NATIVE AMERICAN LITERATURE</td>
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<td>ENGL 369 / SWGS 329</td>
<td>THE AMERICAN WEST AND ITS OTHERS</td>
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<td>CHICANO/A LITERATURE</td>
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<td>MAJOR LITERARY WORKS AND ARTIFACTS OF THE FRANCOPHONE WORLD</td>
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<td>FRENCH CARIBBEAN ECOCRITICISM</td>
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<td>THE CARIBBEAN IN FRENCH</td>
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<td>HART 265</td>
<td>A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA</td>
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<td>HART 302</td>
<td>FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE</td>
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<td>HART 315</td>
<td>ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS</td>
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<td>LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES</td>
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<td>LATIN AMERICAN BODIES: ON MODERNISM</td>
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<td>MEXICO: AN INTRODUCTION</td>
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<td>THE ATLANTIC WORLD: ORIGINS TO THE AGE OF REVOLUTION</td>
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<td>BLACKS IN THE AMERICAS</td>
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<td>HIST 220</td>
<td>MEXICO: 1910 TO PRESENT</td>
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<td>COLONIAL SPANISH AMERICA</td>
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<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
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<td>NATIVE AMERICAN HISTORY: FROM EUROPEAN CONTACT TO THE ERA OF REMOVAL</td>
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<td>POVERTY AND SOCIAL JUSTICE IN LATIN AMERICA</td>
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<td>ATLANTIC SLAVE TRADE AND THE ORIGINS OF AFRO AMERICA</td>
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<td>THE HISTORICAL CONTEXT OF THE CUBAN REVOLUTION</td>
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<td>LATIN AMERICAN PERSPECTIVES</td>
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<td>RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH</td>
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<td>TOPICS IN LATIN AMERICAN HISTORY</td>
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<td>CONTINUITIES AND CHANGES IN BRIANZIAN HISTORY</td>
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<td>PIRATES, REBELS, NARCOS: LATIN AMERICAN OUTLAWS IN THE POLITICAL-CULTURAL IMAGINATION</td>
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<td>MAPPING LATIN AMERICAN CULTURE</td>
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<td>LITERATURES FROM THE SOUTHERN CONE</td>
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<td>CARIBBEAN LITERATURE</td>
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<td>LATIN AMERICAN SHORT FICTION</td>
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<td>DISABLED BODIES: ILLNESS AND LITERATURE IN LATIN AMERICA</td>
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<td>THE CITY IN LATIN AMERICA</td>
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<td>BOOM-BOOM-CRACK: LATIN AMERICAN NOVEL</td>
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### Policies for the BA Degree with a Major in Latin American Studies

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see [Transfer Credit](https://registrar.rice.edu/facstaff/courseprocess/) (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the major in Latin American Studies should be aware of the following program-specific transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

#### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process ([https://registrar.rice.edu/facstaff/courseprocess/](https://registrar.rice.edu/facstaff/courseprocess/)). Additionally, as part of an annual roll call ([https://registrar.rice.edu/facstaff/distribution_credit/](https://registrar.rice.edu/facstaff/distribution_credit/)) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

### Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: [https://cultures.rice.edu](https://cultures.rice.edu)/

#### Opportunities for the BA Degree with a Major in Latin American Studies

##### Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see [Latin Honors](https://registrar.rice.edu/facstaff/distribution_credit/) (p. 51) (summa cum laude, magna cum laude, and cum laude) and [Distinction in Research and Creative Work](https://humanities.rice.edu/student-life/) (p. 51). Some departments have department-specific Honors awards or designations.

##### Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: [https://cultures.rice.edu](https://cultures.rice.edu)/

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

### Latin Language and Literature

#### Contact Information

Modern and Classical Literatures and Cultures

[https://cultures.rice.edu](https://cultures.rice.edu)

207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
emden@rice.edu

The minor in Latin Language and Literature is part of the program in Classical Studies in the department of Modern and Classical Literatures and Cultures. This minor is an opportunity to pursue a course of study in Latin, from the elementary to the advanced level, and in Roman authors and texts and their cultural contexts.

#### Minor

- Minor in Latin Language and Literature (p. 1302)

Latin Language and Literature does not currently offer an academic program at the graduate level.
Chair
Christian J. Emden

Program Advisor
Hilary S. Mackie

Professors
Scott McGill
Donald R. Morrison
Harvey E. Yunis

Associate Professor
Hilary S. Mackie

Assistant Professor
Sophie Crawford-Brown

Lecturer
Ted Somerville

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's
Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's
Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Latin (LATI)

LATI 101 - ELEMENTARY LATIN I
Short Title: ELEMENTARY LATIN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 101.

LATI 102 - ELEMENTARY LATIN II
Short Title: ELEMENTARY LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 101 or MDST 101
Description: Continuation of LATI 101 and MDST 101. Graduate students require permission of instructor. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 102.

LATI 104 - AP/OTH CREDIT IN ELEMENTARY LATIN
Short Title: AP/OTH CREDIT ELEMENTARY LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 201 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of grammar and readings in Latin prose. Cross-list: MDEM 211.

LATI 202 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211
Description: Readings in Virgil. Cross-list: MDEM 212.

LATI 204 - AP/OTH CREDIT IN INTERMEDIATE LATIN
Short Title: AP/OTH CREDIT INTERM. LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
LATI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LATI 301 - CICERO AND SALLUST
Short Title: CICERO AND SALLUST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: The course will read selections from Cicero and Sallust on the Catilinarian Conspiracy. Close attention will be given to the authors’ style and to their rhetorical and historiographical methods. We will also examine the events of the conspiracy and the political culture of the late Roman Republic. Recommended Prerequisite(s): Four semesters of Latin or the equivalent.

LATI 302 - ADVANCED LATIN
Short Title: ADVANCED LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Propertius’ elegies with a view to understanding the poetics of Latin love elegy and the relationship of this genre to its social context. D1 credit.

LATI 303 - ADVANCED LATIN: PLAUTUS AND TERENCE
Short Title: ADV LATIN: PLAUTUS & TERENCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Plautus’ Pseudolus and Terence’s Adelphoe. We will consider the background of Greek comedy and the contemporary social situation in Rome.

LATI 304 - ADVANCED LATIN: ROMAN EPIC
Short Title: ADV. LATIN: ROMAN EPIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Latin epic poetry, from the Republic through late antiquity. Topics will include the nature of the epic genre, the development of Roman epic, the styles of individual epic poets, and the works’ political and cultural contexts.

LATI 305 - ADVANCED LATIN: HORACE
Short Title: ADVANCED LATIN: HORACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Horace.

LATI 306 - ADVANCED LATIN: OVID’S METAMORPHOSES
Short Title: OVID’S METAMORPHOSES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Ovid’s Metamorphoses. Repeatable for Credit.

LATI 307 - LATIN POETRY OF LATE ANTIQUITY
Short Title: LATIN POETRY OF LATE ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Latin poetry, ca. 300 CE - ca. 600 CE. Topics include the relationship of this poetry to its classical past, its identity as “late” literature, the historical contexts and purposes of the texts and the development of a Christian Latin poetic tradition.
LATI 308 - LUCRETIUS
Short Title: LUCRETIUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: This course will study the great philosophical poem of the Roman Epicurean Lucretius, De Rerum Nature (On the Nature of Things). In addition to selections from the Latin, students will read the entire poem in English translation as well as scholarship on the poem from a variety of perspectives.

LATI 309 - RECOVERY, REBIRTH, REGENERATION: CLASSICS AND THE EUROPEAN RENAISSANCE
Short Title: CLASSICS/EUROPEAN RENAISSANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the Renaissance reception of classical culture; it offers a comparative study of ancient and early modern cultures and literatures. Readings are conducted in both Latin and English. Authors include Cicero, Lucretius, Ovid, Augustine, Petrarch, Shakespeare, Kepler, and Galileo. Recommended Prerequisite(s): LATI 202 or MDEM 212

LATI 312 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 313 - CICERO AND CATULLUS: LITERATURE AND SOCIETY IN THE ROMAN REPUBLIC
Short Title: CICERO AND CATULLUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Cicero's PRO CAELIO and several of Catullus' longer poems as a vehicle for understanding politics and culture in the late Roman Republic.

LATI 316 - READINGS IN VIRGIL'S AENEID
Short Title: READINGS IN VIRGIL'S AENEID
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of Virgil's great Roman epic. Areas of interest will include Virgil's poetic technique, the history of ancient epic, and Roman politics and society, particularly in the Augustan Age. Since different books of the Aeneid will be read in different semesters, the course is repeatable for credit. Repeatable for Credit.

LATI 317 - READINGS IN LIVY
Short Title: READINGS IN LIVY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Selections from the Roman historian Livy. Close attention will be given to Livy's prose style and narrative techniques. We will also examine his historical method, the Augustan context of his work, and the information he provides as a source on Roman history. Repeatable for Credit.

LATI 318 - READINGS IN CICERO
Short Title: CICERO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course features readings in Cicero (1st c. BCE), the politician, orator, and philosopher of first-century BCE Rome. The single most influential writer in Latin, Cicero is also a primary source for the fall of the Roman Republic. Spring 2016 will focus on the speech Pro Caelio, addressed to a law course in defense of the Roman aristocrat Caelius Rufus, and one of Cicero's most entertaining speeches. Repeatable for Credit.
LATI 320 - SILVER LATIN PROSE: SENECA AND TECITUS  
**Short Title:** SENECA AND TECITUS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Latin culture during the Silver Age (AD 18-133) developed in unforeseen directions, which remain provocative and stimulating today. This course will focus on the two writers who developed new pathways in prose writing and new ideas about Rome, the moralist Seneca and the historian Tacitus. We will read one of Senecas’s moral essays, De brevitate vitae, and book four of Tacitus’ Annals.

LATI 350 - TRANSLATING LATIN LITERATURE: THEORY AND PRACTICE  
**Short Title:** TRANSLATING LATIN LITERATURE  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A thorough examination of the art of translating Latin Literature. Students will survey ancient and modern theories of translation; study a range of translations of select Latin texts; and produce their own translations of prose and verse Latin originals. Taught in English.

LATI 377 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Seminar, Lecture, Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LATI 477 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Seminar, Lecture, Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LATI 491 - DIRECTED READING  
**Short Title:** DIRECTED READING  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Repeatable for Credit.

LATI 492 - DIRECTED READING  
**Short Title:** DIRECTED READING  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Independent work for qualified juniors and seniors in genres or authors not presented in other upper level courses. Instructor Permission Required. Repeatable for Credit.

LATI 504 - DIRECTED READING FOR GRADUATE STUDENTS  
**Short Title:** GR STUDENTS DIRECTED READING  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

LATI 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**Description and Code Legend**  
*Note:* Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**  
- Course offerings/subject code for Latin: LATI

**Department Description and Code**  
- Modern and Classical Literatures and Cultures: MCLC

**Undergraduate Minor Description and Code**  
- Minor in Latin Language and Literature: LALL

**CIP Code and Description**  
- LALL Minor: CIP Code/Title: 16.1203 - Latin Language and Literature  
  
1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)
Minor in Latin Language and Literature

Program Learning Outcomes for the Minor in Latin Language and Literature

Upon completing the minor in Latin Language and Literature, students will be able to:

1. Understand texts, artifacts, institutions, events, personalities, and places that are integral to Roman culture.
2. Situate those texts, artifacts, institutions, events, personalities, and places in their historical and cultural contexts.
3. Relate classical civilization to the world around them, and appreciate the profound influence classical civilization has on later Western civilization.

Requirements for the Minor in Latin Language and Literature

Students pursuing the minor in Latin Language and Literature must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 2 courses (6 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1302) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the Minor in Latin Language and Literature</td>
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### Minor Requirements

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<td>CLAS 108</td>
<td>ROMAN CIVILIZATION AND ITS LEGACY</td>
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<tr>
<td>HUMA 111</td>
<td>Introduction to Indo-European</td>
<td></td>
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<td></td>
<td>Elective Requirements 1</td>
<td>15</td>
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<td>Select 3 elective courses from departmental Latin (LATI) course offerings at any level</td>
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<tr>
<td>Select 2 elective courses from departmental Latin (LATI) course offerings at the 300-level and above</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>18</td>
</tr>
</tbody>
</table>

### Policies for the Minor in Latin Language and Literature

**Program Restrictions and Exclusions**

Students pursuing the minor in Latin Language and Literature should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

- Students pursuing the major in Classical Studies may not additionally declare the minor in Latin Language and Literature.

- Students pursuing the minor in Latin Language and Literature may not additionally declare the minor in Classical Civilizations.

- Students pursuing the minor in Latin Language and Literature may not additionally declare the minor in Greek Language and Literature.

### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines

Students pursuing the minor in Latin Language and Literature should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.

- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

### Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history,
thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

**Additional Information**

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

**Opportunities for the Minor in Latin Language and Literature**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

**Liberal Studies**

**Contact Information**

Liberal Studies
https://glasscock.rice.edu/departments/graduate-liberal-studies
Anderson-Clarke Center
713-348-4767

Rebecca Sharp
Director
rksharp@rice.edu

The Graduate Liberal Studies program at Rice University is designed for those who crave intellectual challenge at a world-class university. Three paths are available: the acclaimed Master of Liberal Studies (MLS) degree, the post-Masters Diploma in Liberal Studies (DLS), and the Dual Credit Teacher Credentialing graduate certificates.

Exploring liberal arts at a highly integrated level is not always possible in a career-focused undergraduate curriculum. Each graduate Liberal Studies option is tailored toward a wide range of students from recent graduates to working adults, retirees, and other non-traditional university students who wish to broaden their knowledge in fields they may not have studied in their earlier education. Courses are taught by distinguished Rice faculty and invited visiting faculty who maintain the high academic standards of Rice University.

All paths are designed for those who love to learn new ideas, explore new worlds, and enjoy meeting others who are part of the same expedition. By examining timeless, timely human questions within the humanities, social sciences, and natural sciences, students satisfy their curiosity about the world through art, literature, science, politics, human nature, and history.

**Master of Liberal Studies (MLS)**

Since its inception in 2005, the Rice Master of Liberal Studies (MLS) program has attracted a wide spectrum of students. Medical doctors, attorneys, homemakers, recent college graduates, retirees, teachers, a range of business professionals, and others have been accepted into the program. Such diversity— in both age and profession— adds a level of broad-mindedness not typically found in the traditional classroom.

The MLS program seeks committed, energetic adult students with bachelor’s degrees from an accredited college or university, who have significant life experiences and who are able to communicate effectively.

All courses will require research papers; some may require tests or oral presentations. A thesis is not part of the degree program. Part-time students can complete the degree in approximately four years and are allowed up to seven years to complete the degree. Full-time students can complete the degree in approximately two years and have up to five years to complete the degree.

**Diploma in Liberal Studies (DLS)**

Rice’s Diploma in Liberal Studies (DLS) program complements and extends the educational goals of the Master of Liberal Studies (MLS) program. The DLS is a graduate-level diploma that is currently unique to Rice University.

Exploring liberal arts at a highly integrated level is not always possible in a career-focused undergraduate curriculum. As with MLS, the DLS program is tailored toward working adults, retirees, and other non-traditional university students who wish to broaden their knowledge in fields they may not have studied in their earlier education. Courses are taught by distinguished Rice faculty and invited visiting faculty who maintain the high academic standards of Rice University.

Designed primarily for those who have completed the MLS degree, the DLS allows these graduates to maximize and enhance their academic investment. However, the program also welcomes non-MLS students on a case-by-case basis that considers academic background and future goals. Well-prepared applicants who are accepted into the program can deepen their interdisciplinary knowledge while honing research and writing skills, laying the foundation to improve critical publications, community service, doctoral studies, or career work.

**Dual Credit Teacher Credentialing**

The Glasscock School of Continuing Studies offers a Certificate in Dual Credit Teacher Credentialing through coordinated coursework from the Graduate Liberal Studies Program. Certified K12 teachers can provide students with first-hand exposure to college-level instruction, make a 2- or 4-year degree more affordable for their students, increase their own earning potential, and fill their district’s need for credentialed, dual credit teachers.

Texas high school students are able to participate in dual credit coursework, helping them earn college credit, or even an associate's degree, before they step foot on a post-secondary campus. High school dual credit courses are designed to challenge students with rigorous, college-level curriculum, and provide them with a jumpstart on their
futures—all public colleges and universities in Texas are required by the state legislature to accept dual credit. Teachers that possess the appropriate credentials to teach dual credit courses in their content areas are in high demand and have the potential to maximize their earning power while providing college access and increasing college affordability for their students.

This graduate certificate opportunity is designed for the practicing secondary teacher in English or in History. Classes are offered every semester – fall, spring, and summer – and all courses are offered in the evenings to accommodate working professionals.

There are two paths available for certified teachers:

1. Created for teachers who hold a master’s degree (in any subject) but lack the required 18 graduate content hours, this (standalone) Graduate Certificate option helps teachers with a master’s degree efficiently meet the requirements to teach high school dual credit courses in English or in History.

2. Teachers who need a master’s degree can complete their credentialing requirements to teach dual credit and earn this Graduate Certificate concurrently with the Master of Liberal Studies (MLS) degree. The MLS plan of study will allow you to earn the master’s degree while specializing in the English or History content you wish to teach. Visit the MLS website for admission and degree requirements.

Liberal Studies does not currently offer an academic program at the undergraduate level.

**Master’s Program**
- Master of Liberal Studies (MLS) Degree (p. 1322)

**Post-Master’s Diploma Program**
- Diploma in Liberal Studies (DLS) (p. 1320)

**Certificates**
- Certificate in Dual Credit Teacher Credentialing: English (p. 790)
- Certificate in Dual Credit Teacher Credentialing: History (p. 791)

**Dean**
Robert G. Bruce

**Senior Associate Dean**
Jennifer Gigliotti-Labay

**Director**
Rebecca Sharp

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
MLSC 505 - SHAKESPEARE AND FILM  
**Short Title:** SHAKESPEARE AND FILM  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will examine several Shakespeare plays and their theatrical productions. The instructor will teach each play as a text (and a script) first, and then study the films of these plays in an effort to understand the choices the film-makers have made in adapting Shakespeare’s plays to the screen. In this course, then, we will be concerned with studying both Shakespeare’s plays and what happens to those plays in the hands of a creative film-maker. Department Permission Required.

MLSC 506 - THE SOLAR SYSTEM, THE SUN AND THE MIND OF MAN  
**Short Title:** SOLAR SYSTEM,SUN & MIND OF MAN  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will explore the beauty of our near-by cosmic environment, the solar system, both as a work of nature and also from the standpoint of a challenge to the observational and analytical capabilities of human beings. The course will follow two parallel tracks: a historical/conceptual understanding of the solar system and the various paradigms or models used to describe the physical “universe.” In the second track we will tour the solar system beginning with the Sun, examining each planet and its satellite(s) in detail. The course will be non-mathematical; however, a few equations maybe show to illustrate a point. Department Permission Required.

MLSC 508 - EARTH SYSTEMS DYNAMICS  
**Short Title:** EARTH SYSTEMS DYNAMICS  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course involves exposing the advanced student to the interactions among the several mechanisms that combine to produce a working Earth. It would include concepts of Physics, Chemistry, Biology, Geology, Meteorology and Ecology. Department Permission Required.

MLSC 509 - STEREOTYPES, PREJUDICE AND DISCRIMINATION  
**Short Title:** STEREOTYPES,PREJUDICE,DISCRIM  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** In the past century social scientists have learned an enormous amount about stereotypes, prejudice and discrimination, yet they remain poorly understood by the public at large and especially by public policy makers. We all hold stereotypes, show prejudices and discriminate although not necessarily in traditional racist or sexist ways. This course will explore what social scientists, especially social psychologists, have learned about these issues especially in the last quarter century. While we will cover traditional racial and gender issues, we will also consider material related to obesity, homosexuality, mental and physical disability and age among other topics. Department Permission Required.

MLSC 510 - MUSIC AND OTHER ARTS: COLLABORATION AND FUSION  
**Short Title:** MUSIC AND OTHER ARTS  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will introduce students to the collaboration between music and other arts - poetry, drama, mythology, the visual arts (as applied to set and costume design) and dance - that often occurs during the creation of large musical works such as symphonies, operas and ballets. By investigating six musical masterpieces, it will be possible to discuss aspects of the collaborative process and how they lead to artistic fusion. Department Permission Required.

MLSC 513 - DNA: HUMAN IDENTITY AND ORIGINS  
**Short Title:** DNA: HUMAN IDENTITY & ORIGINS  
**Department:** School of Continuing Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** “Who am I?” “Where did I come from?” All branches of knowledge address these fundamental questions. This course examines how DNA informs the structure and function of humans, and how humans have in turn used DNA as a source of information to solve mysteries and improve lives. We will introduce the structure of DNA and show how it influences physical traits and is passed on from parent to child. We will review the original goals of the Human Genome Project and discuss how the surprising results that emerged from it have altered the way we view the role of genes in human development. We will examine how breakthroughs in DNA technology have allowed us to answer questions about human origins, worldwide migrations and personal genealogy and aided criminal investigations and medical treatment. This course will also use the specifics of DNA investigation as examples of science in action. Department Permission Required.
Beliefs are among the most primitive, important and central of mental constructs. Many of our reactions to others are based on our beliefs and our perceptions of theirs, and it is impossible to understand racism, prejudice, religious and national conflicts without considering disagreement over basic belief systems. While there are several ways to approach the study of beliefs, we will focus on problematic beliefs, sometimes called anomalous or bizarre beliefs. Examples are beliefs in ESP and the paranormal, astrology, the reality of events that could not possibly have occurred, scientific theories and medical cures that are rejected by most experts, as well as extreme religious and political ideas. Department Permission Required.

**MLSC 515 - SCIENCE IN THE FIRST PERSON**

Short Title: SCIENCE IN THE FIRST PERSON  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Have you wondered what it would be like to participate in a major scientific discovery, or to deal with highly competitive or cantankerous colleagues, or to convince a skeptical world that your idea is right and the rest of the world has got it wrong? By reading material written by scientists who have made major discoveries, we will look at how science is done from the first-person perspective. We will see how scientists confront troubling thoughts when they see the modern world in conflict with the nature they love, and why science has been called a "contact sport." Department Permission Required.

**MLSC 517 - MODERN DRAMA ON FILM AND IN PERFORMANCE**

Short Title: MODERN DRAMA  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will focus on drama not only as text but also as performance. We will read modern plays and discuss them as they are often discussed in English courses, concentrating on theme, character, world, imagery, language and dramatic action. In addition, we will also examine the "texts" as scripts, as working papers for actors and directors: in short, as source materials for performance. To this end we will also view movie versions of many of these plays. Department Permission Required.

**MLSC 519 - PSYCHOLOGY OF BELIEFS**

Short Title: PSYCHOLOGY OF BELIEFS  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Beliefs are among the most primitive, important and central of mental constructs. Many of our reactions to others are based on our beliefs and our perceptions of theirs, and it is impossible to understand racism, prejudice, religious and national conflicts without considering disagreement over basic belief systems. While there are several ways to approach the study of beliefs, we will focus on problematic beliefs, sometimes called anomalous or bizarre beliefs. Examples are beliefs in ESP and the paranormal, astrology, the reality of events that could not possibly have occurred, scientific theories and medical cures that are rejected by most experts, as well as extreme religious and political ideas. Department Permission Required.

**MLSC 523 - THEORY AND PRACTICE OF PUNISHMENT**

Short Title: THEORY & PRACTICE OF PUNISHMENT  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will focus on the writings of some of the most influential scholars in sociology, legal philosophy and political theory who have contributed to the creation of ideal or normative views of legal punishment and exposing the harsh realities of how non-violent and violent criminals are actually punished. Department Permission Required.

**MLSC 525 - PLAGUES AND POPULATIONS**

Short Title: PLAGUES AND POPULATIONS  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine the interaction of pathogens and human societies. It will cover the biological nature of pathogens and disease, the human immune system and therapeutic and societal interventions to prevent and cure disease. Specific diseases will be studied to determine the biology of the disease agent, its exploitation of the human host, its transmission and epidemiology and how the disease impacts the economic, political, social structure and values of the affected populations, and how the response to disease may limit its impact. Department Permission Required.

**MLSC 526 - CONTEMPORARY MORAL ISSUES**

Short Title: CONTEMPORARY MORAL ISSUES  
Department: School of Continuing Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The cardinal objective of the course is to stimulate students to analyze and evaluate the opposing viewpoints of some scholars who have expressed their views on some of the most disputed moral issues in contemporary American culture. Specifically, the required readings for the class focus on abortion, the death penalty, euthanasia, world hunger and poverty, sexual morality, drugs and addiction and affirmative action. Arrangements will be made for a tour of a prison unit and the opportunity to discuss the death penalty with several inmates. Department Permission Required.
MLSC 532 - THE GRAND DESIGN
Short Title: THE GRAND DESIGN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The book "The Grand Design" by Stephen Hawking and Leonard Mlodinow asks the big questions: how did our universe begin and is it the only one or are there multiple parallel universes; why is there something rather than nothing; why are we here; why are the laws of nature so finely tuned that they allow a stable universe? Guided by the Hawking/Mlodinow book, this course will explore these questions. We will address the question: do the laws of physics provide for the possibility of a multiplicity of universes of which ours, by happenstance or probability, turned out to have the right set of physical constants to provide for a stable universe and hence the possibility of life or is a Devine Creator necessary? To address these questions we will take a layman's tour of basic concepts of cosmology, quantum mechanics, relativity, string theory, and extra-dimensions. Department Permission Required.

MLSC 533 - SELF-DETERMINATION IN ARAB WORLD
Short Title: SELF-DETERMINATION ARAB WORLD
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course investigates the history of the struggle for self determination and democracy in the Arab world. It provides a historical perspective by exploring the antecedents to the current so-called "Arab Spring," specifically by comparing the anti-colonial nationalism of the twentieth century with the today's pro-democracy movements. It will also examine the role of the West, including the United States, in hindering or promoting anti-colonialism, nationalism and democracy in the Arab world. Department Permission Required.

MLSC 534 - HUMAN RIGHTS IN WORLD AFFAIRS
Short Title: HUMAN RIGHTS IN WORLD AFFAIRS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the history of human rights and humanitarianism from the eighteenth century Enlightenment era to the present. How did human rights become the premier moral language of our times and the idiom in which recent generations frame their idealism? While universal human rights may seem timeless, they have a long and checkered political and philosophical history. This seminar will explore that history through anthropology and legal studies as well as through case studies of non-governmental organizations. Special attention will be given to international law and shifts in international politics in the twentieth century. The course will also analyze the passions that motivated people to pursue human rights and the empathy that led them to uproot injustice. Department Permission Required.

MLSC 535 - "PLEASE SIR, I WANT SOME MORE": DICKENS, OLIVER TWIST, POVERTY, AND SOCIAL JUSTICE
Short Title: DICKENS, TWIST, SOCIAL JUSTICE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: During the worldwide celebrations of Charles Dickens's bicentenary in 2011-12 Oliver Twist received vibrant new attention because its treatment of children, welfare, poverty, domestic violence, and anti-Semitism seemed so relevant to contemporary issues. In this course we will read the novel alongside and against the economic and social theories and practices of Dickens's time, and ask many questions. Department Permission Required.

MLSC 536 - TRADITIONAL CHINESE CULTURE AND ITS MODERN LEGACY
Short Title: TRADITIONAL CHINESE CULTURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An analysis of the language, philosophy, religion, art, literature, institutions and social customs of the Qing dynasty (1644-1912), the last imperial regime and a crucial bridge between "traditional" and "modern" China. Although this course is intended in part as an exercise in appreciation, it is designed primarily to encourage critical and creative thinking about another place and time. Department Permission Required.

MLSC 537 - PROFILES FROM THE PAST: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What has happened during the course of time, regarding culture and human experience that has been transmitted from the ancient to the modern world? What ideas and concepts concerning subjects such as politics, art, music, and philosophy have been our legacy from the western past? This course will survey the answers to these questions covering the time of classical Greece through the period of the high middle ages. Department Permission Required.
MLSC 538 - OUR CHANGING PLANET
Short Title: OUR CHANGING PLANET
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Earth can be studied by considering it to be made up of certain elements or systems that interact. The systems that we will consider in this course are the lithosphere, atmosphere, hydrosphere and biosphere. Not quite earth, air, fire and water, but close. We will then explore how these systems interact and finally attempt to evaluate the human impact on the entire earth. Department Permission Required.

MLSC 539 - IMMIGRATION AND THE STATE: EUROPE AND THE US IN COMPARATIVE PERSPECTIVE
Short Title: IMMIGRATION AND THE STATE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course traces the history of immigration within and to Europe and to the United States from the late 19th century to the present. How did the United States and the European states elicit, regulate or contain successive waves of labor and colonial migrants, stateless persons and asylum seekers? And what type of legal, political and cultural debates did the "immigrant question" raise in the public sphere since the advent of mass migration? We will discuss key issue regarding immigration including political asylum, guest-worker programs, assimilation and integration debates, and immigrants and the welfare state Department Permission Required.

MLSC 540 - IS ANYBODY OUT THERE: THE SEARCH FOR LIFE BEYOND EARTH
Short Title: IS ANYBODY OUT THERE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Imagine what the reaction would be if life were discovered on another planet in the solar system or on a planet orbiting another star. With the dawn of the space age tools have become available to tackle this problem with serious scientific research. This course will look at some of this research and examine the prospects for finding life. Department Permission Required.

MLSC 541 - HUMAN RIGHTS, GENDER EQUALITY AND RELIGIOUS BELIEFS
Short Title: EQUALITY & RELIGIOUS BELIEFS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class aims to explore the intertwined relationship between gender equality, human rights and religious beliefs globally. Additionally, the class will focus on realities and misconceptions on women's status in the Middle East and North Africa and explore the impact of the socio-cultural and political context on shaping gender relations across the region. Department Permission Required.

MLSC 542 - THE EPIC JOURNEY
Short Title: THE EPIC JOURNEY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class explores some of the classic texts of Western literature, books from the ancient world that have had, and continue to have a formative influence on who we are and how we got here. The works we will study all share a common theme: the epic journey. We explore different variations of this theme, follow ancient travelers on their journeys, and reflect with them about their discoveries. Department Permission Required.

MLSC 543 - THE CITY IN LITERATURE
Short Title: THE CITY IN LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class aims to explore the intertwined relationship between gender equality, human rights and religious beliefs globally. Additionally, the class will focus on realities and misconceptions on women's status in the Middle East and North Africa and explore the impact of the socio-cultural and political context on shaping gender relations across the region. Department Permission Required.

MLSC 544 - THE CITY IN LITERATURE
Short Title: THE CITY IN LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will read a variety of writers from both the nineteenth and twentieth centuries. For some historical background and city discourse, we will also read parts of Lewis Mumford's The City in History, Jane Jacobs's The Death and Life of Great American Cities, and the essays of Michel de Certeau, Georg Simmel, E B White, among others. Department Permission Required.
MLSC 544 - WRITING LITERATURE FOR CHILDREN
Short Title: WRITING CHILDREN'S LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many of us have beloved stories we either read or that someone read to us when we were children. This course returns us to those roots and delves deeply into the meaning and purpose of children’s literature with the ultimate goal of trying our hand at writing several original pieces. Students will produce a portfolio of creative work that includes poetry, fiction, and/or drama for very young and older children. Department Permission Required.

MLSC 545 - WINDOW TO THE SOUL: EXPLORING RELIGION AND ETHNICITY THROUGH MUSIC
Short Title: RELIGION & ETHNICITY MUSIC
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore the music of a variety of religious and ethnic groups in an attempt to bridge differences and create understanding among those of different traditions. Each class session will be based upon the music connected to a specific religious or ethnic group. Department Permission Required.

MLSC 546 - THE ROLE OF CHEMISTRY IN HISTORY
Short Title: ROLE OF CHEMISTRY IN HISTORY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Could the outcome of a war be decided simply on the material chosen for the buttons on the soldier's garments? What in pantyhose was desired for WWII? How did phenols and formaldehyde lead to a worldwide revolution via plastics? These questions and more will be answered as we explore important molecules that have changed the course of human history. Department Permission Required.

MLSC 547 - PROFILES FROM THE PAST II: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the span of years from the end of the middle Ages through the eve of the French Revolution. In addition to the study of a selected group of people from these years, there will also be an examination of the Renaissance, the Reformation, the Enlightenment, and Absolutism. Department Permission Required.

MLSC 548 - HISTORY OF PHILOSOPHY SET IN INTERDISCIPLINARY CONTEXT
Short Title: HIST OF INTERSIC PHILOSOPHY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to leading figures, ideas and arguments of the history of western philosophy, set in interdisciplinary context in this interdisciplinary MLS program. For a general educated audience philosophy is best approached from multiple perspectives - historical, literary, scientific, religious, artistic - and we will take this approach.

MLSC 549 - COMPARATIVE IMPERIAL PLEASURE GARDENS: POWER AND LANDSCAPE
Short Title: IMPERIAL PLEASURE GARDENS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines pre-modern designed landscapes used for crating, declaring, and reading social and political claims. While understanding the garden as art form and sacred space, we focus on the relationship between landscape and power in a globally comparative context. Department Permission Required.
MLSC 550 - MODERN ASTRONOMY AND OUR PLACE IN THE UNIVERSE
Short Title: MODERN ASTRONOMY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to modern astrophysics beyond the solar system including a brief history of astronomy from antiquity through Galileo and Newton. Our modern understanding of the formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe will then be surveyed. Department Permission Required.

MLSC 551 - PROFILES FROM THE PAST III: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST III
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the span of years from the beginning of the French Revolution to the middle of the 20th century. In addition to the study of selected individuals such as Napoleon Bonaparte, Czar Alexander I, Cecil Rhodes, Gregor Rasputin, Vladimir Lenin, Joseph Stalin, Adolf Hitler and Mohandas Gandhi, there will be examinations of Romanticism, Nationalism, Imperialism, and Fascism. Department Permission Required.

MLSC 552 - CONSERVING BIODIVERSITY
Short Title: CONSERVING BIODIVERSITY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many scientists have coined the current geological age as the “Anthropocene” in reference to the impact of mankind on the planet. This course will examine biodiversity, how biodiversity influences our lives, the forces that affect biodiversity worldwide, and how we can protect it. Local species and ecosystems will be highlighted.

MLSC 553 - SOLVING THE CLIMATE CHALLENGE
Short Title: SOLVING THE CLIMATE CHALLENGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course overviews climate science and explores strategies for transforming electricity, transportation, and agriculture to avert the impacts of abrupt climate change. Department Permission Required.

MLSC 554 - MY FAVORITE NOVELS - AND GREAT FILMS MADE FROM THEM
Short Title: MY FAVORITE NOVELS AND FILMS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this class we will carefully examine four great novels from different eras: “Pride and Prejudice,” “Great Expectations,” “One Flew Over the Cuckoo’s Nest,” and “Atonement,” to see what makes them so successful. Then we will watch and discuss the great films made from them. Department Permission Required.

MLSC 555 - THE POLITICAL PHILOSOPHY OF THE AMERICAN REVOLUTION
Short Title: POL PHIL OF AMER REVOLUTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will discuss the significance of some events in Colonial America that precipitate the clarion call the dissolve forever all political ties to Great Britain: 2) discuss the ideological origins of the American Revolution in the key documents, specifically the Declaration of Independence, the Constitution, the Bill of Rights and the Federalist Papers. Department Permission Required.

MLSC 556 - HEAVEN AND HELL: FROM DANTE TO MILTON AND BEYOND
Short Title: LITERATURE FROM HEAVEN & HELL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The ultimate end of human life resides in landscapes defined by aspiration or terror, punishment or reward. Thus heaven and hell are places frequently conjured by the literary imagination. This course looks closely at the implications of such imaginings from Dante's Divine Comedy to Milton's Paradise Lost to the present. Department Permission Required.

MLSC 557 - EARLY MODERN ISLAMIC WORLD: ART AND EMPIRE
Short Title: ISLAMIC EMPIRES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to Islamic empires of the early modern Muslim world: Ottoman, Safavid, and Mughal. Focus on art, architecture, literature, religion, kingship, family, which shape the cultural heritage of the Muslim world today. Opportunity to study works of art produced in these imperial workshops at MFAH. Department Permission Required.
MLSC 558 - EVOLUTION AND SOCIETY
Short Title: EVOLUTION AND SOCIETY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The science of evolution has come a long way since Charles Darwin first proposed his theory for how species change through natural selection in 1859. This course will provide an overview of modern evolutionary biology, with a focus on its relevance for 21st century society. Department Permission Required.

MLSC 559 - ENVIRONMENTAL LITERATURE
Short Title: ENVIRONMENTAL LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Environmental Literature will focus on nature essay writers, ecopoets, and ecocriticism. The course will include poetry and other literary writing designed to inspire and creatively capture the natural environment and nonfiction nature writing that highlights major concerns about the environment and aims to transform the thoughts and behavior of society. Department Permission Required.

MLSC 560 - WOMEN IN SOUTHERN LITERATURE
Short Title: WOMEN IN SOUTHERN LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will consider the role of women in southern literature, focusing mostly on the works of women writers from the 1800's to the 2000's with some readings from male writers as well. Some very early works, including letters, diaries, and captivity narratives will be included, but most of the readings will be modern and contemporary short stories, novels, and memoirs. Department Permission Required.

MLSC 561 - HISTORY OF SOUTH ASIA: THE ORIGINS OF INDIA AND PAKISTAN
Short Title: HISTORY OF SOUTH ASIA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A broad introduction to the history of the cultural, religious, economic and political systems of South Asia, this course explores the centuries-long development of Hinduism and Buddhism, rise of Islamic state power and establishment of British control, culminating in resistance movements among South Asians and establishment of modern nation states, alongside the wrenching experience of Partition. Department Permission Required.

MLSC 562 - MUSIC AND MEDIEVALISM
Short Title: MUSIC AND MEDIEVALISM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the history and aesthetics of medievalist music in the context of literature, drama, and film. We consider the authentic models for medievalist works, establish the romanticizing methodology, and then observe how medievalism plays out in the concert hall, film, and other media. Department Permission Required.

MLSC 563 - A HISTORY OF TUDOR ENGLAND
Short Title: A HISTORY OF TUDOR ENGLAND
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: At the end of the long and brutal Wars of the Roses, a new royal dynasty emerged in England to great acclaim and relief - and uncertainty. Henry Tudor, who styled himself as Henry VII, began a successful reign and the beginning of a family dynasty lasting a little longer than a century. This course will study the Tudor century. Department Permission Required.
MLSC 564 - THE POLITICS OF WORLD WAR TWO IN EUROPE
Short Title: THE POLITICS OF WORLD WAR TWO
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is an in-depth exploration of the Second World War in Europe. Hitler’s conquest of Europe elicited political, social, economic and demographic upheavals in all parts of the continent. While closely following the military chronology of the conflict, our course will examine the radical transformations brought about by Nazi rule in Western and Eastern Europe as well as the Balkans. Department Permission Required.

MLSC 565 - PAST AND FUTURE CLIMATE CHANGE: NATURAL VERSUS HUMAN INFLUENCE
Short Title: PAST AND FUTURE CLIMATE CHANGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Have humans really altered the course of natural climate change? Can this course be altered? This course introduces students to the methods used by scientists to study Earth’s climate history. We will examine methods used to study Earth’s climate evolution over hundreds of millions to decadal time scales. Why did Earth’s climate undergo extreme changes from “icehouse” conditions when much of its surface was covered by ice, to “greenhouse” conditions when the planet was much warmer than present? What was the impact of these changes on Earth’s inhabitants? Lastly, we will use Earth’s climate history as context for understanding the role of humans in altering the course of our planet. How reliable are climate predictions and what can be done to curtail climate change? Department Permission Required.

MLSC 566 - MUSIC IN THE ERA OF THE REFORMATION
Short Title: MUSIC IN THE REFORMATION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar concerns musical responses to the changing religious climate in the fifteenth and sixteenth centuries. Examination of the concomitant polemics in theology and government, Biblical Humanism and the Devotio Moderna, secular vernacular song, and popular preaching will shed light on the complex interactions between music and society in this age of religious reform. Department Permission Required.

MLSC 567 - THE HOUSE OF STUART
Short Title: THE HOUSE OF STUART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Although the Stuarts were a royal dynasty in Scotland since the fourteenth century, they arrived in England after the death of Elizabeth I. Unlike the Tudors who preceded them, the Stuarts never gained a great popularity with their subjects. There were, nevertheless, as a result of friction amongst the population, great constitutional developments during their century which continue to shape the United Kingdom until this day. Department Permission Required.

MLSC 568 - PSYCHOLOGY OF AGGRESSION AND VIOLENCE
Short Title: AGGRESSION AND VIOLENCE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of empirical research on the social psychology of aggression and violence, flowing from evolutionary/biological perspectives, cultural perspectives, and contextual/situational perspectives. Through exposure to classic and contemporary works in this course, students will get a taste of the breadth of social-psychological research on aggression and violence. Department Permission Required.

MLSC 569 - FORESIGHT IN SOCIAL JUSTICE
Short Title: FORESIGHT IN SOCIAL JUSTICE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Foresight in Social Justice will explore and analyze social justice issues, and then suggest positive action for social change. This course introduces students to future studies research, enabling individuals to spot emerging opportunities and threats within the context of social justice and develop innovative responses to serve changing needs. Department Permission Required.
MLSC 570 - CHILDREN OF IMMIGRANTS
Short Title: CHILDREN OF IMMIGRANTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Through this course, students will learn about developmental psychology and developmental outcomes within the context of immigration. Given that the Houston metropolitan area hosts the fourth highest number of children of immigrants in the entire country, this course will provide students with the opportunity to connect theoretical knowledge with community related issues. Throughout the semester, the students will read recent scientific articles and policy-related reports that will provide background information for in-class discussions. In addition, students will engage in class exercises to brainstorm about local and national issues related to the course content. As a semester project, students will select a topic for further exploration resulting in a written essay and oral representation to the class. Department Permission Required.

MLSC 571 - MORAL LEADERSHIP IN ECONOMICS
Short Title: MORAL LEADERSHIP IN ECONOMICS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course explores how we can be (or become) virtuous and successful leaders. This course helps students to develop personal and professional mission and values statements as aids in good leadership. On the path to developing mission and values statements, students will explore elements of moral psychology and philosophy, emotional intelligence, character development, the formation of communal and personal identities, the purpose and practice of commercial activities from the vantage point of five spiritual traditions, practical examples of institutions applying missions and values (both successfully and unsuccessfully), ideas regarding meaning-making, measuring our success in life, creating a life purpose, and giving voice to our values. The question at the center of the course is whether we can live professional and personal lives that do not conflict, but rather work in concert with the economic dimensions of institutions, especially if we find ourselves leading others in these organizations.

MLSC 600 - INTRODUCTION TO GRADUATE RESEARCH, ANALYSIS AND EXPOSITION
Short Title: INTRO GRAD RESEARCH & WRITING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Description: The goals of this course will be to develop the students’ abilities to perform library or Internet scholarly research at a graduate level; conduct graduate-level analysis of representative graduate-level readings and topics similar to those encountered in the MLS program; demonstrate the advanced analytical and critical thinking abilities required inside and outside the graduate classroom; express the results of scholarly research and analysis and original ideas in the written formats that meet the criteria for graduate-level essays, papers and reports; use oral expression, discussion and presentation techniques at the level expected in graduate classrooms. Department Permission Required.

MLSC 604 - EXPLORATION AND DISCOVERY IN ANTARCTICA
Short Title: EXPLOR & DISC IN ANTARCTICA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Description: This course will introduce students to the seventh continent through the history of austral exploration and through an explanation of the scientific research that has happened, is happening and will happen there. This course will begin with a basic scientific description of the highest, driest, coldest, windiest continent on Earth. Participants will then study journals of some of the original explorers as well as recent works analyzing the "glory days" of polar exploration. The class will then move from the period of exploration, through the early scientific work, and on to the modern hypothesis-driven science that is taking place now and is being planned for the future. The class will close with an examination of tourism and its effects on the nature of the Antarctic ecosystems and cryosphere. Department Permission Required.
MLSC 606 - THE HEBREW BIBLE AND ITS INTERPRETERS
Short Title: HEBREW BIBLE/ITS INTERPRETERS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar seeks to acquaint students with the principal parts of the Hebrew Bible/Old Testament, with the modern, historical-critical study of the Bible as an academic discipline, and a few episodes in the recent history of the Bible in the West. Our reading of the biblical literature will primarily be historical-critical in the sense that it emphasizes that the Hebrew Bible is rooted in the ancient Near East, its history and literature. At the same time we will be sensitive to traditional, Jewish and Christian readings of the Bible as they evolved over two millennia and examine how these faith-based traditions arose, how they differ from modern critical approaches and how the two can complement each other. Department Permission Required.

MLSC 610 - PSYCHOLOGY OF HAPPINESS
Short Title: PSYCHOLOGY OF HAPPINESS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Truth, beauty and, yes, happiness, are issues that have engaged thoughtful people over the centuries. What is happiness (and what makes us happy)? Until recently we have relied on philosophers and religious thinkers for answers to that question, and many of them have provided useful recipes that seem to work for at least some people some of the time. The last century or so has seen many psychologists and self-help gurus who have also handed out (well, more often sold) recipes that generally seem to be less satisfactory than the wisdom of the ancients. Interestingly until recently psychologists have tended to ignore this seeming important topic, but in the past 10 or so years social and personality psychologists, neuroscientists and even economists have begun to pose empirically answerable questions about happiness and to find some data-based answers to what makes people happy. In this course we will read some of the traditional wisdom provided by religious and philosophical thinkers, but we will focus primarily on questions and issues that are subject to empirical resolution. Department Permission Required.

MLSC 612 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The discovery of the Dead Sea Scrolls a little over a half a century ago in the Judean desert has been celebrated as the most significant manuscript discovery of the 20th century. Students will study the fascinating history of the discovery and publication of the Scrolls. They will read the most important Scrolls, learn about the beliefs and practices of the Jewish group that authored them and discuss what can be learned from the Scrolls about the nature of Early Judaism and the origins of Christianity. Department Permission Required.

MLSC 614 - PUBLIC SPEAKING
Short Title: PUBLIC SPEAKING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to give the student exposure to and experience using basic principles and skills of oral communication in the public context. Emphasis will be on the development of speech organization, support and delivery. Informative and persuasive speeches will be practiced. An important outcome of the course is that the student better understand and appreciate the important role public speaking plays in modern society. Instructor Permission Required.

MLSC 615 - TEN MASTERPEICES OF NORTHERN RENAISSANCE ART
Short Title: MASTERPIECES OF REN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the great "masterpieces" of painting produced in Northern Europe during the Renaissance of the fifteenth and sixteenth centuries. Each week we will focus on a single work of art from this period and explore a constellation of issues around the creation and reception of the painting. Students will learn in-depth methods of visual analysis and interpretation of works within their historical context. These same skills and strategies may be applied to the full range of western painting and provide useful tools for enriching visits to museums or experiences of European travel. Department Permission Required.
MLSC 616 - OCEANWAYS OF THE BRITISH EMPIRE
Short Title: OCEANWAYS OF BRITISH EMPIRE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There was a spectacular flowering of Russian culture in the aftermath of the death of Czar Nicholas I (1825-55). Ushered in was a relatively liberal ear which, combined with a powerful natural upsurge, yielded a period of remarkable creativity - noted especially in this course by Russian music. This interdisciplinary course will couple the historical and musical threads of Russian culture. Department Permission Required.

MLSC 617 - CREATIVE NONFICTION
Short Title: CREATIVE NONFICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Creative nonfiction takes many forms, including expository writing, personal essay, narrative story-telling, literary journalism, memoir, nature and science writing, travel and food writing, historical narrative, biographical narrative, and academic and cultural criticism. This course is designed to help students read and write creative nonfiction with a focus on the voice, structure, messages, style, and technique found in contemporary creative nonfiction. The material covered applies to the humanities, the social sciences, and the sciences. Department Permission Required. Repeatable for Credit.

MLSC 618 - THE AWAKENING OF RUSSIA: A MUSICAL AND HISTORICAL PASSAGE
Short Title: THE AWAKENING OF RUSSIA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There was a spectacular flowering of Russian culture in the aftermath of the death of Czar Nicholas I (1825-55). Ushered in was a relatively liberal ear which, combined with a powerful natural upsurge, yielded a period of remarkable creativity - noted especially in this course by Russian music. This interdisciplinary course will couple the historical and musical threads of Russian culture. Department Permission Required.

MLSC 620 - MASTERPIECES OF THE POETIC TRADITION
Short Title: POETIC TRADITION MASTERPIECES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the appreciation and analysis of poetic masterpieces. We will focus on poetry produced in the English and American literary tradition, with particular attention paid to the poems, poets, and cultures that influence the development of those traditions. Department Permission Required.

MLSC 621 - ART MUSIC IN WESTERN EUROPEAN CULTURE II
Short Title: ART MUSIC EUROPEAN CULTURE II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the second course in a sequence devoted to advanced musical understanding. In the first part of this sequence (Art Music in Western European Culture I) we will examine a wide range of music from a single time period. In this, the second part of the sequence, we will instead concentrate in depth upon one piece of music per class and will combine a focus upon advanced listening skills with music specific research techniques. The first weeks of the class will review musical listening, discourse, and the specialized skills necessary for musical research. Subsequently, each class session will focus upon a major work by a significant composer such as Mozart, Beethoven, Schubert, Mahler, and Debussy, among others. Department Permission Required.

MLSC 622 - THE SCEPTER'D ISLE: ANCIENT AND MEDIEVAL BRITAIN
Short Title: ANCIENT AND MEDIEVAL BRITAIN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: From the murky prehistoric times of Stonehenge and New Grange to the tumultuous times of Henry II and Eleanor of Aquitaine, the dramatic combinations of history and myth have continually fascinated lovers of the British Isles. This course will explore ancient and medieval Britain, meandering from prehistoric sites to the early invaders, from the delightful legends of Glastonbury to the centuries of Roman invasions, from the Anglo-Saxon heptarchy to the Norman invasion, and from the hegemony of the Roman Catholic church to the challenge of secular kings. Department Permission Required.
MLSC 623 - WHAT MODERN WAS: CELEBRATING THE CENTENNIAL
Short Title: CELEBRATING THE CENTENNIAL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What constituted "modern music" in 1912? Works such as Arnold Schoenberg's Perrot Lunaire, Claude Debussy's Jeux, and compositions by American composers Henry Cowell and Charles Ives set the bar for musical modernism that year. But other pieces from France, Germany, Russia, Spain, Hungary and England suggested that the future would present major changes. What did audiences in the United States know about such music? What did they think about it? What did the founders of the Rice Institute think about the new musical trends? How did the music played at the opening festivities of the Rice Institute reflect these perceptions of musical modernism? This course will consider these questions from a variety of parameters and get a sense of "what modern was" and its relationship to the momentous events of 1912 in Houston, Texas. Department Permission Required.

MLSC 624 - ADVANCED CREATIVE NONFICTION
Short Title: ADVANCED CREATIVE NONFICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers students an opportunity to continue to practice writing creative nonfiction in a guided workshop format. The primary emphasis in the course will be on the professor and students reading and providing constructive feedback on the students' creative nonfiction writings. In addition, the students will read further examples of various types of creative nonfiction writing and complete writing exercises designed to allow them to work on the voice, structure, and technique of their writing. This course is designed for students with experience in writing creative nonfiction, such as completion of MLSC 617 or a similar course or creative writing workshop experience elsewhere. For those who have not taken a creative nonfiction course in the MLS program, consultation with the instructor is recommended before enrolling. Department Permission Required.

MLSC 625 - THE SHAPES OF POETRY: A WORKSHOP
Short Title: THE SHAPES OF POETRY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines fundamental architecture of poetry. How do poets create a sense of shape? What are the nuts and bolts of a poem? Students will read widely in the history of poetry, from traditional meters and historical forms to contemporary free verse and experimental or open forms. Part workshop and part seminar, this course will feature critical and creative assignments and is designed for writers and non-writers of any level of experience. Department Permission Required.

MLSC 626 - THE BROTHERHOOD: LIVES AND LOVES OF THE PRE-RAPHAELITES
Short Title: PRE-RAPHAELITES LIVES & LOVES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Pre-Raphaelite Brotherhood (PRB), founded in 1848, was a small group of British artists who boldly challenged the conventions of Victorian-era art and the materialism of industrialized England. While the PRB influenced the British art world for the remainder of the century, this course will focus on the intriguing personal lives of the artists, including Dante Gabriel Rossetti, William Holman Hunt, and John Millais, rather than the art they created. These artists, along with their wives, paramours, and models (often all one and the same) were part of a highly prolific Victorian creative class which for this course will revolve around the locale of central London and the influence of the towering figure of art and architecture - critic John Ruskin. Department Permission Required.

MLSC 627 - JOHN RUSKIN AND HIS WORLD
Short Title: JOHN RUSKIN AND HIS WORLD
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine John Ruskin (1819-1900), who rose from a troubled childhood to become one of the most influential critics of art and architecture of his century, forever fulminating the notion that art had a moral purpose and especially that art and architecture produced in France and Italy in the Middle Ages. Department Permission Required.

Short Title: THE BIRTH OF MODERNISM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine John Ruskin (1819-1900), who rose from a troubled childhood to become one of the most influential critics of art and architecture of his century, forever fulminating the notion that art had a moral purpose and especially that art and architecture produced in France and Italy in the Middle Ages. Department Permission Required.
MLSC 629 - EFFECTIVE THINKING
Short Title: EFFECTIVE THINKING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The basis of success in everything, academics, personal relationships, professional life, business leadership, or anything, is effective thinking. This course will address the process and practice of how to think effectively, analytically, and creatively. Department Permission Required.

MLSC 630 - POST-BOP: JAZZ'S GOLDEN AGE
Short Title: JAZZ'S GOLDEN AGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of biographical narratives about musicians including Bach, Bob Dylan, Thelonious Monk, Mozart, and Schumann. Considers the nature of creativity and inspiration. Examines the extent to which biography borrows from mythology and literary fiction. Materials include memoirs, letters, novels, and films. Department Permission Required.

MLSC 631 - INTRODUCTION TO READING AND WRITING FICTION
Short Title: INTRO READING WRITING FICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to reading fiction critically and writing short fiction successfully. The reading portion of the class focuses on the primary elements of fiction: scenes, tension and conflict, character, point of view, structure, voice, and dialogue. For the writing portion, students will compose original prose and provide feedback on one another's work in a workshop format. Department Permission Required.

MLSC 632 - MUSIC MYTH AND MADNESS
Short Title: MUSIC MYTH AND MADNESS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Some decades are not simply a ten-year period but a cultural phase. The Sixties, it seems, started in 1963 with the assassination of JFK and lasted until 1975, when we withdrew our military forces from Saigon and quit the war we lost. The literature of the period reflects some of this upheaval-new themes, greater candor, many different kinds of experiments.

MLSC 633 - HOW TO READ A NOVEL
Short Title: HOW TO READ A NOVEL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will start by making one of Jane Austen's novels our "norm" and then read a survey of the novel's great variety through the nineteenth, twentieth, and twenty-first centuries. As we read the novels, we will keep asking what we mean by narrative, point of view, the nature of character, the paradigm of character relationships each novel creates, and the meaning of the end. Department Permission Required.

MLSC 634 - CONCEPTS OF MODELS, METAPHORS AND ANALOGIES
Short Title: MODELS, METAPHORS & ANALOGIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will start by developing the concepts of model, metaphor, and analogy. The model is a basis for the scientific method and rational thought. The metaphor is a powerful tool in literature and description. Analogy ties all of this together. We will finish by looking at a computer simulation (model) of the world. Department Permission Required.

MLSC 635 - THE ORIGINS OF CHRISTIANITY
Short Title: THE ORIGINS OF CHRISTIANITY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the origins and earliest history of Christianity, from Jesus to the second century CE. The class is based on a close reading of texts; Jewish texts; texts from the Old Testament; and Christian texts from the second century CE. Department Permission Required.

MLSC 637 - THE LITERATURE OF THE SIXTIES
Short Title: THE LITERATURE OF THE SIXTIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Some decades are not simply a ten-year period but a cultural phase. The Sixties, it seems, started in 1963 with the assassination of JFK and lasted until 1975, when we withdrew our military forces from Saigon and quit the war we lost. The literature of the period reflects some of this upheaval-new themes, greater candor, many different kinds of experiments.
MLSC 638 - THE ART AND ART HISTORY OF EUROPE IN THE LONG NINETEENTH CENTURY (1789-1918)
Short Title: 19TH-CENTURY EUROPEAN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will consider European art from the long nineteenth century, looking in detail at the key movements and artists from this dramatic period of history. We will begin by placing Neo-Classicism in the context of the emergence of the French Revolution, while ending with the emergence of abstraction in the era of the First World War. In so doing we will also consider the varied art historical methods through which scholars have addressed the art of this period. Department Permission Required.

MLSC 639 - EXPLORING THE ARTS
Short Title: EXPLORING THE ARTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to introduce students to an array of contemporary and traditional arts practices and to deepen experience and understanding of those arts through writing. Engaging with the arts offerings available during the semester, the course will cover concepts in theater, opera, dance, and art exhibitions. Department Permission Required.

MLSC 640 - AMERICA THROUGH FOREIGN EYES
Short Title: AMERICA THROUGH FOREIGN EYES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the perceptions and interactions of five regions — Africa, China, France, Mexico, and Russia — with America. Some course content is online, taught by Rice experts of these regions. The course introduces students to various disciplinary approaches to the study of intercultural exchange and representation. Department Permission Required.

MLSC 641 - PHILOSOPHIES FROM INDIA AND TIBET: RELIGION, ART, HEALTH, SCIENCE & SPIRITUALITY
Short Title: PHILOSOPHIES OF INDIA & TIBET
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examining the philosophies and religious traditions from India and Tibet, can give us a broader view of some of the landscape of thought in Asia, from the early Harappan culture and Vedic worldview, to the religious traditions of Hinduism, Jainism, Islam, Bon and Buddhism among others. Department Permission Required.

MLSC 642 - ASIAN RELIGIOUS AND MEDICAL TRADITIONS: INDIA, CHINA AND TIBET
Short Title: ASIAN RELIGIONS AND MEDICINE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploring the philosophical and religious traditions of India, China and Tibet, this course will look at their own understanding of well-being and thus, the medical systems and methods they create accordingly-particularly mind-body conceptions and practices. We will thus examine the relationship between body and mind, illness, suffering, treatment, healing, and death. Department Permission Required.

MLSC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MLSC 699 - CAPSTONE SEMINAR
Short Title: CAPSTONE SEMINAR
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course is designed to familiarize students with the academic requirements of the MLS Capstone Project and to assist students with the research, preparation and defense of the MLS Capstone Proposal. Required for all MLS students who have completed at least 24 hours. Department Permission Required. Recommended Prerequisite(s): Completion of at least 24 hours of MLSC coursework. Repeatable for Credit.
MLSC 700 - CAPSTONE I
Short Title: CAPSTONE I
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The capstone course is designed to help students utilize the knowledge gained in the previous courses and to demonstrate mastery of the intellectual skills required for a Master of Liberal Studies degree. The capstone course will culminate in an extensive written paper (or original creative work such as poetry or fiction) and an oral presentation to MLS faculty and fellow students. The capstone course may be completed in one term as one course, or, optionally, the student may with the advisor's approval, take two terms to complete the capstone. The determination as to whether the capstone will be a one or two term project should, in most cases, be made before the start of the first term. Department Permission Required. Repeatable for Credit.

MLSC 701 - CAPSTONE II
Short Title: CAPSTONE II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of MLSC 700 Capstone I; or for students who plan to take only one term to complete the capstone. Department Permission Required. Repeatable for Credit.

MLSC 750 - INTRODUCTION TO DIPLOMA RESEARCH
Short Title: INTRO TO DIPLOMA RESEARCH
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to students in the Diploma in Liberal Studies Program. The purpose of this course is to prepare students for diploma research in general and for the diploma project research in particular. The course will accomplish this by giving students an opportunity to gain knowledge of research in the two chosen disciplines outlined in their Diploma Proposal. Department Permission Required.

MLSC 797 - ADVANCED INDEPENDENT READINGS
Short Title: ADVANCED INDEPENDENT READINGS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent study under faculty supervision and open only to students in the Diploma in Liberal Studies Program. The primary purpose of this course is to allow for study centrally relevant to the two disciplines chosen by the DLS student not covered by existing coursework in liberal studies curriculum. Department Permission Required. Repeatable for Credit.

MLSC 798 - DIPLOMA PROJECT I
Short Title: DIPLOMA PROJECT I
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for Diploma Project. Open only to students in the Diploma in Liberal Studies program. This is the first of a two-term course sequence in which the diploma student works on his or her diploma project under the supervision of the diploma first reader (advisor), second reader and third reader. Department Permission Required. Repeatable for Credit.

MLSC 799 - DIPLOMA PROJECT II
Short Title: DIPLOMA PROJECT II
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for Diploma Project. Open only to students in the Diploma in Liberal Studies program. This is the second and final course in the two-term course sequence in which the diploma student works on his or her diploma project under the supervision of the diploma first reader (advisor), second reader and third reader. Department Permission Required. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: MLSC

School Description and Code
- School of Continuing Studies: SOCS

Graduate Degree Description and Code
- Master of Liberal Studies degree: MLS
- Diploma of Liberal Studies: DLS
Graduate Degree Program Description and Code

• Degree Program in Liberal Studies: LBST

Graduate Certificate Descriptions and Codes

• Certificate in Dual Credit Teacher Credentialing - English: DCE
• Certificate in Dual Credit Teacher Credentialing - History: DCH

CIP Code and Description

• LBST Major/Program: CIP Code/Title: 24.0101 - Liberal Arts and Sciences/Liberal Studies
• DCE Certificate: CIP Code/Title: 13.1305 - English/Language Arts Teacher Education
• DCH Certificate: CIP Code/Title: 13.1328 - History Arts Teacher Education

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Diploma in Liberal Studies (DLS)

Program Learning Outcomes for the Diploma in Liberal Studies

Upon completing the Diploma in Liberal Studies, students will be able to:

1. Identify significant interdisciplinary problems or issues and select one that the student can successfully address in a research project.
2. Apply current interdisciplinary research methodologies and techniques, appropriate to the student’s selected disciplines, to a problem.
3. Demonstrate a critical and creative use of primary sources and content appropriate for the research topic.
4. Analyze critically and evaluate one’s own findings and those of others.
5. Communicate effectively ideas, methodologies, analyses, and interpretations of the research topic.
6. Demonstrate an understanding of the current interdisciplinary work in at least two academic disciplines.

Requirements for the Diploma in Liberal Studies

For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Diploma in Liberal Studies must complete:

• A minimum of 30 credit hours to satisfy diploma requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
• A maximum of 1 course (3 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1321) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the diploma program with a minimum grade of B- (2.67 grade points) in each course.²

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into DegreeWorks by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the DLS Program</td>
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Diploma Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Core Requirement</td>
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<tr>
<td>MLSC 750</td>
<td>INTRODUCTION TO DIPLOMA RESEARCH ¹</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
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<tr>
<td></td>
<td>Select 7 elective courses from MLSC course offerings at the 500-level or above ²³</td>
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<tr>
<td></td>
<td>Research Requirements</td>
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<tr>
<td>MLSC 798</td>
<td>DIPLOMA PROJECT I ³⁴</td>
<td>1-9</td>
</tr>
<tr>
<td>MLSC 799</td>
<td>DIPLOMA PROJECT II ³⁴</td>
<td>1-9</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>30</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

¹ All students must take MLSC 750 in their first semester of study and successfully complete the course with a minimum grade of B (3.00 grade points), before taking any other DLS courses. Additionally, students may take only 1 course, MLSC 750 in their first semester of study. Afterwards, students may take up to 2 courses per semester.
² Students may choose to take up to 6 credit hours of MLSC 797 Advanced Independent Readings to fulfill the Elective Requirements.
With respect to the two main disciplines chosen by the student for interdisciplinary work in completing the diploma project, a student must complete a minimum of 3 courses (9 credit hours) in each discipline (6 courses and 18 credit hours) before taking the two diploma project courses (MLSC 798 and MLSC 799). This is a minimum. Additional courses in the two chosen disciplines are recommended. A student may petition to have post-baccalaureate courses taken before entering the DLS program considered as a partial satisfaction of this requirement. An undergraduate degree in one of the disciplines could similarly serve as the basis of a petition. If one of the two main disciplines chosen by the student for the interdisciplinary work of the diploma project is outside the humanities, then the humanities discipline is the primary, the non-humanities discipline the secondary discipline. In such a case, the student must complete a minimum of 3 courses (9 credit hours) in the primary discipline before taking the two diploma project courses (MLSC 798 and MLSC 799), and a minimum of 2 courses (6 credit hours) in the secondary discipline. More are recommended. A student can petition to have post-baccalaureate courses taken before entering the DLS program considered as a partial satisfaction of these requirements. An undergraduate degree in one of the disciplines could similarly serve as the basis of a petition. Students must successfully complete all Core and Elective Requirements (content coursework) before taking the Research Requirements of MLSC 798 and MLSC 799. MLSC 798 and MLSC 799 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of B- (2.67 grade points) in each required course.

The diploma project will typically take the form of an interdisciplinary diploma thesis. Alternatively, the student may opt to take two interdisciplinary academic papers (starred papers) of publishable length and thesis quality.

The interdisciplinary journal of the Association of Graduate Liberal Studies Programs, Confluence, serves as an example of the academic research level required. Confluence is a peer-reviewed journal, publishing articles that reflect “the best scholarly and creative work produced by faculty, students and alumni of AGLSP member institutions,” all of which programs offer graduate degrees in liberal studies, in some cases doctoral programs.

In order to complete the DLS program, students must defend their diploma thesis (or two starred papers) in a public diploma project defense and satisfactorily answer questions from their research advisor and readers and others in attendance. The three readers will then decide, with the first reader/advisor serving as chair of the discussion, whether the student has met all diploma project requirements, including passing the defense, with all three signing the appropriate papers if the decision is positive.

### Policies for the Diploma in Liberal Studies

#### Department of Liberal Studies Graduate Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Liberal Studies publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Liberal_Studies_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Liberal_Studies_Graduate_Handbook.pdf)

#### Admission

Admission to the Diploma in Liberal Studies program requires a 3.50 GPA in successfully-concluded post-graduate degree work from either: 1) the Rice MLS program or 2) a liberal arts or liberal studies graduate degree program at an AGLSP member institution. Other post-graduate degrees may be considered (e.g., MA, MD, JD), but only along with evidence of significant academic work in areas relevant to a student’s proposed interdisciplinary work in the Diploma program – for example, an interdisciplinary undergraduate major with relevance to the work proposed for the DLS program or an undergraduate double major in the two disciplines chose for interdisciplinary work in the DLS. Applications will be accepted for Fall admission only and will be due on the March 15 prior. Completed applications will be forwarded to the Graduate Liberal Studies Faculty Steering Committee for review and admission decision. Admitted students will attend a new student orientation.

#### Leave of Absence

Continuous enrollment in the diploma program is required. Enrollment of at least 2 courses (6 credit hours) per academic year and enrollment in at least 2 semesters of the academic year is required unless granted an official leave of absence.

#### Time to Degree

Students are allowed to take up to 7 years to complete the diploma.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the DLS degree should be aware of the following program-specific transfer credit guidelines:

- No more than 1 course (3 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

#### Additional Information

For additional information, please see the Liberal Studies website: [https://glasscock.rice.edu/diploma-liberal-studies/](https://glasscock.rice.edu/diploma-liberal-studies/)

#### Opportunities for the Diploma in Liberal Studies

**Association of Graduate Liberal Studies National Honor Society**

DLS graduates who earn a 3.75 GPA or higher and have demonstrated leadership in the classroom and in the greater community are eligible for...
nomination to the Association of Graduate Liberal Studies National Honor Society.

Additional Information
For additional information, please see the Liberal Studies website: https://glasscock.rice.edu/diploma-liberal-studies/

Master of Liberal Studies (MLS) Degree
Program Learning Outcomes for the MLS Degree
Upon completing the MLS degree, students will be able to:

1. Appreciate major perspectives and methods of the liberal arts by demonstrating a broadened understanding of some basic concepts in the humanities, social sciences, and sciences.
2. Appreciate the connection of the liberal arts to their lives and the larger world.
3. Demonstrate a capacity for analytical thinking.
4. Demonstrate good writing skills.
5. Practice critical listening and good discussion and oral communication skills.
6. Demonstrate academic research methods.

Requirements for the MLS Degree
The MLS degree is a non-thesis master's degree. For general university requirements, see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MLS degree must complete:

- A minimum of 12-13 courses (34-37 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 1 course (3 graduate semester credit hours) from transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1323) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree with a minimum grade of B- (2.67 grade points) in each course.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MLSC 500</td>
<td>INTRODUCTION TO GRADUATE LIBERAL STUDIES</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 course from each of the following fields (see course lists below):</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Humanities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 6 elective courses from MLSC course offerings at the 500-level or 600-level</td>
<td></td>
<td>18</td>
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<tr>
<td>Capstone</td>
<td></td>
<td></td>
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<tr>
<td>MLSC 699</td>
<td>CAPSTONE SEMINAR</td>
<td>1</td>
</tr>
<tr>
<td>Select 1 from the following:</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>MLSC 700</td>
<td>CAPSTONE I</td>
<td></td>
</tr>
<tr>
<td>&amp; MLSC 701 and CAPSTONE II</td>
<td></td>
<td></td>
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<tr>
<td>MLSC 701</td>
<td>CAPSTONE II</td>
<td></td>
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<tr>
<td>Total Credit Hours</td>
<td></td>
<td>34-37</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information
1 All students must take MLSC 500 in their first semester of study.
2 The core requirements are designed to acquaint first-year students with contrasting perspectives and methodological approaches that define academic inquiry in the three broad fields of humanities, social sciences, and natural science. Core courses must be completed before courses that satisfy the electives can be taken.
3 The six (6) electives beyond the core requirements may focus on just 1 field (humanities, social sciences, or natural science) or may be chosen more broadly.
4 The capstone coursework is designed to help students integrate their knowledge through writing an extended paper or completing a project to be presented to MLS faculty and students. Students may take 1 semester (MLSC 701) or 2 semesters (MLSC 700 and MLSC 701) to complete the capstone project.

Course Lists to Satisfy Requirements
Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MLSC 501</td>
<td>THE SHAPING OF WESTERN THOUGHT</td>
<td></td>
</tr>
<tr>
<td>MLSC 505</td>
<td>SHAKESPEARE AND FILM</td>
<td></td>
</tr>
<tr>
<td>MLSC 510</td>
<td>MUSIC AND OTHER ARTS: COLLABORATION AND FUSION</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MLSC 517</td>
<td>MODERN DRAMA ON FILM AND IN PERFORMANCE</td>
<td></td>
</tr>
<tr>
<td>MLSC 526</td>
<td>CONTEMPORARY MORAL ISSUES</td>
<td></td>
</tr>
<tr>
<td>MLSC 533</td>
<td>SELF-DETERMINATION IN ARAB WORLD</td>
<td></td>
</tr>
<tr>
<td>MLSC 536</td>
<td>TRADITIONAL CHINESE CULTURE AND ITS MODERN LEGACY</td>
<td></td>
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<tr>
<td>MLSC 537</td>
<td>PROFILES FROM THE PAST: FAMOUS FIGURES IN WESTERN HISTORY</td>
<td></td>
</tr>
<tr>
<td>MLSC 539</td>
<td>IMMIGRATION AND THE STATE: EUROPE AND THE US IN COMPARATIVE PERSPECTIVE</td>
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<tr>
<td>MLSC 541</td>
<td>HUMAN RIGHTS, GENDER EQUALITY AND RELIGIOUS BELIEFS</td>
<td></td>
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<tr>
<td>MLSC 542</td>
<td>THE EPIC JOURNEY</td>
<td></td>
</tr>
<tr>
<td>MLSC 543</td>
<td>THE CITY IN LITERATURE</td>
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<tr>
<td>MLSC 544</td>
<td>WRITING LITERATURE FOR CHILDREN</td>
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<tr>
<td>MLSC 545</td>
<td>WINDOW TO THE SOUL: EXPLORING RELIGION AND ETHNICITY THROUGH MUSIC</td>
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<tr>
<td>MLSC 547</td>
<td>PROFILES FROM THE PAST II: FAMOUS FIGURES IN WESTERN HISTORY</td>
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<tr>
<td>MLSC 548</td>
<td>HISTORY OF PHILOSOPHY SET IN INTERDISCIPLINARY CONTEXT</td>
<td></td>
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<tr>
<td>MLSC 549</td>
<td>COMPARATIVE IMPERIAL PLEASURE GARDENS: POWER AND LANDSCAPE</td>
<td></td>
</tr>
<tr>
<td>MLSC 551</td>
<td>PROFILES FROM THE PAST III: FAMOUS FIGURES IN WESTERN HISTORY</td>
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<tr>
<td>MLSC 554</td>
<td>MY FAVORITE NOVELS - AND GREAT FILMS MADE FROM THEM</td>
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<td>MLSC 555</td>
<td>THE POLITICAL PHILOSOPHY OF THE AMERICAN REVOLUTION</td>
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<tr>
<td>MLSC 556</td>
<td>HEAVEN AND HELL: FROM DANTE TO MILTON AND BEYOND</td>
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<tr>
<td>MLSC 557</td>
<td>EARLY MODERN ISLAMIC WORLD: ART AND EMPIRE</td>
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<td>MLSC 559</td>
<td>ENVIRONMENTAL LITERATURE</td>
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<tr>
<td>MLSC 560</td>
<td>WOMEN IN SOUTHERN LITERATURE</td>
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<td>MLSC 561</td>
<td>HISTORY OF SOUTH ASIA: THE ORIGINS OF INDIA AND PAKISTAN</td>
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<tr>
<td>MLSC 562</td>
<td>MUSIC AND MEDIEVALISM</td>
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<tr>
<td>MLSC 563</td>
<td>A HISTORY OF TUDOR ENGLAND</td>
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<tr>
<td>MLSC 566</td>
<td>MUSIC IN THE ERA OF THE REFORMATION</td>
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<tr>
<td>MLSC 567</td>
<td>THE HOUSE OF STUART</td>
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<tr>
<td>MLSC 568</td>
<td>PSYCHOLOGY OF AGGRESSION AND VIOLENCE</td>
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<td>MLSC 569</td>
<td>FORESIGHT IN SOCIAL JUSTICE</td>
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<tr>
<td>MLSC 571</td>
<td>MORAL LEADERSHIP IN ECONOMICS</td>
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</table>

Policies for the MLS Degree
Department of Liberal Studies Graduate Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Liberal Studies publishes a graduate program handbook, which can
Specifically, the goals of the Lifetime Physical Activity Program are:

- To create an environment that fosters a sense of emotional satisfaction, physical accomplishment, and social interaction for its participants.
- To provide students with high-quality instruction specific to the course material so that they may learn skills that will improve the length and quality of their lives.
- To expose Rice University students to activities that are not necessarily mainstream in United States culture.

The Lifetime Physical Activity Program offers a variety of sport/exercise/performance activities. In the 40-plus sections that are offered each semester, many have a multi-sport focus (e.g., volleyball/basketball), allowing students to experience three or four activities during one year. A student may select an LPAP section that meets the student’s scheduling needs and that offers activities that satisfy the student’s interests. Some of the current activities offered include racquet sports (tennis, racquetball, badminton), fitness activities (aerobics, personal fitness, weight training), aquatic activities, dance (Latin, ballroom, modern, ballet, country western, Middle Eastern, classical Indian), martial arts, team sports (flag football, basketball, volleyball, soccer, softball), and other activities such as fencing, self-defense for women, golf, yoga, and nutrition.

Undergraduates must successfully complete one LPAP course (1 credit) in order to satisfy the graduation requirement. Students may use up to four LPAP courses (4 credits total) towards the total credits necessary for graduation. LPAP courses are not repeatable for credit.

Lifetime Physical Activity Program classes are strongly recommended for all first-year students, including transfers who have not taken equivalent courses elsewhere. Because LPAP courses are participation based and must be supervised by an instructor, students are required to adhere to a program-wide attendance policy.

For additional information regarding the Lifetime Physical Activity program, see the program’s website: https://recreation.rice.edu/lpap/.

The courses that can satisfy the Lifetime Physical Activity Program’s undergraduate graduation requirements can be found in Rice’s Course Catalog.

See the Courses (p. 1325) tab for a link to the official course offerings.

The Lifetime Physical Activity Program does not currently offer courses at the graduate level.

**Director**

Elizabeth Slator

**Instructors**

Jim Baber
Jill Banta
John Barron
Jacqueline Bobet
Dave Broadstone
Jennifer Buergermeister
Kris Cortez
Alex Faris
Lisa Hastings
Rathna Kumar
Chrissey Leach
Kai Lewis
As a basic component of fitness, flexibility is needed to perform everyday activities with a relative amount of ease. To get out of bed, lift objects, or clean our room, we need healthy range of motion around our joints. Over time, our inefficient habits of movement, and the decreased suppleness of muscle tissue that occurs naturally as we age can lead to reduced mobility of joints and compromised body positions. Staying active and stretching regularly reduces the chance of experiencing occasional and chronic musculoskeletal pain and helps prevent this loss of mobility. No previous experience is required and all fitness levels are welcome.

LPAP 100 - INTRODUCTION TO TENNIS
Short Title: INTRODUCTION TO TENNIS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will provide the student with foundational knowledge of tennis skills and rules as well as appropriate sports person-like qualities so that the game can be played with confidence and competence throughout one's lifetime.

LPAP 101 - STRETCH LAB
Short Title: STRETCH LAB
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: As a basic component of fitness, flexibility is needed to perform everyday activities with a relative amount of ease. To get out of bed, lift objects, or clean our room, we need healthy range of motion around our joints. Over time, our inefficient habits of movement, and the decreased suppleness of muscle tissue that occurs naturally as we age can lead to reduced mobility of joints and compromised body positions. Staying active and stretching regularly reduces the chance of experiencing occasional and chronic musculoskeletal pain and helps prevent this loss of mobility. No previous experience is required and all fitness levels are welcome.

LPAP 102 - PENCAK SILAT: INDONESIAN MARTIAL ARTS
Short Title: PENCAK SILAT
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will introduce students to the traditional martial arts of Indonesia, also known as pencak silat. Topics include fundamentals of self-defense, physical conditioning, yoga, and traditional dance. Because of its longstanding cultural relevance, pencak silat's history, philosophy and widespread impact will also be explored.

LPAP 104 - INTRODUCTION TO RACQUETBALL, SQUASH, AND BADMINTON
Short Title: INTRO RACQUET SPORTS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will cover the fundamental skills, rules, and etiquette of golf. There is an additional $90 fee associated with this course. Class will often meet at the Memorial Hermann Park Golf Course. Students are expected to carpool or walk to class on those days.

LPAP 107 - INTERMEDIATE TENNIS
Short Title: INTERMEDIATE TENNIS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class is for the student who already possesses a fundamental knowledge of tennis and is looking to hone and sharpen her/his skills.

LPAP 109 - INTRODUCTION TO FOXTROT AND WALTZ
Short Title: INTRO TO FOXTROT AND WALTZ
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course content includes demonstration of and brief lectures on the American Style Foxtrot and Waltz. Students will participate in drills created to improve footwork, arm positioning, leading and following skills.

LPAP 110 - INTRODUCTION TO GOLF
Short Title: INTRODUCTION TO GOLF
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will cover the fundamental skills, rules, and etiquette of golf. There is an additional $90 fee associated with this course. Class will often meet at the Memorial Hermann Park Golf Course. Students are expected to carpool or walk to class on those days.

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Lifetime Phys Activity Program (LPAP)

D'Ondra Mcgee
Dalton McInnis
Marcia Oliveira
Bryan Peck
Janet Rarick
Khaled Soliman
Chris Watkins
Chienli Wu
Ernie Wu
LPAP 111 - INTERMEDIATE GOLF
Short Title: INTERMEDIATE GOLF
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 110
Description: This course is intended for an intermediate level player. Topics covered include: swing fundamentals, set up, aim & alignment, putting, chipping, and club selection. There is an additional $90 course fee associated with this class.

LPAP 113 - MENTAL TRAINING FOR PERFORMANCE ENHANCEMENT
Short Title: MENTAL TRAINING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will cover topics designed to enhance performance such as arousal and anxiety regulation, behavior modification, goal setting, leadership and communication skills, intrinsic motivation and self-confidence.

LPAP 115 - MINDFULNESS: MEDITATION FOR STRESS REDUCTION
Short Title: MINDFULNESS MEDITATION
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to help students cultivate mindfulness by intentionally bringing awareness to the present, and noticing and letting go of judgment, critical thoughts and preconceived ideas. The course consists of instruction in and practice of mindfulness meditations as well as discussion of integrating mindfulness into everyday life.

LPAP 116 - INTERMEDIATE SALSA/ CHA CHA
Short Title: INTERMEDIATE SALSA/CHA CHA
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 138
Description: Students will develop increased proficiency at leading and following and creating complex turns/footwork as are commonly utilized in American style salsa and cha cha.

LPAP 117 - INTRODUCTION TO OUTDOOR LEADERSHIP
Short Title: INTRO TO OUTDOOR LEADERSHIP
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will establish a foundation for leading groups in the outdoors. An 8-week class schedule covers leadership theory, risk management and facilitation. The course is supplemented with required outdoor weekend trips to put new skills into practice. There is a $45 fee associated with this course. Instructor Permission Required.

LPAP 119 - INTRODUCTION TO TEAM SPORTS OFFICIATING
Short Title: INTRO TEAM SPORTS OFFICIATING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to introduce students to the fundamental rules, regulations, mechanics and strategies required to officiate a multitude of team sports. In addition, students will develop strong interpersonal and communication skills necessary for effective game management.

LPAP 120 - INTRODUCTION TO DISC GOLF/ULTIMATE FRISBEE
Short Title: DISC GAMES
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to offer an introduction to the skills, basic rules, and strategies of a variety of team sports.
LPAP 126 - INTERMEDIATE SOCCER
Short Title: INTER SOCCER  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): LPAP 125  
Description: This is an intermediate level course offering advanced soccer skills and team tactics. These skills and tactics will be presented through active participation and instruction and evaluated through physical performance, participation and written assignments.

LPAP 130 - CONTACT IMPROVISATION
Short Title: CONTACT IMPROVISATION  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to help students develop the physical and perceptual skills basic to the movement of Contact Improvisation including: falling, rolling, responding to touch, momentum and gravity, and developing awareness to the physical environment. Additionally, the course provides an overview of the history of Contact Improvisation and its relevance as a global social dance form.  

LPAP 131 - INTRODUCTION TO MIDDLE EASTERN DANCE
Short Title: INTRO TO MIDDLE EASTERN DANCE  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This is a beginning level course which will introduce the basic movements of Middle Eastern Dance. Students will also be expected to develop a knowledge and appreciation of Middle Eastern dance as a cultural, communal, and recreational activity. Due to cultural restrictions, this course is for women only.  

LPAP 132 - INTERMEDIATE MIDDLE EASTERN DANCE
Short Title: INTER MIDDLE EASTERN DANCE  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): LPAP 131  
Description: This is an intermediate course which will introduce advanced movements of Middle Eastern Dance. Students will also be expected to develop a knowledge and appreciation of Middle Eastern Dance as a cultural, communal, and recreational activity. Due to cultural restrictions, this course is for women only.

LPAP 133 - CAPOEIRA
Short Title: CAPOEIRA  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Capoeira is a truly unique art, combining martial arts, dance and music. Students will learn the history, traditions and essential moves and strategies, as well as how to play the music associated with this activity.

LPAP 134 - INDIAN DANCE: FROM CLASSICAL TO BOLLYWOOD
Short Title: INDIAN DANCE  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course focuses on the Bharatanatyam form of dance that is very popular in South India. Bharatanatyam is the oldest of all classical Indian forms and its narrative style is known for its grace, purity, tenderness and statuesque poses.

LPAP 135 - INTRODUCTION TO DANCE
Short Title: INTRODUCTION TO DANCE  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This survey course introduces students to various dance techniques, (e.g. hip-hop, modern, ballet), choreography, improvisation, and performance as fundamental elements in the art of dance. Students will investigate dynamic and expressive methods of dance, and will develop foundational dance abilities including aerobic conditioning, coordination, alignment and dexterity.

LPAP 136 - INTRODUCTION TO LATIN DANCE: MERENGUE AND SAMBA
Short Title: INTRO TO MERENGUE AND SAMBA  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Course content includes demonstration of and brief lectures on Merengue and Samba. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.
LPAP 137 - INTRODUCTION TO EAST COAST SWING
Short Title: INTRO TO EAST COAST SWING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course content includes demonstration of and brief lectures on the East coast Swing, including swing and triple step versions. Students will participate in drills to improve footwork, arm positioning, and leading and following skills.

LPAP 138 - INTRODUCTION TO LATIN DANCE - SALSA/MAMBO & CHA CHA
Short Title: INTRO TO SALSA/MAMBO & CHA CHA
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course content includes demonstration of and brief lectures on the American Style Salsa/Mambo and Cha Cha. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 139 - INTRODUCTION TO BALLROOM DANCE - TANGO AND RUMBA
Short Title: INTRO TO TANGO & RUMBA
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course content includes demonstration of and brief lectures on the American Style Tango and Rumba. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 141 - INTERMEDIATE BALLROOM DANCE
Short Title: INTER BALLROOM DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 109
Description: Course content includes demonstration of and brief lectures on intermediate-level American Style Foxtrot and Waltz. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 143 - MUSICAL THEATER JAZZ
Short Title: MUSICAL THEATER JAZZ
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will focus on fundamental musical theater vocabulary and steps. Students will study musical theater styles from the golden era of Broadway to contemporary shows.

LPAP 144 - INTRODUCTION TO COUNTRY WESTERN DANCE
Short Title: COUNTRY WESTERN DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course content includes demonstration of and brief lectures on the Two Step and Polka. Drills are created to improve footwork, arm positioning, and leading and following skills. Other topics: history of C&W Dance, terminology, proper body alignment, leading and following, and social dance etiquette.

LPAP 145 - INTERMEDIATE COUNTRY WESTERN DANCE
Short Title: INTER COUNTRY WESTERN DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 144
Description: Course content includes demonstration of and brief lectures on the intermediate level Two Step and Country Western Polka. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 147 - INTERMEDIATE EAST COAST SWING DANCE
Short Title: INTER EAST COAST SWING DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 137
Description: Course content includes demonstration of and brief lectures on the intermediate level of East Coast Swing, including single step and triple step versions.
LPAP 148 - DANCE CHOREOGRAPHY
Short Title: CHOREOGRAPHY
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course teaches basic dance making skills (choreography) for all styles of dance. Units covered will include the creation of inventive movement through improvisation, structures for dance, how to extend your movement ideas, partnering, working with a group, and the selection of dance themes, music, and props. Students will be required to compose short dance studies that will be critiqued in class through codified dance criticism methods then revise work.

LPAP 150 - IMPROVISATION DANCE
Short Title: IMPROVISATION DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The class will focus on expanding students' creative movement through dance improvisation which will allow for self-discovery, self-experience, and will build composition skills. Each class will focus on improvisational structures, and the elements of dance that will lead to choreography methods.

LPAP 151 - THE ALEXANDER TECHNIQUE
Short Title: THE ALEXANDER TECHNIQUE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We all have habits of tension that interfere with our natural ease in movement. The Alexander Technique helps us to first recognize our habits and then interrupt them so we can experience greater freedom, strength, and coordination in our movement.

LPAP 152 - INTRODUCTION TO CONTEMPORARY DANCE
Short Title: INTRO TO CONTEMPORARY DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is a beginning dance class that introduces students to contemporary dance technique and the performing of dance combinations to music. The class has a progression: core work on the floor; exercises at center; moving across the floor; and movement combinations. The majority of the classes are spent learning dance technique, the history of modern dance and modern dance choreography.

LPAP 153 - INTERMEDIATE MODERN DANCE
Short Title: INTERMEDIATE MODERN DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An intermediate level modern dance class that incorporates a variety of modern dance techniques. The class places emphasis on correct anatomical alignment, breathe and release, rhythmic and spatial accuracy, and performance commitment. This class is for students who audition for the Rice Dance Theatre and are accepted into the company. Auditions and class registration are held during the second week of classes. Class requirements include participation in a minimum of one rehearsal per week and a dance performance series near the end of the semester.

LPAP 155 - INTRODUCTION TO BALLET
Short Title: INTRODUCTION TO BALLET
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 155 or LPCR 155
Description: This course will introduce students to the basic principles and steps of ballet technique. It is designed to increase the students' knowledge and understanding of the structure of the human body while engaged in ballet technique. Each student is required to attend a ballet performance during the semester.

LPAP 156 - INTERMEDIATE BALLET
Short Title: INTERMEDIATE BALLET
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 155 or LPCR 155
Description: This class will introduce students to advanced principles and steps of ballet technique. Students must have dance experience (ballet preferred) to take this class. Students are required to attend a ballet performance during the semester.

LPAP 157 - JAZZ DANCE/HIP hop
Short Title: JAZZ DANCE/HIP HOP
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A beginning level dance class that teaches basic technique, performance, dance fitness, alignment, and introduces the stylistic and historical components of jazz dance and hip/hop.
LPAP 159 - LIFEGUARDING  
Short Title: LIFEGUARDING  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course provides the skills and knowledge to become lifeguard certified. Students will learn to prevent and respond to aquatic emergencies. $35 book fee. Students must be able to swim at least 300 yards.

LPAP 161 - INTRODUCTION TO AQUATIC ACTIVITIES  
Short Title: INTRO TO AQUATIC ACTIVITIES  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to offer basic knowledge and skill development in a variety of aquatic activities. Focus will be given to basic swimming and diving techniques as well as competitive, recreational and fitness activities.

LPAP 164 - FITNESS SWIMMING  
Short Title: FITNESS SWIMMING  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to increase fitness through the sport of swimming. Course includes information regarding fitness, health, stroke mechanics and wellness. The objective of the course is for students to design their own swimming workouts to meet their fitness goals. You must be able to swim at least 300 yards.

LPAP 166 - BEGINNING SWIMMING  
Short Title: BEGINNING SWIMMING  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to offer basic knowledge and skill for the beginning swimmer. The following strokes and skills will be taught during the class: water entries, floating, rhythmic breathing patterns, front crawl, elementary back stroke, back crawl, deep water exploration, and treading water.

LPAP 169 - TRIATHLON TRAINING  
Short Title: TRIATHLON TRAINING  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to introduce students to triathlon training. Students will participate in a fitness conditioning program comprised of swimming, cycling, and running designed specifically for the completion of a sprint triathlon. Additionally, students will learn about technical aspects of the sport including equipment needs and maintenance, and safety requirements. Equipment needed to take the course: bike, swimsuit, running shoes.

LPAP 170 - YOGA  
Short Title: YOGA  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course provides a solid foundation in the principals of yoga theory and practice. By incorporating traditional philosophy, physical poses (asana) and breath control (pranayama), this class helps you to discover vitality, flexibility and strength within yourself.

LPAP 171 - TAI CHI  
Short Title: TAI CHI  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Translated as Grand Ultimate Boxing, Taijiquan (also Tai Chi Chuan) has five major family styles in practice today. These are the Chen, Yang, Wu, Wu (Hao), and Sun styles. Through kung fu warm ups and a series of special Chen Taiji drills called silk reeling, students will be introduced to a deeper awareness of physical fitness, body movement, and mental clarity. The student will then be taught a basic introductory level form designed to give a taste of what Chen Style Taijiquan has to offer. The students will also be introduced to some Push Hands training (a two person drill) and basic martial applications.
LPAP 172 - INTRODUCTION TO FENCING
Short Title: INTRODUCTION TO FENCING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Fencing is a fast paced sport that develops mental agility and focus. This class will teach students the fundamentals of movement, bladework, and basic strategies in foil. Course goals are to compete at a beginner level and to understand the history and rules of the sport. Students will use exercises, drills, and bouts to develop their abilities and meet these goals.

LPAP 173 - INTERMEDIATE FENCING
Short Title: INTER FENCING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 172
Description: This course is designed to introduce the student to the skills and strategy necessary to participate in fencing at the intermediate level.

LPAP 175 - INTRODUCTION TO MARTIAL ARTS
Short Title: INTRO TO MARTIAL ARTS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to introduce students to the basic principles of Martial Arts. Students will learn the philosophy and physical conditioning components associated with this martial arts form with a particular emphasis on reflex development, timing, eye-hand coordination, balance and a sense of well-being.

LPAP 176 - SELF DEFENSE FOR WOMEN
Short Title: SELF DEFENSE FOR WOMEN
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course exposes students to a program of realistic self-defense tactics and techniques. It is a comprehensive course for women that begins with awareness, prevention, risk reduction and avoidance, while progressing through the basics of hands-on defense training.

LPAP 177 - INTERMEDIATE YOGA TECHNIQUES
Short Title: INTER YOGA
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 170
Description: This course builds on the primary principles of yoga theory and practice that are learned in basic yoga courses. This class will introduce more advanced physical poses, breath control and meditation techniques.

LPAP 178 - THE ART OF RELAXATION
Short Title: THE ART OF RELAXATION
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to provide students with an overview of the evolution of relaxation techniques and the various forms they have taken in different cultures across time. Each class will focus on the stress-relieving benefits of and different modalities for relaxation practice.

LPAP 179 - PERSONAL FITNESS
Short Title: PERSONAL FITNESS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this class is to teach students how to improve cardiovascular and muscular strength and endurance as well as stress management through fitness walking and jogging.

LPAP 180 - WALK, JOG, RUN
Short Title: WALK, JOG, RUN
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will consist of brief lectures on health and fitness topics. Students will be exposed to activities that may be incorporated into an individualized personal fitness program. The goal of this course is to motivate the students to include physical activity as an integral part of his/her lifestyle.
LPAP 182 - WEIGHT TRAINING
Short Title: WEIGHT TRAINING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers the opportunity to explore a variety of
weight training and cardiovascular conditioning techniques throughout the
semester that may be incorporated into an individual's personal fitness program.

LPAP 183 - WEIGHT TRAINING & CONDITIONING
Short Title: WEIGHT TRAINING & CONDITIONING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers the opportunity to explore a variety of
weight training and cardiovascular conditioning techniques throughout the
semester that may be incorporated into an individual's personal fitness program.

LPAP 185 - CARDIO KICKBOXING
Short Title: CARDIO KICKBOXING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers the opportunity to explore a variety of
cardio kickboxing techniques throughout the semester that may be incorporated into an individual's personal fitness program.

LPAP 186 - PILATES
Short Title: PILATES
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers the opportunity to explore a variety of
Pilates exercises throughout the semester that may be incorporated into an individual's personal fitness program.

LPAP 187 - GROUP FITNESS
Short Title: GROUP FITNESS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this class will be to provide students a
learning opportunity in the broad area of group exercise.
LPAP 195 - CRITICAL THINKING IN SEXUALITY
Short Title: CRITICAL THINKING IN SEXUALITY
Department: Dean of Undergraduates
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Course Level: Undergraduate Lower-Level
Description: CTIS will draw from a public health model of violence prevention to teach students the dynamics of domestic and sexual violence, bystander intervention, healthy relationships and healthy sexuality. This course is only available to first time matriculants in the fall but anyone can register for it in the spring.

LPAP 197 - DISCOVERING PERSONAL WELLNESS: CREATING AWARENESS & DEVELOPING SKILLS FOR BEHAVIOR CHANGE
Short Title: DISCOVERING PERSONAL WELLNESS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will discuss the many factors that influence personal well-being, giving particular attention to individual needs and behavior change goals. Major areas to be covered include: time management, coping strategies, healthy relationships, body image, food choices, self-esteem, physical activity, spirituality, environmental awareness, alternative medicine and self-care.

LPAP 198 - NUTRITION
Short Title: NUTRITION
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The class will consist of lectures and discussions on the science of nutrition.

LPAP 199 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Independent Study is intended for the student who shows interest in an area of study not offered or who wishes to pursue a discipline in greater depth than possible through the regular curriculum. A contract between the student and the teacher shall define the responsibilities of both student and the teacher, and will specify standards for the successful completion of the project. Department Permission Required.

LPAP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course, Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Lifecycle Phy Activity Credit (LPCR)
LPCR 200 - ADVANCED MENTAL TRAINING
Short Title: ADVANCED MENTAL TRAINING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to focus on the psychology of performance excellence. Specifically, it will highlight the relationship between mental toughness and performance and will explore the ways in which the psychological skills training can be applied to a variety of performance setting (e.g. business, music, drama and sport). LPCR 200 is excluded and cannot be substituted or used to meet the University LPAP Requirement for graduation. Instructor Permission Required.

LPCR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LPCR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: LPAP, LPCR

2021-2022 General Announcements PDF Generated 09/22/21
Linguistics

Contact Information
Linguistics
https://linguistics.rice.edu/
212 Herring Hall
713-348-6010

Robert Englebretson
Department Chair, Director of Undergraduate Studies
reng@rice.edu

The Rice Linguistics Department is the home of an active community of scholars with a wide range of interests. Broadly defined, the department adopts a functional, usage-based approach to language and linguistic theory. A number of recurrent themes emerge in faculty research and the degree programs offered: in-depth investigation of languages, coupled with the search for cross-linguistic generalization; the effects of semantics, language-in-use, sociocultural factors, and other functional influences that motivate and constrain linguistic form; grounding of theories in solid empirical data of many sorts; an interest in the relation between language and mind; and interest in discourse and social/communicative interaction more generally. These interests lead to intensive research activity in empirically well-supported theoretical and descriptive linguistics:

- cognitive/functional linguistics
- typology and language universals
- field studies in American Indian, Australian, Austronesian, African, and other languages
- sociolinguistics
- discourse studies
- phonetics and speech processing
- laboratory phonology
- language change and grammaticization

Bachelor’s Program

- Bachelor of Arts (BA) Degree with a Major in Linguistics (p. 1339)

Linguistics does not currently offer an academic program at the graduate level.

Chair
Robert Englebretson

Professor
Michel Achard

Associate Professors
Robert Englebretson
Suzanne E. Kemmer
Nancy A. Niedzielski

Professors Emeriti
James E. Copeland
Philip W. Davis
Sydney M. Lamb

Masayoshi Shibatani

Lecturers
Jonathan Manker
Bryce McLeary

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Linguistics (LING)

LING 200 - INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE
Short Title: INTRO TO STUDY OF LANGUAGE
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Overview of the scientific study of the structure and function of language. Introduces the main fields of linguistics: phonetics, phonology, morphology, syntax, semantics, discourse, historical linguistics, sociolinguistics, and psycholinguistics. Highlights the interdisciplinary relationship of linguistics with anthropology, sociology, psychology, and cognitive sciences. Section 002 is for new matriculants only (first year students). Cross-list: ANTH 200.

LING 205 - LANGUAGE AND SOCIETY
Short Title: LANGUAGE AND SOCIETY
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course treats language as a social phenomenon to show how language, personal identity and institutions of social control inter-relate. The course focuses on linguistic interaction in daily life and how gender, ethnic, class, activity, and geographic variation affect language use. Cross-list: SWGS 205.

2021-2022 General Announcements PDF Generated 09/22/21
LING 216 - WORDS IN ENGLISH
Short Title: WORDS IN ENGLISH
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the systematic study of English words. Topics include word formation, origins and history of English, etymology, new words, slang and jargon. Students will investigate words using online lexical tools and collect and describe neologisms. Understanding of word formation helps increase mastery of English vocabulary for GRE and other tests. No linguistics background required. Mutually Exclusive: Cannot register for LING 216 if student has credit for ENGL 215/LING 215.

LING 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LING 300 - LINGUISTIC ANALYSIS
Short Title: LINGUISTIC ANALYSIS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (LING 200 or ANTH 200) and (ANTH 301 or LING 301)
Description: A hands-on, data-oriented approach to how different languages construct words and sentences. Students will develop skills in linguistic problem solving and the foundations for pursuing grammatical description. Topics: word classes, morphology, tense-aspect-modality, clause structure, word order, grammatical relations, existentials/possessives/locatives, voice/valence, questions, negation, relative clauses, complements, causatives. Mutually Exclusive: Cannot register for LING 300 if student has credit for LING 500.

LING 301 - PHONETICS
Short Title: PHONETICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 200 or ANTH 200
Description: Introductory study of sound as it relates to speech and sound systems in the world's languages. Speech sounds are examined in terms of production mechanisms (articulatory phonetics), propagation mechanisms (acoustic phonetics), and perception mechanisms (auditory phonetics). Includes a basic introduction to Digital Signal Processing. Mutually Exclusive: Cannot register for LING 301 if student has credit for LING 501.

LING 303 - LANGUAGE AND GENDER
Short Title: LANGUAGE AND GENDER
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the theoretical, cultural, and social grounding of gender and language use. We use analytical tools from linguistics, cognitive science, cultural anthropology, psychology and biology. Emphasis is placed on the historical role of gender in such research, and the debates that result as perspectives shift.

LING 305 - HISTORICAL LINGUISTICS
Short Title: HISTORICAL LINGUISTICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (LING 200 or ANTH 200) and (ANTH 301 or LING 301)
Description: Exploration of the nature of language change. Topics covered include sound change, syntactic and semantic change, modeling language splits, the sociolinguistics of language change, and the history of European languages. Mutually Exclusive: Cannot register for LING 305 if student has credit for LING 505.
LING 306 - LANGUAGE, THOUGHT, AND MIND  
Short Title: LANGUAGE, THOUGHT, AND MIND  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): LING 200 or ANTH 200  
Description: Study of language as a cognitive system. Linguistic data as evidence for the cognitive structures and processes that enable people to learn and use language; how linguistic structure influences concept formation and patterns of thinking. Mutually Exclusive: Cannot register for LING 306 if student has credit for LING 506.

LING 309 - PSYCHOLOGY OF LANGUAGE  
Short Title: PSYCHOLOGY OF LANGUAGE  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 203  
Description: Study of human and other animal communication. Includes the structure of human language, word meaning and semantic memory, psychological studies of syntax, bilingualism, language and thought, and language errors and disorders. Cross-list: PSYC 309.

LING 315 - INTRODUCTION TO SEMANTICS  
Short Title: INTRODUCTION TO SEMANTICS  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): LING 200 or ANTH 200  
Description: Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Cross-list: PSYC 315. Recommended Prerequisite(s): LING 200 or ANTH 200. Mutually Exclusive: Cannot register for LING 315 if student has credit for LING 515.

LING 320 - ORIGINS AND EVOLUTION OF HUMAN LANGUAGE  
Short Title: ORIGIN&EVOLUTION OF HUMAN LANG  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): LING 200 or ANTH 200  
Description: How did Human Language arise, and what role did language play in the evolution of our species? This course introduces the basic sources of evidence (e.g., fossil remains, comparative primatology, neonatal development) for knowledge of human linguistic prehistory, including the spread of modern humans and human language throughout the world.

LING 321 - LANGUAGE AND LAW  
Short Title: LANGUAGE AND LAW  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ANTH 200 or LING 200  
Description: This course investigates how language defines, manages, and determines the outcomes of all aspects of the legal arena. Emphasis is placed on forensic linguistics, linguistic variability and its impact on the legal arena, language policy, and legal language.

LING 322 - LANGUAGE AND ETHNICITY  
Short Title: LANGUAGE AND ETHNICITY  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): LING 205 or SWGS 205 or ANTH 200 or LING 200  
Description: This course explores the role that ethnicity plays in various language varieties used in the U.S., and the role that language varieties play in ethnic identity. We examine this from both speech production and speech perception perspectives.
LING 325 - LANGUAGE ACQUISITION
Short Title: LANGUAGE ACQUISITION
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: The aim of this course is to explore language development closely through a variety of theories and research findings. Students will become familiar with different theories concerning language development, and develop an understanding of relevant issues, theoretical positions and relevant methodologies in language development using critical thinking skills. Cross-list: PSYC 325.

LING 336 - INTRO TO INDO-EUROPEAN
Short Title: INTRO TO INDO-EUROPEAN
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will begin with a brief survey of the Indo-European languages, followed by a detailed reconstruction of Proto-Indo-European phonology, morphology, and syntax. The second half of the course will deal with Indo-European culture, laws, society and poetics, together with a consideration of advanced topics in the individual branches. Cross-list: CLAS 336.

LING 393 - STRUCTURE OF ENGLISH
Short Title: STRUCTURE OF ENGLISH
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the structure of English and its nature as a cognitive and communicative system. Through critical examinations of traditional and modern theories of grammar as well as various methodologies for analyzing English data, students learn to discover and test generalizations underlying linguistic structure and its social function.

LING 397 - SPEECH AND HEARING SCIENCE
Short Title: SPEECH AND HEARING SCIENCE
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 397
Description: This course will describe the basics of speech and hearing science, including but not limited to: anatomy and physiology of speech and hearing mechanisms, neural pathways involved in speech and hearing, speech pathology and audiology, types of speech and hearing disorders, their causes, and types of therapies available for the remediation of these disorders. Mutually Exclusive: Cannot register for LING 397 if student has credit for LING 212.

LING 400 - LINGUISTIC ANALYSIS II
Short Title: LINGUISTIC ANALYSIS II
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 300 or ANTH 301
Description: Analysis of language beyond the clausal level. Grammatical and semantic analyses using corpora and concordance queries. Recording, transcription, and analysis of natural spoken discourse. The intricate relation between meaning, grammar, and discourse (i.e. the 'usage-based model'). The socially contextualized nature of language. The complex relationship between discourse and ideology.

LING 401 - ANALYSIS OF SOUND PATTERNS
Short Title: ANALYSIS OF SOUND PATTERNS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 301 or LING 301
Description: Introduction to various theories of phonological knowledge. Course involves extensive work in the collection and analysis of empirical data, in both English and other languages, including corpora analysis, and acoustic and experimental analysis. Attention is paid to the way phonetic data informs phonological theory.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>LING 409</td>
<td>SPECIAL TOPICS</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>LING 200 or ANTH 200</td>
<td>Special Topics in linguistics. Please contact the department for details on offered topics. SPRING 2020 TOPIC: RESEARCH ON BRAILLE. This semester’s Special Topics course introduces students to the linguistic, cognitive, and social aspects of braille. Students will gain a basic understanding and appreciation of braille, its relevance to the reading sciences (and vice versa) and thorough grounding in the research literature. Students will also have a chance to help design experiments and studies for future research. Repeatable for Credit.</td>
</tr>
<tr>
<td>LING 411</td>
<td>NEUROLINGUISTICS</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Study of language and the brain. Includes localization of speech, language, and memory functions, hemispheric dominance, pathologies of speech and language associated with brain damage, and hypotheses of the representation and operation of linguistic information in the cortex. Cross-list: NEUR 411.</td>
</tr>
<tr>
<td>LING 415</td>
<td>SOCIOLINGUISTICS</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Study of sociolinguistic theory and methodology. We examine the linguistic consequences to speakers of their group memberships such as gender, race, class and sexuality. Cross-list: SWGS 415.</td>
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<tr>
<td>LING 416</td>
<td>LANGUAGE UNIVERSALS AND TYPOLOGY</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>LING 300 or ANTH 300 or LING 500 or ANTH 500</td>
<td>Investigation of what human languages have in common and a range of ways in which they can differ. Includes marking patterns in particular linguistic domains (e.g., case marking, animacy, and passives) and theoretical and methodological issues.</td>
</tr>
<tr>
<td>LING 419</td>
<td>MULTILINGUALISM</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>LING 200 or ANTH 200</td>
<td>Study of multilingualism from a variety of perspectives including cognitive linguistic and socio-cultural viewpoints. Topics to be covered include neural activation, conceptual representations of the lexicon, lexical, phonological, syntactic and pragmatic interference, code switching, cultural identity, etc.</td>
</tr>
<tr>
<td>LING 477</td>
<td>SPECIAL TOPICS</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Internship/Practicum, Seminar, Lecture, Laboratory</td>
<td>1-4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
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<td>Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.</td>
</tr>
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<td>LING 480</td>
<td>INDEPENDENT STUDY</td>
<td>Linguistics</td>
<td>Standard Letter</td>
<td>Independent Study</td>
<td>1-6</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Topics and credits may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.</td>
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<tr>
<td>LING 481</td>
<td>UNDERGRADUATE RESEARCH</td>
<td>Linguistics</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Research</td>
<td>1-6</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Topics and credits may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.</td>
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</tbody>
</table>
Bachelor of Arts (BA) Degree with a Major in Linguistics

Program Learning Outcomes for the BA Degree with a Major in Linguistics

Upon completing the BA degree with a major in Linguistics, students will be able to:

1. Demonstrate the ability to perform independent research about languages and their speakers, including the ability to ethically complete field work, collect data, analyze data, utilize laboratory and computing technologies, draw meaningful conclusions from data, and convey research results effectively orally and in writing.

2. Identify and define the main approaches for researching language structure and use at all levels (sounds, words, grammar, meaning, social/cultural interaction), as well as be able to evaluate critically and apply the primary concepts, vocabularies, methods and theories in their own work.

3. Appreciate the diversity of language and the ways in which it changes over time. They will be able to analyze the diversity of sounds and grammar in the world's languages. They will also understand the diversity of regionally-, socially-, and ethnically-defined varieties within a single language. Students will be able to explain why this diversity is relevant to everyday life and how it is crucial to fields both inside and outside of linguistics.

4. Understand the systematic relationships between language structure and language use, and how these in turn relate to cognition, culture, identity, and society.

Requirements for the BA Degree with a Major in Linguistics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Linguistics must complete:

- A minimum of 12 courses (36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9 courses (27 credit hours) taken at the 300-level or above.

Because human language is a multifaceted object of study, linguistics is, by its nature an interdisciplinary field. The undergraduate major provides both an in-depth grounding in the field as well as a cross-disciplinary breadth. Students beginning the linguistics major should take LING 200, which is a prerequisite for many upper-level courses in the department. All majors are required to take at least 9 courses (27 credit hours) taken at the 300-level or above, including 5 core courses as specified below.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Description and Code Legend

*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:*

Course Catalog/Schedule

- Course offerings/subject code: LING

Department Description and Code

- Linguistics: LING

Undergraduate Degree Description and Code

- Bachelor of Arts degree: BA

Undergraduate Major Description and Code

- Major in Linguistics: LING

CIP Code and Description

- LING Major/Program: CIP Code/Title: 16.0102 - Linguistics

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Bachelor of Arts (BA) Degree with a Major in Linguistics

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Linguistics</td>
<td>36</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Linguistics</td>
<td>120</td>
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Degree Requirements

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Required Prerequisite</td>
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<tr>
<td>LING 200 / ANTH 200</td>
<td>INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE</td>
<td>3</td>
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<td>Core Requirements</td>
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<tr>
<td>LING 300</td>
<td>LINGUISTIC ANALYSIS</td>
<td>3</td>
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<tr>
<td>LING 301</td>
<td>PHONETICS</td>
<td>3</td>
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<td>LING 400</td>
<td>LINGUISTIC ANALYSIS II</td>
<td>3</td>
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<tr>
<td>LING 401</td>
<td>ANALYSIS OF SOUND PATTERNS</td>
<td>3</td>
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<tr>
<td>LING 499</td>
<td>RESEARCH SEMINAR</td>
<td>3</td>
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<td></td>
<td>Language Requirement ¹</td>
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<td></td>
<td>Select 2 courses in a foreign language:</td>
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<tr>
<td></td>
<td>for European languages, 2 courses at the 200-level or above</td>
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<tr>
<td></td>
<td>for non-European languages, 2 courses at the 100-level or above</td>
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<tr>
<td></td>
<td>Elective Requirements</td>
<td>12</td>
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<tr>
<td></td>
<td>Select 4 elective courses from departmental (LING) course offerings at the 300-level or above ²</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Linguistics</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Additional Credit Hours to Complete Degree Requirements ³</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>University Graduation Requirements (p. 29)</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>120</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

¹ In addition to the required Prerequisite, Core Requirements, and Elective Requirements, competency in one language other than English is required. This requirement may be satisfied by taking 2 courses in a European Language at the 200-level or above (or equivalent) or by taking 2 courses in a Non-European Language at the 100-level or above.

European Languages:
- French (FREN)
- German (GERM)
- Greek (GREE)
- Italian (ITAL)
- Latin (LATI)
- Portuguese (PORT)
- Russian (RUSS)
- Spanish (SPAN)

Non-European Languages:
- Arabic (ARAB)
- Chinese (CHIN)
- Hebrew (HEBR)
- Hindi (HIND)
- Japanese (JAPA)
- Korean (KORE)
- Tibetan (TIBT)

² The Linguistics major requires, in addition to 5 Core courses, at least 4 advanced Linguistics (LING) Elective Requirements at the 300-level or above. In addition to the LING 499 Research Seminar, one additional Research Seminar can be selected as an elective. No more than 1 independent study course (such as LING 480) may be counted toward the major requirements.

Policies for the BA Degree with a Major in Linguistics

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Linguistics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Linguistics website: https://linguistics.rice.edu/
honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Departmental Guidelines for Distinction in Research and Creative Work**

To earn the Distinction in Research and Creative Work, in Linguistics, students must have done one of the following:

- Written a senior honors thesis in the department that is based on original research and/or scholarship, and is judged to be exceptional; or
- Written a sole-authored scholarly paper that was (or will be) presented at a scholarly conference; or
- Made a significant individual contribution to linguistic research, including research that has been published or presented in a public venue, and highlights the contributions that linguistics can make to other academic, scientific, community, or societal spheres.

By the end of the 14th week of the Spring semester, students applying should submit electronically to Robert Englebretson (department chair) at reng@rice.edu a portfolio consisting of:

1. A two-page description of how their research effort meets the requirements of Distinction. This two-page document should also place the student’s original contribution in broader scholarly linguistics research.
2. If a paper or thesis has been written to qualify, students should also submit the paper.
3. An application form including the endorsement of a faculty member available from the department office.

The application should have the subject: Distinction in Research and Creative Work in Linguistics, should be submitted by the end of the 14th week of the Spring semester, and should be complete (all forms, copies, and documents should be submitted electronically).

**Departmental Honors Program in Linguistics**

The Linguistics Honors Program provides selected undergraduate majors with the opportunity to conduct supervised research. Majors planning to pursue graduate training in Linguistics or a related field are strongly encouraged to apply, as well as others who wish to add the experience of an intensive, individualized research project to their undergraduate education.

Application to the Honors Program should be made in person to the undergraduate major advisor before the end of the student's junior year. In support of the application, the student should prepare a brief description of the proposed project signed by the faculty member who is to supervise the work (the project supervisor). Acceptance into the program is by agreement of the linguistics faculty. On acceptance, the student will enroll in LING 482, with the supervising faculty member named as instructor.

The Honors Program framework is designed to facilitate the development of a mentoring relationship between student and faculty member. Students are thus expected to meet regularly with their project supervisor regarding their progress; the supervisor is responsible for providing research guidance and general support.

With the appropriate completion of major requirements and the honors project or thesis, the student will graduate with departmental honors.

**Additional Information**

For additional information, please see the Linguistics website: [https://linguistics.rice.edu/](https://linguistics.rice.edu/)

**Managerial Economics and Organizational Sciences**

**Contact Information**

Managerial Economics and Organizational Sciences
272 Baker Hall
713-348-3362

Mallesh Pai
Program Director
mallesh.pai@rice.edu

Managerial Economics and Organizational Sciences is an interdepartmental, nonprofessional program designed to provide undergraduates with an understanding of the environment in which businesses and other organizations exist today and of some of the tools employed by management in the commitment of its financial and human resources.

Managerial Economics and Organizational Sciences exposes students to the broader contexts of business and management, via required courses in economics, political science, and psychology. The major thus serves the purpose of deep exposure to the field of management, within the framework of a broad liberal arts education.

**Bachelor's Program**

- Bachelor of Arts (BA) Degree with a Major in Managerial Economics and Organizational Sciences (p. 1342)

Managerial Economics and Organizational Sciences does not currently offer an academic program at the graduate level.

**Program Director**

Mallesh Pai

**Advisory Committee**

Frederick L. Oswald
Mallesh Pai
Leslie A. Schwindt-Bayer
George Zodrow

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's [Course Catalog](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's [Course Schedule](https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Description and Code Legend**

*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:
Course Catalog/Schedule
- Course offerings/subject codes: Courses from various subjects may apply towards this program

Department Description and Code
- Economics: ECON

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Managerial Economics and Organizational Sciences: MEOS

CIP Code and Description
- MEOS Major/Program: CIP Code/Title: 45.0603 - Economics and Quantitative Economics

Bachelor of Arts (BA) Degree with a Major in Managerial Economics and Organizational Sciences

Program Learning Outcomes for the BA Degree with a Major in Managerial Economics and Organizational Sciences

Upon completing the BA Degree with a major in Managerial Economics and Organizational Sciences, students will be able to:

1. Evaluate critically the impact of organizational practices, markets, public policies and institutions, and politics on business outcomes.
2. Understand management as an interdisciplinary field and demonstrate the ability to use critical thinking to synthesize key knowledge, theories, and research across different disciplines.
3. Develop quantitative/statistical analysis and research skills in order to perform evidence-based analysis of business problems and proposals.
4. Demonstrate the ability to communicate analysis and research findings in written and oral formats.

Requirements for the BA Degree with a Major in Managerial Economics and Organizational Sciences

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Managerial Economics and Organizational Sciences must complete:

- A minimum of 15 courses (46-50 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.
- A maximum of 5 courses (15 credit hours) from study abroad or transfer credit after matriculation at Rice may be applied towards specific major requirements. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1343) tab.
- A Capstone Requirement.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Managerial Economics and Organizational Sciences</td>
<td>46-50</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a major in Managerial Economics and Organizational Sciences</td>
<td>120</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Mathematical and Statistical Foundations</td>
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</tr>
<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
<td>3</td>
</tr>
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</table>

Select 1 course from the following:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCS 302</td>
<td>QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES</td>
<td>3-4</td>
</tr>
<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
<td></td>
</tr>
<tr>
<td>STAT 310 /</td>
<td>PROBABILITY AND STATISTICS</td>
<td></td>
</tr>
<tr>
<td>ECON 307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 310 /</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td></td>
</tr>
<tr>
<td>DSCI 301</td>
<td></td>
<td></td>
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</tbody>
</table>

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>ECON 200</td>
<td>MICROECONOMICS</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>INTRODUCTION TO PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 231</td>
<td>INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>SOCS 444</td>
<td>CONSULTING PRACTICUM</td>
<td>3</td>
</tr>
<tr>
<td>or SOCS 445</td>
<td>FINANCE AND BANKING PRACTICUM</td>
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</table>

Elective Requirements

Management, Economics, and Analytical Methods

Select 4 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAAM 378</td>
<td>INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION</td>
<td>12-15</td>
</tr>
<tr>
<td>ECON 209</td>
<td>APPLIED ECONOMETRICS</td>
<td></td>
</tr>
<tr>
<td>ECON 300</td>
<td>GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS</td>
<td></td>
</tr>
<tr>
<td>ECON 310 /</td>
<td>ECONOMETRICS</td>
<td></td>
</tr>
<tr>
<td>STAT 376</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 343</td>
<td>CORPORATE FINANCE</td>
<td></td>
</tr>
<tr>
<td>or BUSI 343</td>
<td>FINANCIAL MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>ECON 355</td>
<td>FINANCIAL MARKETS</td>
<td></td>
</tr>
<tr>
<td>ECON 422</td>
<td>INTERNATIONAL ECONOMICS AND FINANCE</td>
<td></td>
</tr>
<tr>
<td>ECON 435</td>
<td>INDUSTRIAL ORGANIZATION</td>
<td></td>
</tr>
<tr>
<td>ECON 437 /</td>
<td>ENERGY ECONOMICS</td>
<td></td>
</tr>
<tr>
<td>ENST 437</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Policies for the BA Degree with a Major in Managerial Economics and Organizational Sciences

#### Program Restrictions and Exclusions

Students pursuing the major in Managerial Economics and Organizational Sciences should be aware of the following program restrictions:

- Students pursuing the major in Managerial Economics and Organizational Sciences may not additionally declare the major in Economics.
- Students pursuing the major in Managerial Economics and Organizational Sciences may not additionally declare the major in Mathematical Economic Analysis.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Program Transfer Credit Guidelines

Students pursuing the major in Managerial Economics and Organizational Sciences should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- For transfer credit requests for subjects outside of the program’s subject code (i.e., PSYC courses required for the major in Managerial Economics and Organizational Sciences), students seeking transfer credit should contact the appropriate department for approval.
- No more than 5 courses (15 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards specific major requirements after matriculation at Rice.

#### Footnotes and Additional Information

1. BUSI 343 may be substituted for ECON 343; STAT 449 may be substituted for ECON 449.
2. In order to fulfill the Capstone Requirement, students must complete MEOS 404 in the senior year, after completing at least half of the major requirements.

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### Social Sciences

Select 2 courses from the following: 6

- **ECON 239** LAW AND ECONOMICS
- **POLI 210** INTRODUCTION TO AMERICAN POLITICS
- **POLI 335** POLITICAL ENVIRONMENT OF BUSINESS
- **POLI 336** POLITICS OF REGULATION
- **POLI 337** PUBLIC POLICY
- **POLI 338 / SOCS 301** POLICY ANALYSIS
- **PSYC 333** MULTICULTURAL PSYCHOLOGY
- **PSYC 431** ADVANCED INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY SEMINAR
- **SOSC 464 / BUSI 464 / GLHT 464** SOCIAL ENTREPRENEURSHIP

#### Capstone Requirement

- **MEOS 404** MANAGEMENT COMMUNICATIONS IN A CONSULTING SIMULATION 3

#### Total Credit Hours Required for the Major in Managerial Economics and Organizational Sciences

| 46-50 |

#### Additional Credit Hours to Complete Degree Requirements

| 39-43 |

#### University Graduation Requirements (p. 29)

| 31 |

#### Total Credit Hours

| 120 |

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### Additional Information

For additional information, please see the Managerial Economics and Organizational Sciences website: [https://mana.rice.edu/](https://mana.rice.edu/)

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**Opportunities for the BA Degree with a Major in Managerial Economics and Organizational Sciences**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university
honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Managerial Economics and Organizational Sciences website: https://mana.rice.edu/

Materials Science and NanoEngineering

Contact Information
Materials Science and NanoEngineering
https://msne.rice.edu/
E200E George R. Brown Hall
713-348-3698

Pulickel M. Ajayan
Department Chair
ajayan@rice.edu

Materials science and engineering is about the processing, structure, properties, and performance of materials, such as metals and their alloys, semiconductors, ceramics, glass, polymers, composites, biomaterials, and nanomaterials. Materials scientists and engineers apply principles of math, physics and chemistry to design, produce, characterize, and utilize materials in all hardware that are essential to modern society. Examples range in size and properties from the nanometer-thick atomic layers in CPU transistors for data center and smart phones, the single-crystal superalloy blades in turbine engines, to the coated steels used in transcontinental pipelines and power lines. The Materials Science and NanoEngineering curriculum provides students with the requisite skills and educational background to contribute to the solution of many materials and nanoengineering problems, allows graduates to work in a fascinating field, and makes it possible to become a leader in one of the most challenging areas of technology.

The department’s graduate degree programs include a non-thesis professional master’s degree as well as research degrees which include a thesis. These programs, in their comprehensive educational and research activities, collaborate with other departments at Rice and other institutions and industry in Houston, including those in the Texas Medical Center. Collaborations are also extended to universities in the United States, Europe, Asia, North and South America. International collaborations include joint research activities as well as faculty and student visitor exchanges.

Graduate studies in the department may lead to specialization in one of several areas, including Advanced Manufacturing, Biomaterials, Carbon Nanomaterial Composites, Computational Materials Science, Material Modeling and Theories, Electron Microscopy and in situ Methods, Energy Conversion and Storage, Low Dimensional Materials, Mechanical Properties and Nanomechanics, Nanotechnology, Optical Materials, Photonics and Nanoplasmonics, Quantum and Electronic Materials, Surfaces and Interfaces, Thin Films and Coatings, and Ultralight-Weight Ultrahigh-Strength Multifunctional Materials. For details about these faculty research areas, please go to the MSNE website (https://msne.rice.edu/).

A coordinated MBA/MMSNE degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Bachelor's Programs
- Bachelor of Arts (BA) Degree with a Major in Materials Science and NanoEngineering (p. 1355)
- Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree (p. 1357)

Master's Programs
- Master of Materials Science and NanoEngineering (MMSNE) Degree (p. 1362)
- Master of Science (MS) Degree in the field of Materials Science and NanoEngineering (p. 1366)

Doctoral Program
- Doctor of Philosophy (PhD) Degree in the field of Materials Science and NanoEngineering, (p. 1361)

Coordinated Programs
- Master of Materials Science and NanoEngineering (MMSNE) Degree / Master of Business Administration (MBA) Degree (p. 1364)

Chair
Pulickel M. Ajayan

Associate Chair
Jun Lou

Professors
Enrique V. Barrera
Boris I. Yakobson

Associate Professor
Ming Tang

Assistant Professors
Yimo Han
Hanyu Zhu

Research Professor
Robert Vajtai

Associate Research Professors
Wade Adams
Alberto Pimpinelli

Assistant Research Professors
Evgeni Penev
Hua Guo

Professor in the Practice
Peter Loos
Lecturers
Randy John
Ahmad Kabbani
Venkataraman Swaminathan

Joint Appointments
Pedro J.J. Alvarez
Gang Bao
Yildiz Bayazitoglu
Sibani Lisa Biswal
Naomi J. Halas
Matthew Jones
Junichiro Kono
Qilin Li
Antonios G. Mikos
Aditya D. Mohite
Satish Nagarajaiah
Douglas Natelson
Peter Nordlander
Matteo Pasquali
Gustavo E. Scuseria
Pol D. Spanos
James M. Tour
Rafael Verduzco
R. Bruce Weisman
Peter G. Wolynes
Michael S. Wong

Adjunct Professors
Sivaram Arepalli
Jaime Bonilla-Rios
Peter Boul
Lijie Ci
Zachary Cordero
Feng Ding
Eilaf Egap
Sergio D. Kapusta
Valery N. Khabashesku
Ajit Roy
Glaura Goulart Silva
Abhishek Kumar Singh
Edwin L. Thomas
Nikil Verghese

Materials Science & NanoEng (MSNE)
MSNE 201 - INTRODUCTION TO NANOTECHNOLOGY FOR ENGINEERS
Short Title: INTRO TO NANOTECH FOR ENGR
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the properties of nanomaterials and their applications in engineering, technology, chemistry, energy, biology, and medicine. General discussion of nanotechnology, from multidisciplinary research to consumer products, suitable for all levels and specializations. Students will develop the understanding needed to separate the hype from the real in one of the most dynamic and prolific areas of research in the last ten years. Includes demonstrations, student-lead projects, and lab tours. Required for MSNE majors.

MSNE 210 - WILD TOPICS IN CHEMISTRY AND NANOTECHNOLOGY
Short Title: WILD TOPICS CHEM AND NANOTECH
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A variety of topics related to chemistry and nanotechnology will be discussed. Some topics are classical while others are current. Topics may include nanocars, molecular electronics, how to form a start-up company. Grades will be based upon attendance and quizzes. Cross-list: CEVE 210, CHEM 210. Repeatable for Credit.

MSNE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
MSNE 301 - MATERIALS SCIENCE FOR ENGINEERS
Short Title: MATERIALS SCIENCE FOR ENGRS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the science of solid materials. Includes metals, ceramics, plastics, and semiconductors, as well as the properties of solid materials from atomic and macroscopic points of view. Required for materials science and engineering majors. NOTE: Freshman can also register for this course.

MSNE 302 - MATERIALS PROCESSING AND NANOMANUFACTURING
Short Title: MATERIALS PROCESSING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MATH 212
Description: An overview of mass, momentum, and heat transport with applications in materials processing and nanomanufacturing. Emphasis is on analytical modeling of processing techniques with a view towards improving their efficiency and yield.

MSNE 304 - MATERIALS SCIENCE JUNIOR LAB
Short Title: MATERIALS SCIENCE JUNIOR LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 301 (may be taken concurrently)
Description: Through this course, you will be able to independently operate various types of common materials testing and metallography equipment. The labs provide a path of self-discovery about the depth of your knowledge and your intuitive insight into the quality of experimental data. You will learn, acquire and demonstrate Materials Laboratory fundamentals. Open only to junior materials science and engineering majors. Required for materials science and engineering majors. Instructor Permission Required. Mutually Exclusive: Cannot register for MSNE 304 if student has credit for MSNE 303.

MSNE 311 - MATERIALS SELECTION AND DESIGN
Short Title: MATERIALS SELECTION & DESIGN
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Materials Science & NanoEng. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 301 and MSNE 304
Description: Diverse types of commercially available materials are considered for applications of current economic importance based on their various useful properties. Student learning is primarily through a hands-on team project and deconstruction of commercial products as well as individual oral presentations. Instructor Permission Required.

MSNE 365 - NANOMATERIALS FOR ENERGY
Short Title: NANOMATERIALS FOR ENERGY
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the fundamental science of nanomaterials. Many of the concepts will be explained by drawing from applications in sustainability (photovoltaics, solar-to-fuel conversion thermionic, thermoelectric, fuel cells). Students will design a lab demo from scratch using amongst others the infrastructure provided by the photonics measurement lab. Cross-list: ELEC 365.

MSNE 389 - ETHICS & SAFETY FOR MATERIALS ENGINEERS
Short Title: ETHICS & SAFETY FOR MATER ENG
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Moral duty as well as legal and contractual obligations related to the practice of materials engineering. Issues of importance include safety, conflicts of interest, noncompetition & nondisclosure agreements, as well as confidential and proprietary information. Several examples of ethical lapses and various fraudulent activities will be reviewed, as well as “special processes” which pose the greatest risk for ethics violations. Graduate/Undergraduate Equivalency: MSNE 589.
MSNE 401 - THERMODYNAMICS IN MATERIALS SCIENCE
Short Title: THERMODYNAMICS IN MAT SCIENCE
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122) and MATH 212
Description: Unified presentation of the kinetics and thermodynamics of mass and energy transport. Includes heterogeneous equilibrium, diffusion in solids, and heat transfer, as well as their application to engineering design. Required for materials science and engineering majors. Graduate/Undergraduate Equivalency: MSNE 503. Mutually Exclusive: Cannot register for MSNE 401 if student has credit for MSNE 503.

MSNE 402 - MECH PROPERTIES OF MATERIALS
Short Title: MECH PROPERTIES OF MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MSNE 301
Description: Survey of the mechanical properties of solid materials. Includes basic mechanics, elasticity, plasticity, fracture, fatigue, creep, hardening mechanisms, mechanical testing, and structure-property relationships. Required for materials science and engineering majors. Graduate/Undergraduate Equivalency: MSNE 502. Mutually Exclusive: Cannot register for MSNE 402 if student has credit for MSNE 502.

MSNE 406 - PHYSICAL PROPERTIES OF SOLIDS
Short Title: PHYSICAL PROPERTIES OF SOLIDS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211
Description: Survey of the electrical, magnetic, and optical properties of metals, semiconductors, and dielectrics based upon elementary band theory concepts. Required for materials science and engineering majors. Graduate/Undergraduate Equivalency: MSNE 506. Mutually Exclusive: Cannot register for MSNE 406 if student has credit for MSNE 506.

MSNE 407 - CAPSTONE DESIGN PROJECT I
Short Title: CAPSTONE DESIGN PROJECT I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 303 and MSNE 311
Description: An interdisciplinary capstone design experience in materials science and engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build an engineering system/device to meet a prescribed set of requirements. Must complete MSNE 408 to receive credit for MSNE 407 and both courses must be taken the same academic year. Required for MSNE majors in B.S. program. Instructor Permission Required.

MSNE 408 - CAPSTONE DESIGN PROJECT II
Short Title: CAPSTONE DESIGN PROJECT II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An interdisciplinary capstone design experience in materials science and engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build an engineering system/device to meet a prescribed set of requirements. Must complete MSNE 407 to receive credit for MSNE 408 and both courses must be taken the same academic year. Required for MSNE majors in B.S. program. Instructor Permission Required.

MSNE 411 - MATERIALS CHARACTERIZATION FROM NANO TO MACRO
Short Title: MATERIALS CHARACTERIZATION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MSCI 301 or MSNE 301) and MSNE 304
Description: Sample preparation, visible light microscopy, optical interferometry used for profilometry, scanning electron microscopy, x-ray spectroscopy and microanalysis, hardness testing, calorimetry, and thermo-gravimetric analysis. Applications include evaluation of composition, structure, properties, and defects as well as fractography and failure analysis. Structures of primary interest are those resulting from nonequilibrium processing. Required for the BS-MSNE. Graduate/Undergraduate Equivalency: MSNE 511.
**MSNE 413 - 3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS**

**Short Title:** ADDITIVE MANUFACTURING  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Basic principles and applications of additive manufacturing (AM). Various AM processes. Materials science such as polymers, metals, ceramics, composites, and bio-materials for AM. Selection of material and process for design applications such as structures, electronics, biomedical, and consumer products. Hands-on experience and analysis from digital data to physical objects. Graduate/Undergraduate Equivalency: MSNE 513. Mutually Exclusive: Cannot register for MSNE 413 if student has credit for MSNE 513.

**MSNE 415 - CERAMICS AND GLASSES**

**Short Title:** CERAMICS AND GLASSES  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MSNE 301 or MSCI 301  
**Description:** Fundamentals of ceramic and glassy materials, including phase relations, theoretical properties, structure, bonding, and design.

**MSNE 417 - ELECTRONIC, OPTICAL AND MAGNETIC PROPERTIES OF POLYMERS**

**Short Title:** POLYMER ELECTRONICS  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CHEM 211 or MSNE 301  
**Description:** Covers physical and material concepts and engineering applications of electronic polymers. Examines the structural origins of the diverse electronic, optoelectronic, photonic and magnetic properties of conjugated polymers. Topics include synthesis, electronic structure, physico-chemical characterization, applications in LEDs, solar cells, transistors, spintronics, and bioelectronics. Graduate/Undergraduate Equivalency: MSNE 517. Mutually Exclusive: Cannot register for MSNE 417 if student has credit for MSNE 517.

**MSNE 433 - COMPUTATIONAL MATERIALS MODELING**

**Short Title:** COMPUTATIONAL MATERIALS MODEL  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Physico-chemical principles augmented by ever-advancing computation technology have become a tool for explaining rich materials properties, designing nano-structures and their possible functionality. This course overviews basic quantum principles of materials structure, and a hierarchy of approximations broadly used in computational models. This includes classical multi-body potentials, tight-binding approximations, electronic density functional theory methods, etc. Graduate/Undergraduate Equivalency: MSNE 533. Mutually Exclusive: Cannot register for MSNE 433 if student has credit for MSNE 533.

**MSNE 435 - CRYSTALLOGRAPHY & DIFFRACTION**

**Short Title:** CRYSTALLOGRAPHY & DIFFRACTION  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MSNE 301 or MSCI 301  
**Description:** Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/group symmetry, experiment design (sources, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 535 (less course work for the undergraduate class). Graduate/Undergraduate Equivalency: MSNE 535. Mutually Exclusive: Cannot register for MSNE 435 if student has credit for MSNE 535.

**MSNE 437 - CRYSTALLOGRAPHY & DIFFRACT LAB**

**Short Title:** CRYSTALLOGRAPHY & DIFFRACT LAB  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MSNE 435 (may be taken concurrently)  
**Description:** Selected laboratory experiments in materials science, focusing on lattice symmetry, crystallography, phase identification, and metallurgy. Required for undergraduate MSNE major. Prerequisite MSNE 435 may be taken concurrently. Instructor Permission Required. Graduate/Undergraduate Equivalency: MSNE 537. Mutually Exclusive: Cannot register for MSNE 437 if student has credit for MSNE 537.
MSNE 450 - MATERIALS SCIENCE SEMINAR
Short Title: MATERIALS SCIENCE SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Course Level: Undergraduate Upper-Level
Description: A series of seminars on selected topics in Materials Science. Recommended for Materials Science and NanoEngineering majors.

MSNE 451 - MATERIALS SCIENCE SEMINAR
Short Title: MATERIALS SCIENCE SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Course Level: Undergraduate Upper-Level
Description: A series of seminars on selected topics in Materials Science. Recommended for Materials Science and NanoEngineering majors.

MSNE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MSNE 490 - MATERIALS SCIENCE RESEARCH PROJECTS
Short Title: MATERIALS SCIENCE RESEARCH PROJ
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in materials science. Research under the direction of a selected faculty member. Instructor Permission Required. Repeatable for Credit.

MSNE 491 - SUPERVISED RESEARCH
Short Title: SUPERVISED RESEARCH
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: Supervised research, reports and/or final reports required. Sponsorship by faculty member required. Instructor Permission Required. Repeatable for Credit.

MSNE 499 - CURRENT TOPICS
Short Title: CURRENT TOPICS
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-9
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for undergraduate materials science students. Topics vary from term to term. Please consult with the department for additional information.

MSNE 500 - MATERIALS SCIENCE SEMINAR
Short Title: MATERIALS SCIENCE SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of seminars on selected topics in Materials Science. Required for Materials Science and Engineering majors. Repeatable for Credit.

MSNE 501 - GRADUATE STUDENT SEMINAR
Short Title: GRADUATE STUDENT SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Two graduate students will present every week, except for 1st year graduate students who will present 3 per class. Every week, students will be encouraged to fill out peer evaluation forms and include anonymous comments/suggestions for improving the presentation. The results of these comments will not be shared, but given to the presenter for their reference. Repeatable for Credit.

MSNE 502 - MECH PROPERTIES OF MATERIALS
Short Title: MECH PROPERTIES OF MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the mechanical properties of solid materials. Includes basic mechanics, elasticity, plasticity, fracture, fatigue, creep, hardening mechanisms, mechanical testing, and structure-property relationships. Required for Materials Science and Engineering majors. Additional work required. Graduate/Undergraduate Equivalency: MSNE 402. Mutually Exclusive: Cannot register for MSNE 502 if student has credit for MSNE 402.
MSNE 503 - THERMODYNAMICS IN MATERIALS SCIENCE
Short Title: THERMODYNAMICS IN MAT SCIENCE
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Unified presentation of the kinetics and thermodynamics of mass and energy transport. Includes heterogeneous equilibrium, diffusion in solids, and heat transfer, as well as their application to engineering design. Required for Materials Science and Engineering majors. Graduate/Undergraduate Equivalency: MSNE 401. Mutually Exclusive: Cannot register for MSNE 503 if student has credit for MSNE 401.

MSNE 505 - MICROSTRUCTURE AND NANOSTRUCTURE EVOLUTION
Short Title: MICRO/NANO-STRUCTURE EVOLUTION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the thermodynamic and kinetic principles underlying structural evolution in materials at micro- and nanoscales. Includes atomic diffusion, phase transformations and morphological evolution of surfaces and interfaces under capillary and mechanical forces. Elucidation of atomistic mechanisms and mathematical treatment are emphasized. Undergraduates may register with instructor permission. Recommended Prerequisite(s): MSNE 503.

MSNE 506 - PHYSICAL PROPERTIES OF SOLIDS
Short Title: PHYSICAL PROPERTIES OF SOLIDS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the electrical, magnetic, and optical properties of metals, semiconductors, and dielectrics based upon elementary band theory concepts. Required for Materials Science and Engineering majors. Graduate/Undergraduate Equivalency: MSNE 406. Mutually Exclusive: Cannot register for MSNE 506 if student has credit for MSNE 406.

MSNE 510 - SCALING CONCEPTS IN 2D MATERIALS AND POLYMER PHYSICS
Short Title: SCALING CONCEPTS IN MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is an introduction to symmetry breaking, scaling and universality in low dimensional materials and polymers. Using simple models as examples, the course addresses 2D crystals and melting, surface roughening, scaling properties of polymers, phase transitions and the mean field approach. It then goes over to explain how renormalization works in condensed matter, and how it gives rise to universality. Recommended Prerequisite(s): MSNE 401

MSNE 511 - MATERIALS CHARACTERIZATION FROM NANO TO MACRO
Short Title: MATERIALS CHARACTERIZATION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sample preparation, visible light microscopy, optical interferometry used for profilometry, scanning electron microscopy, x-ray spectroscopy and microanalysis, hardness testing, calorimetry, and thermo-gravimetric analysis. Applications include evaluation of composition, structure, properties, and defects as well as fractography and failure analysis. Structures of primary interest are those resulting from nonequilibrium processing. Instructor Permission Required. Graduate/Undergraduate Equivalency: MSNE 411.

MSNE 512 - QUANTUM MATERIALS ENGINEERING
Short Title: QUANTUM MATERIALS ENGINEERING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the fundamentals of quantum materials and the experimental techniques to engineer solid-state quantum phenomena. Students must have completed quantum mechanics and physical properties of solids (or equivalent) before enrollment. Recommended Prerequisite(s): Quantum Mechanics and Physical properties of solids (or solid state physics)

MSNE 513 - 3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS
Short Title: ADDITIVE MANUFACTURING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic principles and applications of additive manufacturing (AM), Various AM processes. Materials science such as polymers, metals, ceramics, composites, and bio-materials for AM. Selection of material and process for design applications such as structures, electronics, biomedical, and consumer products. Hands-on experience and analysis from digital data to physical objects. Graduate/Undergraduate Equivalency: MSNE 413. Mutually Exclusive: Cannot register for MSNE 513 if student has credit for MSNE 413.
MSNE 533 - COMPUTATIONAL MATERIALS MODELING
Short Title: COMPUTATIONAL MATERIALS MODEL
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers physical and material concepts and engineering applications of electronic polymers. Examines the structural origins of the diverse electronic, optoelectronic, photonic and magnetic properties of conjugated polymers. Topics include synthesis, electronic structure, physico-chemical characterization, applications in LEDs, solar cells, transistors, spintronics, and bioelectronics. Graduate/Undergraduate Equivalency: MSNE 433. Mutually Exclusive: Cannot register for MSNE 533 if student has credit for MSNE 433.

MSNE 534 - NANOSCIENCE AND NANOTECHNOLOGY I
Short Title: NANOSCIENCE & NANOTECHNOLOGY I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introduction to the basic principles of nanoscience and nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester. Expected to be taught Spring 2019. Cross-list: CEVE 533, CHEM 533.

MSNE 535 - CRYSTALLOGRAPHY & DIFFRACTION LAB
Short Title: CRYSTALLOGRAPHY & DIFFRACTION LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/space group symmetry, experiment design (sources, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 435 (additional work for the graduate version). Cross-list: PHYS 535. Graduate/Undergraduate Equivalency: MSNE 435. Mutually Exclusive: Cannot register for MSNE 535 if student has credit for MSNE 435.

MSNE 537 - CRYSTALLOGRAPHY & DIFFRACTION
Short Title: CRYSTALLOGRAPHY & DIFFRACTION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/space group symmetry, experiment design (sources, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 435 (additional work for the graduate version). Cross-list: PHYS 535. Graduate/Undergraduate Equivalency: MSNE 435. Mutually Exclusive: Cannot register for MSNE 435 if student has credit for MSNE 435.

MSNE 523 - PROPERTIES, SYNTHESIS AND DESIGN OF COMPOSITE MATERIALS
Short Title: DESIGN OF COMPOSITE MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the science of interfaces and the properties that govern their use in composite materials. Not offered every year. The study of composite processing and methods for synthesis polymer, metal and ceramic matrix composition.

MSNE 533 - COMPUTATIONAL MATERIALS MODELING
Short Title: COMPUTATIONAL MATERIALS MODEL
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Physico-chemical principles augmented by ever-advancing computation technology have become a tool for explaining rich materials properties, designing nano-structures and their possible functionality. This course overviews basic quantum principles of materials structure, and a hierarchy of approximations broadly used in computational models. This includes classical multi-body potentials, tight-binding approximations, electronic density functional theory methods, etc. MSNE 533 requires additional work. Graduate/Undergraduate Equivalency: MSNE 433. Mutually Exclusive: Cannot register for MSNE 533 if student has credit for MSNE 433.
MSNE 538 - COMPUTATIONAL NANOSCIENCE FOR GREEN INFRASTRUCTURE
Short Title: COMPUTATIONAL NANOSCIENCE
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Computational methods such as first principles, kinetic Monte Carlo (KMC), classical MC (in Canonical, Grand Canonical, and isobaric-isothermal ensembles), and classic MD in predicting materials formation and properties. Case studies include cenetitious materials, metals, and thermolectric materials. Other case studies are possible depending on the student's background and instructor's approval. Cross-list: CEVE 538.

MSNE 555 - MATERIALS IN NATURE AND BIO-MIMETIC STRATEGIES
Short Title: BIO-MIMETIC STRATEGIES
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course will discuss the origin of several materials that exists in nature from a technology perspective and strategies to replicate them using synthetic materials processing protocols. Silicates, carbon based materials, abalone shell, bone etc. will be used to discuss the fascinating architecture developed by nature. Similarly several functional structures designed by nature such as Gecko tape and IR sensors will be discussed for designing bio-medic structure and devices. NOT: Not offered every year.

MSNE 560 - COLLOIDAL AND INTERFACIAL PHENOMENA
Short Title: COLLOIDAL & INTERFACIAL PHENOM
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will provide knowledge into the fundamentals of colloidal interactions (e.g., stabilisation, adsorption, self-assembly) and the techniques currently applied for their assessment. Apart from the theoretical background, the course will also provide applicable knowledge by covering current and emerging applications involving these phenomena. Interfacial tension, wetting and spreading, contact angle hysteresis, interaction between colloid particles, stability of interfaces, flow and transport near interfaces will be covered. NOTE: Offered in alternative year with MSNE 594/CHBE 594. Cross-list: CHBE 560.

MSNE 569 - SCIENCE AND APPLICATIONS OF CORROSION SCIENCE AND ENGINEERING
Short Title: CORROSION SCIENCE & ENGINEERING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MSCI 301 or MSNE 301
Description: Students will learn basics of corrosion science of metals and alloys exposed to different classes of conditions, prevalent forms of corrosion, consequences of corrosion and corrosion mitigation approaches in a range of industries. Discussion of nano science aspects related to corrosion control in industry will be included.

MSNE 570 - SENIOR DESIGN THESIS PROJECT
Short Title: SENIOR DESIGN THESIS PROJECT
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A design project in the materials science field will be undertaken by the student in close collaboration with at least one materials science faculty member.

MSNE 571 - SENIOR DESIGN THESIS PROJECT
Short Title: SENIOR DESIGN THESIS PROJECT
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A design project in the materials science field will be undertaken by the student in close collaboration with at least one materials science faculty member. Instructor Permission Required.

MSNE 580 - MICROSCOPY METHODS IN MATERIALS SCIENCE
Short Title: MICROSCOPY METHODS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers theory and applications of electron microscopy techniques with an emphasis on transmission and scanning transmission electron microscopy (TEM, STEM). Topics include modern instrumentation and hardware, electron diffraction, imaging modes, tomography, and spectroscopy (energy dispersive x-ray spectroscopy (EDS), electron-energy loss spectroscopy (EELS), cathodoluminescence (CL)). Previous experience with electron microscopes recommended. Can be taken alone or concurrently with lab course MSNE 582. Instructor Permission Required. Cross-list: CHEM 580.
MSNE 581 - MICRO AND NANO HEAT TRANSPORT METHODOLOGIES AND DESIGN
Short Title: MICRO & NANO HEAT TRANSPORT
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering or Materials Science & NanoEng. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 481
Cross-list: MECH 581.

MSNE 582 - ELECTRON MICROSCOPY CENTER LAB
Short Title: ELECTRON MICROSCOPY CENTER LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: MSNE 580
Description: Hands-on laboratory using the instruments in the electron microscopy center. The students will gain the knowledge necessary to operate the instruments and analyze data independently. Must be taken concurrently with MSNE 580. Instructor Permission Required. Cross-list: CHEM 582.

MSNE 589 - ETHICS & SAFETY FOR MATERIALS ENGINEERS
Short Title: ETHICS & SAFETY FOR MATER ENG
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Moral duty as well as legal and contractual obligations related to the practice of materials engineering. Issues of importance include safety, conflicts of interest, noncompetition & nondisclosure agreements, as well as confidential and proprietary information. Several examples of ethical lapses and various fraudulent activities will be reviewed, as well as "special processes" which pose the greatest risk for ethics violations. Graduate/Undergraduate Equivalency. MSNE 389.

MSNE 593 - INTRODUCTION TO POLYMER PHYSICS AND ENGINEERING
Short Title: POLYMER PHYSICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course focuses on demonstrating how the physical properties of polymers can be understood from simple models. Students will be introduced to the terminology and mathematics involved in the physical understanding of polymer systems. The course is intended for students who would like to gain an understanding of modern approaches to polymer physics. NOTE: Not offered every year. Cross-list: CHBE 593.

MSNE 594 - PROPERTIES OF POLYMERS
Short Title: PROPERTIES OF POLYMERS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 211 or CHEM 251) and (MATH 211 or MATH 221)
Description: The course will introduce basic concepts in polymer science including the synthesis and chemical modification of polymers as well as physical properties of polymers. Topics include approaches to polymer synthesis, processing and characterization of polymer materials, and an introduction to mathematical models applied to describe the structure and dynamics of polymeric materials. NOTE: Offered in alternative year with MSNE 560/CHBE 560. Cross-list: CHBE 594. Repeatable for Credit.

MSNE 599 - LAB ROTATIONS AND ADVISOR SELECTION
Short Title: LAB ROTATION ADVISOR SELECTION
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hour: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): Open to first year doctoral students. Students will rotate through three research groups to familiarize themselves with the research projects and environment offered by each group, and complete the advisor selection form at the end of the rotations. Department Permission Required.

MSNE 609 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS I
Short Title: OIL AND GAS ASSET INTEGRITY I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I" to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: CHBE 609.
MSNE 613 - SPECIAL TOPICS I
Short Title: SPECIAL TOPICS I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Electrochemical materials, energy, and methods. The course emphasizes the principles of electrochemical devices including batteries, supercapacitors, fuel cells, and electrochemical sensors. Topics will familiarize the latest trends and challenges in the chemistry, materials, and physics involved in the materials design, electrochemical measurements, and characterization of these devices as well as the thermodynamics and kinetics related to different electrode processes at the macroscopic and microscopic levels. This will be a three-credit hour course. Repeatable for Credit. Repeatable for Credit.

MSNE 614 - SPECIAL TOPICS II
Short Title: SPECIAL TOPICS II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 2-DIMENSIONAL QUANTUM MATERIAL, this course offers the exciting promise of new applications such as dissipationless electronics using topological currents and quantum spins, secure quantum computing and communication, and of different realms in energy harvesting using photovoltaics and thermoelectric. In this course, the emergence of 2-dimensional Quantum materials and their properties will be discussed. This will be a 3-credit hour course. Repeatable for Credit. Repeatable for Credit.

MSNE 615 - SPECIAL TOPICS III
Short Title: SPECIAL TOPICS III
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: INDUSTRIAL NANOTECHNOLOGY. The course will provide knowledge of industrial applications of nanotechnology enabled by research advances in different areas of nanoscience and engineering, including materials science, chemistry, physics, energy, environment, and aerospace. Overview of synthesis of nanomaterials through bottom-up and top-down strategies. Characterization of nanomaterials, particle size, shape and surface properties relationships, surface modification tailored to specific industrial applications. Safety related to nanomaterials and nanostructures in the environment and industrial nanotechnology development projects. Discussion of selected application case studies originating from nanotechnology invention and commercial implementation. At the end of the course, student will be able to explain the advantages of nanotechnology, give examples of current industrial applications of nanotechnology, and forecast the future technological advancements and increasing role of nanotechnology in each industry. This will be a 3 credit hour course. Repeatable for Credit. Repeatable for Credit.

MSNE 616 - AUTOMOTIVE ENGINEERING: MATERIALS AND DYNAMICS
Short Title: AUTOMOTIVE ENGINEERING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of the engineering and materials technology that is involved in modern automotive design. Topics include: chassis design and construction; composite design and fabrication; aerodynamics and ground effects; suspension dynamics; performance technology. External expert speakers will provide a real-world perspective. Course will only be offered with sufficient demand. Check with the instructor. Instructor Permission Required. Repeatable for Credit.

MSNE 617 - AUTOMOTIVE ENGINEERING: LAB
Short Title: AUTOMOTIVE ENGINEERING: LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Laboratory application of engineering skills towards the materials technology and dynamics of chassis design, composite design, and fabrication, aerodynamics, and performance technology. Not offered every year. Instructor Permission Required. Recommended Prerequisite(s): MSCI 616 or MSNE 616. Repeatable for Credit.

MSNE 618 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS II
Short Title: OIL AND GAS ASSET INTEGRITY II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I," to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: CHBE 618.

MSNE 621 - M.M.S. RESEARCH PROJECT I
Short Title: M.M.S. RESEARCH PROJECT I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the first part of the M.M.E. research project course. The faculty advisor, taking into account the background and research interests of the student as well as the research interests of the faculty advisor, will determine the contents. Course requirements will include a final report. Instructor Permission Required. Repeatable for Credit.
MSNE 622 - M.M.S. RESEARCH PROJECT II
Short Title: M.M.S. RESEARCH PROJECT II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the second part of the M.M.E. research project and continuation of MSNE 621. Course requirements will include a final report. Instructor Permission Required. Repeatable for Credit.

MSNE 650 - NANOMATERIALS AND NANOMECHANICS
Short Title: NANOMATERIALS & NANOMECHANICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The primary goal of this course is to introduce important current developments in the field of nanomaterials and nanomechanics. The course will discuss synthesis and characterization of nanomaterials, the behaviors especially mechanical behaviors in the broad sense of such materials, and their technological applications. The basic physics and fundamental mechanisms responsible for nanoscale induced changes in properties will be stressed.

MSNE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MSNE 700 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students who serve as teaching assistants are required to register this course. Students will hold recitations or office hours and assist instructors in lectures. Open to graduate students in Materials Science and NanoEngineering and only in exceptional circumstances to undergraduates. Repeatable for Credit.

MSNE 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to students with a major in Materials Science & NanoEng. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis research Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: MSNE

Department Description and Code
- Materials Science and NanoEngineering: MSNE

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Science in Materials Science and NanoEngineering degree: BSMSNE

Graduate Degree Descriptions and Codes
- Master of Materials Science and NanoEngineering degree: MMSNE
- Master of Science degree: MS
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
- Degree Program in Materials Science and NanoEngineering: MSNE

CIP Code and Description
1. MSNE Major/Program: CIP Code/Title: 15.1601 - Nanotechnology

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Materials Science and NanoEngineering

Program Learning Outcomes for the BA Degree with a Major in Materials Science and Nanoengineering

Upon completing the BA degree with a major in Materials Science and Nanoengineering, students will demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

3. An ability to communicate effectively with a range of audiences.

4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

5. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

6. An ability to acquire an apply new knowledge as needed, using appropriate learning strategies.

Requirements for the BA Degree with a Major in Materials Science and NanoEngineering

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Materials Science and NanoEngineering must complete:

- A minimum of 21-23 courses, depending on course selection, (59 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9 courses (25 credit hours) taken at the 300-level or above.

The BA program in Materials Science and NanoEngineering is highly flexible, involves less technical content than the BS, and allows students greater freedom to pursue areas of interest outside of engineering.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/.) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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* University Graduation Requirements (p. 29)

2021-2022 General Announcements PDF Generated 09/22/21
Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Policies for the BA Degree with a Major in Materials Science and Nanoengineering
Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Materials Science and NanoEngineering should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Materials Science and NanoEngineering may not additionally pursue the Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Materials Science and Nanoengineering should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Opportunities for the BA Degree with a Major in Materials Science and Nanoengineering

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).

• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).

• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Materials Science and NanoEngineering (MMSNE) degree. For additional information, students should contact their undergraduate major advisor and the MMSNE program director.

Research Opportunities

Many MSNE majors participate in undergraduate research; some even start during their freshman year. To get involved, speak to a MSNE undergraduate advisor or directly to a MSNE faculty member.

Additional Information

For additional information, please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree

The program leading to the BSMSNE degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, https://www.abet.org/.

Program Learning Outcomes (Student Outcomes) for the BSMSNE Degree

Upon completing the BSMSNE degree, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program Educational Objectives for the BSMSNE Degree

The Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) degree prepares graduates to succeed in professional careers by equipping them with the expertise sought by top graduate schools and corporations. Recognizing that graduates may embark on diverse educational and career paths, the Program Educational Objectives (PEOs) that graduates will achieve within a few years of obtaining their Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) degree from Rice University are:

1. Graduates will demonstrate technical proficiency and professional achievement in their work which may include scientific inquiry as well as problem-solving, process optimization, and/or design in materials engineering and related fields.
2. Graduates will be accomplished at communicating and working collaboratively in diverse work environments.
3. Graduates seeking post-baccalaureate education will achieve appropriate levels of success in admission to and progression through those programs. Graduates entering professional careers will achieve appropriate career progression and success.

Requirements for the BSMSNE Degree

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BSMSNE degree must complete:

- A minimum of 33-36 courses (89-92 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 126-129 credit hours, depending on course selection, to satisfy degree requirements.
- A minimum of 17 courses (43 credit hours) taken at the 300-level or above.

Students seeking the BSMSNE must complete a minimum of 89 credit hours in general math and science, core, and specialization elective courses within the total minimum requirement of 126 credit hours.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s

**Official Certifier** (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/) Students and their academic advisors should identify and clearly document the courses to be taken.

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<tr>
<td>MECH 202</td>
<td>MECHANICS/STATICS</td>
<td>3</td>
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<tr>
<td>MSNE 201</td>
<td>INTRODUCTION TO NANOTECHNOLOGY FOR ENGINEERS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 301</td>
<td>MATERIALS SCIENCE FOR ENGINEERS</td>
<td>3</td>
</tr>
</tbody>
</table>
MSNE 302 MATERIALS PROCESSING AND NANOMANUFACTURING 3
MSNE 304 MATERIALS SCIENCE JUNIOR LAB 3
MSNE 311 MATERIALS SELECTION AND DESIGN 3
MSNE 389 ETHICS & SAFETY FOR MATERIALS ENGINEERS 1

Select 3 courses from the following: 9

- MSNE 401 THERMODYNAMICS IN MATERIALS SCIENCE
- MSNE 402 MECH PROPERTIES OF MATERIALS
- MSNE 406 PHYSICAL PROPERTIES OF SOLIDS
- MSNE 411 MATERIALS CHARACTERIZATION FROM NANO TO MACRO
- MSNE 407 CAPSTONE DESIGN PROJECT I 4
- MSNE 408 CAPSTONE DESIGN PROJECT II 3
- MSNE 415 CERAMICS AND GLASSES 3
- MSNE 435 CRYSTALLOGRAPHY & DIFFRACTION 3
- MSNE 437 CRYSTALLOGRAPHY & DIFFRACT LAB 1

Elective Requirements

Select 1 elective course from the Engineering Cluster (see course list below) 3-4

Select 1 elective course from the Math and Science Cluster (see course list below) 3-4

Select 1 elective course from the Technical Cluster or select additional Engineering Cluster courses (see course lists below) 3-4

Total Credit Hours Required for the Major in Major in Materials Science and NanoEngineering 89-92

Additional Credit Hours to Complete Degree Requirements * 6

University Graduation Requirements (p. 29) * 31

Total Credit Hours 126-129

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 MECH 202 is a required Engineering prerequisite to other Core Requirements and must be taken first.

Course Lists to Satisfy Requirements

Elective Requirements

To fulfill the remaining Materials Science and NanoEngineering major requirements for the BSMSNE degree, students must complete a total of 3 additional courses (a minimum of 9-12 credit hours, depending on course selection). 1 course (3-4 credit hours, depending on course selection) must come from the Engineering Cluster, 1 course (3-4 credit hours, depending on course selection) must come from the Math and Science Cluster. The remaining course (3-4 credit hours, depending on course selection) must come from the Technical Cluster or from additional Engineering Cluster coursework.

Engineering Cluster (no MSNE courses)

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<thead>
<tr>
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<td>BIO 370</td>
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<tr>
<td>CEVE 310</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
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<tr>
<td>CEVE 311 / MECH 311</td>
<td>MECHANICS OF SOLIDS AND STRUCTURES</td>
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<td>CEVE 427 / MECH 427</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
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<tr>
<td>CEVE 434</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
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<tr>
<td>CHBE 390</td>
<td>CHEMICAL KINETICS AND REACTOR DESIGN</td>
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<tr>
<td>CHBE 401</td>
<td>TRANSPORT PHENOMENA I</td>
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<tr>
<td>ELEC 241 &amp; ELEC 240</td>
<td>FUNDAMENTALS OF ELECTRICAL ENGINEERING I and FUNDAMENTALS OF ELECTRICAL ENGINEERING I LABORATORY</td>
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<td>ELEC 243</td>
<td>ELECTRONIC MEASUREMENT SYSTEMS</td>
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<tr>
<td>ELEC 261</td>
<td>INTRODUCTION TO PHYSICAL ELECTRONICS I</td>
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<tr>
<td>ELEC 361</td>
<td>QUANTUM MECHANICS FOR ENGINEERS</td>
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<tr>
<td>ELEC 462</td>
<td>OPTOELECTRONIC DEVICES</td>
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<tr>
<td>ENGI 302 / CEVE 302</td>
<td>SUSTAINABLE DESIGN</td>
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<td>ENGI 303 / CEVE 322</td>
<td>ENGINEERING ECONOMICS</td>
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<td>MECH 211 / CEVE 211</td>
<td>ENGINEERING MECHANICS</td>
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<td>MECH 403</td>
<td>COMPUTER AIDED DESIGN</td>
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<td>MECH 417 / MECH 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
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<td>MECH 481</td>
<td>HEAT TRANSFER</td>
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Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Math and Science Cluster (no MSNE or Engineering courses)

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<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
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<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
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<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
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<td>CAAM 336</td>
<td>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</td>
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<tr>
<td>CAAM 378</td>
<td>INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION</td>
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<tr>
<td>CAAM 415 / ELEC 488 / NEUR 415</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
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<td>CAAM 435 / MATH 435</td>
<td>DYNAMICAL SYSTEMS</td>
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<td>CAAM 453</td>
<td>NUMERICAL ANALYSIS I</td>
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<td>CAAM 501</td>
<td>ANALYSIS I</td>
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</table>
Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree

Technical Cluster (MSNE or Engineering courses)

<table>
<thead>
<tr>
<th>Code</th>
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<th>Total Credit Hours</th>
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<tr>
<td>CHBE 593</td>
<td>MSNE 593 / CHEM 211 ORGANIC CHEMISTRY I</td>
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<tr>
<td>&amp; CHBE 593</td>
<td>and ORGANIC CHEMISTRY DISCUSSION</td>
<td></td>
</tr>
<tr>
<td>CHEM 212</td>
<td>MSNE 593 / CHEM 214 ORGANIC CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 214</td>
<td>and ORGANIC CHEM DISCUSSION II</td>
<td></td>
</tr>
<tr>
<td>CHEM 301</td>
<td>PHYSICAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 302</td>
<td>PHYSICAL CHEMISTRY II</td>
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<tr>
<td>CHEM 330</td>
<td>ANALYTICAL CHEMISTRY</td>
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<tr>
<td>CHEM 360</td>
<td>INORGANIC CHEMISTRY</td>
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<tr>
<td>EEPS 307 / CEVE 307 / ENST 307</td>
<td>ENERGY AND THE ENVIRONMENT</td>
<td></td>
</tr>
<tr>
<td>EEPS 321</td>
<td>EARTH AND PLANETARY SURFACE ENVIRONMENTS</td>
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<tr>
<td>MATH 302</td>
<td>ELEMENTS OF ANALYSIS</td>
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<tr>
<td>MATH 354</td>
<td>HONORS LINEAR ALGEBRA</td>
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<tr>
<td>MATH 355</td>
<td>LINEAR ALGEBRA</td>
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<tr>
<td>PHYS 201</td>
<td>WAVES, LIGHT, AND HEAT</td>
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<td>PHYS 202</td>
<td>MODERN PHYSICS</td>
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<td>PHYS 301</td>
<td>INTERMEDIATE MECHANICS</td>
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<td>PHYS 302</td>
<td>INTERMEDIATE ELECTRODYNAMICS</td>
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<td>PHYS 355</td>
<td>INTRODUCTION TO BIOLOGICAL PHYSICS</td>
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<tr>
<td>STAT 280</td>
<td>ELEMENTARY APPLIED STATISTICS</td>
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<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
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</tbody>
</table>

**Total Credit Hours** 3

**Footnotes and Additional Information**

1. The Technical Cluster requirement also includes the Engineering Cluster listed above.

Policies for the BSMSNE Degree

**Program Restrictions and Exclusions**

Students pursuing the BSMSNE Degree should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree may not additionally pursue the BA Degree with a Major in Materials Science and NanoEngineering.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the BSMSNE degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Materials Science and NanoEngineering website: https://msne.rice.edu.

Opportunities for the BSMSNE Degree

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master's degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid
status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate · Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Materials Science and NanoEngineering (MMSNE) degree. For additional information, students should contact their undergraduate major advisor and the MMSNE program director.

Research Opportunities
Many MSNE majors participate in undergraduate research; some even start during their freshman year. To get involved, speak to a MSNE undergraduate advisor or directly to a MSNE faculty member.

Additional Information
For additional information, please see the Materials Science and NanoEngineering website: https://msne.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Materials Science and NanoEngineering

Program Learning Outcomes for the PhD Degree in the field of Materials Science and NanoEngineering

Upon completing the PhD degree in the field of Materials Science and NanoEngineering, students will be able to:

1. Demonstrate an advanced command of Materials Science and NanoEngineering field work.
2. Conduct independent research that demonstrates advanced mastery of a subfield within Materials Science or NanoEngineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the PhD Degree in the field of Materials Science and NanoEngineering

Full-time students seeking the PhD degree are expected to complete all the requirements for the degree within five calendar years following entrance into the program. Continuation in the program beyond this time limit will require special approval of the department.

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Students pursuing the PhD degree program in Materials Science and NanoEngineering must complete:

- A minimum of 90 credit hours advanced relevant study, of which at least 18 credit hours must be completed through coursework.

The programs leading to the MS and PhD degrees are open to students who have demonstrated outstanding performance in their undergraduate studies. The granting of a graduate research degree presupposes academic work of superior quality and a demonstrated ability to do original research.

Course requirements for the research degrees vary depending on the extent of individual undergraduate preparation as well as each student’s performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that comprises an original contribution to knowledge and defend it in a public oral examination.

Students are expected to earn letter grades of at least B- (2.67 grade points) in all courses taken, and maintain a minimum overall GPA of 3.00.

If a student’s semester GPA is below 3.00, the student will be placed on departmental probation, and if the student’s semester GPA is below 3.00 for two consecutive semesters, their performance will be reviewed by the Graduate Committee in consultation with the Department Chair, and the student may be dismissed from the program.

Each graduate student is expected to render research and/or instructional assistance to the department not to exceed 10 hours per week. Graduate student work assignments will be made by the advisor at the beginning of each semester.

All PhD students must attend at least 75% of the MSNE seminars per semester. For details, please see the degree requirements on the MSNE website (https://msne.rice.edu/).

Summary

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<th>Credit Hours</th>
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<td>Total Credit Hours Required for the PhD Degree in the field of Materials Science and NanoEngineering</td>
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Degree Requirements

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<td>Core Requirements</td>
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<tr>
<td>MSNE 502</td>
<td>MECH PROPERTIES OF MATERIALS</td>
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</tr>
<tr>
<td>MSNE 503</td>
<td>THERMODYNAMICS IN MATERIALS AND SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 506</td>
<td>PHYSICAL PROPERTIES OF SOLIDS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 535 / PHYS 535</td>
<td>CRYSTALLOGRAPHY &amp; DIFFRACTION</td>
<td>3</td>
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</table>

Elective Requirements

Select 2 courses as Electives from departmental (MSNE) course offerings at the 500-level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
Footnotes and Additional Information

1. Students may complete courses that satisfy the Electives requirement from other departmental course offerings upon approval from their advisors or one member of the Departmental Graduate Committee.

2. Credit received for MSNE 500, MSNE 501, MSNE 589, and MSNE 800 will not be counted toward coursework, but will count toward the total credit hours required for the degree.

3. Students must attend at least 10 of the 13 MSNE 500 seminars per semester for the duration of their study.

4. Students must attend at least 9 of the 13 MSNE 501 seminars per semester for the duration of their study.

5. Students must register for MSNE 589 for one semester for the duration of their study.

6. Students must register for a minimum of 9 credit hours of MSNE 800 per semester. This course is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As a S/U course, the minimum grade requirement of B- (2.67 grade points) does not apply. For more information, see the Grades section of the MSNE Graduate Student Handbook on the Policies tab.

Additional Information

Graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the MSNE department.

By the end of the sixth semester of enrollment in the graduate program in the MSNE department, the student must pass an oral qualifying examination.

Each candidate for the PhD degree must complete a thesis that constitutes an original contribution to scientific knowledge (analytical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. On completion of the thesis, each candidate for the PhD degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

Candidates for the PhD degree program in Materials Science and NanoEngineering are required to provide teaching assistance to the department as a teaching assistant or grader for at least 4 semesters, but no more than 6 semesters.

For additional details and information, please see the degree requirements on the MSNE website (https://msne.rice.edu/).

Policies for the PhD Degree in the field of Materials Science and NanoEngineering

Department of Materials Science and NanoEngineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Materials Science and NanoEngineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Material_Science_Nano_Engineering_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Materials Science and NanoEngineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Opportunities for the PhD Degree in the field of Materials Science and NanoEngineering

For additional information, please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Master of Materials Science and NanoEngineering (MMSNE) Degree

Program Learning Outcomes for the MMSNE Degree

Upon completing the MMSNE degree, students will be able to:

1. Acquire broad, advanced knowledge within either Materials Science or NanoEngineering, which is also in-depth in one major subdiscipline of the field.
2. Conduct research at an advanced level in at least one area of Materials Science and Nanoengineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MMSNE Degree in Materials Science and NanoEngineering

The MMSNE degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all
graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMSNE degree must complete:

- A minimum of 12 courses (32 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1364) tab.
- The requirements for one area of specialization. The MMSNE degree program offers two areas of specialization:
  - Materials Science, or
  - NanoEngineering.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree with a minimum grade of B- (2.67 grade points) in each course.

The MMSNE degree program is open to students who have shown academic excellence in their undergraduate studies. This non-thesis degree option is designed for engineers who have attained a bachelor’s degree and are looking to further their careers in industry. They combine engineering coursework with professional development and communications. A list of required and suggested courses are available on the MSNE website (https://msne.rice.edu/). Students should develop a specific plan of study based on their particular interests and discussions with their advisor.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/faqstaff/degeworks/officialcertifier). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>Core Requirements Select 3 courses from the following:</td>
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<tr>
<td>MSNE 503</td>
<td>THERMODYNAMICS IN MATERIALS SCIENCE</td>
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<td>MSNE 505</td>
<td>MICROSTRUCTURE AND NANOSTRUCTURE EVOLUTION</td>
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<td>PHYSICAL PROPERTIES OF SOLIDS</td>
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<td>MSNE 517</td>
<td>ELECTRONIC, OPTICAL AND MAGNETIC PROPERTIES OF POLYMERS</td>
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<td>MSNE 535 / PHYS 535</td>
<td>CRYSTALLOGRAPHY &amp; DIFFRACTION</td>
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### Technical Electives

Select 9 credit hours from the following: 1,2

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<td>SCALING CONCEPTS IN 2D MATERIALS AND POLYMER PHYSICS</td>
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<td>MSNE 511</td>
<td>MATERIALS CHARACTERIZATION FROM NANO TO MACRO</td>
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<td>MSNE 512</td>
<td>QUANTUM MATERIALS ENGINEERING</td>
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<td>MSNE 513</td>
<td>3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS</td>
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<td>MSNE 523</td>
<td>PROPERTIES, SYNTHESIS AND DESIGN OF COMPOSITE MATERIALS</td>
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<td>MSNE 533</td>
<td>COMPUTATIONAL MATERIALS MODELING</td>
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<td>MSNE 555</td>
<td>MATERIALS IN NATURE AND BIO-MIMETIC STRATEGIES</td>
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<td>MSNE 569</td>
<td>SCIENCE AND APPLICATIONS OF CORROSION SCIENCE AND ENGINEERING</td>
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<td>MSNE 580 / CHEM 580</td>
<td>MICROSCOPY METHODS IN MATERIALS SCIENCE</td>
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<tr>
<td>MSNE 613</td>
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<tr>
<td>MSNE 615</td>
<td>SPECIAL TOPICS III</td>
<td></td>
</tr>
<tr>
<td>MSNE 650</td>
<td>NANOMATERIALS AND NANOMECHANICS</td>
<td></td>
</tr>
</tbody>
</table>

### Non-Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MSNE 501</td>
<td>GRADUATE STUDENT SEMINAR</td>
<td>1</td>
</tr>
<tr>
<td>MSNE 589</td>
<td>ETHICS &amp; SAFETY FOR MATERIALS ENGINEERS</td>
<td>1</td>
</tr>
</tbody>
</table>

### Research Project

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSNE 621</td>
<td>M.M.S. RESEARCH PROJECT I</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 622</td>
<td>M.M.S. RESEARCH PROJECT II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Professional Development

Select at least 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOE 513</td>
<td>STRATEGIC CAREER PREPAREDNESS FOR INDUSTRY JOBS</td>
<td></td>
</tr>
<tr>
<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>ENGI 510</td>
<td>TECHNICAL AND MANAGERIAL COMMUNICATIONS</td>
<td></td>
</tr>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td></td>
</tr>
<tr>
<td>ENGI 528 / CEVE 528</td>
<td>ENGINEERING ECONOMICS</td>
<td></td>
</tr>
<tr>
<td>ENGI 529 / CEVE 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
<td></td>
</tr>
<tr>
<td>ENGI 530</td>
<td>ENGINEERING PRACTICUM</td>
<td></td>
</tr>
</tbody>
</table>
ENGI 542  PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS
ENGI 610 / NSCI 610  MANAGEMENT FOR SCIENCE AND ENGINEERING
ENGI 615  LEADERSHIP COACHING FOR ENGINEERS
NSCI 511  SCIENCE POLICY, AND ETHICS

Elective Requirements
Select 3 credit hours of remaining coursework from approved electives at the 500-level or above to reach 32 total credit hours  

Total Credit Hours  32

Footnotes and Additional Information
1 If MSNE 502, MSNE 503, MSNE 505, MSNE 506, MSNE 517, and/or MSNE 535/PHYS 535 are not taken to satisfy the Core Requirements, they can be taken as Technical Electives.
2 MSNE 500 is not considered a Technical Elective.
3 MSNE 501 and MSNE 589 are taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As S/U courses, they do not apply to the requirement of a minimum grade of B- (2.67 grade points) in each required course.
4 Students can repeat MSNE 621, MSNE 622, or work with their advisor to receive approval for courses according to their interests and field of study.

Policies for the MMSNE Degree
Department of Materials Science and NanoEngineering Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Materials Science and NanoEngineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Material_Science_Nano_Engineering_Graduate_Handbook.pdf

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the MMSNE degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Academic Standards
Students are expected to earn letter grades of at least B- (2.67 grade points) in all courses taken, and maintain a minimum overall GPA of 3.00 to graduate. If a student’s semester GPA is below 3.00, the student will be placed on departmental probation, and if the student’s semester GPA is below 3.00 for two consecutive semesters, the student’s performance will be reviewed by the Graduate Committee in consultation with the Department Chair, and the student may be dismissed from the program.

Additional Information
For additional information, please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Opportunities for the MMSNE Degree
Fifth-Year Master's Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate · Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Materials Science and NanoEngineering (MMSNE) degree. For additional information, students should contact their undergraduate major advisor and the MMSNE program director.

Additional Information
For additional information, please see the Materials Science and Nanoengineering website: https://msne.rice.edu/

Master of Materials Science and NanoEngineering (MMSNE) Degree / Master of Business Administration (MBA) Degree
Program Learning Outcomes for the MMSNE Degree
Upon completing the MMSNE degree, students will be able to:

1. Acquire broad, advanced knowledge within either Materials Science or NanoEngineering, which is also in-depth in one major sub-discipline of the field.
2. Conduct research at an advanced level in at least one area of Materials Science and Nanoengineering.
3. Communicate scientific ideas effectively in writing and when speaking.

**Program Learning Outcomes for the MBA Degree**

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MMSNE/MBA Coordinated Degrees Program**

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 45 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see *Graduate Degrees* (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see *All Graduate Students* (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

**Coordinated MMSNE Degree Requirements**

Students in the coordinated MBA/MMSNE degrees program must complete the Core Requirements, Technical Electives, Research Project, and Professional Development of the MMSNE degree program (p. 1362) and Coordinated MMSNE Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MMSNE Core Requirements</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>MMSNE Technical Electives</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>MMSNE Research Project</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>MMSNE Professional Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Coordinated MMSNE Elective Requirements</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>30</td>
</tr>
</tbody>
</table>

**Coordinated MBA Degree Requirements**

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
<td></td>
</tr>
</tbody>
</table>
Upon completing the MS degree in the field of Materials Science and NanoEngineering, students will be able to:

1. Demonstrate an advanced command of Materials Science and NanoEngineering field work.
2. Conduct independent research that demonstrates advanced mastery of a subfield within Materials Science or NanoEngineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MS Degree in the field of Materials Science and NanoEngineering

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MS degree in the field of Materials Science and NanoEngineering must complete:

- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.
- A minimum of 18 credit hours must be completed through coursework (must be taken in standard or traditional courses with a course type of lecture, seminar, laboratory, lecture/laboratory).

Full-time students seeking the MS degree are expected to complete all the requirements for the degree within 2 calendar years into the program. Continuation in the program beyond this time limit will require special approval of the department.

The programs leading to the MS and PhD degrees are open to students who have demonstrated outstanding performance in their undergraduate studies. The granting of a graduate research degree presupposes academic work of superior quality and a demonstrated ability to do original research.

For general university requirements, see Graduate Degrees (p. 57). Course requirements for the research degrees vary depending on the extent of individual undergraduate preparation as well as each student's performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that comprises an original contribution to knowledge and defend it in a public oral examination.

Students are expected to earn letter grades of at least B- (2.67 grade points) in all courses taken, and maintain a minimum overall GPA of 3.00 to graduate. If a student's semester GPA is below 3.00, the student will be placed on departmental probation, and if the student's semester GPA is below 3.00 for two consecutive semesters, their performance will be reviewed by the Graduate Committee in consultation with the Department Chair, and the student may be dismissed from the program.

Each graduate student is expected to render research and/or instructional assistance to the department not to exceed 10 hours per week. Graduate student work assignments will be made by the advisor at the beginning of each semester.

All PhD students must attend at least 75% of the MSNE seminars per semester, and MS students must attend at least 50% of the MSNE seminars per semester. For details, please see the degree requirements on the MSNE website (https://msne.rice.edu/).

Graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the MSNE department.

Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical or experimental).
It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. Upon completion of the thesis, each candidate for the MS degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

Candidates for the MS degree are required to provide teaching assistance to the department as a teaching assistant or grader for at least 2 semesters, but no more than 3 semesters.

For details, please see the degree requirements on the MSNE website (https://msne.rice.edu/).

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MS Degree in the field of Materials Science and NanoEngineering</td>
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### Degree Requirements

#### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSNE 502</td>
<td>MECH PROPERTIES OF MATERIALS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 503</td>
<td>THERMODYNAMICS IN MATERIALS SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 506</td>
<td>PHYSICAL PROPERTIES OF SOLIDS</td>
<td>3</td>
</tr>
<tr>
<td>MSNE 535 / PHYS 535</td>
<td>CRYSTALLOGRAPHY &amp; DIFFRACTION</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Elective Requirements

Select 2 courses from departmental (MSNE) course offerings at the 500-level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSNE 500</td>
<td>MATERIALS SCIENCE SEMINAR</td>
<td>1</td>
</tr>
<tr>
<td>MSNE 501</td>
<td>GRADUATE STUDENT SEMINAR</td>
<td>1</td>
</tr>
<tr>
<td>MSNE 589</td>
<td>ETHICS &amp; SAFETY FOR MATERIALS ENGINEERS</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSNE 800</td>
<td>RESEARCH AND THESIS</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Additional Requirements as Defined by Department</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>30</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. Students may complete courses that satisfy the Electives requirement from other departmental course offerings upon approval from their advisors or one member of the Departmental Graduate Committee.

2. Credit received for MSNE 500, MSNE 501, MSNE 589, and MSNE 800 will not be counted toward coursework, but will count toward the total credit hours required for the degree.

3. Students must attend at least 6 of the 13 MSNE 500 seminars per semester for the duration of their study.

4. Students must attend at least 6 of the 13 MSNE 501 seminars per semester for the duration of their study.

5. Students must register for MSNE 589 for one semester for the duration of their study.

6. Students must register for a minimum of 9 credit hours of MSNE 800 per semester. This course is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As a S/U course, it does not apply to the requirement of a minimum grade of B (2.67 grade points) in each required course. For more information, see the Grades section of the MSNE Graduate Student Handbook on the Policies (p. 1367) tab.

### Policies for the MS Degree in the field of Materials Science and NanoEngineering

#### Department of Materials Science and NanoEngineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Materials Science and NanoEngineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Material_Science_Nano_Engineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Material_Science_Nano_Engineering_Graduate_Handbook.pdf)

### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Materials Science and NanoEngineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

### Additional Information

For additional information, please see the Materials Science and NanoEngineering website: [https://msne.rice.edu/](https://msne.rice.edu/)

### Opportunities for the MS Degree in the field of Materials Science and NanoEngineering

For additional information, please see the Materials Science and NanoEngineering website: [https://msne.rice.edu/](https://msne.rice.edu/)

### Mathematical Economic Analysis

#### Contact Information

**Economics**

[https://economics.rice.edu/](https://economics.rice.edu/)

408 Kraft Hall

713-348-4381

**George Zodrow**

Department Chair

zodrow@rice.edu

**Mahmoud A. El-Gamal**

Director of Undergraduate Studies
Mathematical Economic Analysis (MTEC) is a major offered by the Economics Department. The MTEC major provides a specialized 16-course program that includes most of the courses required for the regular (ECON) major, but also requires additional preparation in mathematics and statistics, several relatively technical economics electives, and a capstone course.

The MTEC major is recommended for students who intend to pursue graduate work in economics or plan to obtain a position in business or government that requires extensive analytical and quantitative skills.

**Bachelor's Program**

- Bachelor of Arts (BA) Degree with a Major in Mathematical Economic Analysis (p. 1385)

Mathematical Economic Analysis does not currently offer an academic program at the graduate level.

**Chair, Department of Economics**

George Zodrow

**Director of Undergraduate Studies**

Mahmoud A. El-Gamal

**Professors**

Kerry E. Back
Richard Thomas Boylan
Bryan W. Brown
James N. Brown
Flávio Cunha
Mahmoud A. El-Gamal
Hülya Eraslan
Jeremy Fox
Peter Reginald Hartley
Vivian Ho
Ted Loch-Temzelides
Isabelle Perrigne
Robin Sickles
Xun Tang
George Zodrow

**Associate Professors**

Marc Peter Dudey
Mallesh Pai

**Assistant Professors**

Rossella Calvi
Yinghua He
Yunmi Kong

**Professors Emeriti**

Dagobert Brito
John B. Bryant
Donald L. Huddle
Peter Mieszkowski

**Lecturers**

Maria Bejan
Michele Biavati
Amelie Carlton
James P. DeNicco

**Adjunct Professors**

David R. Lairson
John Michael Swint

**Adjunct Associate Professors**

Charles E. Begley
Russell Green

**Adjunct Assistant Professors**

John Diamond
Kenneth Medlock

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog ([https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata](https://courses.rice.edu/admweb/!SWKSCAT.cat))

To view the most recent semester's course schedule, please see Rice's Course Schedule ([https://courses.rice.edu/admweb/!SWKSCAT.cat](https://courses.rice.edu/admweb/!SWKSCAT.cat))

**Economics (ECON)**

**ECON 100 - PRINCIPLES OF ECONOMICS**

Short Title: PRINCIPLES OF ECONOMICS

Department: Economics

Grade Mode: Standard Letter

Course Type: Lecture

Distribution Group: Distribution Group II

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Introduction to the basic concepts of microeconomics and macroeconomics. Microeconomics component includes analysis of supply and demand, consumer and producer behavior, and competitive and noncompetitive market equilibria, with applications to current policy issues. Macroeconomics component provides an overview of the determination of national output, employment, interest rates, and inflation, and analyzes monetary fiscal policies and international trade. Designed for both non-majors and majors.
ECON 101 - INTRODUCTION TO MICROECONOMICS

Short Title: INTRODUCTION TO MICROECONOMICS

Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Introduction to microeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 111. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 111.

ECON 103 - INTRODUCTION TO MACROECONOMICS

Short Title: INTRODUCTION TO MACROECONOMICS

Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Introduction to macroeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 112/ECON 113. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 112/ECON 113.

ECON 111 - AP/OTH CREDIT IN MICROECONOMICS

Short Title: AP/OTH CREDIT MICROECONOMICS

Department: Economics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Provides transfer credit based on student performance on approved examinations in microeconomics, such as the Advanced Placement microeconomics exam, the International Baccalaureate higher-level economics exams, or the A-Level economics exam, or for an approved introductory microeconomics course. Approved credit counts toward total credit hours required for graduation, but does not count for distribution or toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 101. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 101.

ECON 113 - AP/OTH CREDIT IN MACROECONOMICS

Short Title: AP/OTH CREDIT MACROECONOMICS

Department: Economics
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Provides transfer credit based on student performance on approved examinations in macroeconomics, such as the Advanced Placement macroeconomics exam, the International Baccalaureate higher-level economics exams, or the A-Level economics exam, or for an approved introductory macroeconomics course. Approved credit counts toward total credit hours required for graduation, but does not count for distribution or toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 113 if student has credit for ECON 103. Mutually Exclusive: Cannot register for ECON 113 if student has credit for ECON 103.

ECON 200 - MICROECONOMICS

Short Title: MICROECONOMICS

Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Prerequisite(s): ECON 100 and (MATH 102 (may be taken concurrently) or MATH 106)

Description: Intermediate level analysis of theories of household behavior, including demand for consumer goods, labor supply, and savings/ investment decisions, and producer behavior including the supply of output and demands for labor, capital and other production inputs. Emphasizes individual and interactive decision making under resource constraints and discusses equilibria in competitive markets. MATH 102 may be taken concurrently with ECON 200. As much of the analysis in ECON 200 involves partial differentiation, MATH 212 is strongly recommended. Recommended Prerequisite(s): MATH 212 Mutually Exclusive: Cannot register for ECON 200 if student has credit for ECON 301.

ECON 203 - MACROECONOMICS

Short Title: MACROECONOMICS

Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Prerequisite(s): ECON 100

Description: Analyzes aggregate performance of the national economy including output, inflation, interest rates, employment, the business cycle, monetary and fiscal policy, and more generally the role of government in influencing aggregate economic performance. Introduces both the traditional aggregative only approach to Macroeconomics and the more recent New Classical and New Keynesian micro-foundations approaches. Mutually Exclusive: Cannot register for ECON 203 if student has credit for ECON 303.
ECON 205 - INTRODUCTION TO GAME THEORY
Short Title: INTRODUCTION TO GAME THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides an introduction to game theory, a branch of mathematics that studies decision-making by agents in situations where the outcome for each depends on the actions taken by all. Students will develop a familiarity with analytical tools that have found applications in, for example, economics and other social sciences, biology, computer science, and philosophy. Designed for students who do not wish to major in ECON or MTEC and does not apply to ECON or MTEC major requirements. Mutually Exclusive: Cannot register for ECON 205 if student has credit for ECON 300.

ECON 209 - APPLIED ECONOMETRICS
Short Title: APPLIED ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (ECON 100 or ECON 200) and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Applied econometric methods: econometric theory with practical emphasis on modeling, estimation, and hypothesis testing. A computer lab one day a week focuses on empirical implementation of econometric methods using STATA software. Mutually Exclusive: Cannot register for ECON 209 if student has credit for ECON 309/ECON 446.

ECON 210 - BEHAVIORAL ECONOMICS
Short Title: BEHAVIORAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Examines behavioral economics, which seeks to insert more behavioral realism into economic theory by incorporating into economic models insights based on empirical observations from psychology, sociology, and neuroscience. Emphasizes attempts by behavioral economists to explain anomalies that depart from the predictions of standard economic theory. Topics include temptation and self-control, fairness and reciprocity, reference dependence, bounded rationality and choice under risk and uncertainty.

ECON 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

ECON 239 - LAW AND ECONOMICS
Short Title: LAW AND ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Exploration of the law using economic tools based on microeconomic theory. Focuses on legal issues most applicable to business. Mutually Exclusive: Cannot register for ECON 239 if student has credit for ECON 438.

ECON 260 - MACROECONOMICS AND PUBLIC POLICY
Short Title: MACROECONOMICS & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the macroeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 270 - MACROECONOMICS AND PUBLIC POLICY
Short Title: MACROECONOMICS & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the macroeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.
ECON 275 - INTERNATIONAL MACROECONOMICS AND PUBLIC POLICY  
**Short Title:** INT MACRO & PUBLIC POLICY  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 100 or ECON 200  
**Description:** Applies insights learned from the macroeconomic component of ECON 100 to the analysis of issues related to international public policy, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.  

ECON 280 - TRANSPORTATION, INFRASTRUCTURE AND LOGISTICS  
**Short Title:** TRANSPORT, INFRASTR & LOGISTS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 100 or ECON 200  
**Description:** The health of an economy depends critically on the efficient flow of goods and products. This course will analyze the economic impacts of transportation, infrastructure and logistics from a policy perspective. Topics will include technological change, regulation versus deregulation, the impact of globalization, and the roles of government and agencies at various levels. Readings will include specific case studies as well as one or two books giving a broad overview of the importance of transportation policy. It is open to majors and non-majors, has a pre-requisite of ECON 100 or ECON 200, and provides three hours of university credit but does not count toward the ECON or MTEC majors.  

ECON 299 - EXPERIENTIAL EDUCATION IN ECONOMICS  
**Short Title:** EXPERIENTIAL EDUC IN ECONOMICS  
**Department:** Economics  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to students with a major in Economics or Mathematical Economic Analysis. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 200  
**Description:** Provides one hour of university credit for faculty-approved internship. Students must obtain approval from a member of the department's undergraduate committee and must submit an offer letter from the internship provider as well as a letter indicating completion and satisfactory performance. Instructor Permission Required. Repeatable for Credit.  

ECON 300 - GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS  
**Short Title:** GAME THEORY, MICRO TOPICS/ECON  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)  
**Description:** Advanced applied analysis of topics in microeconomics designed for students in the ECON major. Topics include the foundations and applications of game theory, the economics of choice under uncertainty, and information economics including issues of asymmetric information. Additional topics may include auction theory and mechanism design. Open to all majors other than MTEC. Mutually Exclusive: Cannot register for ECON 300 if student has credit for ECON 205.  

ECON 305 - GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS  
**Short Title:** GAME THEORY, MICRO TOPICS/MTEC  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (ECON 307 or STAT 310 or STAT 315 or DSCI 301) and ECON 308  
**Description:** Advanced theoretical analysis of topics in microeconomics, focusing on mathematical modeling. Topics include the foundations and applications of game theory, general equilibrium theory and applications, the economics of choice under uncertainty, and information economics including issues of asymmetric information. Additional topics may include auction theory and mechanism design. Open to all majors but designed for students in the MTEC major. Mutually Exclusive: Cannot register for ECON 305 if student has credit for ECON 405.  

ECON 307 - PROBABILITY AND STATISTICS  
**Short Title:** PROBABILITY & STATISTICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MATH 102 or MATH 106  
**Description:** Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Cross-list: STAT 310. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for ECON 307 if student has credit for BUSI 395.
inequality and to increase prosperity.

The course audience are students interested in innovation designed? The third aspect is cost: do the program benefits justify implemented according to plan? The second aspect is impact: are quality of the implementation: are public policy and social programs aspects of public policy and social programs. The first aspect is the course level:

Professional or Visiting Undergraduate level students.

Restrictions:
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): ECON 200 and (MATH 212 or (MATH 221 and MATH 222))

Description: Coverage of mathematical topics used in economics, such as linear algebra, optimization, and real analysis, with applications to fundamental topics in economic theory, constrained optimization, labor market dynamics, game theory and Leontief input-output model. Emphasizes logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs. Students must have either (1) made a grade of B- or higher in MATH 212 or MATH 221/MATH 222 taken at Rice, or (2) received transfer credit for MATH 212 or MATH 221/MATH 222 and received approval of the course instructor. Mutually exclusive: Cannot register for ECON 308 if student has credit for ECON 401.

ECON 310 - ECONOMETRICS

Short Title: ECONOMETRICS

Department: Economics

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 4

Restrictions:
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): ECON 209 and ECON 308

Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: STAT 376. Mutually exclusive: Cannot register for ECON 310 if student has credit for ECON 409/STAT 400.

ECON 320 - PUBLIC POLICY AND SOCIAL PROGRAM EVALUATION

Short Title: EVALUATION OF SOCIAL PROGRAMS

Department: Economics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions:
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): ECON 307 or STAT 310 or STAT 315 or SOSC 302

Description: This course covers quantitative methods to evaluate three aspects of public policy and social programs. The first aspect is the quality of the implementation: are public policy and social programs implemented according to plan? The second aspect is impact: are interventions impacting the populations or issues for which they were designed? The third aspect is cost: do the program benefits justify the costs? The course audience are students interested in innovation in public policy and the design of social programs that aim to reduce inequality and to increase prosperity.
ECON 399 - INDEPENDENT RESEARCH
Short Title: INDEPENDENT RESEARCH
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and ECON 209 and (ECON 300 or ECON 305)
Description: Independent research project under the supervision of a faculty member who must approve the topic. Consult the department website under "Independent Research" for additional details. Students must have a GPA of 3.0 or higher in the prerequisite courses and must have taken the 400-level course or courses most relevant to the research topic. Faculty advisors may require additional prerequisites. Instructor and department permission required. Not offered during the summer.
Instructor Permission Required.

ECON 415 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and "hedonic" equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 515. Mutually Exclusive: Cannot register for ECON 415 if student has credit for ECON 515.

ECON 418 - ECONOMIC FORECASTING
Short Title: ECONOMIC FORECASTING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and ECON 209
Description: Application of econometric techniques to problems in macroeconomics and financial economics. The course focuses on macroeconomic forecasting and test of economic theories using stationary and non-stationary time-series data. Methods include predictive regressions, vector autoregressions, impulse response functions, and variance decomposition. Tests and comparisons of forecast accuracy are also included. Projects will be completed in STATA.

ECON 419 - ADVANCED TOPICS IN ECONOMETRICS
Short Title: ADV TOPICS IN ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 310 or STAT 376
Description: Introduction to advanced econometrics, with an emphasis on methods used in microeconomic applications. Methods covered are used in the estimation of the demand for goods and services, production functions, and for analyzing the impact of social programs.

ECON 422 - INTERNATIONAL ECONOMICS AND FINANCE
Short Title: INTERNATIONAL ECON & FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: Studies the economic relationships among countries. Explores the sources of comparative advantage and reasons for trade policies. Examines foreign exchange and international capital markets and linkages between exchange rates, interest rates, and prices. Includes trade theory, tariffs, and other trade restrictions, an overview of historical and institutional developments, and current policy issues. Mutually Exclusive: Cannot register for ECON 422 if student has credit for ECON 420/ECON 421.

ECON 432 - POLITICAL ECONOMY
Short Title: POLITICAL ECONOMY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 300 or ECON 305)
Description: Analyzes income redistribution, taxation, the production of public goods, and other actions of the public sector as determined by the political process simultaneously with the economic process of exchange and production. Investigates the connection between public policies and the political forces that shape them.

ECON 435 - INDUSTRIAL ORGANIZATION
Short Title: INDUSTRIAL ORGANIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 300 or ECON 305) and (ECON 209 or ECON 310)
Description: A mathematical approach to topics in industrial organization and market design, including price discrimination, oligopoly, collusion, and auctions.
ECON 437 - ENERGY ECONOMICS
Short Title: ENERGY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Cross-list: ENST 437. Graduate/Undergraduate Equivalency: ECON 601. Mutually Exclusive: Cannot register for ECON 437 if student has credit for ECON 601.

ECON 439 - ADVANCED TOPICS IN LAW AND ECONOMICS
Short Title: ADV TOPICS IN LAW AND ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Addresses the role of economics in understanding the legal system, in particular how the law allocates entitlements and risk in property, tort and contract law. Intended primarily for students who are considering attending law school and uses instruction methods appropriate for that goal.

ECON 441 - EMPIRICAL METHODS FOR INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL METHODS FOR IO
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 209
Description: Covers empirical methods for the analysis of markets and industries. Focuses on various topics related to incomplete information in industrial organization. Topics include markets, strategy, interactions among firms, and the pricing of products, including non-linear pricing.

ECON 443 - FINANCIAL ECONOMICS
Short Title: FINANCIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 305 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Economic analysis of the operation of financial markets from a mathematical and theoretical perspective. Topics include asset pricing, risk management, portfolio theory, arbitrage theory, and market efficiency. Emphasizes the application of the financial concepts to decisions faced by households and firms.

ECON 445 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Application of economics to the determination of the profitability of the firm. Includes organization theory and problems of control. A student may not receive credit for ECON 445 and ECON 245/ POLI 245.

ECON 449 - PRINCIPLES OF FINANCIAL ENGINEERING
Short Title: FINANCIAL ENGINEERING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 308 or MATH 211) and MATH 212 and (ECON 310 or STAT 376)
Description: Covers the use of financial securities and derivatives to take or hedge financial risk positions, including most commonly used instruments, from simple forwards and futures to exotic options and swaptions. Studies the pricing of derivative securities with emphasis on the mechanics and uses of financial engineering methods. Mutually Exclusive: Cannot register for ECON 449 if student has credit for STAT 449.
ECON 450 - ECONOMIC DEVELOPMENT
Short Title: ECONOMIC DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: This course covers different dimensions of economic development, focusing on poverty, inequality, demography, and health. It provides an overview of the economies of less developed countries, the lives of the poor, and the theories for why some countries are rich and others are poor. It also describes how labor and credit markets function in poor countries, the consequences for health and education, and the role of institutions.

ECON 452 - RELIGION, ETHICS, AND ECONOMICS
Short Title: RELIGION, ETHICS, & ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Reviews economic models of the demand, supply, and markets for religion, including the effects of economic conditions on religious choice and vice versa. Students will write a term paper on topics of their choosing, subject to professor’s approval. Recommended Prerequisite(s): ECON 209 or ECON 310 or STAT 376.

ECON 455 - MONEY AND BANKING
Short Title: MONEY AND BANKING
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: Micro-foundations of monetary, fiscal and financial theory. Examines the unique roles of money and of banking in providing the transactions mechanism and in the functioning of financial markets. Examines the use of valued fiat, unbacked money which appears to violate basic microeconomics, in the context of Samuelson’s overlapping generations model, including the implications for monetary and fiscal policy and for inflation. Discusses bank runs and financial instability.

ECON 456 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 460 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 465 - MARKET DESIGN
Short Title: MARKET DESIGN
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Regulators, entrepreneurs and economists have recently been involved in the design of novel markets for radio spectrum, kidneys, on-line advertising, school choice, etc. This course utilizes game theory to provide the theoretical underpinning of such markets via real world examples, including the study of institutional details that can determine the success or failure of a market.

ECON 470 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture, Laboratory, Internship/Practicum, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
ECON 479 - ECONOMIC MODELING AND PUBLIC POLICY  
Short Title: ECONOMIC MODLG & PUBLIC POLICY  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: Examines the use of computational dynamic models to analyze the effects of economic policy reforms. Introduces computer programming methods to simulate household and firm behavior in partial and general equilibrium frameworks. Policy evaluation includes personal and corporate income taxes, Social Security, retirement savings incentives, and social insurance programs.

ECON 480 - ENVIRONMENTAL ECONOMICS  
Short Title: ENVIRONMENTAL ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: Uses economic theories of externalities and common property resources to analyze how markets, legal institutions, regulations, taxes and subsidies, and voluntary activity can affect the supply of environmental amenities, such as clean air, clean water, and wilderness areas. Also discusses methods for determining the demand for environmental amenities. Cross-list: ENST 480.

ECON 481 - HEALTH ECONOMICS  
Short Title: HEALTH ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and (ECON 209 or ECON 310 or STAT 376)  
Description: Study of determinants of health, including behavioral, economic and social factors and access to health care. Application of economics to understand health insurance, the hospital and physician markets, pharmaceuticals, and the health care system. Effects of regulation and methods of payment. Graduate/Undergraduate Equivalency: ECON 565. Mutually Exclusive: Cannot register for ECON 481 if student has credit for ECON 565.

ECON 483 - PUBLIC FINANCE  
Short Title: PUBLIC FINANCE  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: Provides an economic analysis of tax policy, focusing on the current national debate regarding the relative merits of income and consumption-based taxes in terms of equity, efficiency, and simplicity. Analyzes tax effects on individual and business behavior and discusses general equilibrium modeling of the economic and distributional effects of alternative tax reforms. Special topics include optimal taxation, taxation of the family, estate taxation, taxation of electronic commerce, and state and local public finance.

ECON 484 - PUBLIC ECONOMICS  
Short Title: PUBLIC ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and MATH 212  
Description: Theory and evidence on government expenditure policy. Provides an economic analysis of tax policy, focusing on the current national debate regarding the relative merits of income and consumption-based taxes in terms of equity, efficiency, and simplicity. Analyzes tax effects on individual and business behavior and discusses general equilibrium modeling of the economic and distributional effects of alternative tax reforms. Special topics include optimal taxation, taxation of the family, estate taxation, taxation of electronic commerce, and state and local public finance.

ECON 485 - THE ECONOMICS OF SUSTAINABILITY, CONSERVATION, AND PANDEMICS  
Short Title: ECON, CONSERVATION & PANDEMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: This course will cover issues related to conservation, sustainability and pandemics from an economics point of view. Topics will include the need for conservation policies and planning, how science informs conservation strategies, incentives and the design of conservation agreements, and the role of deforestation and wildlife markets in pandemic emergence. Policies to reduce the likelihood of pandemic emergence, as well as the effects of pandemics like influenza, HIV, and COVID-19 on the global economy will also be discussed. Recommended Prerequisite(s): MATH 212.
ECON 489 - ECONOMICS OF SOCIAL NETWORKS
Short Title: ECONOMICS OF SOCIAL NETWORKS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 209
Description: This course introduces research on social networks and analyzes how these networks affect our choices: the products we buy, the careers we follow, whom we marry, how we raise our children. Students will learn about network measurement and formation and the influence of social networks on our decisions.

ECON 496 - RESEARCH IN ECONOMIC THEORY
Short Title: RESEARCH IN ECONOMIC THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305
Description: Capstone course for MTEC majors whose primary interest is in economic theory. Review and analysis of seminal and current research in economic theory, including independent analysis by the student. Topics vary from year to year.

ECON 497 - RESEARCH IN ECONOMETRICS
Short Title: RESEARCH IN ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305
Description: Capstone course for MTEC majors whose primary interest is in econometrics. Review and analysis of seminal and current research in econometrics, including independent analysis by the student. Topics vary from year to year.

ECON 498 - HONORS PROGRAM IN ECONOMICS-I
Short Title: HONORS PROGRAM IN ECONOMICS-I
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 209 or ECON 310) and (ECON 300 or ECON 305)
Description: Research workshop open to ECON and MTEC majors. Students must have a GPA of at least 3.67 in all courses taken toward satisfying major requirements, and must have taken all ECON courses directly related to the topic of their research. Students develop a research idea, construct an economic model with testable hypotheses, test those hypotheses, and write and present an academic quality paper. Econometrics pre-requisite is ECON 209 for ECON majors and ECON 310 for MTEC majors.

ECON 499 - HONORS PROGRAM IN ECONOMICS-II
Short Title: HONORS PROGRAM IN ECONOMICS-II
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 498
Description: Continuation of ECON 498. University credit only.

ECON 501 - MICROECONOMICS I
Short Title: MICROECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal mathematical treatments of the classic topics in microeconomics: consumer and producer theory, choice under risk and uncertainty, revealed preference theory and general equilibrium theory. Introduces and uses mathematical tools that are the workhorses of economic theory: real analysis, constrained optimization, monotone comparative statics and fixed point theorems.

ECON 502 - MACROECONOMICS
Short Title: MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of static general equilibrium theory; elements of functional analysis for optimization; deterministic and stochastic difference equations, local stability analysis; introduction to Markov processes; dynamic optimization techniques, including stochastic optimal control theory, dynamic programing, and robust control; applications to growth theory, search, industrial organization, and monetary economics; dynamic stochastic general equilibrium modeling.
ECON 504 - COMPUTATIONAL ECONOMICS
Short Title: COMPUTATIONAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 505 and ECON 508 and ECON 510 and ECON 511 and MATH 321
Description: Numerical methods most commonly used in economics and their application to frontier research projects in economic modeling. Topics include optimization theory and numerical integration. Cross-list: STAT 604.

ECON 505 - FINANCIAL ECONOMICS I
Short Title: FINANCIAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502
Description: Introduction to asset pricing and portfolio choice theory. Covers mathematical analysis of single-period and dynamic models, including pricing by arbitrage, mean-variance analysis, factor models, dynamic optimization, recursive utility, and an introduction to continuous-time finance. Cross-list: BUSI 521.

ECON 507 - MATHEMATICAL ECONOMICS I
Short Title: MATHEMATICAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to provide the first-year PhD students in Economics with the essential mathematical tools. The course covers topics in real analysis, topology, linear algebra, etc. Aside from providing the mathematical tools, a primary aim of this course is to develop the level of mathematical sophistication necessary to conduct research in modern economics. The course will therefore emphasize logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs.

ECON 508 - MICROECONOMICS II
Short Title: MICROECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and MATH 321
Description: Two modules: (1) Introduces students to the mathematical tools of game theory, and the modeling of economic settings as games. Covers normal form games, extensive form games with perfect information, Bayesian games, and extensive form games with imperfect information. (2) introduces students to information economics and the theory of mechanism design. Applies tools from game theory and linear and non-linear

ECON 509 - TOPICS IN MICROECONOMICS
Short Title: TOPICS IN MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Discussion of selected topics in microeconomic theory. Repeatable for credit. The Spring 2021 topic was Psychology and Economics, especially individual choice under risk and uncertainty, reference-dependent preferences, temptation and self-control, other-regarding preferences, behavioral game theory, and bounded rationality. Repeatable for Credit.

ECON 510 - ECONOMETRICS I
Short Title: ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on critical analysis of the literature. Cross-list: STAT 610.

ECON 511 - ECONOMETRICS II
Short Title: ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: STAT 611.

ECON 512 - INTERNATIONAL TRADE THEORY
Short Title: INTERNATIONAL TRADE THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploration of classical, neoclassical, and modern trade theory. Includes welfare aspects of trade such as the theory of commercial policy, with emphasis on applications.
ECON 514 - EMPIRICAL INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL INDUSTRIAL ORGANIZAT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include structural analysis of auction, nonlinear pricing, insurance and bargaining data. Emphasizes the use of advanced econometric methods (nonparametric and semiparametric) to estimate and test models under incomplete information.

ECON 515 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mathematical and statistical analysis of empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and “hedonic” equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 415. Mutually Exclusive: Cannot register for ECON 515 if student has credit for ECON 415.

ECON 516 - EMPIRICAL MICROECONOMICS
Short Title: EMPIRICAL MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Overview of methods used in empirical microeconomic research. Examples are drawn from health economics, law and economics, and business economics. Emphasis is placed on designing econometric and statistical analyses to test economic hypotheses. Class projects will expand on analyses from previously published studies.

ECON 517 - EMPIRICAL INDUSTRIAL ORGANIZATION II
Short Title: EMPIRICAL INDUSTRIAL ORG II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines economic models of competition and industry structure. These include models of demand, supply, investment and entry. Special attention is paid to economic statistical modeling of industries and the use of price and game theory in industrial organization. Matching and market design are also covered.

ECON 518 - INTERNATIONAL MACROECONOMICS
Short Title: INTERNATIONAL MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Effects of fiscal and monetary policies on exchange rates and the current account and balance of payments. Includes exchange market efficiency, exchange rates and prices, LDC debt, and policy coordination.

ECON 519 - ECONOMIC GROWTH & DEVELOPMENT
Short Title: ECONOMIC GROWTH &DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511
Description: Mathematical and statistical analysis of topics in microeconomic development and introduction to some frequently used applied econometric methods. Topics covered include poverty and inequality, health, education, fertility, marriage markets, and other gender issues. Special focus is given to intra-household bargaining models and their applications.

ECON 521 - MATCHING AND MARKET DESIGN
Short Title: MATCHING AND MARKET DESIGN
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511
Description: This course begins with an overview of different matching markets (e.g., one-to-one or many-to-one AND with or without transfers AND centralized or decentralized) and the common empirical models; it then provides a relatively in-depth discussion of market design, both theoretical and empirical, for school choice and kidney transplants.

ECON 522 - PUBLIC ECONOMICS: TAX POLICY
Short Title: PUBLIC ECONOMICS: TAX POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 510 and ECON 505 and ECON 508 and ECON 511 and MATH 321
Description: Study of the effects of taxation on individual and firm behavior, general equilibrium tax incidence analysis, optimal taxation theory, optimal implementation of tax reform, analysis of comprehensive income, and consumption taxes.
ECON 523 - DYNAMIC OPTIMIZATION
Short Title: DYNAMIC OPTIMIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of dynamic optimization in discrete and continuous time, including numerical methods and applications to macroeconomics, finance and resource and energy economics.

ECON 547 - ADVANCED TOPICS IN ENERGY ECONOMICS
Short Title: ADV TOPICS IN ENERGY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ECON 301 or ECON 370) and (ECON 309 or ECON 446 or ECON 409 or ECON 400 or STAT 400) and ECON 437
Description: A detailed development and analysis of topics in energy modeling. Topics include optimal extraction of depletable resources, models of storable energy commodities, energy demand by end-use sector, models of non-competitive behavior, energy security and the relationship between energy and commodity prices. ECON 547 requires an additional assignment in addition to the assignments of ECON 447. Recommended Prerequisite(s): ECON 477 or ECON 401. Mutually Exclusive: Cannot register for ECON 547 if student has credit for ECON 447/ECON 604.

ECON 565 - HEALTH ECONOMICS
Short Title: HEALTH ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Application of empirical and theoretical economic models to health and healthcare. Includes production, cost, demand and supply factors; methods of payment and effects of regulation. Topics include optimal design of health insurance markets, cost-benefit analysis of healthcare technologies, econometric evaluation of government regulations and reimbursement in the healthcare sector, and testing of hypothesis that explain rising prices and costs of healthcare. Graduate/Undergraduate Equivalency: ECON 481. Mutually Exclusive: Cannot register for ECON 565 if student has credit for ECON 481.

ECON 575 - TOPICS IN FINANCIAL ECONOMICS
Short Title: TOPICS IN FINANCIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 505
Description: Topics in asset pricing, corporate financial theory, and market microstructure, including asymmetric information, learning, heterogeneous priors, market frictions, nonstandard preferences, production models, q theory, real options, dynamic capital structure, quote-driven markets, order-driven markets, and dealer markets. Repeatable for Credit.

ECON 576 - TOPICS IN MACROECONOMICS
Short Title: TOPICS IN MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion topics in macroeconomics. Repeatable for Credit.

ECON 577 - TOPICS IN ECONOMIC THEORY I
Short Title: TOPICS IN ECONOMIC THEORY I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of topics in advanced economic theory. Repeatable for Credit.

ECON 578 - TOPICS IN ECONOMETRICS I
Short Title: TOPICS IN ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics in advanced econometrics. Repeatable for Credit.
ECON 579 - TOPICS IN ECONOMETRICS II
Short Title: TOPICS IN ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 510 and ECON 505 and ECON 508 and ECON 511
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit.

ECON 592 - TOPICS IN POLICY AND APPLIED ECONOMICS
Short Title: TOP-POLICY&APPL'D ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics and applied economics. Repeatable for Credit.

ECON 594 - WORKSHOP IN ECONOMICS II
Short Title: WORKSHOP IN ECONOMICS II
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508 and ECON 510
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit.

ECON 596 - RESEARCH SEMINAR
Short Title: RESEARCH SEMINAR
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervises fourth-year and fifth-year Ph.D. students in their quantitative dissertation research in preparation for graduation. Students must present their own research at least once during the semester. Repeatable for Credit.

ECON 597 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Workshop prepares graduate students for completing innovative and original research. All second year graduate students must attend the workshop. Each week, a faculty member will give a brief lecture about their experience with research. Possible topics include how they came up with ideas, how those ideas evolved and became papers, how these papers proceeded through the publication process, etc. Alternatively, faculty members can present a broad overview of particular research areas and discuss outstanding questions in those areas. Instructor Permission Required. Repeatable for Credit.

ECON 599 - SEMINAR WORKSHOP
Short Title: SEMINAR WORKSHOP
Department: Economics
Grade Mode: Independent Study
Course Type: Research
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Promotes graduate students' attendance and active participation in the Econ 593 and Econ 594 seminar workshops. Each student is required to attend at least fifteen ECON 593/594 seminars per semester, write a brief report on each seminar presentation they attend, prepare to present a background paper for three of the seminars they plan to attend, and participate in post seminar discussions. Repeatable for Credit.
ECON 601 - ENERGY ECONOMICS I
Short Title: ENERGY ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces the energy sector to students, discusses key aspects of energy supply, demand and pricing, and is foundational for the MEECON degree. Topics include optimal extraction of depletable resources, investment in energy-using capital, trade of energy commodities, storage, end-use demand and energy efficiency, and the relationship between economic activity, energy and the environment. Students learn to apply dynamic optimization, linear programming and econometric techniques in addressing the course topics. Graduate/ Undergraduate Equivalency: ECON 437. Mutually Exclusive: Cannot register for ECON 601 if student has credit for ECON 437.

ECON 602 - MICROECONOMICS OF THE ENERGY SECTOR
Short Title: MICROECONOMICS - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Covers basic microeconomic concepts and applies them to contemporary issues in the energy sector. Topics covered include demand and supply analysis, market equilibrium and different market structures, international trade, investment and capacity expansion, risk and investment finance, and economic analysis of energy policy including environmental policy. This course enables students to apply quantitative microeconomic theory in order to make data-driven recommendations to case studies presented by industry partners.

ECON 603 - APPLIED ECONOMETRICS FOR ENERGY MARKETS
Short Title: APPLIED ECONOMETRICS ENGY MKTS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Students will be introduced to basic concepts in statistical analysis and how to use statistical tools to analyze economic data and test economic theories. The course includes a laboratory session where students practice using the tools discussed in lectures with data that is particularly relevant to the energy industry.

ECON 604 - ENERGY ECONOMICS II
Short Title: ENERGY ECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Explores a variety of topics in energy modeling and energy data analysis. Topics include optimal extraction of depletable resources, game theoretic approaches to OPEC behavior, national oil company behavior, models of storable energy commodities and energy demand by end-use sector, energy security and fundamental drivers of commodity prices. This course tasks students to expand on the dynamic optimization problems and econometric techniques applied to energy economics. Mutually Exclusive: Cannot register for ECON 604 if student has credit for ECON 547.

ECON 605 - TAXATION IN THE ENERGY SECTOR
Short Title: TAXATION IN THE ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces basic principles of taxation, and general equilibrium modeling of the economic effects of taxes, and applies them to federal and state taxes on the energy sector. Topics include royalties resource rent taxes, corporate income taxes including international tax issues such as transfer pricing and income shifting, excess profit taxes, production-sharing agreements, and environmental taxes. Students will formulate, implement, and use quantitative models to solve problems related to private and public decision making in the context of taxes applied to U.S. energy systems.

ECON 606 - CORPORATE FINANCE FOR THE ENERGY SECTOR
Short Title: CORP FINANCE - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Examines the investment decisions of corporations, the valuation of stock, bonds and options investments by individual investors. The implications of investor decisions for corporations, and specifically the manner in which they evaluate investment projects and finance investments are a core focus. Examples and case studies focus on the energy sector. Students will increase their understanding of financing and investment decision as the relate to energy companies and energy related projects using analytical and mathematical techniques to make data-driven recommendation to real-world problems.
ECON 607 - THE ECONOMICS OF ENERGY AND THE ENVIRONMENT
Short Title: ECON OF ENERGY & ENVIRONMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.

Course Level: Graduate
Description: This course presents students with an introduction to, and overview of, policies to protect environmental resources against emissions from energy production and use and hazardous wastes. The first part of the course will present an economic analysis of the costs and benefits of using different types of policies to control emissions from fossil fuel use. The remainder of the course, taught from a practitioner’s perspective, will discuss the interrelationship between science, institutions and politics when designing environmental policy. The focus will be on problems associated with oil and gas production - especially water contamination and use - and hazardous waste disposal.

ECON 608 - RISK MANAGEMENT IN THE ENERGY INDUSTRY
Short Title: RISK MANAGEMENT/ENERGYINDUSTRY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.

Course Level: Graduate
Description: This course introduces quantitative risk management techniques often employed in the energy industry. It covers topics such as real options, value at risk, conditional value at risk, and expected shortfall, as well as the use of derivatives for trading and hedging various risk exposures. The course is methodologically self-contained and provides students with hands-on experience with state-of-the-art software to measure and manage risk-adjusted returns of heterogeneous asset portfolios.

ECON 610 - ENERGY AND THE MACROECONOMY
Short Title: ENERGY & THE MACROECONOMY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.

Course Level: Graduate
Description: Discusses connections between energy and economic activity at the regional, national, and international level, and especially the role of energy shocks in economic fluctuations, innovations in energy supply as drivers of regional economic growth, and the role of energy commodities in transportation and international trade.

ECON 611 - GEOPOLITICS OF ENERGY
Short Title: GEOPOLITICS OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.

Course Level: Graduate
Description: Explores the geopolitical issues around energy security and trade by focusing on role of energy as the world’s largest business and a strategic requirement of the modern nation-state, a source of power in international relations, and a major influence on national politics and institutions. This course equips students with the analytical skills to inform policy debates, advocate for the interests of principals, and advise policy makers and firms amid rapid changes in energy markets. Students learn both to produce sound empirical analysis by employing state of the art econometric techniques and to be discerning consumers of empirical research.

ECON 612 - ENERGY PROJECT DEVELOPMENT
Short Title: ENERGY PROJECT DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.

Course Level: Graduate
Description: This course will cover the development of energy projects, especially electric power projects, from inception through to financing. It examines key issues such as: siting/permitting, including compliance with federal, state and local environmental and regulatory issues; fuel supply agreements; capital cost pricing; off-take agreements; and the various methods of project financing. Microsoft Excel is used for project financial analysis, including revenue and cost modeling, debt management, project net cash flow, project internal rate of return and net present value. The course also will cover strategies to monetize the project including development fees, carried equity, and private and public sale of equity, including initial public offerings ("IPOs").

ECON 613 - INTERNATIONAL TRADE IN ENERGY
Short Title: INTERNATIONAL TRADE IN ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.

Course Level: Graduate
Description: This course explores the effects of international trade and the determinants of the amount of trade between countries in energy commodities, and the role of international capital flows in financing energy projects, in particular. It will also discuss the many ways that governments can alter international trade through various policies.
ECON 614 - POLITICAL ECONOMY OF OIL IN DEVELOPING COUNTRIES  
Short Title: POLITICAL ECONOMY OF OIL  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: This course evaluates the political and economic determinants of oil and gas policies in developing countries and their impact on world markets, the interaction between states and oil companies, the challenges of oil wealth management, and the causal links between resource dependency, development, institutions, and political regimes. Although the main focus is on oil production, natural gas is also analyzed, and both are compared to other natural resources. Emphasis is on the analysis of institutional change and the functions of institutional change in the energy industry using data-driven methods to examine case studies.

ECON 615 - SOCIAL STUDIES OF ENERGY  
Short Title: SOCIAL STUDIES OF ENERGY  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: Investigate the ways in which energy production and consumption impacts social life. By studying the implementation and use of renewable and on-renewable energy infrastructures in different parts of the world, the students will develop a contextual, self-reflexive and critical lens that will help them make decisions in later stages of their careers.

ECON 620 - INDUSTRIAL ORGANIZATION AND THE ENERGY SECTOR  
Short Title: INDUSTRIAL ORG & ENERGY SECTOR  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: The course will discuss monopoly, oligopoly, and the underlying sources of monopoly power in energy industries and how the industries can be restructured to isolate the monopoly elements from the more competitive ones. Other topics include price discrimination, vertical control, mergers and acquisitions, and strategic behavior between firms.

ECON 621 - THE ECONOMICS OF THE ELECTRICITY INDUSTRY  
Short Title: ELECTRICITY INDUSTRY ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: Discusses the determinants of the cost of electricity, the effects of organizing the industry in different ways, the need to encourage sufficient investment in reserve capacity, and the use of information technology to allow for new ways of pricing electricity, operating the network and coordinating supply and demand. Students will learn to analyze the behavior of power markets, the effect of different policies, and draw empirical solutions to the real-world issues.

ECON 622 - TRANSPORTATION ECONOMICS  
Short Title: TRANSPORTATION ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: Discusses transportation as a major source of energy demand in modern post-industrial economies and of future demands in emerging economies. Emphasizes that the demand for energy use in the transportation sector involves modeling household choices, economic growth and demographic transition, government decisions to support transportation infrastructure development, and the introduction of new technologies. Students will apply problem solving and analytical skills to perform calculations related to transportation energy and its environmental impact.

ECON 677 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.  
Course Level: Graduate  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
**ECON 699 - PRACTICUM**  
**Short Title:** PRACTICUM  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
**Course Level:** Graduate  
**Description:** Projects developed by an industry advisory group to be researched and presented to participating industry at completion of all course work. Internships with an approved employer may be substituted. Emphasis on skill building components may include: analyzing data for accuracy and reconciliation across different sources, quantitative analysis and risk assessment of a firm’s portfolio of assets and capital investment opportunities, and briefing expert and non-expert audiences.

**ECON 700 - DEPARTMENTAL SERVICE COURSE**  
**Short Title:** DEPARTMENTAL SERVICE COURSE  
**Department:** Economics  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Independent Study  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** In each semester in which students perform departmental service, they need to register in the departmental service course Econ 700. Students must meet their faculty supervisors as early as possible before the semester starts and regularly during the semester to ensure there is a mutual understanding of the job responsibilities.

**ECON 800 - GRADUATE RESEARCH**  
**Short Title:** GRADUATE RESEARCH  
**Department:** Economics  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-12  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Assists students in the dissertation writing process. Students must write an independent and original piece of quantitative research that is of sufficient quality to merit publication in an academic economics journal. Towards this objective, faculty mentor evaluate and critique the research of PhD students who are either preparing research before formally selecting a dissertation topic or actively engaged in dissertation research. Repeatable for Credit.

**Description and Code Legend**  
*Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:*

**Course Catalog/Schedule**  
- Course offerings/subject code: ECON

**Department Description and Code**  
- Economics: ECON

**Undergraduate Degree Description and Code**  
- Bachelor of Arts degree: BA

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**Undergraduate Major Description and Code**  
- Major in Mathematical Economic Analysis: MTEC

**CIP Code and Description**  
- MTEC Major/Program: CIP Code/Title: 45.0603 - Econometrics and Quantitative Economics

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

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**Bachelor of Arts (BA) Degree with a Major in Mathematical Economic Analysis**

**Program Learning Outcomes for the BA Degree with a Major in Mathematical Economic Analysis**

Upon completing the BA degree with a major in Mathematical Economic Analysis, students will have:

1. Learned the core principles of microeconomics, including supply and demand, utility maximization by consumers and profit maximization by firms, and equilibrium market structures.
2. Learned the core principles of macroeconomics, including the effects of monetary and fiscal policy, business cycles, determinants of growth, and a variety of approaches to researching and critically analyzing the macroeconomy.
3. Learned various statistical and econometric skills, and used statistical software to analyze economic data, interpret and communicate statistical results, both orally and in writing.
4. Learned how to apply advanced mathematical skills, including multivariate calculus, linear algebra, and optimization, to modeling of economic problems.

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**Requirements for the BA Degree with a Major in Mathematical Economic Analysis**

For general university requirements, see [Graduation Requirements](https://registrar.rice.edu/facstaff/degreeworks/) (p. 29). Students pursuing the BA degree with a major in Mathematical Economic Analysis must complete:

- A minimum of 16-17 courses (52-56 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (26 credit hours) taken at the 300-level or above.
- A maximum of 5 courses (15 credit hours) from study abroad or transfer credit *after* matriculation at Rice may be applied towards specific major requirements. For additional departmental guidelines regarding transfer credit, see the [Policies](https://registrar.rice.edu/facstaff/degreeworks/) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier.)
Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Mathematical Economic Analysis</td>
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<td>Total Credit Hours Required for the BA Degree with a Major in Mathematical Economic Analysis</td>
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Degree Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td></td>
<td>Mathematics and Statistics</td>
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<tr>
<td>MATH 103</td>
<td>SINGLE VARIABLE CALCULUS I</td>
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<tr>
<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<tr>
<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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<td>Select 1 from the following:</td>
<td>3-6</td>
<td></td>
</tr>
<tr>
<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
<td></td>
</tr>
<tr>
<td>MATH 221</td>
<td>HONORS CALCULUS III</td>
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<tr>
<td>&amp; MATH 222</td>
<td>and HONORS CALCULUS IV</td>
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</tr>
<tr>
<td>ECON 307 / STAT 310</td>
<td>PROBABILITY AND STATISTICS</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 315 / DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td></td>
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<tr>
<td>Economics and Econometrics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
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<td>ECON 200</td>
<td>MICROECONOMICS</td>
<td>4</td>
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<td>ECON 203</td>
<td>MACROECONOMICS</td>
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<td>ECON 209</td>
<td>APPLIED ECONOMETRICS</td>
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<td>ECON 305</td>
<td>GAME THEORY AND OTHER MICRO</td>
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<td>TOPICS FOR MTEC MAJORS</td>
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<td>ECON 308</td>
<td>MATHEMATICAL ECONOMICS</td>
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<td>ECON 310 / STAT 376</td>
<td>ECONOMETRICS</td>
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<td>ECON 496</td>
<td>RESEARCH IN ECONOMIC THEORY</td>
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<td>or ECON 497</td>
<td>RESEARCH IN ECONOMETRICS</td>
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<td>Elective Requirements</td>
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<td>Select 1 course from the following:</td>
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<td>ECON 210</td>
<td>BEHAVIORAL ECONOMICS</td>
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<tr>
<td>ECON 239</td>
<td>LAW AND ECONOMICS</td>
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<tr>
<td>Courses between ECON 320-ECON 495.</td>
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<tr>
<td>ECON 498</td>
<td>HONORS PROGRAM IN ECONOMICS-I</td>
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<td>Select 3 courses from ECON 410-ECON 495 and ECON 498.</td>
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<tr>
<td>Total Credit Hours Required for the Major in Mathematical Economic Analysis</td>
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<tr>
<td>Additional Credit Hours to Complete Degree Requirements *</td>
<td>33-37</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 After matriculation: In some cases, transfer credit may be awarded by the economics department for courses completed at other schools after the student has matriculated at Rice. Students may present a maximum of 2 such transfer courses in fulfilling the mathematics and statistics core requirements, and a maximum of 3 such transfer courses in fulfilling the economics/econometrics core requirements and elective requirements combined. (Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major.)

Before matriculation: Credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the departmental limit on transfer courses, but all students must complete more than half of their upper-level major coursework (300-level and 400-level courses) at Rice.

2 Students who have received credit for ECON 111 and ECON 113 and have made a grade of B- or better in MATH 102 (taken at Rice University) may substitute any Economics major elective for ECON 100. Students must notify the department’s Director of Undergraduate Studies if they wish to exercise this option.

3 As specified in their course descriptions, the following courses do not satisfy the Electives requirement for the major in Mathematical Economic Analysis: ECON 101, ECON 103, ECON 111, ECON 113, ECON 205, ECON 260, ECON 270, ECON 275, ECON 280, ECON 499. In addition, BUSI 343 may be substituted for ECON 343, and STAT 449 may be substituted for ECON 449.

Policies for the BA Degree with a Major in Mathematical Economic Analysis

Program Restrictions and Exclusions

Students pursuing the major in Mathematical Economics Analysis should be aware of the following program restrictions:

- Students pursuing the major in Mathematical Economics Analysis may not additionally declare the major in Economics.
- Students pursuing the major in Mathematical Economics Analysis may not additionally declare the major in Managerial Economics and Organizational Sciences.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.
Departmental Transfer Credit Guidelines

Students pursuing the major in Mathematical Economics Analysis should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- No more than 5 courses (15 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards specific major requirements after matriculation at Rice as follows:
  - No more than 2 courses (6 credit hours) of transfer credit may apply towards the mathematics and statistics core requirements
  - No more than 3 courses (9 credit hours) of transfer credit may apply towards the economics/econometrics core requirements and the elective requirements combined

Please Note: Additional transfer courses may count toward meeting university graduation requirements, but not toward fulfillment of requirements for the major. Credits awarded to transfer students for courses taken prior to matriculation at Rice are not counted against the departmental limit on transfer courses, but all students must complete more than half of their upper-level major coursework (300-level and 400-level courses) at Rice.

Additional Information

For additional information, please see the Economics website: https://economics.rice.edu/

Opportunities for the BA Degree with a Major in Mathematical Economic Analysis

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Requirements for Departmental Honors

1. To earn departmental honors in economics, students must earn a grade of B+ (3.33 grade points) or better in each semester of the department’s two-semester honors program, ECON 498 and ECON 499.
2. The honors program is available to both ECON and MTEC majors.
3. To be admitted to the honors program, students:
   a. must have a GPA of 3.67 or better in all courses taken toward fulfilling their departmental major requirements at the beginning of the academic year in which they enter the honors program;
   b. must have completed all of the core requirements for their major;
   c. must have completed the 400-level course or courses most closely related to their area of research, and
   d. must be accepted to the honors program by the professor supervising the program.
4. For additional information, consult the Economics Department Honors Program at https://economics.rice.edu/undergraduate-program/honors-program (https://economics.rice.edu/undergraduate-program/honors-program/).

Mathematics

Contact Information

Mathematics
https://math.rice.edu/
220 Herman Brown Hall
713-348-4829

Alan Reid
Department Chair
alan.reid@rice.edu

Mathematics lies at the foundation of many disciplines in the sciences, engineering fields, and the social sciences, and this influence is growing as these subjects become increasingly quantitative. Recognizing this important role in the wide variety of directions available to our degree recipients, the program in mathematics provides undergraduates with a spectrum of choices. These range from nontheoretical treatments of calculus and courses in combinatorics, elementary number theory, and projective geometry to a broad variety of sophisticated mathematics, including real and complex analysis, differential geometry, abstract algebra, algebraic and geometric topology, algebraic geometry, dynamics, and partial differential equations.

Faculty research interests cover algebraic geometry, algebraic topology, analysis and partial differential equations, differential geometry, dynamics, geometric group theory, geometric topology, mathematical physics, number theory, and representation theory.

Bachelor’s Programs

- Bachelor of Arts (BA) Degree with a Major in Mathematics (p. 1403)
- Bachelor of Science (BS) Degree with a Major in Mathematics (p. 1404)

Minor

- Minor in Mathematics (p. 1407)

Master’s Program

- Master of Arts (MA) Degree in the field of Mathematics*

Doctoral Program

- Doctor of Philosophy (PhD) Degree in the field of Mathematics (p. 1406)
  - Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair

Alan Reid

Professors

David Damanik
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Mathematics (MATH)

MATH 101 - SINGLE VARIABLE CALCULUS I
Short Title: SINGLE VARIABLE CALCULUS I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Limits, continuity, differentiation, integration, and the Fundamental Theorem of Calculus. Mutually Exclusive courses may only be taken with instructor permission. May substitute MATH 111-112 or take MATH 101 after completing MATH 111. Should not be taken if student already has credit for MATH 102, MATH 211, MATH 212, or MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 101 if student has credit for MATH 105/MATH 112.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 102 - SINGLE VARIABLE CALCULUS II
Short Title: SINGLE VARIABLE CALCULUS II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of MATH 101. Includes further techniques of integration, as well as infinite sequences and series, Taylor polynomials and Taylor series, parametric equations, arc length, polar coordinates, complex numbers, and Fourier polynomials. Should not be taken if student already has credit for MATH 211, MATH 212, or MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 102 if student has credit for MATH 106.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 105 - AP/OTH CREDIT IN CALCULUS I
Short Title: AP/OTH CREDIT IN CALCULUS I
Department: Mathematics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of MATH 101. Includes further techniques of integration, as well as infinite sequences and series, Taylor polynomials and Taylor series, parametric equations, arc length, polar coordinates, complex numbers, and Fourier polynomials. Should not be taken if student already has credit for MATH 211, MATH 212, or MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 102 if student has credit for MATH 106.
Course URL: math.rice.edu (http://math.rice.edu)
MATH 106 - AP/OTH CREDIT IN CALCULUS II
Short Title: AP/OTH CREDIT IN CALCULUS II
Department: Mathematics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in calculus, such as the BC Calculus Advanced Placement exam or the International Baccalaureate higher-level calculus exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of MATH 102, but does not count for distribution. Mutually Exclusive: Cannot register for MATH 106 if student has credit for MATH 102.

MATH 111 - CALCULUS: DIFFERENTIATION AND ITS APPLICATIONS
Short Title: CALCULUS: DIFFERENTIATION
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of calculus, forming with MATH 112 a version of MATH 101/102 that does not cover infinite series. MATH 111 covers functions, limits, continuity, and derivatives and their applications. Mutually Exclusive courses may only be taken with instructor permission. Should not be taken if student already has credit for MATH 101, MATH 102, MATH 112, MATH 211, MATH 212, or MATH 221 without permission. Mutually Exclusive: Cannot register for MATH 111 if student has credit for MATH 105.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 112 - CALCULUS: INTEGRATION AND ITS APPLICATIONS
Short Title: CALCULUS: INTEGRATION + APPS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of the study of calculus from MATH 111. Integration, the Fundamental Theorem of Calculus, techniques of integration and applications. Should not be taken if student already has credit for MATH 102, MATH 211, MATH 212, MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 112 if student has credit for MATH 101/MATH 105.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 115 - THE ART OF MATHEMATICS
Short Title: THE ART OF MATH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Math 115 is intended primarily for students majoring in non-STEM fields seeking knowledge of the nature of mathematics as well as training in mathematical thinking and problem-solving. The goal of the course is to demonstrate that math is not necessarily about formulas, but is rather a process of thinking which is relevant to them on a daily basis. Instructor Permission Required.

MATH 211 - ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
Short Title: ORD DIFFERENTIAL EQUATIONS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of ordinary differential equations (e.g., solutions to separable and linear first-order equations and to higher-order linear equations with constant coefficients, the properties of solutions to differential equations, and numerical solution methods) and linear algebra (e.g., vector spaces and solutions to algebraic linear equations, dimension, eigenvalues, and eigenvectors of a matrix), as well as the application of linear algebra to first-order systems of differential equations and the qualitative theory of nonlinear systems and phase portraits. Mutually Exclusive: Cannot register for MATH 211 if student has credit for MATH 220.

MATH 212 - MULTIVARIABLE CALCULUS
Short Title: MULTIVARIABLE CALCULUS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Calculus of multiple variables. Vectors, partial derivatives and gradients, double and triple integrals, vector fields, line and surface integrals, Green’s theorem, Stokes’s theorem, and Gauss’s theorem. May substitute Math 221 and 222. Mutually Exclusive: Cannot register for MATH 212 if student has credit for MATH 222.
Course URL: math.rice.edu (http://math.rice.edu)
MATH 220 - HONORS ORDINARY DIFFERENTIAL EQUATIONS
Short Title: HONORS ORD DIFFERENTIAL EQNS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A rigorous introduction to the study of ordinary differential equations, including results about the existence, uniqueness and stability of solutions. Some concepts from multi-variable calculus and linear algebra will be introduced along the way. This course will introduce students to the understanding and writing of proofs. Mutually Exclusive: Cannot register for MATH 220 if student has credit for MATH 211.

MATH 221 - HONORS CALCULUS III
Short Title: HONORS CALCULUS III
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course and MATH 222 include the material of MATH 212 and much more. Topology of Rn, calculus for functions of several variables, linear and multilinear algebra, theory of determinants, inner product spaces, integration on manifolds.

MATH 222 - HONORS CALCULUS IV
Short Title: HONORS CALCULUS IV
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: See MATH 221. A student may not receive credit for both MATH 222 and MATH 212. Mutually Exclusive: Cannot register for MATH 222 if student has credit for MATH 212.

MATH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Laboratory, Lecture, Internship/Practicum, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact Department for current semester’s topic(s). Repeatable for Credit.

MATH 280 - UNDERGRADUATE MATH TEACHING PRACTICUM
Short Title: UG MATH TEACHING PRACTICUM
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, undergraduates who have previously excelled in MATH courses will develop teaching skills while supporting faculty as teaching assistants (TAs) in a particular MATH course for the benefit of the students taking that particular course. This course is open only to undergraduates with special permission of the course instructor and can be repeated for credit. Instructor Permission Required. Repeatable for Credit.

MATH 300 - TOPICS IN UNDERGRADUATE MATH
Short Title: TOPICS IN UNDERGRADUATE MATH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Treatment of topics in undergraduate mathematics. Topics vary by year. May be repeated for credit with permission of department. Instructor Permission Required. Repeatable for Credit.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 302 - ELEMENTS OF ANALYSIS
Short Title: ELEMENTS OF ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): MATH 102 or MATH 106
Description: Introductory treatment of topics in analysis and topology, with the real line as a central example. Techniques include connected and compact sets, sequences and subsequences, continuity, and uniform approximation. Clear, cogent, and complete mathematical arguments are emphasized.
Course URL: math.rice.edu (http://math.rice.edu)
MATH 304 - ELEMENTS OF KNOT THEORY
Short Title: ELEMENTS OF KNOT THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): MATH 221 or MATH 354 or MATH 355
Description: Introduction to the mathematical theory of knots. Techniques to distinguish knots from one another, Reidemeister moves, mod-p colorings, knot determinants, knot polynomials, Seifert surfaces, Euler characteristic, knot groups, and untying knots in four dimensions. We will also discuss open problems in knot theory.
Course URL: math.rice.edu

MATH 306 - ELEMENTS OF ABSTRACT ALGEBRA
Short Title: ELEMENTS OF ABSTRACT ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355) and (MATH 302 or MATH 354 or MATH 220 or MATH 221)
Description: Introductory treatment of the basic structures of abstract algebra: groups, rings, and fields. Clear, cogent, and complete mathematical arguments are emphasized. A student many not receive credit for both MATH 306 and MATH 356. Mutually Exclusive: Cannot register for MATH 306 if student has credit for MATH 356.
Course URL: math.rice.edu

MATH 321 - INTRODUCTION TO ANALYSIS I
Short Title: INTRODUCTION TO ANALYSIS I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 220 or MATH 221 or MATH 354 or MATH 302
Description: A thorough treatment of the foundations of real analysis such as metric spaces, compactness, sequences and series of functions, differentiation, Riemann integration. Mutually Exclusive: Cannot register for MATH 321 if student has credit for MATH 331.
Course URL: math.rice.edu

MATH 322 - INTRODUCTION TO ANALYSIS II
Short Title: INTRODUCTION TO ANALYSIS II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 331
Description: Further study in real analysis. Possible topics include analysis in higher dimensions, Hilbert spaces, Fourier series, Sturm-Liouville theory. Repeatable for Credit.
Course URL: math.rice.edu

MATH 323 - INTRODUCTION TO MATHEMATICAL CRYPTOGRAPHY
Short Title: INTRO TO MATH CRYPTOGRAPHY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 382 or COMP 448 or MATH 448 or MATH 365
Description: The course introduces students to modern cryptographic techniques, focusing mainly on mathematical tools. The course covers topics such as Diffie-Hellman key exchange, the ElGamal public key crypto system, integer factorization and RSA, and elliptic curves and lattices in cryptography Cross-list: COMP 323. Mutually Exclusive: Cannot register for MATH 323 if student has credit for COMP 523.
Course URL: math.rice.edu

MATH 331 - HONORS ANALYSIS
Short Title: HONORS ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 220 or MATH 221 or MATH 302 or MATH 354
Description: A careful treatment of basic topics in real analysis, including metric spaces and their topology, sequences and series, continuity, and differentiation. The content of this course is similar to that of MATH 321, but the intensity and conceptual level will be higher. Mutually Exclusive: Cannot register for MATH 331 if student has credit for MATH 321.
Course URL: math.rice.edu
MATH 354 - HONORS LINEAR ALGEBRA
Short Title: HONORS LINEAR ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Vector spaces, linear transformations and matrices, theory of systems of linear equations, determinants, eigenvalues and diagonalizability, inner product spaces; and optional material chosen from: dual vector spaces, spectral theorem for self-adjoint operators, Jordan canonical form. Content is similar to that of MATH 355, but with more emphasis on theory. The course will include instruction on how to construct mathematical proofs. This course is appropriate for potential Mathematics majors and others interested in learning how to construct rigorous mathematical arguments. Recommended Prerequisite(s): A 200-level math class. Mutually Exclusive: Cannot register for MATH 354 if student has credit for MATH 355.

MATH 355 - LINEAR ALGEBRA
Short Title: LINEAR ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Linear transformations and matrices, solution of linear equations, inner products eigenvalues and eigenvectors, the spectral theorem for real symmetric matrices, applications of Jordan canonical form. Mutually Exclusive: Cannot register for MATH 355 if student has credit for MATH 354.

MATH 356 - ABSTRACT ALGEBRA I
Short Title: ABSTRACT ALGEBRA I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355) and (MATH 302 or MATH 354 or MATH 220 or MATH 221)
Description: An introduction to algebraic structures. Covers basic group theory (including subgroups and quotients, permutation and matrix groups, group actions) and basic ring theory (including ideals and quotients, polynomial rings, unique factorization). Mutually Exclusive: Cannot register for MATH 356 if student has credit for MATH 306.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 357 - ABSTRACT ALGEBRA II
Short Title: ABSTRACT ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 356
Description: Fields and field extensions, modules over rings, further topics in groups, rings, fields, and their applications.

MATH 359 - HONORS NUMBER THEORY
Short Title: NUMBER THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 220 or MATH 221 or MATH 302 or MATH 354 or COMP 182
Description: Prime numbers and factorization, modular arithmetic, Diophantine equations, quadratic reciprocity, and other topics such as cryptography or continued fractions.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 366 - GEOMETRY
Short Title: GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics chosen from Euclidean, spherical, hyperbolic, and projective geometry, with emphasis on the similarities and differences found in various geometries. Isometries and other transformations are studied and used throughout. The history of the development of geometric ideas is discussed. This course is strongly recommended for prospective high school teachers.

MATH 368 - TOPICS IN COMBINATORICS
Short Title: TOPICS IN COMBINATORICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of combinatorics and discrete mathematics. Topics that may be covered include graph theory, Ramsey theory, finite geometries, combinatorial enumeration, combinatorial games.
MATH 370 - CALCULUS ON MANIFOLDS  
Short Title: CALCULUS ON MANIFOLDS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 211. Fourier series, Bessel functions, Legendre polynomials. Recommended Prerequisite(s): MATH 306 or MATH 356.  
Description: Differentiation and integration on manifolds: calculus on R^n, exterior differentiation, differentiation forms, vector fields, Stokes' theorem.  
Course URL: math.rice.edu

MATH 371 - LIE THEORY  
Short Title: LIE THEORY  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 306 or MATH 356  
Description: Study of classical groups as symmetries of Euclidean spaces. Geometry of complex numbers and quaternions, rotations and reflections of R^n, the orthogonal, unitary and sympletic groups. Tangent spaces to matrix groups, Lie algebras and the exponential map. If time permits: the structure of Lie algebras and the matrix logarithm. Recommended Prerequisite(s): MATH 354 or MATH 355 (may be taken the same semester).  
Course URL: math.rice.edu

MATH 373 - ELLIPTIC CURVES  
Short Title: ELLIPTIC CURVES  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 306 or MATH 356  
Description: Elliptic curves are central to modern number theory and instrumental in the proof of Fermat's Last Theorem. Topics will include: The addition law, solutions over the rational numbers, explicit computations, applications to factorization and cryptography; if time permits, infinite series attached to elliptic curves and the Birch-Swinnerton-Dyer conjecture. Recommended Prerequisite(s): 200 Level Math Course  
Course URL: math.rice.edu

MATH 374 - INTRODUCTION TO REPRESENTATION THEORY  
Short Title: INTRO TO REPRESENTATION THEORY  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 306 or MATH 356  
Description: First course in representation theory, with an emphasis on concrete examples, especially the symmetric group. Topics include representations of finite groups, characters, classification, symmetric functions, Young symmetrizers, and Schur-Weyl duality. Prior experience with proofs is necessary; some familiarity with linear or abstract algebra would be helpful, but can be acquired along the way. Recommended Prerequisite(s): Linear Algebra (MATH 221, MATH 354, or MATH 355) and MATH 356.  
Course URL: math.rice.edu

MATH 376 - ALGEBRAIC GEOMETRY  
Short Title: ALGEBRAIC GEOMETRY  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (MATH 354 or MATH 355) and (MATH 306 or MATH 356)  
Description: An introduction to algebraic geometry, with an emphasis on algorithms. Topics include: polynomial rings and ideals, Groebner bases and elimination theory, affine varieties, Hilbert's Nullstellensatz, and the Algebra-Geometry correspondence. Projective varieties; Bezout's Theorem.  
Course URL: math.rice.edu

MATH 381 - INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS  
Short Title: INTRO PARTIAL DIFF EQUATIONS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 306 or MATH 356  
Description: Laplace transform: inverse transform, applications to constant coefficient differential equations. Boundary value problems: Fourier series, Bessel functions, Legendre polynomials. Recommended Prerequisite(s): MATH 211.
MATH 382 - COMPUTATIONAL COMPLEX ANALYSIS
Short Title: COMPUTATIONAL COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the Cauchy integral theorem, Taylor series, residues, as well as the evaluation of integrals by means of residues, conformal mapping, and application to two-dimensional fluid flow. Recommended Prerequisite(s): MATH 212 OR 221. Mutually Exclusive: Cannot register for MATH 382 if student has credit for MATH 427/MATH 517.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 390 - UNDERGRADUATE COLLOQUIUM
Short Title: UNDERGRADUATE COLLOQUIUM
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Lectures by undergraduate students on mathematical topics not usually covered in other courses. Presentation of one lecture and attendance at all sessions required. Distribution Credit for MATH 390 no longer eligible beginning Fall 2019. Repeatable for Credit.

MATH 401 - DIFFERENTIAL GEOMETRY OF CURVES AND SURFACES
Short Title: DIFF GEOM OF CURVES/SURFACES
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 222 or MATH 354 or MATH 355) and (MATH 321 or MATH 331)
Description: Study of the differential geometry of curves and surfaces in R3. Includes an introduction to the concept of curvature and thorough treatment of the Gauss-Bonnet theorem. Recommended Prerequisite(s): MATH 211 or MATH 220 or familiarity with ODEs
Course URL: math.rice.edu (http://math.rice.edu)

MATH 402 - DIFFERENTIAL GEOMETRY
Short Title: DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 444 or MATH 539
Description: MATH 402 is the undergraduate version of the graduate class MATH 500 (being generic for all related instances of dual enrollment classes). This is a course in smooth and Riemannian manifolds. Tensors, Riemannian metrics, differential forms. Lie derivatives. Distributions and foliations, including the Frobenius Theorem and an introduction to contact structures. Lie groups and the exponential map. Connections on Vector Bundles. Geodesics and completeness. Curvature. First and second variations of length and area. Jacobi Fields. Additional topics may vary from year to year. Graduate/Undergraduate Equivalency: MATH 500. Mutually Exclusive: Cannot register for MATH 402 if student has credit for MATH 500.

MATH 410 - CALCULUS OF VARIATIONS
Short Title: CALCULUS OF VARIATIONS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (MATH 211 or MATH 212 or MATH 221 or MATH 222)
Description: Study of classical and modern theories about functions having some integral expression which is maximal, minimal, or critical. Geodesics, brachistochrone problem, minimal surfaces, and numerous applications to physics. Euler-Lagrange equations, 1st and 2nd variations, Hamilton's Principle.

MATH 412 - PROBABILITY THEORY
Short Title: PROBABILITY THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 331
Description: A simultaneous introduction to probability theory and measure theory, from basic definitions to the central limit theorem. The selection of topics in measure theory is in the service of probability theory, and the course carefully examines interplay between the analytic and probabilistic notions.
MATH 423 - PARTIAL DIFFERENTIAL EQUATIONS I  
Short Title: PARTIAL DIFFERENTIAL EQNS I  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
 Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Course URL: math.rice.edu

MATH 424 - TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS  
Short Title: TOPICS IN PARTIAL DIFF EQNS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
 Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 423  
Description: Continuation of MATH 423. Analysis of the solutions of second order differential equations. Integral relations and Green's functions. Potential theory, Dirichlet and Neumann problems. Asymptotic methods: the method of stationary phase, geometrical optics, regular and singular perturbation methods. Euler and Navier-Stokes equations. Graduate/Undergraduate Equivalency: MATH 514. Recommended Prerequisite(s): MATH 321 or MATH 331. Mutually Exclusive: Cannot register for MATH 424 if student has credit for MATH 514. Repeatable for Credit.  
Course URL: math.rice.edu

MATH 425 - INTEGRATION THEORY  
Short Title: INTEGRATION THEORY  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
 Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 321 or MATH 331  
Description: Lebesgue theory of measure and integration. Graduate/Undergraduate Equivalency: MATH 515. Mutually Exclusive: Cannot register for MATH 425 if student has credit for MATH 515.  
Course URL: math.rice.edu

MATH 426 - TOPICS IN REAL ANALYSIS  
Short Title: TOPICS IN REAL ANALYSIS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
 Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 425  
Description: Content varies from year to year. May include Fourier series, harmonic analysis, probability theory, advanced topics in measure theory, ergodic theory, and elliptic integrals. Graduate/Undergraduate Equivalency: MATH 516. Mutually Exclusive: Cannot register for MATH 426 if student has credit for MATH 516. Repeatable for Credit.  
Course URL: math.rice.edu

MATH 427 - COMPLEX ANALYSIS  
Short Title: COMPLEX ANALYSIS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
 Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 354 or MATH 222 or MATH 302  
Description: Study of the Cauchy-Riemann equation, power series, Cauchy's integral formula, residue calculus, and conformal mappings. Emphasis on the theory. Graduate/Undergraduate Equivalency: MATH 517. Recommended Prerequisite(s): MATH 321 or MATH 331. Mutually Exclusive: Cannot register for MATH 427 if student has credit for MATH 382/MATH 517.  
Course URL: math.rice.edu

MATH 428 - TOPICS IN COMPLEX ANALYSIS  
Short Title: TOPICS IN COMPLEX ANALYSIS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
 Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 382 or MATH 427  
Description: Special topics include Riemann mapping theorem, Runge's Theorem, elliptic function theory, prime number theorem, Riemann surfaces, et al. Graduate/Undergraduate Equivalency: MATH 518. Mutually Exclusive: Cannot register for MATH 428 if student has credit for MATH 518. Repeatable for Credit.  
Course URL: math.rice.edu
MATH 435 - DYNAMICAL SYSTEMS
Short Title: DYNAMICAL SYSTEMS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Existence and uniqueness for solutions of ordinary differential equations and difference equations, linear systems, nonlinear systems, stability, periodic solutions, bifurcation theory. Theory and theoretical examples are complemented by computational, model driven examples from biological and physical sciences. Cross-list: CAAM 435.
Recommended Prerequisite(s): (MATH 212 or MATH 221) and (CAAM 335 or MATH 355 or MATH 354) and (MATH 302 or MATH 321 or MATH 331)
Course URL: math.rice.edu/~jkn3/geotop.html

MATH 443 - GENERAL TOPOLOGY
Short Title: GENERAL TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 331
Description: Study of basic point set topology. Includes a treatment of cardinality and well ordering, as well as metrization. Graduate/Undergraduate Equivalency: MATH 538. Mutually Exclusive: Cannot register for MATH 443 if student has credit for MATH 538.
Course URL: math.rice.edu

MATH 444 - GEOMETRIC TOPOLOGY
Short Title: GEOMETRIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 331
Course URL: math.rice.edu/~jkn3/geotop.html

MATH 445 - ALGEBRAIC TOPOLOGY
Short Title: ALGEBRAIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 444
Description: Introduction to the theory of homology. Includes simplicial complexes, cell complexes and cellular homology and cohomology, as well as manifolds, and Poincare duality. Graduate/Undergraduate Equivalency: MATH 540. Mutually Exclusive: Cannot register for MATH 445 if student has credit for MATH 540.

MATH 448 - CONCRETE MATHEMATICS
Short Title: CONCRETE MATHEMATICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182 or MATH 220 or MATH 221 or MATH 302 or MATH 354
Description: Concrete mathematics is a blend of continuous and discrete mathematics. Major topics include sums, recurrences, integer functions, elementary number theory, binomial coefficients, generating functions, discrete probability and asymptotic methods. Cross-list: COMP 448.

MATH 463 - ADVANCED ALGEBRA I
Short Title: ADVANCED ALGEBRA I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 357
Description: This course will cover graduate level topics in group theory, ring theory, and module theory. Specific topics include the isomorphism theorems for groups, rings, and modules; group actions; solvable and nilpotent groups; Sylow's theorems; semi-direct products of groups; ideals; rings of fractions; various unique factorization domains; Hilbert's Basis Theorem; Gröbner Bases; tensor product of modules and universal property; modules over principal ideal domains; and canonical forms. The course will also include an introduction to category theory as time permits. Graduate/Undergraduate Equivalency: MATH 563. Mutually Exclusive: Cannot register for MATH 463 if student has credit for MATH 563.
MATH 468 - POTPOURRI
Short Title: POTPOURRI
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with miscellaneous special topics not covered in other courses. Repeatable for Credit.

MATH 466 - TOPICS IN ALGEBRA II
Short Title: TOPICS IN ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Varieties as solution sets of systems of polynomial equations, varieties in projective space, rational and regular functions, maps of varieties, local properties and singularities. Graduate/Undergraduate Equivalency: MATH 565. Mutually Exclusive: Cannot register for MATH 465 if student has credit for MATH 566. Repeatable for Credit.

MATH 465 - TOPICS IN ALGEBRA: INTRODUCTION TO ALGEBRAIC GEOMETRY
Short Title: TOPICS IN ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Varieties as solution sets of systems of polynomial equations, varieties in projective space, rational and regular functions, maps of varieties, local properties and singularities. Graduate/Undergraduate Equivalency: MATH 564. Mutually Exclusive: Cannot register for MATH 464 if student has credit for MATH 564. Repeatable for Credit.

MATH 464 - ADVANCED ALGEBRA II
Short Title: ADVANCED ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 463
Description: Continuation of MATH 463. Tensor and exterior algebra, introductory commutative algebra, structure of modules, and elements of homological algebra. Additional advanced topics may include representations of finite groups and affine algebraic geometry. Graduate/Undergraduate Equivalency: MATH 564. Mutually Exclusive: Cannot register for MATH 464 if student has credit for MATH 564.

MATH 471 - MATHEMATICS OF APERIODIC ORDER
Short Title: MATHEMATICS OF APERIODIC ORDER
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 354 or MATH 355
Description: Mathematical models of quasicrystals, whose discovery in the early 1980's led to a paradigm shift in materials science. Topics include: classical theory of ordered structures (i.e., lattices modeling crystals), Delone subsets and tilings of Euclidean space, aperiodically ordered structures generated by inflation or cut-and-project schemes. Graduate/Undergraduate Equivalency: MATH 571. Recommended Prerequisite(s): MATH 356. Mutually Exclusive: Cannot register for MATH 471 if student has credit for MATH 571.

MATH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MATH 479 - MATHEMATICS UNDERGRADUATE RESEARCH
Short Title: MATH UNDERGRADUATE RESEARCH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In depth investigation of a particular area of mathematics of mutual interest to the student and the faculty adviser. Instructor Permission Required. Repeatable for Credit.
Course URL: math.rice.edu

MATH 490 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MATH 499 - MATHEMATICAL SCIENCES VIGRE SEMINAR
Short Title: MATHEMATICAL SCIENCES
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 498, STAT 498. Graduate/Undergraduate Equivalency: MATH 698.
Mutually Exclusive: Cannot register for MATH 498 if student has credit for MATH 698. Repeatable for Credit.

MATH 500 - DIFFERENTIAL GEOMETRY
Short Title: DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 444 or MATH 539
Description: A graduate course in smooth and Riemannian manifolds. Tensors, Riemannian metrics, differential forms. Lie derivatives. Distributions and foliations, including the Frobenius Theorem and an introduction to contact structures. Lie groups and the exponential map.
Graduate/Undergraduate Equivalency: MATH 423. Recommended Prerequisite(s): MATH 321 AND MATH 322

MATH 501 - TOPICS IN DIFFERENTIAL GEOMETRY
Short Title: TOPICS DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 502 - TOPICS IN DIFFERENTIAL GEOMETRY
Short Title: TOPIC DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 513 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQNS I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MATH 514 - TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS
Short Title: TOPICS IN PARTIAL DIFF EQNS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 513 or MATH 423
Graduate/Undergraduate Equivalency: MATH 424. Mutually Exclusive: Cannot register for MATH 514 if student has credit for MATH 424.

MATH 515 - INTEGRATION THEORY
Short Title: INTEGRATION THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: MATH 425. Mutually Exclusive: Cannot register for MATH 515 if student has credit for MATH 425.
MATH 516 - TOPICS IN REAL ANALYSIS
Short Title: TOPICS IN REAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 425
Description: Graduate/Undergraduate Equivalency: MATH 426. Mutually Exclusive: Cannot register for MATH 516 if student has credit for MATH 426. Repeatable for Credit.

MATH 517 - COMPLEX ANALYSIS
Short Title: COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: MATH 427. Mutually Exclusive: Cannot register for MATH 517 if student has credit for MATH 382/MATH 427.

MATH 518 - TOPICS IN COMPLEX ANALYSIS
Short Title: TOPICS IN COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 382 or MATH 427
Description: Graduate/Undergraduate Equivalency: MATH 428. Mutually Exclusive: Cannot register for MATH 518 if student has credit for MATH 428. Repeatable for Credit.

MATH 521 - ADVANCED TOPICS IN REAL ANALYSIS
Short Title: ADV TOPIC: REAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 523 - FUNCTIONAL ANALYSIS
Short Title: FUNCTIONAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Banach spaces: review of L^p spaces, linear operators, dual space, Hahn-Banach theorem, weak topologies, Banach-Alaoglu theorem, compact and bounded operators, closed graph theorem; Hilbert spaces: self-adjoint and unitary operators (including spectral theorem), symmetric operators and self-adjoint extensions; if time allows, distributions and Sobolev spaces. Repeatable for Credit.

MATH 524 - TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS
Short Title: TOPICS IN PDE
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 527 - ERGODIC THEORY AND TOPOLOGICAL DYNAMICS
Short Title: ERGODIC THRY&TOP DYNAMICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 528 - ERGODIC THEORY AND TOPOLOGICAL DYNAMICS
Short Title: ERGODIC THRY&TOPOLOGICAL DYN
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 538 - GENERAL TOPOLOGY
Short Title: GENERAL TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 552 - TOPICS IN ANALYSIS
Short Title: TOPICS IN ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.
MATH 539 - GEOMETRIC TOPOLOGY
Short Title: GEOMETRIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 356 and MATH 443
Description: Graduate/Undergraduate Equivalency: MATH 444. Mutually Exclusive: Cannot register for MATH 539 if student has credit for MATH 444.

MATH 540 - ALGEBRAIC TOPOLOGY
Short Title: ALGEBRAIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 539
Description: Graduate/Undergraduate Equivalency: MATH 445. Mutually Exclusive: Cannot register for MATH 540 if student has credit for MATH 444.

MATH 541 - TOPICS IN TOPOLOGY
Short Title: TOPICS IN TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 542 - TOPICS IN ADVANCED TOPOLOGY
Short Title: TOPICS IN ADVANCED TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 543 - TOPICS IN LOW-DIMENSIONAL TOPOLOGY
Short Title: TOPICS IN L-D TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 544 - TOPOLOGY OF MANIFOLDS
Short Title: TOPOLOGY OF MANIFOLDS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 444 or MATH 539 and (MATH 445 or MATH 540)
Description: A graduate course on the topology of fiber bundles, especially vector bundles and principal bundles, as well as their characteristic classes. It will cover differential forms as well as Stiefel-Whitney, Euler, Chern, and Pontryagin classes. If time allows, other topics may be included. The prerequisites for the class are the material from Math 444/539 and Math 445/540. In particular, the student should be familiar with smooth manifolds, the tangent spaces, homotopy groups, covering spaces, and homology groups.

MATH 563 - ADVANCED ALGEBRA I
Short Title: ADVANCED ALGEBRA I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 357
Description: This course will cover graduate level topics in group theory, ring theory, and module theory. Specific topics include the isomorphism theorems for groups, rings, and modules; group actions; solvable and nilpotent groups; Sylow's theorems; semi-direct products of groups; ideals; rings of fractions; various unique factorization domains; Hilbert's Basis Theorem; Gröbner Bases; tensor product of modules and universal property; modules over principal ideal domains; and canonical forms. The course will also include an introduction to category theory as time permits. Graduate/Undergraduate Equivalency: MATH 463. Mutually Exclusive: Cannot register for MATH 563 if student has credit for MATH 463.

MATH 564 - ADVANCED ALGEBRA II
Short Title: ADVANCED ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 463 or MATH 563
Description: This course will cover advanced graduate level topics in field theory, Galois theory, and advanced topics in commutative algebra and in multilinear algebra. Specific topics include various algebraic field extensions; fundamental theorem of Galois theory; solvable and radical extensions; transcendental extensions; tensor, symmetric, and exterior algebras; projective, injective, and flat modules; advanced ideal theory; localization; and chain conditions for rings and modules. The course will also additonal advanced topics, such as homological algebra, as time permits. Graduate/Undergraduate Equivalency: MATH 464. Mutually Exclusive: Cannot register for MATH 564 if student has credit for MATH 464.
MATH 565 - TOPICS IN ALGEBRA: INTRODUCTION TO ALGEBRAIC GEOMETRY
Short Title: TOPICS IN ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Varieties as solution sets of systems of polynomial equations, varieties in projective space, rational and regular functions, maps of varieties, local properties and singularities. Graduate/Undergraduate Equivalency: MATH 465. Mutually Exclusive: Cannot register for MATH 565 if student has credit for MATH 465. Repeatable for Credit.

MATH 566 - TOPICS IN ALGEBRA II
Short Title: TOPICS IN ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Possible topics include rational points on algebraic varieties, moduli spaces, deformation theory, and Hodge structures. Recommended Prerequisite(s): MATH 463 and MATH 464. Repeatable for Credit.

MATH 567 - TOPICS IN ALGEBRAIC GEOMETRY
Short Title: TOPICS IN ALGEBRAIC GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mathematical models of quasicrystals, whose discovery in the early 1980's led to a paradigm shift in materials science. Topics include: classical theory of ordered structures (i.e., lattices modeling crystals), Delone subsets and tilings of Euclidean space, aperiodically ordered structures generated by inflation or cut-and-project schemes. Graduate/Undergraduate Equivalency: MATH 471. Recommended Prerequisite(s): MATH 356 Mutually Exclusive: Cannot register for MATH 567 if student has credit for MATH 471.

MATH 590 - CURRENT MATHEMATICS SEMINAR
Short Title: CURRENT MATHEMATICS SEMINAR
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures on topics of recent research in mathematics delivered by mathematics graduate students and faculty. Repeatable for Credit.

MATH 591 - GRADUATE TEACHING SEMINAR
Short Title: GRADUATE TEACHING SEMINAR
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion on teaching issues and practice lectures by participants as preparation for classroom teaching of mathematics. Repeatable for Credit.

MATH 571 - MATHEMATICS OF APERIODIC ORDER
Short Title: MATHEMATICS OF APERIODIC ORDER
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
MATH 682 - ALGEBRAIC GEOMETRY SEMINAR
Short Title: ALGEBRAIC GEOMETRY SEMINAR
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Description: Presentations of research in algebraic geometry and related areas. Repeatable for Credit.

MATH 683 - GEOMETRY AND ANALYSIS SEMINAR
Short Title: GEOMETRY AND ANALYSIS SEMINAR
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presentations of research in geometric analysis, mathematical physics, dynamics and related areas. Repeatable for Credit.

MATH 690 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 698 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 698, STAT 698. Graduate/Undergraduate Equivalency: MATH 498. Mutually Exclusive: Cannot register for MATH 698 if student has credit for MATH 498. Repeatable for Credit.

MATH 699 - MATHEMATICAL SCIENCES VIGRE SEMINAR
Short Title: MATHEMATICAL SCIENCES
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 700 - SUMMER RESEARCH FOR PHD STUDENTS
Short Title: SUMMER RESEARCH
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy degree.
Course Level: Graduate
Description: Summer research for MATH PhD students. Can be repeated for credit. Repeatable for Credit.

MATH 800 - GRADUATE THESIS AND RESEARCH
Short Title: GRADUATE THESIS AND RESEARCH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: MATH

Department Description and Code
- Mathematics: MATH

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS

Undergraduate Major Description and Code
- Major in Mathematics (attached to both the BA and BS Degrees): MATH

Undergraduate Minor Description and Code
- Minor in Mathematics: MATM

Graduate Degree Descriptions and Codes
- Master of Arts degree: MA
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
- Degree Program in Mathematics: MATH

CIP Code and Description
- MATH Major/Program: CIP Code/Title: 27.0101 - Mathematics, General
- MATM Minor: CIP Code/Title: 27.0101 - Mathematics, General

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Bachelor of Arts (BA) Degree with a Major in Mathematics

Program Learning Outcomes for the BA Degree with a Major in Mathematics

Upon completing the BA degree with a major in Mathematics, students will be able to:

1. Achieve both practical and theoretical fluency in calculus and linear algebra.
2. Acquire a background at the undergraduate level in a wide variety of central areas of mathematics.
3. Be acquainted with formal mathematical reasoning, including proofs.

Requirements for the BA Degree with a Major in Mathematics

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BA degree with a major in Mathematics must complete:

- A minimum of 12 courses (36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (24 credit hours) taken at the 300-level or above.

Students who are pursuing 2 majors (i.e., are double majors) are eligible for a course substitution exception in the Elective Requirements. Double majors may substitute approved mathematics-related courses for up to 3 courses (9 credit hours) of the 8 courses (24 credit hours) required at the 300-level or above. Double majors who later drop the other major are required to meet the requirements listed for single majors.

The chair of the MATH department's undergraduate committee may modify requirements to meet the needs of specific advanced students. If a course is repeatable for credit, the course may only be repeated once.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the BA Degree with a Major in</td>
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<td>Mathematics</td>
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### Degree Requirements

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<tr>
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<td>Core Requirements</td>
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<td>MATH 101</td>
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<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<td>or MATH 106</td>
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<td>MATH 211</td>
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<tr>
<td>&amp; MATH 212</td>
<td>AND LINEAR ALGEBRA and MULTIVARIABLE CALCULUS</td>
<td></td>
</tr>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
<tr>
<td>&amp; MATH 222</td>
<td>AND LINEAR ALGEBRA and HONORS CALCULUS IV</td>
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</tr>
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<td>MATH 220</td>
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<td>and MULTIVARIABLE CALCULUS</td>
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<td>MATH 220</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS</td>
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<td>&amp; MATH 222</td>
<td>and HONORS CALCULUS IV</td>
<td></td>
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<td></td>
<td>Elective Requirements</td>
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<td>Select 8 elective courses from departmental (MATH) course</td>
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<td>offerings at the 300-level or above.</td>
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<td>Additional Credit Hours to Complete Degree Requirements *</td>
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<td>University Graduation Requirements (p. 29) *</td>
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<tr>
<td></td>
<td>Total Credit Hours</td>
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</table>

### Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 The Elective Requirements for the double major are the same as the single major except that students may substitute approved mathematics-related courses for up to 3 courses (9 credit hours) of the 8 courses (24 credit hours) required at the 300-level or above. At most, students can take 1 course (3 credit hours) for any given course number to use toward the major. Additionally, at most 3 credit hours from courses numbered MATH 490 through MATH 499 (research and supervised reading courses) can count towards major requirements.
Policies for the BA Degree with a Major in Mathematics

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Mathematics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Mathematics may not additionally pursue the BS Degree with a Major in Mathematics.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Mathematics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Mathematics website: https://math.rice.edu/

Opportunities for the BA Degree with a Major in Mathematics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Mathematics website: https://math.rice.edu/

Bachelor of Science (BS) Degree with a Major in Mathematics

Program Learning Outcomes for the BS Degree with a Major in Mathematics

Upon completing the BS degree with a major in Mathematics, students will be able to:

1. Achieve both practical and theoretical fluency in calculus and linear algebra.
2. Acquire a broad background at the undergraduate level in all the major areas of mathematics, including analysis, algebra, and geometry.
3. Learn to read and write proofs.

Requirements for the BS Degree with a Major in Mathematics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Mathematics must complete:

- A minimum of 14-17 courses (42-51 credit hours), depending on course selection, to satisfy the major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 11 courses (33 credit hours) taken at the 300-level or above.

Students receive advanced placement (AP) credit by achieving a score of 4 or 5 on the AP AB-level test or by achieving a score of 4 or 5 on the BC-level test. The credit is articulated as MATH 105 or MATH 105 and MATH 106. Declared MATH majors who have had calculus but have not taken the AP test may petition the department for a waiver of the calculus requirements. Entering students should enroll in the most advanced course commensurate with their background; advice is available from the mathematics faculty during Orientation Week and at other times.

The chair of the MATH department’s undergraduate committee may modify requirements to meet the needs of specific advanced students. If a MATH course is repeatable for credit, the course may only be repeated once.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BS Degree with a Major in Mathematics</td>
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Degree Requirements

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<td>Core Requirements</td>
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<td>Single Variable Calculus</td>
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<td>MATH 101</td>
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<td>or MATH 105</td>
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Select 1 course from the following:

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</thead>
<tbody>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
</tr>
<tr>
<td>MATH 220</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS</td>
</tr>
<tr>
<td>MATH 381</td>
<td>INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS</td>
</tr>
<tr>
<td>MATH 423 / CAAM 423</td>
<td>PARTIAL DIFFERENTIAL EQUATIONS I</td>
</tr>
</tbody>
</table>

Multivariable Calculus

Select 1 from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
</tr>
<tr>
<td>MATH 221 &amp; MATH 222</td>
<td>HONORS CALCULUS III and HONORS CALCULUS IV</td>
</tr>
</tbody>
</table>

Linear Algebra

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 221</td>
<td>HONORS CALCULUS III</td>
</tr>
<tr>
<td>MATH 354</td>
<td>HONORS LINEAR ALGEBRA</td>
</tr>
<tr>
<td>MATH 355</td>
<td>LINEAR ALGEBRA</td>
</tr>
</tbody>
</table>

Real Analysis

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 321</td>
<td>INTRODUCTION TO ANALYSIS I</td>
</tr>
<tr>
<td>MATH 322</td>
<td>INTRODUCTION TO ANALYSIS II</td>
</tr>
<tr>
<td>MATH 331</td>
<td>HONORS ANALYSIS</td>
</tr>
<tr>
<td>MATH 425</td>
<td>INTEGRATION THEORY</td>
</tr>
</tbody>
</table>

Algebra

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 356</td>
<td>ABSTRACT ALGEBRA I</td>
</tr>
<tr>
<td>MATH 357</td>
<td>ABSTRACT ALGEBRA II</td>
</tr>
<tr>
<td>MATH 463</td>
<td>ADVANCED ALGEBRA I</td>
</tr>
</tbody>
</table>

Geometry and Manifolds

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 370</td>
<td>CALCULUS ON MANIFOLDS</td>
</tr>
<tr>
<td>MATH 401</td>
<td>DIFFERENTIAL GEOMETRY OF CURVES AND SURFACES</td>
</tr>
<tr>
<td>MATH 402</td>
<td>DIFFERENTIAL GEOMETRY</td>
</tr>
</tbody>
</table>

Complex Analysis

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 382</td>
<td>COMPUTATIONAL COMPLEX ANALYSIS</td>
</tr>
<tr>
<td>MATH 427</td>
<td>COMPLEX ANALYSIS</td>
</tr>
</tbody>
</table>

Topology

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 443</td>
<td>GENERAL TOPOLOGY</td>
</tr>
<tr>
<td>MATH 444</td>
<td>GEOMETRIC TOPOLOGY</td>
</tr>
<tr>
<td>MATH 445</td>
<td>ALGEBRAIC TOPOLOGY</td>
</tr>
</tbody>
</table>

Elective Requirements

Students must complete a minimum of 33 credit hours from departmental (MATH) course offerings at the 300-level or above.

Total Credit Hours Required for the Major in Mathematics: 42-51
Additional Credit Hours to Complete Degree Requirements: 38-47

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 The Elective Requirements can include courses taken from the Core Requirements and/or Elective coursework, for a minimum of 11 courses (33 credit hours) at the 300-level or above. At most, students can take 1 course (3 credit hours) for any given course number to use toward the major. Additionally, at most 3 credit hours from courses numbered MATH 490 through MATH 499 (research and supervised reading courses) can count towards major requirements.

Policies for the BS Degree with a Major in Mathematics

Program Restrictions and Exclusions

Students pursuing the BS Degree with a Major in Mathematics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Mathematics may not additionally pursue the BA Degree with a Major in Mathematics.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Mathematics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Mathematics website: https://math.rice.edu/

Opportunities for the BS Degree with a Major in Mathematics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum
Degrees requirements for thesis master's degrees, please see Degrees in the field of Mathematics (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**
For additional information, please see the Mathematics website: [https://math.rice.edu/](https://math.rice.edu/)

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**Doctor of Philosophy (PhD) Degree in the field of Mathematics**

**Program Learning Outcomes for the MA and PhD Degrees in the field of Mathematics**

Upon completing the MA and PhD degrees in the field of Mathematics, students will be able to:

1. Apply abstract structures from algebra, analysis, and topology to analyze and solve both concrete problems and conceptual questions.
2. Learn fundamental mathematics independently, outside the structure of a regular course.
3. Present mathematical results and reasoning in a compelling way to an audience of mathematicians.
4. Use the mathematical literature and databases to find theorems, constructions, or counterexamples.
5. Write clear and convincing proofs of one's own original mathematical results.

**Requirements for the MA and PhD Degrees in the field of Mathematics**

Students may not be admitted directly to the Master of Arts degree program in mathematics. Instead, graduate students in the Doctor of Philosophy degree program in the field of mathematics may earn the MA as they work towards the PhD in the field of mathematics. Admission to the PhD program in the field of mathematics is granted to a limited number of students who have illustrated an ability for advanced and original work. Normally, students take one or two years after the BA degree to obtain an MA degree, and they take four or five years to obtain a PhD. An MA is not a prerequisite for the PhD. For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

A number of graduate scholarships and fellowships are available, awarded on the basis of merit. As part of the graduate education in mathematics, students also engage in teaching or other instructional duties, generally for no more than six hours a week.

For courses carrying dual undergraduate and graduate numbers, (e.g., MATH 463/MATH 563), the 500-level version is intended to prepare students for advanced work in mathematics. In particular, written assignments should be prepared to high professional standards. Mathematics graduate students should enroll in the 500-level version.

**MA Degree Program**
The MA degree can be either a thesis or a non-thesis master's degree depending on the option the student pursues. For general university requirements for thesis master's degrees, please see Thesis Master’s Degrees (p. 75). For general university requirements for non-thesis master's degrees, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Doctoral students may petition for these once they have satisfied all university and departmental requirements.

Student pursuing the MA degree in the field of Mathematics must complete:

- Complete with a grade of B (3.00 grade points) or better a course of study approved by the department. (Students may transfer credits from another university only with the approval of both the department and the University Graduate Council.)
- Perform satisfactorily on the general examinations in algebra, analysis, and topology or prepare and present an oral defense of an original thesis acceptable to the department

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MA Degree in the field of Mathematics</td>
<td>30</td>
</tr>
</tbody>
</table>

**Requirements for the PhD Degree in the field of Mathematics**

**PhD Degree Program**

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Mathematics must:

- Complete with a grade of B (3.00 grade points) or better a course of study approved by the department (students may transfer credits from another university only with the approval of both the department and the University Graduate Council)
- Perform satisfactorily on qualifying examinations (see below)
- Write an original thesis acceptable to the department
- Perform satisfactorily on a final oral examination on the thesis

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Mathematics</td>
<td>90</td>
</tr>
</tbody>
</table>

**Qualifying Examinations**
The qualifying examinations in mathematics consist of the general examinations and the advanced oral examination.

To complete the general examinations, students must take exams, one each in algebra, analysis, and topology. Exams are offered every August, January, and May. First-year students may take any combination of exams at any time. After 2 semesters of study, students must attempt to pass all remaining exams at each offering. Students must perform satisfactorily on all 3 by the January exams at the beginning of their fourth semester. The judgment of satisfactory performance on the general examinations for either the MA or PhD degree is the responsibility
of the department graduate committee. Students may take an exam several times.

To complete the advanced oral examination, students must select a special field (e.g., homotopy theory, several complex variables, or group theory) and submit it to the department graduate committee for approval. The committee schedules an advanced examination in the selected field, normally 6 to 12 months after the student completes the general examinations. While students failing the advanced examination may, with the approval of the committee, retake it on the same or possibly on a different topic, they generally are not allowed to take the advanced examination more than twice.

Policies for the PhD Degree in the field of Mathematics

Department of Mathematics Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Mathematics publishes a graduate program handbook, which can be found here: [http://gradhandbooks.rice.edu/2017_18/Mathematics_Graduate_Handbook.pdf](http://gradhandbooks.rice.edu/2017_18/Mathematics_Graduate_Handbook.pdf) [https://gradhandbooks.rice.edu/2021_22/Mathematics_Graduate_Student_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Mathematics_Graduate_Student_Handbook.pdf)

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Mathematics should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Mathematics website: [https://math.rice.edu/](https://math.rice.edu/)

Opportunities for the PhD Degree in the field of Mathematics

Additional Information

For additional information please see the Mathematics website: [https://math.rice.edu/](https://math.rice.edu/)

Minor in Mathematics

Program Learning Outcomes for the Minor in Mathematics

Upon completing the minor in Mathematics, students will have:

1. Achieved practical fluency in calculus and linear algebra.
2. Acquired a background at the undergraduate level in a small variety of central areas of mathematics.
3. Become acquainted with formal mathematical reasoning, including proofs.

Requirements for the Minor in Mathematics

Students pursuing the minor in Mathematics must complete:

• A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
• A minimum of 4 courses (12 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/]). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Mathematics</td>
<td>18</td>
</tr>
</tbody>
</table>

Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Core Requirements 1, 2, 3

Analysis

Select 1 from the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 302</td>
<td>ELEMENTS OF ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>MATH 321</td>
<td>INTRODUCTION TO ANALYSIS I</td>
<td></td>
</tr>
<tr>
<td>MATH 331</td>
<td>HONORS ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>MATH 381</td>
<td>INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
<tr>
<td>MATH 382</td>
<td>COMPUTATIONAL COMPLEX ANALYSIS</td>
<td></td>
</tr>
</tbody>
</table>

Discrete Mathematics and Algebra

Select 1 from the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 306</td>
<td>ELEMENTS OF ABSTRACT ALGEBRA</td>
<td></td>
</tr>
<tr>
<td>MATH 356</td>
<td>ABSTRACT ALGEBRA I</td>
<td></td>
</tr>
<tr>
<td>MATH 365</td>
<td>NUMBER THEORY</td>
<td></td>
</tr>
<tr>
<td>MATH 368</td>
<td>TOPICS IN COMBINATORICS</td>
<td></td>
</tr>
</tbody>
</table>

Linear Algebra

Select 1 from the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 221</td>
<td>HONORS CALCULUS III</td>
<td></td>
</tr>
<tr>
<td>MATH 354</td>
<td>HONORS LINEAR ALGEBRA</td>
<td></td>
</tr>
<tr>
<td>MATH 355</td>
<td>LINEAR ALGEBRA</td>
<td></td>
</tr>
</tbody>
</table>

Elective Requirements 1, 3, 4

Select 3 additional courses from departmental (MATH) course offerings. 9

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

Total Credit Hours 18
Footnotes and Additional Information

1. The required 6 courses (18 credit hours) for the minor must be selected from departmental (MATH) course offerings at the 200-level or above. At most 1 course (3 credit hours) from any particular course or course number may be applied to the minor.

2. Certain approved courses taken outside the mathematics department may be used to satisfy one area of the Core Requirements (Analysis, Discrete Mathematics and Algebra, or Linear Algebra), but will not count towards the required 6 courses (18 credit hours). An approved upper-level departmental (MATH) course (other than courses numbered MATH 490 through MATH 499) may be used to satisfy an area of the Core Requirements. Students seeking to substitute approved courses should consult in advance with the chair of the undergraduate committee.

3. A minimum of 4 courses (12 credit hours) must be taken from departmental (MATH) course offerings at the 300-level or above in order to meet minor requirements.

4. At most 3 credit hours from courses numbered MATH 490 through MATH 499 (research and supervised reading courses) can count towards Elective Requirements.

Policies for the Minor in Mathematics

Program Restrictions and Exclusions

Students pursuing the minor in Mathematics should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Mathematics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Mathematics website: https://math.rice.edu/

Opportunities for the Minor in Mathematics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Mathematics website: https://math.rice.edu/

Mechanical Engineering

Contact Information

Mechanical Engineering
https://mech.rice.edu/
101 Mechanical Engineering Building
713-348-4906
Laura Schaefer
Department Chair
laura.schaefer@rice.edu

Undergraduate studies in mechanical engineering can lead to careers that focus on a diverse set of areas, including aerospace engineering, biomedical systems, computational fluid dynamics, computational mechanics, fluids-thermal science, mechanical design, mechanics, robotics, systems dynamics and controls.

The graduate program offers professional degrees in mechanical engineering, which permits specialization in the areas previously mentioned. Graduate students also may pursue research degrees. The graduate program, in its comprehensive educational and research activities, collaborates with other departments at Rice and other institutions in Houston, including those in the Texas Medical Center. Collaborations also are extended to universities in the United States, Europe, Japan, and South America. International collaborations include joint research activities and faculty and student visitor exchanges.

A coordinated MBA/MME degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Bachelor's Programs

- Bachelor of Arts (BA) Degree with a Major in Mechanical Engineering (p. 1427)
- Bachelor of Science in Mechanical Engineering (BSME) Degree (p. 1429)

Master's Programs

- Master of Mechanical Engineering (MME) Degree (p. 1434)
- Master of Science (MS) Degree in the field of Mechanical Engineering (p. 1437)

Doctoral Program

- Doctor of Philosophy (PhD) Degree in the field of Mechanical Engineering (p. 1433)

Coordinated Programs

- Master of Mechanical Engineering (MME) Degree / Master of Business Administration (MBA) Degree (p. 1436)
Rice University
1409

Chair
Laura Schaefer

Professors
John Edward Akin
Yildiz Bayazitoglu
Benjamin J. Fregly
Fathi Ghorbel
C. Fred Higgs, III
Andrew J. Meade
Marcia K. O'Malley
Pol D. Spanos
Tayfun E. Tezduyar

Associate Professor
Peter Lillehoj

Assistant Professors
Matthew Brake
Pedram Hassanzadeh
Daniel Preston
Geoffrey Wehmeyer

Professor Emeritus
Chao-Cheng Wang

Professor in the Practice
Patrick Rodi

Lecturers
Leroy Chiao
Matthew Elliott

Professors, Joint Appointments
Reginald DesRoches
Lydia Kavraki
Satish Nagarajaiah

Adjunct Professors
Aladin Boriek
James Dabney
Thomas J. R. Hughes

Adjunct Associate Professors
Kenji Takizawa
David Woffinden

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's
Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's
Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Mechanical Engineering (MECH)

MECH 200 - CLASSICAL THERMODYNAMICS
Short Title: CLASSICAL THERMODYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Explication of the fundamental laws of classical thermodynamics and deductions from them. Includes applications with particular attention to pure substances. Required for mechanical engineering majors. Recommended Prerequisite(s): PHYS 101 and PHYS 102.

MECH 202 - MECHANICS/STATICS
Short Title: MECHANICS/STATICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111)
Description: Mechanics is the branch of the physical sciences that deals with the response of bodies to the action of forces and is based on the implementation of Newton's laws. This class is divided into two sections: study of rigid bodies in equilibrium; and strength of materials. Fundamental concepts such as equilibrium, stress and strain, deformations and displacements, elasticity and inelasticity, strain energy, and load-carrying capacity will be covered.

MECH 203 - MECHANICAL ENGINEERING DESIGN TOOLS
Short Title: MECH ENG DESIGN TOOLS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PHYS 101
Description: Learning the use of computer aided design tools for preparing complex solid parts, assemblies, and their dimensioned drawings. Learn to apply black-box simulation tools for stress analysis, heat transfer, vibration, etc. of complex parts and assemblies.
MECH 210 - INTRODUCTION TO NUMERICAL METHODS
Short Title: INTRO TO NUMERICAL METHODS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PHYS 101 and PHYS 102 and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: Numerical Methods covers computational methods for generating numerical solutions to mathematical problems, with an emphasis on engineering applications and computer implementation in MATLAB.

MECH 211 - ENGINEERING MECHANICS
Short Title: ENGINEERING MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: The study equilibrium of static systems, the dynamics of a particle and particle systems, and rigid-body dynamics. Cross-list: CEVE 211.

MECH 231 - SOPHOMORE LAB
Short Title: SOPHOMORE LAB
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Instruction in application of engineering thermodynamics. Includes uncertainty analysis, measurement of thermodynamic properties, and design of experiments. Required for mechanical engineering majors in B.S. program. Recommended Prerequisite(s): MECH 200

MECH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MECH 308 - SENIOR DESIGN JUNIOR OBSERVERS
Short Title: SENIOR DESIGN JUNIOR OBSERVERS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MECH 310 - RIGID BODY DYNAMICS
Short Title: RIGID BODY DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 101 and PHYS 102 and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: Mechanics is the branch of the physical sciences that deals with the response of bodies to the action of forces and is based on the implementation of Newton's laws. Statics is the study of bodies in equilibrium and is based on Newton's first and third laws, while Dynamics focuses on bodies in motion and is based on Newton's second and third laws. This class focuses on Rigid Body Dynamics.

MECH 311 - MECHANICS OF SOLIDS AND STRUCTURES
Short Title: MECHANICS OF SOLIDS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 211 or MECH 211
Description: Analysis of stress and the deformation of solids with applications to beams, circular shafts, and columns. Required for following undergraduate majors: civil and environmental and mechanical engineering. Cross-list: CEVE 311.
MECH 315 - STRESS ANALYSIS
Short Title: STRESS ANALYSIS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 202 or MECH 211
Description: Stress analysis is integral to much of mechanical engineering, whether in industrial design or academic research. This course is divided into two parts. First, the concepts of stress analysis are introduced for two-dimensional, then three-dimensional bodies. The second part of this course builds upon stress analysis by going into failure – both dynamic and static theories. A series of month long design projects will apply the tools learned in this course to specific engineering problems.

MECH 331 - JUNIOR LABORATORY I
Short Title: JUNIOR LABORATORY I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Instruction in static and impact testing of engineering materials. Includes beam deflection and shear center experiments, as well as the application and testing of strain gauges. Required for mechanical engineering majors in B.S. program.

MECH 332 - JUNIOR LABORATORY II
Short Title: JUNIOR LABORATORY II
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Instruction in fluid mechanics and thermodynamics. Students work in groups and perform classic experiments in fluid flow. This laboratory course provides experimental support to MECH 371. Required course for mechanical engineering majors in B.S. program. See on-line registration for sections.

MECH 340 - INDUSTRIAL PROCESS LAB
Short Title: INDUSTRIAL PROCESS LAB
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Practical experience in, and observation of, selected industrial processes. Must sign up in department office at the beginning of registration for sections; each section is limited to 8 students. Open only to mechanical engineering majors. Required for mechanical engineering majors in B.S. program. Final registration confirmed after the first week's organizational meeting. Meeting announcements posted in the MEMS department.

MECH 343 - MODELING OF DYNAMIC SYSTEMS
Short Title: MODELING OF DYNAMIC SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 211 or CEVE 211 or MECH 310) and MECH 200 and MATH 211
Description: Energy-based modeling of dynamic systems. The focus of the course will be mechanical systems and electrical circuits, but will also involve fluid, thermal and other domains. The course will introduce modeling and simulation of systems via MATLAB, Simulink, and Labview, and an introduction to systems theory. Modeling and simulation of systems via MATLAB, and an introduction to systems theory. Includes laboratory assignments. Required for mechanical engineering majors in B.S. program. Recommended Prerequisite(s): CAAM 335.

MECH 350 - MECHANICAL ELEMENTS
Short Title: MECHANICAL ELEMENTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 315 or MECH 311 or CEVE 311
Description: The principles of mechanics are applied to the design of machine elements, including load path and stress analysis, selection of mechanical components, and materials selection. A semester design project requires using the analysis tools learned in the course. Required for mechanical engineering majors in B.S. program.
MECH 371 - FLUID MECHANICS I
Short Title: FLUID MECHANICS I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 200 and MATH 212
Description: Introduction to fluid statics and dynamics. Includes the development of the fundamental equations of fluid mechanics and their application to problems of engineering interest. Required for mechanical engineering majors in B.S. program. Department Permission Required.

MECH 373 - ACOUSTICS
Short Title: ACOUSTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Basics of technical acoustics, including generation, propagation, reception and reproduction of sound, speech and hearing, musical and architectural acoustics, and noise control. Offered alternate years.

MECH 380 - INTRODUCTION TO MECHANICAL EFFECTS IN TISSUES
Short Title: INTRO TO MECHANICAL EFFECTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 211 and MECH 311 or CEVE 300
Description: Development of a general background in physiology and in advanced mechanics for applications in medicine. Includes bone mechanics in remodeling, cartilage and ligament mechanics, and muscle mechanics, as well as an on paper design project on a subject selected by students.

MECH 383 - INTRODUCTION TO BIOMEDICAL INSTRUMENTATION AND MEASUREMENT TECHNIQUES
Short Title: BIOMED INSTRUMENT&MESURE TECHN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 381
Description: Review of basic sensors, measurement principles and analog electronics using operational amplifiers. Includes design problems using operational amplifier circuits (e.g. instrumentation and isolation amplifiers, comparators, timer circuits). Introduction to development of virtual instruments (Vis) using LabView. Discussion of micro and macro-biopotential electrodes, cell cytometry, the measurement of blood pressure, blood flow, and heart sounds, temperature, and the principles of electrical safety (e.g. micro and macro-shock hazards in the clinical environment). Includes discussion of pulmonary instrumentation and medical applications of ultrasound. Two lab exercises and a term project required.

MECH 390 - TOPICAL ISSUES IN ENGINEERING
Short Title: TOPICAL ISSUES IN ENG
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This discussion based class will focus on current events and how engineering can be used to directly address them throughout a career. Topics will include energy, environmental, space, and societal (e.g., inequality, social media, etc.) related issues amongst others.

MECH 400 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 202 or MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: CEVE 400. Graduate/Undergraduate Equivalency: MECH 500. Mutually Exclusive: Cannot register for MECH 400 if student has credit for MECH 500.
MECH 401 - MECHANICAL DESIGN APPLICATIONS
Short Title: MECHANICAL DESIGN APPLICATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional, or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 343 and (MECH 350 or MECH 401) and MECH 481
Description: Brief review of solid mechanics with introduction to failure theories and fatigue analysis. The principles of mechanics are applied to the design of machine elements. A semester design project requires using the analysis tools learned in the course. Required for mechanical engineering majors in B.S. program.

MECH 403 - COMPUTER AIDED DESIGN
Short Title: COMPUTER AIDED DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional, or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 311 or CEVE 311
Description: Brief review of solid mechanics with introduction to failure theories and fatigue analysis. The principles of mechanics are applied to the design of machine elements. A semester design project requires using the analysis tools learned in the course. Required for mechanical engineering majors in B.S. program.

MECH 404 - MECHANICAL DESIGN PROJECT
Short Title: MECHANICAL DESIGN PROJECT
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional, or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Project based course for group or individual design projects relating to mechanical engineering topics.

MECH 407 - CAPSTONE DESIGN PROJECT I
Short Title: CAPSTONE DESIGN PROJECT I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional, or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 343 and (MECH 350 or MECH 401) and MECH 481
Description: An interdisciplinary capstone design experience in mechanical engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete MECH 408 to receive credit for MECH 407. Required for mechanical engineering majors in B.S. program.

MECH 408 - CAPSTONE DESIGN PROJECT II
Short Title: CAPSTONE DESIGN PROJECT II
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional, or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An interdisciplinary capstone design experience in mechanical engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete MECH 408 to receive credit for MECH 407. Required for mechanical engineering majors in B.S. program. Department Permission Required.
MECH 427 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM

Short Title: PHY GUIDED ML-DATA DRIVEN FEM
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311 or MECH 315
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Cannot be taken concurrently with CEVE/MECH 527. Prerequisites CEVE/MECH 311. Cross-list: CEVE 427. Mutually Exclusive: Cannot register for MECH 427 if student has credit for MECH 527.
Course URL: Satishnagarajaiah.rice.edu (http://Satishnagarajaiah.rice.edu)

MECH 430 - TRIBOMECHADYNAMICS

Short Title: TRIBOMECHADYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 315 and MECH 343
Description: Tribomechadynamics is a graduate/upper level undergraduate course that spans the topics of tribology, contact mechanics, and nonlinear dynamics. These three topics are integral to understanding interfacial contact, how assembled structures behave, and how the evolution of damage (wear) over time at the micro-scale influences the structural-scale response of a system. In brief, the subjects covered by this course are: • Tribology. Topics will include empirical and heuristic friction models, the fundamentals of wear, lubrication selection and considerations, and fundamental failure modes. • Contact Mechanics. Topics will include elastic deformation, constitutive modeling, plasticity, failure criteria, and numerical simulation. • Nonlinear Dynamics. Topics will include an overview of linear vibration theory, model reduction theories, nonlinear vibration theory, nonlinear analysis including quasi-static analysis and harmonic balance methods, continuation, and modal analysis. Graduate/Undergraduate Equivalency: MECH 530.

MECH 431 - SENIOR LABORATORY I

Short Title: SENIOR LABORATORY I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Laboratory instruction in heat transfer and thermodynamics. Students work in groups doing experiments with emphasis on applied thermodynamics. Required for mechanical engineering majors in B.S. program. See online registration for sections.
MECH 435 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS
Short Title: INTRO TO MECHATRONICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242 or ELEC 243
Description: Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Cross-list: ELEC 435. Graduate/Undergraduate Equivalency: MECH 535. Mutually Exclusive: Cannot register for MECH 435 if student has credit for MECH 535.

MECH 444 - FLUID MECHANICS OF COMPUTING
Short Title: FLUID MECHANICS OF COMPUTING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: BIOE 454, CEVE 454. Graduate/Undergraduate Equivalency: MECH 544. Recommended Prerequisite(s): MECH 200 and MATH 212. Mutually Exclusive: Cannot register for MECH 444 if student has credit for MECH 544.

MECH 450 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon sin life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today’s robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: COMP 450, ELEC 450. Graduate/Undergraduate Equivalency: MECH 550. Mutually Exclusive: Cannot register for MECH 450 if student has credit for MECH 550.

MECH 454 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: BIOE 454, CEVE 454. Graduate/Undergraduate Equivalency: MECH 554. Mutually Exclusive: Cannot register for MECH 454 if student has credit for MECH 554.
MECH 456 - LEGAL THEMES IN ENGINEERING AND MANAGING PRACTICES
Short Title: LEGAL THEMES IN ENGI PRACTICES
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to fundamental legal concepts of the American legal system for upper level undergraduate students, primarily aimed at what engineers, scientists and other professionals could expect to encounter in their professional careers. The primary focus is to provide students with the basic tools to understand and interact with lawyers. Cross-list: MANA 499. Graduate/Undergraduate Equivalency: MECH 556. Mutually Exclusive: Cannot register for MECH 456 if student has credit for MECH 556.

MECH 472 - THERMAL SYSTEMS DESIGN
Short Title: THERMAL DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) and MECH 481
Description: Design and synthesis of systems based on applications of thermodynamics, fluid mechanics, heat transfer, economics, and optimization theories. Required for mechanical engineering majors in B.S. program.

MECH 473 - ADVANCED FLUID MECHANICS I
Short Title: ADVANCED FLUID MECHANICS I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Governing equations for inviscid and viscous flows. Constitutive laws, simple non-Newtonian flows, and surface tension. Derivation and applications of the equations representing the conservation of mass and momentum. Various forms of the Bernoulli equation. Introductory concepts of computational fluid mechanics. Graduate/Undergraduate Equivalency: MECH 573. Mutually Exclusive: Cannot register for MECH 473 if student has credit for MECH 573.

MECH 474 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 454 or CEVE 454 or MECH 454 or BIOE 554 or CEVE 554 or MECH 554
Description: Undergraduate version of MECH 654. The required semester-end report and presentation will be on the introductory topics of the course. Graduate/Undergraduate Equivalency: MECH 654. Mutually Exclusive: Cannot register for MECH 474 if student has credit for MECH 654.

MECH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MECH 481 - HEAT TRANSFER
Short Title: HEAT TRANSFER
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 200 and MECH 371)
Description: Study of the general principles of heat transfer by conduction, convection, and radiation. Includes their application to problems of engineering practice. Required for mechanical engineering majors in B.S. program.

MECH 482 - CONVECTIVE HEAT TRANSFER
Short Title: CONVECTIVE HEAT TRANSFER
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 481
Description: Rigorous study of the transfer of heat by free and forced convection. Graduate/Undergraduate Equivalency: MECH 582. Mutually Exclusive: Cannot register for MECH 482 if student has credit for MECH 582.
MECH 484 - MICROSCOPIC THERMODYNAMICS AND TRANSPORT
Short Title: MICRO THERMO & TRANSPORT
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 481
Description: This course introduces concepts in statistical mechanics and non-equilibrium thermodynamics that are used to understand the physical mechanisms of heat transfer, particularly in micro/nanoscale systems. Emphasis is placed on energy storage and thermal transport by electrons, phonons, molecules, and photons. Topics include the kinetic theory of gases, thermodynamic distribution functions, energy carrier dispersion relations, Boltzmann equation modeling of thermal and electrical properties, size effects (classical and quantum-mechanical) on material properties, and thermoelectric energy conversion. Graduate/Undergraduate Equivalency: MECH 584.

MECH 488 - DESIGN OF MECHATRONIC SYSTEMS
Short Title: DESIGN OF MECHATRONIC SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 343 or ELEC 241 or ELEC 243
Description: Analog electronic design for purposes of controlling electromechanical systems, including electromechanical sensors and actuators, analog electronic design of filters, state space and classical controllers, and transistor-based servo amplifiers and high voltage amplifiers. Implementation of digital controllers. Significant laboratory component with design and fabrication of circuits to control electromechanical systems. Graduate/Undergraduate Equivalency: MECH 588. Recommended Prerequisite(s): MECH 211 and ELEC 436 or MECH 420. Mutually Exclusive: Cannot register for MECH 488 if student has credit for MECH 588.

MECH 489 - MICROFLUIDICS: FUNDAMENTALS AND APPLICATIONS
Short Title: MICROFLUIDICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371
Description: This course presents an introduction to microfluidics, including theoretical analysis of microscale flows, basic understanding of microscale properties, fabrication processes for microfluidic devices and an overview of common applications, many of which are relevant for bioprocessing and biodetection. Basic understanding of physics, chemistry, intermediate calculus and fluid mechanics is required. Graduate/Undergraduate Equivalency: MECH 589.

MECH 490 - MECHANICAL ENGINEERING RESEARCH PROJECTS
Short Title: MECH ENG RESEARCH PROJECTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in mechanical engineering. Research under the direction of a selected faculty member. Instructor Permission Required. Repeatable for Credit.

MECH 497 - NEUROMUSCULOSKELETAL MODELING AND SIMULATION
Short Title: NEUROMUSCULOSKELETAL MODELING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 211 or CEVE 211 or MECH 310) and CAAM 210
Description: Introduction to computer modeling and simulation of the human neuromusculoskeletal system. Topics include measurement of human movement, 3D kinematic modeling, inverse and forward dynamic simulations, muscle and joint contact force estimation, and neural control modeling. Programming proficiency in Matlab required. Graduate/Undergraduate Equivalency: MECH 597. Mutually Exclusive: Cannot register for MECH 497 if student has credit for MECH 597.

MECH 498 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 354 or MATH 355 or CAAM 335
Description: The course will provide the student with a mathematical introduction to many of the key ideas used in today's intelligent robot systems. The focus of the course is on the analysis and control of manipulators. The course will also give an overview of common approaches to building intelligent robot systems. Cross-list: COMP 498, ELEC 498. Graduate/Undergraduate Equivalency: MECH 598. Recommended Prerequisite(s): MECH 211 or CEVE 211 or MECH 310. Mutually Exclusive: Cannot register for MECH 498 if student has credit for MECH 598.

MECH 499 - CURRENT TOPICS
Short Title: CURRENT TOPICS
Department: Mechanical Engineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for undergraduate mechanical engineering students. Lectures in areas of current interest in mechanical engineering. Topics vary from term to term. Repeatable for Credit.
MECH 500 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: CEVE 500. Graduate/Undergraduate Equivalency: MECH 400. Mutually Exclusive: Cannot register for MECH 500 if student has credit for MECH 400.

MECH 501 - DYNAMICS AND CONTROL OF MECHANICAL SYSTEMS
Short Title: DYNAMICS & CONTROL OF MECH SYS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 343 and MECH 420
Description: Graduate version of MECH 411. Offered continually with MECH 411. Graduate/Undergraduate Equivalency: MECH 411. Mutually Exclusive: Cannot register for MECH 501 if student has credit for MECH 411.

MECH 502 - VIBRATIONS
Short Title: VIBRATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 343
Description: Term project is required. Graduate/Undergraduate Equivalency: MECH 412. Mutually Exclusive: Cannot register for MECH 502 if student has credit for MECH 412.

MECH 503 - COMPUTER AIDED DESIGN
Short Title: COMPUTER AIDED DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigation of the integration of the computer into the area of design. Includes such subjects as optimization, finite element analysis, and commercial software. Graduate/Undergraduate Equivalency: MECH 403. Mutually Exclusive: Cannot register for MECH 503 if student has credit for MECH 403.

MECH 505 - NUMERICAL METHODS FOR ENGINEERS
Short Title: NUMERICAL METHODS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Numerical methods are the computational solution of mathematical problems. This course focuses on developing a competency in the four basic areas of numerical methods: differentiation, integration, optimization, and continuation. These four categories of methods form a tool set that are used throughout the computational solution of engineering problems.

MECH 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL
Short Title: NONLINEAR SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MECH 510 - ELASTO DYNAMICS
Short Title: ELASTO DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MECH 500 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: CEVE 500. Graduate/Undergraduate Equivalency: MECH 400. Mutually Exclusive: Cannot register for MECH 500 if student has credit for MECH 400.

MECH 501 - DYNAMICS AND CONTROL OF MECHANICAL SYSTEMS
Short Title: DYNAMICS & CONTROL OF MECH SYS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 343 and MECH 420
Description: Graduate version of MECH 411. Offered continually with MECH 411. Graduate/Undergraduate Equivalency: MECH 411. Mutually Exclusive: Cannot register for MECH 501 if student has credit for MECH 411.

MECH 502 - VIBRATIONS
Short Title: VIBRATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 343
Description: Term project is required. Graduate/Undergraduate Equivalency: MECH 412. Mutually Exclusive: Cannot register for MECH 502 if student has credit for MECH 412.

MECH 503 - COMPUTER AIDED DESIGN
Short Title: COMPUTER AIDED DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigation of the integration of the computer into the area of design. Includes such subjects as optimization, finite element analysis, and commercial software. Graduate/Undergraduate Equivalency: MECH 403. Mutually Exclusive: Cannot register for MECH 503 if student has credit for MECH 403.
MECH 517 - FINITE ELEMENT ANALYSIS
Short Title: FINITE ELEMENT ANALYSIS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MATH 212 or MATH 222) and (CAAM 210 or CAAM 211)

MECH 519 - ELEASITCY, PLASTICITY AND DAMAGE MECHANICS
Short Title: ELASTICITY/PLASTICITY/DAMAGE
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of phenomena that determine the response of solids to deformation and loading: elasticity, plasticity, damage mechanics and cracking. Review of continuum mechanics with emphasis on the physical mechanisms of deformation and fracture. Classification of the behavior of solids. Modeling of different types of material behavior. The physics underlying the phenomena and methods for the numerical analysis of the resulting equations are discussed. Cross-list: CEVE 519.

MECH 520 - NONLINEAR FINITE ELEMENT ANALYSIS
Short Title: NONLINEAR FEM
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MECH 523 - PROBABILISTIC STRUCTURAL DYNAMICS
Short Title: PROB STRUCTURAL DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 412 or CEVE 521
Description: Introduction to probability theory and random processes. Includes the dynamic analysis of linear and nonlinear structural systems subjected to stationary and nonstationary random excitations reliability studies related to first excursion and fatigue failures, and applications to earthquake engineering, offshore engineering, and wind engineering. Recommended prerequisite(s): Basic knowledge of probability theory.

MECH 524 - ENGINEERING MATHEMATICAL AND NUMERICAL METHODS
Short Title: ENGR MATH & NUMERICAL METHODS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Elements of linear algebra, linear operators, systems of linear differential equations for discrete physical systems, calculus of variations, partial differential equations, Green’s functions, examples from solid and fluid mechanics, discretization of continuous systems, finite element method.

MECH 527 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM
Short Title: PHY GUIDED ML- DATA DRIVEN FEM
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 311 or MECH 311
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (modeling) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Students in CEVE 527 (GR version) will be required to do more advanced assignments and a project. Prerequisites CEVE/MECH 311. Cross-list: CEVE 527. Mutually Exclusive: Cannot register for MECH 527 if student has credit for MECH 427.
Course URL: Satishnagarajaiah.rice.edu (http://Satishnagarajaiah.rice.edu)
MECH 530 - TRIBOMECHADYNAMICS
Short Title: TRIBOMECHADYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Tribomechadynamics is a graduate/upper level undergraduate course that spans the topics of tribology, contact mechanics, and nonlinear dynamics. These three topics are integral to understanding interfacial contact, how assembled structures behave, and how the evolution of damage (wear) over time at the micro-scale influences the structural-scale response of a system. In brief, the subjects covered by this course are: • Tribology. Topics will include empirical and heuristic friction models, the fundamentals of wear, lubrication selection and considerations, and fundamental failure modes. • Contact Mechanics. Topics will include elastic deformation, constitutive modeling, plasticity, failure criteria, and numerical simulation. • Nonlinear Dynamics. Topics will include an overview of linear vibration theory, model reduction theories, nonlinear vibration theory, nonlinear analysis including quasi-static analysis and harmonic balance methods, continuation, and modal analysis. Graduate/Undergraduate Equivalency: MECH 430.

MECH 535 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS
Short Title: INTRO TO MECHATRONICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 532. Graduate/Undergraduate Equivalency: MECH 435. Mutually Exclusive: Cannot register for MECH 535 if student has credit for MECH 435.

MECH 537 - DESIGN AND CONTROL OF COMPUTER NETWORKS
Short Title: COMMUNICATION NETWORKS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level introduction to design and analysis of communication networks. Topics include wireless networks, medium access, routing, traffic modeling, congestion control, and scheduling. Cross-list: ELEC 537.

MECH 544 - FLUID MECHANICS OF COMPUTING
Short Title: FLUID MECHANICS OF COMPUTING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective is to learn and develop a good understanding of the fluid mechanics concepts and tools that are essential to know for successful computational flow analysis. For successful computational flow analysis, we first have to know the problem we want to solve, set up the computational conditions correctly, have a good idea about what results to expect, and properly interpret and evaluate the computed results. This course will help us learn the fluid mechanics concepts and tools required for that. The course will have both an easy to follow mathematical approach and an easy to relate to physical-interpretation approach. The topics covered include the basic mathematical framework, key fluid mechanics mechanisms, scaling and nondimensional variables and equations, and simple fluid mechanics formulas that can be used in obtaining analytical estimates to the problems solved. Additional work required for MECH 544. Graduate/Undergraduate Equivalency: MECH 444. Mutually Exclusive: Cannot register for MECH 544 if student has credit for MECH 444. Graduate/Undergraduate Equivalency: MECH 444. Recommended Prerequisite(s): MECH 200 and MATH 212. Mutually Exclusive: Cannot register for MECH 544 if student has credit for MECH 444.

MECH 550 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon sin life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today's robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: COMP 550, ELEC 550. Graduate/Undergraduate Equivalency: MECH 450. Mutually Exclusive: Cannot register for MECH 550 if student has credit for MECH 450.
MECH 554 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, CEVE 554. Graduate/Undergraduate Equivalency: MECH 454. Mutually Exclusive: Cannot register for MECH 554 if student has credit for MECH 454.

MECH 555 - COMPUTATIONAL FLUID-STRUCTURE INTERACTION
Short Title: COMPUTATIONAL FSI
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MECH 454 or BIOE 454 or CEVE 454) or (MECH 554 or BIOE 554 or CEVE 554)
Description: Components and challenges of fluid-structure interaction (FSI) computations. Finite element methods for flows with moving interfaces; space-time techniques. Fluid-structure interface projection techniques. Mesh moving and remeshing techniques. FSI coupling techniques for fluid, structure, and mesh equation blocks. FSI computation sequences. FSI contact algorithms, multiscale FSI, cardiovascular FSI, and parachute FSI.

MECH 556 - LEGAL THEMES IN ENGINEERING AND MANAGING PRACTICE
Short Title: LEGAL THEMES IN ENGI PRACTICES
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to fundamental legal concepts of the American legal system for upper level undergraduate students, primarily aimed at what engineers, scientists and other professionals could expect to encounter in their professional careers. The primary focus is to provide students with the basic tools to understand and interact with lawyers. Graduate/Undergraduate Equivalency: MECH 456. Mutually Exclusive: Cannot register for MECH 556 if student has credit for MECH 456.

MECH 557 - ADVANCED FLUID MECHANICS I
Short Title: ADVANCED FLUID MECHANICS I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 472 and MECH 594.
Description: Advanced fluid mechanics techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, CEVE 554. Graduate/Undergraduate Equivalency: MECH 454. Mutually Exclusive: Cannot register for MECH 557 if student has credit for MECH 454.

MECH 558 - ADVANCED FLUID MECHANICS II
Short Title: ADVANCED FLUID MECHANICS II
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 472 and MECH 594.
Description: Advanced fluid mechanics techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, CEVE 554. Graduate/Undergraduate Equivalency: MECH 454. Mutually Exclusive: Cannot register for MECH 558 if student has credit for MECH 454.

MECH 559 - ADVANCED FLUID MECHANICS III
Short Title: ADVANCED FLUID MECHANICS III
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 472 and MECH 594.
Description: Advanced fluid mechanics techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, CEVE 554. Graduate/Undergraduate Equivalency: MECH 454. Mutually Exclusive: Cannot register for MECH 559 if student has credit for MECH 454.

MECH 560 - TRIBOLOGY: THE STUDY OF FRICTION, LUBRICATION, AND WEAR
Short Title: TRIBOLOGY
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Tribology is the interdisciplinary study of interacting surfaces from the nanoscale to the macro-scale. These surfaces undergo friction and wear and sometimes, have fluids between them for lubrication. This course will occur mainly in two parts: (i) Contact Mechanics, (ii) Hydrodynamic (fluid) lubrication. Fundamental topics include friction, wear, heat transfer within interfaces, thin-film lubrication and computational Tribology.

MECH 572 - AEROSPACE SYSTEMS ENGINEERING
Short Title: AEROSPACE SYSTEMS ENGINEERING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Integration of engineering problem solving methodologies based on systems concepts. Applications to complex, large scale aerospace systems and problems faced by engineering managers. Recommended Prerequisite(s): MECH 472 and MECH 594.

MECH 573 - ADVANCED FLUID MECHANICS I
Short Title: ADVANCED FLUID MECHANICS I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Additional work required. Graduate/Undergraduate Equivalency: MECH 473. Mutually Exclusive: Cannot register for MECH 573 if student has credit for MECH 473.

MECH 574 - TURBULENCE
Short Title: TURBULENCE
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the fundamentals of fluid dynamic turbulence including origins, nature, turbulent transport of momentum and heat, statistical description, spectral dynamics, and numerical modeling.
MECH 575 - INTRODUCTION TO HYDRODYNAMIC STABILITY
Short Title: INTRO HYDRODYNAMIC STABILITY
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to linear and nonlinear instabilities that cause transition from laminar to turbulent flows in thermos-fluid systems. The physics of various canonical instability mechanisms and the mathematical and numerical frameworks common in stability analysis are discussed. Examples from industrial, geophysical, environmental, and astrophysical flows are presented. Recommended Prerequisite(s): MECH 371 or CEVE 363 or CAAM 436 or CHBE 401. Repeatable for Credit.

MECH 576 - STRUCTURAL DYNAMIC SYSTEMS
Short Title: STRUCTURAL DYNAMIC SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to structural dynamic systems. Linear SDOF and MDOF discrete systems, undamped and damped systems, free and forced vibration, dynamic response to periodic and arbitrary excitations, numerical evaluation of dynamic response, response spectrum and modal analysis. Additional topics for graduate version 576: Linear systems theory, transform methods, state space methods, feedback control, observers and identification. Applications using MATLAB. Demonstrations and laboratory examples. Students will be required to do more advanced assignments and a project. Cross-list: CEVE 576. Recommended Prerequisite(s): (CEVE 521 or CIVI 521 or MECH 502) and (CEVE 527 or CIVI 527).

MECH 577 - ORBITAL MECHANICS AND MISSION DESIGN
Short Title: ORBITAL MECHANICS AND MISSION
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Develop an understanding of orbital mechanics. Obtain a detailed knowledge of the two-body problem and its solutions with applications to geocentric orbits and interplanetary transfers. Understand the concept of impulsive thrusting and its use in orbital transfers including plane changes. Obtain a knowledge of time-of-flight relations on two-body trajectories, using both classical and universal variables.

MECH 579 - LAUNCH VEHICLE AND SPACECRAFT DESIGN
Short Title: LV AND SPACECRAFT DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the design of launch vehicles and spacecraft, including the impacts of the atmosphere and the space environment on requirements and configurations. The principles and design aspects of the structure, propulsion, power, thermal, communication, and control subsystems will be examined.

MECH 580 - MECHANICS AND KINEMATICS OF RESPIRATORY MUSCLE IN OBESITY
Short Title: RESPIRATORY MECH IN OBESITY
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is designed to understand unique aspects of remodeling the respiratory system mechanics in obesity. Focus will be on remodeling of diaphragm muscle and chest wall as a consequence of obesity. In particular, alteration in the kinematics and mechanics of the diaphragm in obese subjects will be evaluated.

MECH 581 - MICRO AND NANO HEAT TRANSPORT METHODOLOGIES AND DESIGN
Short Title: MICRO & NANO HEAT TRANSPORT
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering or Materials Science & NanoEng. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 481
MECH 582 - CONVECTIVE HEAT TRANSFER  
Short Title: CONVECTIVE HEAT TRANSFER  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Rigorous study of the transfer of heat by free and forced convection. Graduate/Undergraduate Equivalency: MECH 482. Mutually Exclusive: Cannot register for MECH 582 if student has credit for MECH 482.

MECH 584 - MICROSCOPIC THERMODYNAMICS AND TRANSPORT  
Short Title: MICRO THERMO & TRANSPORT  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course introduces concepts in statistical mechanics and non-equilibrium thermodynamics that are used to understand the physical mechanisms of heat transfer, particularly in micro/nanoscale systems. Emphasis is placed on energy storage and thermal transport by electrons, phonons, molecules, and photons. Topics include the kinetic theory of gases, thermodynamic distribution functions, energy carrier dispersion relations, Boltzmann equation modeling of thermal and electrical properties, size effects (classical and quantum-mechanical) on material properties, and thermoelectric energy conversion. Graduate/Undergraduate Equivalency: MECH 484.

MECH 586 - RESPIRATORY SYSTEM MECHANICS  
Short Title: RESPIRATORY SYSTEM MECHANICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Mechanics of ventilation, respiratory muscle mechanics, rib cage mechanics, mechanical coupling between the respiratory muscles and the rib cage, and inferences on mechanics from respiratory muscle anatomy. The class will meet in the Pulmonary Division at Baylor College of Medicine in the Texas Medical Center. Cross-list: BIOE 586.

MECH 587 - INTERFACIAL PHENOMENA, CAPILLARITY, AND WETTING  
Short Title: CAPILLARITY AND WETTING  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will provide the fundamental knowledge required for students to analyze, model, and design systems based on interfacial phenomena, with applications including wetting, enhanced oil recovery, cosmetics, pharmaceuticals, microfluidic devices, phase change heat transfer, and even everyday food and drink. After completing this course, students will exhibit a strong understanding of surface tension and surface energy, adsorption and adhesion, surface-tension-driven flows, capillarity, capillary instabilities, contact angle, fluid spreading, wetting of textured surfaces leading to superhydrophobicity and superhydrophilicity, and self-cleaning surfaces. Recommended Prerequisite(s): MECH 200 (or equivalent) and MECH 371 (or equivalent)  
Course URL: N/A (http://N/A/)

MECH 588 - DESIGN OF MECHATRONIC SYSTEMS  
Short Title: DESIGN OF MECHATRONIC SYSTEMS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Additional work required. Graduate/Undergraduate Equivalency: MECH 488. Mutually Exclusive: Cannot register for MECH 588 if student has credit for MECH 488.

MECH 589 - MICROFLUIDICS: FUNDAMENTALS AND APPLICATIONS  
Short Title: MICROFLUIDICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course presents an introduction to microfluidics, including theoretical analysis of microscale flows, basic understanding of microscale properties, fabrication processes for microfluidic devices and an overview of common applications, many of which are relevant for bioprocessing and biodetection. Basic understanding of physics, chemistry, intermediate calculus and fluid mechanics is required. Additional work required for Graduate course. Graduate/Undergraduate Equivalency: MECH 489.

MECH 590 - AEROSPACE PROPULSION  
Short Title: AEROSPACE PROPULSION  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Aspects of one-dimensional compressible flow, including isentropic flow and normal shocks; effects of friction and combustion; analysis and design of and air-breathing and rocket engines, including performance and cycle analysis; flow in nozzles, diffusers, compressors, and turbines; combustion chamber processes and propellants.

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Rice University 1423

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MECH 591 - GAS DYNAMICS
Short Title: GAS DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371
Description: Study of the fundamentals of compressible, one-dimensional gas flows with area change, normal shocks, friction, and heat addition. Includes oblique shocks, Prandtl-Meyer flows expansions, and numerical techniques.

MECH 592 - DESIGN FOR AEROSPACE ENVIRONMENTS
Short Title: AEROSPACE ENVIRONMENTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate course on aerospace environments, including theoretical bases. Topics include key mission phases, orbital mechanics, the effects of the sun, plasma, particles and ionizing radiation, neutral atmosphere, contamination, micrometeoroid/orbital debris, thermal and aerothermal environments. Extraterrestrial environments are briefly discussed.

MECH 593 - MECHANICAL ENGINEERING PROBLEMS
Short Title: MECH ENGINEERING PROBLEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An approved investigation or design project under the direction of a member of the staff. Open only to mechanical engineering majors. Repeatable for Credit.

MECH 594 - INTRODUCTION TO AERONAUTICS
Short Title: INTRODUCTION TO AERONAUTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371
Description: Development of theories for the prediction of aerodynamic forces and moments acting on airfoils, wings, and bodies. Includes their design applications.

MECH 595 - MODELING TISSUE MECHANICS
Short Title: MODELING TISSUE MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent study and seminar course which focuses on modeling the mechanical properties of biological tissues. Data from experiments will be used to refine the predictions of nonlinear mathematical computer models. Aimed at juniors, seniors, and graduate students. Laboratory work performed at Baylor College of Medicine, computer work at Rice University. Cross-list: BIOE 595.

MECH 596 - INTRODUCTION TO FLIGHT MECHANICS
Short Title: INTRO TO FLIGHT MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371 or CEVE 371
Description: This course will examine the basic flight mechanics of aircraft and spacecraft. Simulation exercises will be conducted to illustrate the principles. Recommended Prerequisite(s): MECH 594

MECH 597 - NEUROMUSCULOSKELETAL MODELING AND SIMULATION
Short Title: NEUROMUSCULOSKELETAL MODELING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to computer modeling and simulation of the human neuromusculoskeletal system. Topics include measurement of human movement, 3D kinematic modeling, inverse and forward dynamic simulations, muscle and joint contact force estimation, and neural control modeling. Programming proficiency in Matlab required. Additional work required for Graduate course. Graduate/Undergraduate Equivalency: MECH 497. Mutually Exclusive: Cannot register for MECH 597 if student has credit for MECH 497.

MECH 598 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Additional work required for Graduate course. Cross-list: COMP 598, ELEC 598. Graduate/Undergraduate Equivalency: MECH 498. Mutually Exclusive: Cannot register for MECH 598 if student has credit for MECH 498.
MECH 599 - CURRENT TOPICS IN MECHANICAL ENGINEERING
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Designed for senior and graduate level students. Lectures in areas of current interest in mechanical engineering. Topics may vary from term to term. Fall 2019, Section 003: This course focuses on numerical techniques for solving partial differential equations (PDEs) including the full incompressible Navier-Stokes equations. Several spatial-temporal discretization methods will be taught, primarily the finite difference method, but also moderate exposure to the finite volume method, and light exposure to the finite element method. Explicit and implicit approaches, in addition to methods to solve linear equations are employed to study fluid flows. A review of various finite difference methods which will be used to analyze elliptic, hyperbolic, and parabolic partial differential equations and the concepts of stability, consistency and convergence are taught to familiarize the students with general numerical PDE methods. Commercial computational fluid dynamics (CFD) software used in the field will be briefly introduced. Repeatable for Credit.

MECH 601 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics may vary. Please consult with the department for additional information. FA 2016, Section 001: Special Topics: Advanced Topics and Tools in Particle Flows & Tribology. Instructor Permission Required.

MECH 602 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics may vary. Please consult with the department for additional information.

MECH 606 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Mechanical Engineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MECH 611 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MECH 612 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MECH 620 - FUNDAMENTALS OF CONTROL SYSTEMS
Short Title: FUNDAMENTALS OF CONTROL SYST
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Linear systems and the fundamental principles of classical feedback control, state variable analysis of linear dynamic systems, stability of linear control systems, time-domain analysis and control of linear systems, root-locus analysis and design and pole-zero synthesis, frequency domain techniques for the analysis and design of control systems. Required for mechanical engineering majors in B.S. program. Additional work required for MECH 620. Cannot be taken if MECH 420 or ELEC 436 was previously taken. Instructor Permission Required.
Graduate/Undergraduate Equivalency: MECH 420. Mutually Exclusive: Cannot register for MECH 620 if student has credit for MECH 420.

MECH 621 - M.M.E. RESEARCH PROJECT I
Short Title: M.M.E. RESEARCH PROJECT I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the first part of the M.M.E. research project course. The faculty advisor, taking into account the background and research interests of the student as well as the research interests of the faculty advisor, will determine the contents. Course requirements will include a final report. Instructor Permission Required.

MECH 622 - M.M.E. RESEARCH PROJECT II
Short Title: M.M.E. RESEARCH PROJECT II
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the second part of the M.M.E. research project and continuation of MECH 621. Course requirements will include a final report.
MECH 654 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): BIOE 554 or BIOE 454 or CEVE 554 or CEVE 454 or MECH 554 or MECH 454

MECH 665 - ANALYSIS OF VIBRATIONS IN NONLINEAR SYSTEMS
Short Title: NONLINEAR VIBRATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): MECH 502
Description: Nonlinear vibrations are studied in structural and mechanical systems. Methods for the qualitative and quantitative analysis of these systems are applied. The classification and stability of equilibrium and periodic solutions are discussed for continuous time systems and discrete maps. Floquet theory and Poincare maps are used to study periodic behavior.

MECH 667 - NONLINEAR DYNAMIC BEHAVIOR IN MECHANIC SYSTEMS AND STRUCTURES
Short Title: NONLINEAR DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): MECH 502
Description: Various types of nonlinear dynamic behavior are studied in mechanical systems and structures. The course will focus mainly on quasi-periodic and chaotic behavior but will also include periodic behavior. Modeling and analysis methods will be discussed for both discrete and continuous time systems including Lyapunov exponents and pseudo-state space. Recommended Prerequisite(s): MECH 665

MECH 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MECH 678 - APPLIED STOCHASTIC MECHANICS
Short Title: APPLIED STOCHASTIC MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Probability density and power spectrum based simulation concepts and procedures are discussed. Scalar and vectorial simulation are addressed. Spectral decomposition and digital filter algorithms are presented from a perspective of usefulness to aerospace, civil, marine, and mechanical applications. Cross-list: CEVE 679.

MECH 679 - APPLIED MONTE CARLO ANALYSIS
Short Title: APPLIED MONTE CARLO ANALYSIS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Nonlinear random vibrations, Statistical Linearization, ARMA filters modeling, Monte Carlo Simulation, Wiener-Volterra series, time-variant structural reliability, and Stochastic Finite Elements are presented. Applications from aerospace, earthquake, marine, and wind engineering, and from other applied science disciplines are included. Cross-list: CEVE 679.

MECH 683 - RADIATIVE HEAT TRANSFER I
Short Title: RADIATION HEAT TRSF I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Rigorous study of the transfer of heat by radiant exchange in the absence of absorbing media.

MECH 691 - INTRODUCTION TO HYPERSONIC AERODYNAMICS
Short Title: INTRO TO HYPERSONICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Recommended Prerequisite(s): MECH 591.
MECH 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Mechanical Engineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: MECH

Department Description and Code
• Mechanical Engineering: MECH

Undergraduate Degree Descriptions and Codes
• Bachelor of Arts degree: BA
• Bachelor of Science degree: BSME

Undergraduate Major Description and Code
• Major in Mechanical Engineering (attached to both the BA and BSME Degrees): MECH

Undergraduate Major Areas of Specialization
Descriptions and Attribute Codes*
• Area of Specialization in Computational Engineering (BSME degree only): MECE
• Area of Specialization in Mechanics/Dynamics (BSME degree only): MEMD
• Area of Specialization in Thermal Fluids (BSME degree only): METF
• Area of Specialization in Breadth in Mechanical Engineering (BSME degree only): MEBR

Please Note: Areas of Specialization are department/program-specific and are not formally recognized academic credentials. Unlike Major Concentrations, Areas of Specialization do not appear on the student’s official academic transcript, etc.

Graduate Degree Descriptions and Codes
• Master of Mechanical Engineering degree: MME
• Master of Science degree: MS
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Mechanical Engineering: MECH

CIP Code and Description ¹
• MECH Major/Program: CIP Code/Title: 14.1901 - Mechanical Engineering

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.
¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Mechanical Engineering

Program Learning Outcomes for the BA Degree with a Major in Mechanical Engineering

Upon completing the BA degree with a major in Mechanical Engineering, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
6. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Requirements for the BA Degree with a Major in Mechanical Engineering

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Mechanical Engineering must complete:

• A minimum of 23 courses (64 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 9 courses (28 credit hours) taken at the 300-level or above.

The BA degree with a major in Mechanical Engineering is highly flexible, involves less technical content than the BSME degree, and allows students greater freedom to pursue areas of interest outside of engineering. The BA degree with a major in Mechanical Engineering is not accredited by the Engineering Accreditation Commission of ABET.

Lists of courses, including general university requirements and the usual order in which students take them, are available from the department. The BA degree with a major in Mechanical Engineering mirrors the BSME degree in the freshman and sophomore years, with the exception that
the laboratory courses are not required. Specific major requirements are completed in the junior and senior years.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions may be made upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
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<td>or CHEM 111</td>
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<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
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<td>or CHEM 113</td>
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<td>MATH 211</td>
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<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
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<td>PHYS 101</td>
<td>MECHANICS (WITH LAB)</td>
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<tr>
<td>&amp; PHYS 103</td>
<td>MECHANICS DISCUSSION</td>
<td></td>
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<tr>
<td>PHYS 102</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
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<tr>
<td>&amp; PHYS 104</td>
<td>ELECTRICITY AND MAGNETISM DISCUSSION</td>
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**Required Courses for Mechanical Engineering**

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<th>Code</th>
<th>Title</th>
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<tr>
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<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
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<tr>
<td>or MECH 210</td>
<td>INTRODUCTION TO NUMERICAL METHODS</td>
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<td>CAAM 335</td>
<td>MATRIX ANALYSIS</td>
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<td>or MATH 354</td>
<td>HONORS LINEAR ALGEBRA</td>
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<td>or MATH 355</td>
<td>LINEAR ALGEBRA</td>
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<tr>
<td>CAAM 336</td>
<td>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</td>
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### Mechanical Engineering Courses

<table>
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<tr>
<td>MECH 200</td>
<td>CLASSICAL THERMODYNAMICS</td>
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<td>MECH 202</td>
<td>MECHANICS/STATICS</td>
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<td>MECH 203</td>
<td>MECHANICAL ENGINEERING DESIGN TOOLS</td>
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<td>MECH 310</td>
<td>RIGID BODY DYNAMICS</td>
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<td>MECH 315</td>
<td>STRESS ANALYSIS</td>
<td>3</td>
</tr>
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<td>MECH 343</td>
<td>MODELING OF DYNAMIC SYSTEMS</td>
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<td>MECH 350</td>
<td>MECHANICAL ELEMENTS</td>
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<td>MECH 371</td>
<td>FLUID MECHANICS I</td>
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<td>MECH 420 / ELEC 436</td>
<td>FUNDAMENTALS OF CONTROL SYSTEMS</td>
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<tr>
<td>MECH 481</td>
<td>HEAT TRANSFER</td>
<td>3</td>
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</tbody>
</table>

**Total Credit Hours Required for the Major in Mechanical Engineering**

- Additional Credit Hours to Complete Degree Requirements  
  - Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

**Footnotes and Additional Information**

1. Note that the courses required to complete the major must be taken after the 10 required Basic Math and Science (Prerequisite) courses (24 credit hours).

### Policies for the BA Degree with a Major in Mechanical Engineering

**Program Restrictions and Exclusions**

Students pursuing the BA Degree with a Major in Mechanical Engineering should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Mechanical Engineering may not additionally pursue the Bachelor of Science Degree in Mechanical Engineering (BSME) Degree.

### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

### Departmental Transfer Credit Guidelines

Students pursuing the major in Mechanical Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
Additional Information
For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Opportunities for the BA Degree with a Major in Mechanical Engineering

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Mechanical Engineering (MME) degree. For additional information, students should contact their undergraduate major advisor and the MME program director.

Additional Information
For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Bachelor of Science in Mechanical Engineering (BSME) Degree
The program leading to the BSME degree is accredited by the Engineering Accreditation Commission (EAC) of ABET, https://www.abet.org (https://www.abet.org/).

Program Learning Outcomes (Student Outcomes) for the BSME Degree
Upon completing the BSME degree, students will be able to demonstrate:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program Educational Objectives for the BSME Degree
Within 3 to 5 years of graduation, Bachelor of Science in Mechanical Engineering (BSME) degree alumni from Rice will be exceptional engineers who are:

1. Successful and on track to become leaders in the global workforce; and/or
2. Students in top-rated post-graduate programs.

Requirements for the BSME Degree
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BSME degree must complete:

• A minimum of 33 courses (87 credit hours) to satisfy major requirements.
• A minimum of 127 credit hours to satisfy degree requirements.
• A minimum of 21 courses (50 credit hours) taken at the 300-level or above.
• The requirements for one area of specialization (see below for areas of specialization). When students declare the major (p. 17) in Mechanical Engineering (associated with the BSME degree), students must additionally identify and declare one of four areas of specialization, either in:
  • Computational Engineering (p. 1431): covers methods and tools for computational analysis in engineering applications, fluids and solids, to help with design and performance in such applications; or
  • Mechanics/Dynamics (p. 1431): provides a background in the fundamentals of solid interactions and control systems, and is highly relevant in areas such as robotics, solid mechanics, and tissue mechanics; or
• Thermal Fluids (p. 1431): integrates topics from thermodynamics, fluids, and heat transfer to study renewable and conventional energy systems, aerospace/aeronautics, and surface interactions; or
• Breadth in Mechanical Engineering (p. 1432): encompasses concepts from across the areas of specialization to prepare students for working in cross-cutting fields.

Because of the common core requirements, it is possible for students to change their area of specialization at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The BSME degree prepares students for the professional practice of engineering. The degree program's goals and objectives are available on the departmental website. Lists of representative undergraduate courses and the usual order in which they are taken are available from the department.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
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<th>Code</th>
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### Degree Requirements

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<td>CHEM 121</td>
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<td>or CHEM 111</td>
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<td>PHYS 101</td>
<td>MECHANICS (WITH LAB) and MECHANICS DISCUSSION</td>
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<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<td>University Graduation Requirements (p. 29)</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>127</td>
<td></td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.
During their senior year, mechanical engineering students in the BSME program complete these courses in design application while completing a major design project.

Students must complete a total of 3 technical electives (9 credit hours) in one area of specialization: Computational Engineering, Mechanics/Dynamics, Thermal Fluids, or Breadth in Mechanical Engineering.

Areas of Specialization

Students must complete the requirements as listed for one of the following areas of specialization for the BSME degree program. A minimum of 3 courses (minimum of 9 credit hours) must be taken in the area of specialization.

Area of Specialization: Computational Engineering

To fulfill the BSME degree requirements, students pursuing the Computational Engineering area of specialization must complete:

1. 1 course (3 credit hours) from the area of specialization Core Requirement
2. 2 courses (6 credit hours) from the area of specialization Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 417 / CEVE 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>or MECH 454</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td></td>
</tr>
</tbody>
</table>

Elective Requirements

Select 2 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 417 / CEVE 417</td>
<td>FINITE ELEMENT ANALYSIS ¹</td>
<td>3</td>
</tr>
<tr>
<td>MECH 427 / CEVE 427</td>
<td>PHYSICS GUIDED MACHINE LEARNING &amp; DATA DRIVEN MODELING FEM</td>
<td></td>
</tr>
<tr>
<td>MECH 454 / BIOE 454 / CEVE 454</td>
<td>COMPUTATIONAL FLUID MECHANICS ¹</td>
<td></td>
</tr>
<tr>
<td>MECH 474</td>
<td>ADVANCED COMPUTATIONAL MECHANICS</td>
<td></td>
</tr>
<tr>
<td>MECH 505</td>
<td>NUMERICAL METHODS FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>MECH 555</td>
<td>COMPUTATIONAL FLUID-STRUCTURE INTERACTION</td>
<td></td>
</tr>
<tr>
<td>MECH 679 / CEVE 679</td>
<td>APPLIED MONTE CARLO ANALYSIS</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Area of Specialization: Mechanics/Dynamics

To fulfill the BSME degree requirements, students pursuing the Mechanics/Dynamics area of specialization must complete:

1. 1 course (3 credit hours) from the area of specialization Core Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 417 / CEVE 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements

Select 2 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 454 / BIOE 454 / CEVE 454</td>
<td>COMPUTATIONAL FLUID MECHANICS ¹</td>
<td>3</td>
</tr>
<tr>
<td>or MECH 472</td>
<td>THERMAL SYSTEMS DESIGN</td>
<td></td>
</tr>
</tbody>
</table>

Area of Specialization: Thermal Fluids

To fulfill the BSME degree requirements, students pursuing the Thermal Fluids area of specialization must complete:

1. 1 course (3 credit hours) from the area of specialization Core Requirement
2. 2 courses (6 credit hours) from the area of specialization Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 417 / CEVE 417</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 454 / BIOE 454 / CEVE 454</td>
<td>COMPUTATIONAL FLUID MECHANICS ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

¹ MECH 417 or MECH 454 may fulfill the area of specialization Elective Requirements if they are not selected as the area of specialization Core Requirement.
Departmental Transfer Credit Guidelines

Students pursuing the BSME degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Mechanical Engineering website: [https://mech.rice.edu/](https://mech.rice.edu/)

Opportunities for the BSME Degree

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) ([summa cum laude, magna cum laude, and cum laude](https://mech.rice.edu/)) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master's Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this [Undergraduate - Graduate Concurrent Enrollment](https://mech.rice.edu/) opportunity, including specific information on the registration process can be found [here](https://mech.rice.edu/) (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Mechanical Engineering (MME) degree. For additional information, students should contact their undergraduate major advisor and the MME program director.

Additional Information

For additional information, please see the Mechanical Engineering website: [https://mech.rice.edu/](https://mech.rice.edu/)

### Policies for the BSME Degree

#### Program Restrictions and Exclusions

Students pursuing the BSME Degree should be aware of the following program restriction:

- As noted in [Majors, Minors, and Certificates](https://mech.rice.edu/) (p. 17), under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the Bachelor of Science in Mechanical Engineering (BSME) Degree may not additionally pursue the BA Degree with a Major in Mechanical Engineering.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.
Doctor of Philosophy (PhD) Degree in the field of Mechanical Engineering

Program Learning Outcomes for the PhD Degree in the field of Mechanical Engineering

Upon completing the PhD Degree in the field of Mechanical Engineering, students will be able to:

1. Demonstrate command of advanced topics in mechanical engineering.
2. Apply technical skills and conduct research that demonstrates advanced mastery of a subfield within mechanical engineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the PhD Degree in the field of Mechanical Engineering

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students seeking the PhD degree are expected to complete all the requirements for the degree within five calendar years following entrance into the program. Continuation in the program beyond this time limit will require special approval of the department.

All entering graduate students pursuing a PhD degree will be subject to a Qualifying Exam. The Qualifying Exam will be conducted by the end of the third semester of enrollment in the graduate program in the Mechanical Engineering department.

By the end of the ninth semester of enrollment in the graduate program in the Mechanical Engineering department, the student must pass a Candidacy evaluation.

Each candidate for the PhD degree must complete a thesis that constitutes an original contribution to scientific knowledge (analytical, numerical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publications. On completion of the thesis, each candidate for the PhD degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least four members. Three, including the committee chair, must be members of the department. One member must be from another department within the university.

As part of their degree requirements, graduate students are expected to provide instructional assistance to the department not to exceed 10 hours per week. The department chair will assign graduate student work at the beginning of each semester.

All graduate students (except students in the MME degree program (p. 1434)) must attend at least 75 percent of the Mechanical Engineering seminars. For details, please see the degree requirements on the Mechanical Engineering website (http://mech.rice.edu/).

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Mechanical Engineering</td>
<td>90</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

A minimum of 30 credit hours at the 500-level or above is required to earn the PhD degree. Depending on the student’s previously earned degree at the time of entrance into the PhD program, additional credit hours of research coursework may be permitted in lieu of a portion of the coursework as approved by the department to reach 90 total credit hours as follows:

Students entering with an MS degree:
- 18 credit hours of coursework
- 72 credit hours of research coursework

Students entering with a BS degree:
- 36 credit hours of coursework
- 54 credit hours of research coursework

Students entering with a 5-year BS degree:
- 30 credit hours of coursework
- 60 credit hours of research coursework

Students entering with a BA degree (or other bachelor’s degree):
- 42 credit hours of coursework
- 48 credit hours of research coursework

Policies for the PhD Degree in the field of Mechanical Engineering

Department of Mechanical Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Mechanical Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Mechanical_Engineering_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Mechanical Engineering should be aware of the following departmental transfer credit guidelines:
Additional Information
For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Opportunities for the PhD Degree in the field of Mechanical Engineering
Additional Information
For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Master of Mechanical Engineering (MME) Degree

Program Learning Outcomes for the MME Degree
Upon completing the MME degree, students will be able to:

1. Demonstrate an advanced command of Mechanical Engineering fieldwork.
2. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MME Degree
The MME degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MME degree must complete:

• A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of part-time graduate student at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1435) tab.
• A minimum of 24 credit hours from departmental (MECH) course offerings, including the area of specialization.
• The requirements for one area of specialization. The MME degree program offers two areas of specialization:
  • Aerospace Engineering (p. 1435), or
  • Mechanical Engineering (p. 1435).
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

The professional master's degree in Mechanical Engineering (MME) is a non-thesis degree program intended for students who have completed a 4-year bachelor's program in engineering and wish to join the workforce as practicing professionals, rather than pursuing a research oriented or academic career. It offers preparation in advanced engineering topics in order to enhance an engineer's technical qualifications and increases competitiveness in the job market.

The MME program is open to students who have shown academic excellence in their undergraduate studies. Students who have a BS or BA degree in any field of engineering or related study may apply, although some may need to fulfill prerequisites or take remedial courses to earn the MME degree. Students may enroll on a full or part-time basis.

Lists of required and suggested courses are available from the department. Students should develop a specific plan of study based on their particular interests and discussions with their advisor.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>30</td>
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Degree Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 501</td>
<td>DYNAMICS AND CONTROL OF MECHANICAL SYSTEMS</td>
<td>12</td>
</tr>
<tr>
<td>or MECH 508</td>
<td>NONLINEAR SYSTEMS: ANALYSIS AND CONTROL</td>
<td></td>
</tr>
<tr>
<td>CAAM 508</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or ELEC 508</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECH 505</td>
<td>NUMERICAL METHODS FOR ENGINEERS</td>
<td></td>
</tr>
<tr>
<td>MECH 517</td>
<td>FINITE ELEMENT ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>or CEVE 517</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECH 554</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td></td>
</tr>
<tr>
<td>or BIOE 554</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or CEVE 554</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECH 588</td>
<td>DESIGN OF MECHATRONIC SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>or MECH 598</td>
<td>INTRODUCTION TO ROBOTICS</td>
<td></td>
</tr>
<tr>
<td>COMP 598</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or ELEC 598</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MECH 594</td>
<td>INTRODUCTION TO AERONAUTICS</td>
<td></td>
</tr>
</tbody>
</table>

Area of Specialization
Select 1 of the following Areas of Specialization (see below for Areas of Specialization):
- Aerospace Engineering

Aerospace Engineering
Mechanical Engineering

Elective Requirements

Select 4 courses from approved departmental (MECH) course offerings at the 500-level or above. 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 578</td>
<td>ORBITAL MECHANICS AND MISSION DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>MECH 590</td>
<td>AEROSPACE PROPULSION</td>
<td>3</td>
</tr>
<tr>
<td>MECH 591</td>
<td>GAS DYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 592</td>
<td>DESIGN FOR AEROSPACE ENVIRONMENTS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 596</td>
<td>INTRODUCTION TO FLIGHT MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 691</td>
<td>INTRODUCTION TO HYPERSONIC AERODYNAMICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 12

Footnotes and Additional Information

Approved departmental course offerings are MECH course offerings at the 500-level or above taught by faculty with a tenure home or special teaching appointment in MECH. In exceptional cases, 2 courses, or a total of 6 credit hours, at the 500-level or above can be taken outside of the MECH department. This would require special approval from the department after reviewing the rigor and applicability of the class to the applicant's plan of study.

A minimum of 30 credit hours at the 500-level or above is required to earn the MME degree. Regardless of the student's previously earned undergraduate degree at the time of entrance into the graduate program, no credit hours of research coursework may be permitted in lieu of the required coursework outlined above.

Students entering with a BS degree:
- 30 credit hours of coursework

Students entering with a BA degree (or other bachelor's degree):
- 30 credit hours of coursework

Areas of Specialization

Area of Specialization: Aerospace Engineering

Students pursuing the Aerospace Engineering area of specialization must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 578</td>
<td>ORBITAL MECHANICS AND MISSION DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>MECH 590</td>
<td>AEROSPACE PROPULSION</td>
<td>3</td>
</tr>
<tr>
<td>MECH 591</td>
<td>GAS DYNAMICS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 592</td>
<td>DESIGN FOR AEROSPACE ENVIRONMENTS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 596</td>
<td>INTRODUCTION TO FLIGHT MECHANICS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 691</td>
<td>INTRODUCTION TO HYPERSONIC AERODYNAMICS</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 6

Area of Specialization: Mechanical Engineering

Students pursuing the Mechanical Engineering area of specialization must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 502</td>
<td>VIBRATIONS</td>
<td>3</td>
</tr>
<tr>
<td>MECH 575</td>
<td>INTRODUCTION TO HYDRODYNAMIC STABILITY</td>
<td>3</td>
</tr>
<tr>
<td>MECH 582</td>
<td>CONVECTIVE HEAT TRANSFER</td>
<td>3</td>
</tr>
<tr>
<td>MECH 584</td>
<td>MICROSCOPIC THERMODYNAMICS AND TRANSPORT</td>
<td>3</td>
</tr>
<tr>
<td>MECH 587</td>
<td>INTERFACIAL PHENOMENA, CAPILLARITY, AND WETTING</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 6

Policies for the MME Degree

Department of Mechanical Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Mechanical Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/ Mechanical_Engineering_Graduate_Handbook.pdf

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the MME degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Opportunities for the MME Degree

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Mechanical Engineering (MME) degree. For additional information, students should contact their undergraduate major advisor and the MME program director.

Additional Information
For additional information, please see the Mechanical Engineering website: https://mech.rice.edu/

Master of Mechanical Engineering (MME) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MME Degree

Upon completing the MME degree, students will be able to:

1. Demonstrate an advanced command of Mechanical Engineering fieldwork.
2. Communicate scientific ideas effectively in writing and when speaking.

Program Learning Outcomes for the MBA Degree

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MME/MBA Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 45 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Engineering Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

Coordinated MME Degree Requirements

Students in the coordinated MBA/MME degrees program must complete the Core Requirements of the MME degree program (p. 1434) and Coordinated MME Elective Requirements below.
Opportunities for the MME/MBA Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Mechanical Engineering website: https://mech.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Master of Science (MS) Degree in the field of Mechanical Engineering

Program Learning Outcomes for the MS Degree in the field of Mechanical Engineering

Upon completing the MS Degree in the field of Mechanical Engineering, students will be able to:

1. Apply the technical skills required by industrial and governmental organizations to solve mechanical engineering problems at an advanced level.
2. Conduct research that demonstrates advanced mastery of a subfield within mechanical engineering.
3. Communicate scientific ideas effectively in writing and when speaking.

Requirements for the MS Degree in the field of Mechanical Engineering

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MS degree in the field of Mechanical Engineering must complete:

- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.

Students seeking the MS degree are expected to complete all the requirements for the degree within two calendar years following entrance into the program. Continuation in the program beyond this time limit will require special approval of the department.

All entering graduate students pursuing a thesis degree program will be subject to a preliminary candidacy evaluation for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the Mechanical Engineering department.

Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical, numerical, or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publications. A committee consisting of at least three members will conduct the examination. Two, including the committee chair, must be members of the department.
The minimum semester hours of coursework (a one-semester course is usually three semester hours credit) required for the MS degree is tabulated below as a function of the degree held on entrance into the program. Research and thesis hours, as well as seminar hours, do not count towards these course requirements but do count toward the minimum requirement that a student complete a minimum of 30 total credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements. In all cases, a student’s specific course of study is formulated in consultation with the departmental advisor (thesis director) and must be approved by the department.

Course requirements for the research degrees vary depending on the extent of individual undergraduate preparation as well as each student’s performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that comprises an original contribution to knowledge and defend it in a public oral examination.

As part of their degree requirements, graduate students are expected to provide instructional assistance to the department not to exceed 10 hours per week. The department chair will assign graduate student work at the beginning of each semester.

All graduate students (except students in the MME degree program) must attend at least 75 percent of the Mechanical Engineering seminars. For additional information and details, please see the Mechanical Engineering website.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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### Degree Requirements

<table>
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<tr>
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<td>Research Coursework as Approved by Department ¹</td>
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<tr>
<td></td>
<td>Total Credit Hours</td>
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</tr>
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</table>

¹ A minimum of 30 credit hours at the 500-level or above is required to earn the MS degree. Depending on the student’s previously earned undergraduate degree at the time of entrance into the graduate program, additional credit hours of research coursework may be permitted in lieu of a portion of the coursework as approved by the department to reach 30 total credit hours as follows:

- **Students entering with a BS degree:**
  - 18 credit hours of coursework
  - 12 credit hours of research coursework

- **Students entering with a 5-year BS degree:**
  - 12 credit hours of coursework
  - 18 credit hours of research coursework

- **Students entering with a BA degree (or other bachelor’s degree):**
  - 24 credit hours of coursework
  - 6 credit hours of research coursework

### Policies for the MS Degree in the field of Mechanical Engineering

#### Department of Mechanical Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Mechanical Engineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Mechanical_Engineering_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Mechanical_Engineering_Graduate_Handbook.pdf)

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Mechanical Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

### Additional Information

For additional information, please see the Mechanical Engineering website: [https://mech.rice.edu/](https://mech.rice.edu/)

### Opportunities for the MS Degree in the field of Mechanical Engineering

#### Additional Information

For additional information, please see the Mechanical Engineering website: [https://mech.rice.edu/](https://mech.rice.edu/)

### Medical Humanities

#### Contact Information

Medical Humanities
[https://medicalhumanities.rice.edu/](https://medicalhumanities.rice.edu/)

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Footnotes and Additional Information

¹ A minimum of 30 credit hours at the 500-level or above is required to earn the MS degree. Depending on the student’s previously earned undergraduate degree at the time of entrance into the graduate program, additional credit hours of research coursework may be permitted in lieu of a portion of the coursework as approved by the department to reach 30 total credit hours as follows:

- **Students entering with a BS degree:**
  - 18 credit hours of coursework
  - 12 credit hours of research coursework

- **Students entering with a 5-year BS degree:**
  - 12 credit hours of coursework
  - 18 credit hours of research coursework

- **Students entering with a BA degree (or other bachelor’s degree):**
  - 24 credit hours of coursework
  - 6 credit hours of research coursework
Medical Humanities is an interdisciplinary field that examines medicine through humanistic disciplines such as history, ethics, religion, literature, cultural anthropology, media studies, and the visual and dramatic arts. Students in the minor will learn about medical systems and practices using methodologies such as close reading, cultural comparison, historical contextualization, creative expression, and critical thinking. The field is committed to interpretive and qualitative work that explores the human dimensions of experiences of health and illness, for doctors and for patients. The Medical Humanities minor is an interdisciplinary course of study, housed in the School of Humanities.

**Minor**
- Minor in Medical Humanities (p. 1441)

Medical Humanities does not currently offer an academic program at the graduate level.

**Director and Advisor**
Kirsten Ostherr

**Professors**
Marcia Brennan
Tony N. Brown
James D. Faubion
Eugenia Georges
Bridget K. Gorman
Gisela Heffes
Vivian Ho
Rachel Tolbert Kimbro
Anne C. Klein
Kirsten Ostherr
Rebecca Richards-Kortum
Kamala Visweswaran

**Associate Professors**
Martin Blumenthal-Barby
Deborah A. Harter
Moramay López-Alono
Fabiola López-Durán

**Assistant Professors**
Niki Clements
Lan Li
Vida Yao

**Lecturer**
Beverly Mitchell

**Adjunct Lecturer**
Melissa Bailar

**Steering Committee**
Melissa Bailar
Marcia Brennan
Eugenia Georges
Lan Li
Moramay López-Alono
Kirsten Ostherr
Rebecca Richards-Kortum
Kamala Visweswaran
Vida Yao

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/?WKSCAT.cat)

**Medical Humanities (MDHM)**

**MDHM 201 - INTRODUCTION TO MEDICAL HUMANITIES**
- Short Title: INTRO TO MEDICAL HUMANITIES
- Department: Medical Humanities
- Grade Mode: Standard Letter
- Course Type: Seminar
- Distribution Group: Distribution Group I
- Credit Hours: 3
- Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- Course Level: Undergraduate Lower-Level
- Description: Examines the history of medicine, concepts of disease vs illness, narrative medicine, health disparities, religion, spirituality, and the role of science and technology on the practices of healthcare. Students will develop skills in close reading, interpretation, historical contextualization, critical thinking. This course (formerly HURC 201) is required for the minor in Medical Humanities. Mutually Exclusive with HURC 201. Credit cannot be earned for both HURC 201 and MDHM 201. Mutually Exclusive: Cannot register for MDHM 201 if student has credit for HURC 201.

**MDHM 238 - SPECIAL TOPICS**
- Short Title: SPECIAL TOPICS
- Department: Medical Humanities
- Grade Mode: Standard Letter
- Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory
- Credit Hours: 1-4
- Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- Course Level: Undergraduate Lower-Level
- Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
MDHM 300 - IMMUNITY IN MEDIA, SCIENCE, AND CULTURE
Short Title: IMMUNITY: MEDIA/SCI/CULTURE
Department: Medical Humanities
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will consider the conceptual history of immunity and autoimmunity. We will track immunity as it migrates from the domains of law and politics into biomedicine. What are the consequences of this provenance? How have seemingly objective medical conceptions of the body preserved or retained this militaristic belief in independence, power, and control? And what are its consequences for those whose bodies are exposed to that domination? How does the history of immunity inspire contemporary depictions of BIOPOC, trans, queer, and undocumented lives as pathogenic to the flourishing of “healthy” bodies and in turn to their state-sponsored exposure to death? We will propose to answer these questions by integrating an interdisciplinary archive of fiction, film, philosophy, and law. Recommended Prerequisite(s): MDHM 201 Repeatable for Credit.

MDHM 306 - HEALTH AND HUMANITIES MASTER CLASS
Short Title: HEALTH AND HUMANITIES MC
Department: Medical Humanities
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Faculty from Rice University, University of Texas School of Public health, and University of Houston, as well as practitioners in the Texas Medical Center, will lead class discussions on different aspects of the health industry today. The class will meet Tuesday evenings at the McGovern Museum of Health and Medical Science and at Rice Thursdays. Students will read essays, case studies, and fiction or watch films to prepare for each discussion. Formerly offered as HURC 306. Mutually exclusive with HURC 306. Credit cannot be earned for both HURC 306 and MDHM 306. Instructor Permission Required.

MDHM 402 - HEALTH, HUMANISM AND SOCIETY SCHOLARS MEDICAL HUMANITIES PRACTICUM 1 (1 YR SEQUENCE)
Short Title: HASS MED HUM PRACTICUM 1
Department: Medical Humanities
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students are matched with medical humanities research projects in TMC. Students conduct 6-8 hours of research per week under guidance of on-site supervisor and follow curriculum under guidance of Rice faculty, developing skills for careers after graduation. Continuation of MDHM 402 as yearlong sequence. Instructor Permission Required. Mutually Exclusive: Cannot register for MDHM 403 if student has credit for MDHM 402.

MDHM 403 - HEALTH, HUMANISM AND SOCIETY SCHOLARS MEDICAL HUMANITIES PRACTICUM 2 (1 YR SEQUENCE)
Short Title: HASS MED HUM PRACTICUM 2
Department: Medical Humanities
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MDHM 402 or HUMA 402
Description: Students are matched with medical humanities research projects in TMC. Students conduct 6-8 hours of research per week under guidance of on-site supervisor and follow curriculum under guidance of Rice faculty, developing skills for careers after graduation. Continuation of MDHM 402 as yearlong sequence. Instructor Permission Required. Mutually Exclusive: Cannot register for MDHM 403 if student has credit for HUMA 403.

MDHM 430 - HEALTH, HUMANISM AND SOCIETY SCHOLARS MEDICAL HUMANITIES PRACTICUM (ONE SEMESTER)
Short Title: HASS 1-SEM MED HUM PRACTICUM
Department: Medical Humanities
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research-based course is conducted in partnership with health institutions in Houston. Qualified and advanced students apply for or develop projects in specific research areas and work 6-8 hours per week on site with health professionals, archivists, and center directors. Students follow curriculum under guidance of Rice faculty and meet regularly to discuss research and develop skills for careers after graduation. Must have completed at least 9 credit hours in a humanities discipline for course eligibility. Instructor Permission Required. Recommended Prerequisite(s): MDHM 201. Mutually Exclusive: Cannot register for MDHM 430 if student has credit for HURC 430. Repeatable for Credit.

MDHM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Medical Humanities
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject codes: MDHM

Program Description and Code
• Medical Humanities: MDHM
### Undergraduate Minor Description and Code

- Minor in Medical Humanities: MDHM

### CIP Code and Description

- **MDHM Minor** CIP Code/Title: 51.3204 - Medical/Health Humanities

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: [https://nces.ed.gov/ipeds/cipcode/](https://nces.ed.gov/ipeds/cipcode/)

### Minor in Medical Humanities

### Program Learning Outcomes for the Minor in Medical Humanities

Upon completing the minor in Medical Humanities, students will be able to:

1. Describe the historical, literary, artistic, and ethical domains of medical humanities scholarship.
2. Analyze and evaluate complex texts relating to the social and cultural aspects of medicine through close reading and critical interpretation of arguments, metaphors, and images.
3. Explain the history of racism and anti-racism in health and medicine.
4. Explain how disability shapes the healthcare experience for patients.
5. Conduct independent research and communicate their own arguments about medical humanities in research papers, class presentations, and discussions.

### Requirements for the Minor in Medical Humanities

Students pursuing the minor in Medical Humanities must complete:

- A minimum of 6-7 courses (18-21 credit hours), depending on course selection, to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the [Policies](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/) tab.

The courses used in the Medical Humanities program examine the social, cultural, ethical, and aesthetic dimensions of medicine in contemporary and historical contexts, and are open to all undergraduate students at Rice from all backgrounds.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/]). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<th>Code</th>
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<td>MDHM 201</td>
<td>INTRODUCTION TO MEDICAL HUMANITIES</td>
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<td><strong>Elective Requirements</strong></td>
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<td>Select 1 from the following:</td>
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<tr>
<td>ENGL 386 / FILM 381</td>
<td>MEDICAL MEDIA ARTS LAB</td>
<td>2</td>
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<tr>
<td>MDHM 402 &amp; MDHM 403</td>
<td>HEALTH, HUMANISM AND SOCIETY SCHOLARS MEDICAL HUMANITIES PRACTICUM 1 (1 YR SEQUENCE)</td>
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<td>MDHM 430</td>
<td>HEALTH, HUMANISM AND SOCIETY SCHOLARS MEDICAL HUMANITIES PRACTICUM (ONE SEMESTER)</td>
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<td>SPAN 323</td>
<td>SPANISH PROFESSIONAL PRACTICUM I</td>
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<tbody>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>18-21</td>
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</table>

### Footnotes and Additional Information

1 Students must complete the core course before they complete the practicum. The core course and the practicum may not be taken concurrently.
2 Students may take ENGL 386/FILM 381 as either an elective or the practicum, but it will not count toward both requirements.
3 Students may take SPAN 323 as either an elective or the practicum, but it will not count toward both requirements.

### Elective Requirements

To fulfill the elective requirements for the Medical Humanities minor, students must complete a total of 4 courses (12 credit hours) from the following Rice departmental course offerings. Students must fulfill the elective requirements by completing coursework from at least 2 different subject codes (i.e., ANTH, ENGL, etc.), and must take a minimum of 2 courses (6 credit hours) at the 300-level or above.

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### Anthropology

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<tr>
<td>ANTH 342</td>
<td>ETHNOGRAPHIES OF CARE</td>
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<td>ANTH 354 / SWGS 353</td>
<td>ILLNESS, DISABILITY, AND THE GENDERED BODY</td>
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<td>ANTH 380</td>
<td>GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS</td>
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<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
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</tr>
<tr>
<td>ANTH 382</td>
<td>BODY, TECHNOLOGY, AND ENHANCEMENT</td>
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### Minor in Medical Humanities

<table>
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ANTH 443</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
</tr>
<tr>
<td>ANTH 477</td>
<td>SPECIAL TOPICS</td>
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<tr>
<td>HART 396</td>
<td>MEDICAL HUMANITIES VISUAL CULTURE</td>
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<td>ASIA 356</td>
<td>GENOMIC GOVERNANCE IN ASIA</td>
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<tr>
<td>BIOS 368</td>
<td>CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE</td>
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<tr>
<td>BIOS 447</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
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<tr>
<td>ENGL 203</td>
<td>TOPICS IN CREATIVE WRITING</td>
</tr>
<tr>
<td>ENGL 245 / HURC 245</td>
<td>INTERDISCIPLINARY APPROACHES</td>
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<tr>
<td>ENGL 272</td>
<td>LITERATURE AND MEDICINE</td>
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<td>ENGL 273 / SWGS 273</td>
<td>MEDICINE AND MEDIA</td>
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<td>ENGL 278</td>
<td>MEDICINE IN THE AGE OF NETWORKED INTELLIGENCE</td>
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<td>ENGL 386 / FILM 381</td>
<td>MEDICAL MEDIA ARTS LAB</td>
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<td>ENST 314</td>
<td>CULTURES AND MEDIA OF ENVIRONMENTAL HEALTH</td>
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<tr>
<td>GERM 335</td>
<td>GERMAN FILM (IN ENGLISH)</td>
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<td>GERM 352</td>
<td>POLITICS OF THE FLESH IN GERMAN LITERATURE, THOUGHT AND FILM</td>
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<td>HEAL 212</td>
<td>CONSUMER HEALTH AND THE MEDIA</td>
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<tr>
<td>HEAL 360</td>
<td>VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE</td>
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<td>HEAL 380</td>
<td>DISPARITIES IN HEALTH IN AMERICA</td>
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<td>HIST 208</td>
<td>RACE AND MEDICINE IN AMERICAN HISTORY</td>
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<td>HIST 310</td>
<td>THE BODY IN GLOBAL HISTORIES OF MEDICINE</td>
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<td>HIST 312</td>
<td>ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA</td>
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<td>HIST 426</td>
<td>DISABILITY AND U.S. LAW</td>
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<td>MDHM 238</td>
<td>SPECIAL TOPICS</td>
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<td>MDHM 300</td>
<td>IMMUNITY IN MEDIA, SCIENCE, AND CULTURE</td>
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<td>PHIL 265</td>
<td>DEATH AND DYING: METAPHYSICS AND ETHICS</td>
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<td>PHIL 266</td>
<td>MEDICAL ETHICS</td>
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<td>PHIL 267</td>
<td>PHILOSOPHY OF SEX AND LOVE</td>
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<td>PHIL 354</td>
<td>THE PHILOSOPHY OF MEDICINE</td>
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<tr>
<td>RELI 333</td>
<td>KNOWING BODY/GLOWING MIND: BUDDHIST ARTS OF CONTEMPLATION AND ANALYSIS</td>
</tr>
<tr>
<td>RELI 335</td>
<td>MEDICINE AND THE MUSEUM: CLINICAL AESTHETICS AND THE MUSEUM OF FINE ARTS, HOUSTON</td>
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<td>RELI 344</td>
<td>SEMINAR ON THE END OF LIFE</td>
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<tr>
<td>RELI 350 / MDEM 350</td>
<td>DEMONS, MENTAL ILLNESS AND MEDICINE</td>
</tr>
<tr>
<td>RELI 361</td>
<td>THE HUMANITIES OF CARE &amp; END OF LIFE</td>
</tr>
<tr>
<td>RELI 362</td>
<td>RELIGION AND SCIENCE</td>
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<td>SOCI 344</td>
<td>SOCIOLOGY OF MENTAL HEALTH</td>
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<td>SOCI 345</td>
<td>MEDICAL SOCIOLOGY</td>
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<td>SOCI 377</td>
<td>HEALTH DISPARITIES IN THE UNITED STATES</td>
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<tr>
<td>SOCI 422</td>
<td>SOCIAL AUTOPSIES: HOW SOCIETY KILLS US</td>
</tr>
<tr>
<td>SOCI 465 / SWGS 465</td>
<td>GENDER AND HEALTH</td>
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<tr>
<td>SPAN 322</td>
<td>SPECIAL TOPICS: ADVANCED SPANISH II</td>
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<td>SPANISH PROFESSIONAL PRACTICUM</td>
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<tr>
<td>SPPO 370</td>
<td>DISABLED BODIES: ILLNESS AND LITERATURE IN LATIN AMERICA</td>
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</table>

#### Footnotes and Additional Information

1. ANTH 477, ENGL 203, MDHM 238, and SPAN 322 are special topics courses, and not all sections are eligible to be applied towards the minor requirements as an Elective course. Please see a minor advisor for more information.

2. Students may take ENGL 386/FILM 381 as either an elective or the practicum, but it will not count toward both requirements.

3. Students may take SPAN 323 as either an elective or the practicum, but it will not count toward both requirements.

### Policies for the Minor in Medical Humanities

#### Program Restrictions and Exclusions

Students pursuing the minor in Medical Humanities should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.
**Program Transfer Credit Guidelines**

Students pursuing the minor in Medical Humanities should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
- Transfer credit coursework received via the articulation of AP, IB or A-level credit will not be considered towards minor requirements.
- Transfer credit from online-only courses cannot be applied or used to meet any of the minor's course requirements.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

**Additional Information**

For additional information, please see the Medical Humanities website: [https://medicalhumanities.rice.edu/](https://medicalhumanities.rice.edu/)

**Opportunities for the Minor in Medical Humanities**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see [Latin Honors](https://registrar.rice.edu/facstaff/courseprocess/) (summa cum laude, magna cum laude, and cum laude) and [Distinction in Research and Creative Work](https://registrar.rice.edu/facstaff/courseprocess/) (p. 51). Some departments have department-specific Honors awards or designations.

**Distinction in Research and Creative Work**

Students completing the minor in Medical Humanities are eligible to apply for the university honor Distinction in Research and Creative Work (p. 51). If awarded, Distinction will be noted on the student's transcript upon graduation and on commencement materials. All applications for Distinction will be judged by a committee of faculty affiliated with the program in Medical Humanities. Work deemed to be "above and beyond" expectation will be considered for Distinction.

- Applications for Distinction must be submitted to the Director of Medical Humanities on or before the last day of classes in the spring semester by 5:00 pm.
- As part of the application for Distinction, students must submit a single-authored research or creative work, created for a Medical Humanities class, that represents the substantive output of a semester's work (length will vary by discipline).
- The student's project does not have to be completed nor in its final format to apply for Distinction. All final research and creative work materials will be due on the last day of final examinations.
- Applications must include a 1-page letter of support from a sponsoring faculty advisor.
- Applications are available on the Medical Humanities website: [https://medicalhumanities.rice.edu/annual-essay-competition](https://medicalhumanities.rice.edu/annual-essay-competition)

**Experiential Learning**

Advanced students in the Medical Humanities minor have the opportunity to conduct experiential learning and research in our practica, enroll in internships at Houston-area hospitals, archives, and community partner institutions, and take a multi-institution seminar, co-taught by researchers and clinicians in the Texas Medical Center, University of Houston, University of Texas School of Public Health, and Rice.

**Additional Information**

For additional information, please see the Medical Humanities website: [https://medicalhumanities.rice.edu/](https://medicalhumanities.rice.edu/)

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

**Medieval and Early Modern Studies**

**Contact Information**

**Medieval and Early Modern Studies**

[https://medieval.rice.edu/](https://medieval.rice.edu/)

326 Humanities Building

713-348-4947

**Maya Soifer Irish**

Program Director

mdem@rice.edu

The Medieval and Early Modern Studies program offers a major and a minor, which enable students to study medieval and early modern cultures in the period between 300 and 1800 A.D.

Both the major and minor are interdisciplinary and foster a global perspective, combining a broad background in various aspects of medieval and early modern culture with more specialized study in a selected field. These fields of emphasis or specialized study include medieval and early modern art history, history, literature (Arabic, Chinese, English, French, Spanish, or Latin), music, philosophy, or religion.

**Bachelor's Program**

- [Bachelor of Arts (BA) Degree with a Major in Medieval and Early Modern Studies](https://medieval.rice.edu/)

**Minor**

- [Minor in Medieval and Early Modern Studies](https://medieval.rice.edu/)
Medieval and Early Modern Studies does not currently offer an academic program at the graduate level.

**Director and Advisor**
Maya Soifer Irish

**Professors**
Lisa A. Balabanlilar
Gregory Barnett
Joseph A. Campana, Jr.
David Cook
Jeffrey B. Fleisher
Michael R. Maas
Joseph Manca
Scott McGill
Alida C. Metcalf
Donald Ray Morrison
Deborah Nelson-Campbell
Nanxiu Qian
Paula A. Sanders
Edward A. Snow
John M. Stroup

**Associate Professors**
Daniel Domingues Da Silva
Sarah Ellenzweig
Claire Fanger
Esther Fernández
Shih-Shan Susan Huang
Maya Soifer Irish
Peter V. Loewen
Brian Ogren
Aysha Pollnitz

**Assistant Professors**
Niki Clements
Farshid Emami
Eric Huntington
Jaymin Kim
Emily Houlik-Ritchey

**Lecturer**
Ted Somerville

For Rice University degree-granting programs: To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata) To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Medieval and Early Modern Studies (MDEM)**

**MDEM 101 - ELEMENTARY LATIN I**
*Short Title: ELEMENTARY LATIN I*
*Department: Medieval/Early Modern Studies*
*Grade Mode: Standard Letter*
*Course Type: Lecture*
*Credit Hours: 3*
*Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.*
*Course Level: Undergraduate Lower-Level*
*Description: Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: LATI 101.*

**MDEM 102 - ELEMENTARY LATIN II**
*Short Title: ELEMENTARY LATIN II*
*Department: Medieval/Early Modern Studies*
*Grade Mode: Standard Letter*
*Course Type: Lecture*
*Credit Hours: 3*
*Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.*
*Course Level: Undergraduate Lower-Level*
*Prerequisite(s): LATI 101 or MDST 101*
*Description: Continuation of LATI 101 and MDST 101. Graduate students require permission of instructor. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: LATI 102.*

**MDEM 103 - INTRODUCTION TO JEWISH MYSTICISM**
*Short Title: INTRO TO JEWISH MYSTICISM*
*Department: Medieval/Early Modern Studies*
*Grade Mode: Standard Letter*
*Course Type: Lecture*
*Distribution Group: Distribution Group I*
*Credit Hours: 3*
*Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.*
*Course Level: Undergraduate Lower-Level*
*Description: Surveys the historical development and central themes of Jewish mysticism. From the bible to ancient mysticism to medieval Kabbalah to modern expressions, we will critically reflect on the ideas such as divine presence in the world, the cultivation of insight and magical powers, contemplative and restorative practices, and charismatic authority. Cross-list: RELI 104.*

**MDEM 105 - INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT**
*Short Title: MEDIEVAL CHRISTIAN THOUGHT*
*Department: Medieval/Early Modern Studies*
*Grade Mode: Standard Letter*
*Course Type: Lecture*
*Distribution Group: Distribution Group I*
*Credit Hours: 3*
*Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.*
*Course Level: Undergraduate Lower-Level*
*Description: Survey of major medieval Christian thinkers. Primary focus on high and late middle ages (12th-15th century), with some attention to spiritual and apocalyptic writings and dissenting thought in this period. Cross-list: RELI 105.*
MDEM 111 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: CLAS 102, HART 101. Mutually Exclusive: Cannot register for MDEM 111 if student has credit for HART 220.

MDEM 116 - MYSTICISM THROUGHOUT THE AGES
Short Title: MYSTICISM THROUGHOUT THE AGES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: RELI 116.

MDEM 120 - MEDIEVAL CIVILIZATIONS
Short Title: MEDIEVAL CIVILIZATIONS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Focusing on the period between 300-1500 CE, the course will survey political institutions, society, and culture in medieval European, Byzantine, and Islamic civilizations. Topics include Christianization of Europe, the rise of Islam, the Crusades, scholastic theology, persecution of heretics, bubonic plague, and the rise of centralized monarchies. Cross-list: HIST 120.

MDEM 205 - MEDIEVAL MEDITERRANEAN WORLD
Short Title: MEDIEVAL MEDITERRANEAN WORLD
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course examines the political, institutional, military, and cultural development of the societies that successively dominated the "Middle Sea" from AD 500-1500 in Europe and the Islamic World. It highlights the Mediterranean legacy of commercial, cultural, and religious exchange and coexistence, as well as its history of confrontation and warfare. Cross-list: HIST 205.

MDEM 210 - MEDIEVAL VIOLENCE
Short Title: MEDIEVAL VIOLENCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Discussion course looks at private and large-scale warfare during the European Middle Ages. It considers how violence was legitimized and carried out, and examines attitudes towards violence and its effects on society. Topics include theoretical approaches to violence, crusading, chivalry, Truce of God, rituals of violence, military technologies, and cinematic portrayals of medieval warfare. Cross-list: HIST 211.

MDEM 211 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of grammar and readings in Latin prose. Cross-list: LATI 201.

MDEM 212 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Distribution Group</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDEM 222 - MEDIEVAL AND RENAISSANCE ERAS</td>
<td>MEDIEVAL AND RENAISSANCE ERAS</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td></td>
<td></td>
<td>Undergraduate Lower-Level</td>
<td>MUSI 211 or MUSI 317</td>
<td>Introduction to the Islamic World from the 8th century to the 13th century. Topics include conquests and classical Islamic states, Arabization, Jewish and Christian communities, impact of Turkic peoples, and the Ottoman Empire, with emphasis on social, cultural, artistic, and scientific trends that shaped the region's history. Cross-list: HIST 308.</td>
</tr>
<tr>
<td>MDEM 238 - SPECIAL TOPICS</td>
<td>SPECIAL TOPICS</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study</td>
<td></td>
<td>1-4</td>
<td></td>
<td>Undergraduate Lower-Level</td>
<td></td>
<td>Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
</tr>
<tr>
<td>MDEM 271 - MEDIEVAL POPULAR CHRISTIANITY</td>
<td>MEDIEVAL POPULAR CHRISTIANITY</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
<td></td>
<td>Undergraduate Lower-Level</td>
<td></td>
<td>For much of the Middle Ages, literacy was a luxury that ordinary people could not afford. How could peasants participate in Christian traditions? Course surveys devotional practices engaged by the laity, including penance, pilgrimage, plays, charms and spells, as well as traditions of lay interaction with dead saints and ghosts. Cross-list: RELI 271.</td>
</tr>
<tr>
<td>MDEM 281 - GOLDEN AGE OF ISLAM</td>
<td>GOLDEN AGE OF ISLAM</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
<td></td>
<td>Undergraduate Lower-Level</td>
<td>MUSI 211 or MUSI 317</td>
<td>Introduction to the study of Western music history, with emphasis on music before 1600. Score reading ability required. Cross-list: MUSI 222.</td>
</tr>
<tr>
<td>MDEM 306 - DISABILITY IN THE MEDIEVAL AND EARLY MODERN WORLD</td>
<td>DISABILITY IN MED &amp; EARLY MOD</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td></td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>A study of disability and impairment during the medieval and early modern periods. Students will approach the subject through primary and secondary readings, including theoretical tests on disability studies and the humanities.</td>
</tr>
<tr>
<td>MDEM 308 - THE WORLD OF LATE ANTIQUITY</td>
<td>THE WORLD OF LATE ANTIQUITY</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td></td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Study of the social, religious, and political history of the Roman world from Diocletian to the rise of Islam, with emphasis on the breaking of the unity of the Mediterranean world and the emergence of early medieval societies in the east and west. Cross-list: HIST 308.</td>
</tr>
<tr>
<td>MDEM 311 - THE ARCHAEOLOGY OF AFRICA</td>
<td>THE ARCHAEOLOGY OF AFRICA</td>
<td>Medieval/Early Modern Studies</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td></td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Cross-list: ANTH 312.</td>
</tr>
</tbody>
</table>
MDEM 316 - CHAUCER
Short Title: CHAUCER
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Geoffrey Chaucer’s The Canterbury Tales, Middle English, and the political and cultural climate of the fourteenth century. Cross-list: ENGL 316, SWGS 305.

MDEM 317 - ARTHURIAN LITERATURE
Short Title: ARTHURIAN LITERATURE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Cross-list: ENGL 317, SWGS 301.

MDEM 319 - MEDIEVAL ROMANCE
Short Title: MEDIEVAL ROMANCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines the development of romance as a genre during the medieval period. Cross-list: ENGL 314.

MDEM 320 - DIRECTED READING IN MEDIEVAL STUDIES
Short Title: DIRECTED READING MEDIEVAL STDY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Student works one-on-one with an individual faculty member on a topic directly related to Medieval Studies. Instructor Permission Required.

MDEM 323 - BUDDHIST AND DAOIST ART IN CHINA
Short Title: BUDDHIST & DAOIST ART IN CHINA
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual materials that shed light on pre-modern China's Buddhist, Daoist, and other diverse religious and ritual practices. We will examine the range of social and ethnic backgrounds that participated in the making, spreading, and use of religious visual culture in traditional China. Topics may include: funeral art and ritual; images of heaven, hell, and rebirth; and representations of gender, among others. Students will develop analytical skills, critical thinking skills, and holistic views regarding the meaning, function, and style of the arts of diverse religious traditions in China. Cross-list: ASIA 323, HART 323.

MDEM 324 - CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN
Short Title: CONFLICT IN MEDIEVAL SPAIN
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain's three religious communities - Christians, Jews, and Muslims. Cross-list: HIST 324.

MDEM 327 - EUROPEAN BORDERLANDS
Short Title: EUROPEAN BORDERLANDS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Courses examines the military, political, social and cultural developments on the European frontiers between 500-1500 AD. Topics include colonization and conquest, crusades and Spanish Reconquista, piracy, slavery, encounters with native peoples, spread of Christianity, medieval colonial regimes, map-making and cultural exchanges. Cross-list: HIST 327.

2021-2022 General Announcements PDF Generated 09/22/21
MDEM 330 - EARLY MEDIEVAL ART
Short Title: EARLY MEDIEVAL ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Early Medieval Art from the 5th Century to the Romanesque period. This course begins with a study of the art and architecture of the Ostrogoths,Visigoths, Lombards, Celts, Anglo-Saxons, Franks, and Merovingians, and the transformation of the Roman World through new Germanic, Barbarian, and Christian forces. The second part of the course considers the cultural Renaissance of the Carolingian and Ottonian periods under rulers such as Charlemagne and Otto III. The last third of the course focuses on themes of pilgrimage, relics, crusades and the emergence of new monumental tradition in art and architecture during the Romanesque Period. Cross-list: HART 330.

MDEM 331 - GOTHIC ART
Short Title: GOTHIC ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the full array of sacred art and architecture produced in the early and high gothic periods in northern Europe. Includes cathedral architecture, sculpture, stained glass, manuscripts, and metalwork studies in relationship to the expansion of royal and Episcopal power. Cross-list: HART 331.

MDEM 332 - ART OF THE COURTS
Short Title: ART OF THE COURTS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of art and architecture produced in the late gothic period within three distinct settings-the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, city hall and hospital, and the chapel and parish church. Cross-list: HART 332.

MDEM 333 - NORTHERN RENAISSANCE ART
Short Title: NORTHERN RENAISSANCE ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. Cross-list: HART 340.

MDEM 343 - MASTERS OF THE BAROQUE ERA
Short Title: MASTERS OF THE BAROQUE ERA
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of art in northern Europe from Jan van Eyck to Peter Bruegel. Cross-list: HART 343.

MDEM 350 - DEMONS, MENTAL ILLNESS AND MEDICINE
Short Title: DEMONS/MENTAL ILLNESS/MEDICINE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Treats complex connections between religious beliefs/practices and formulation of human psychology in western tradition, through a historical reckoning with demonology. Consider the way demons are represented – from semi-corporeal beings to marks of mental illness – by looking at texts from the ancient world to modern psychiatry. Cross-list: RELI 350.

MDEM 357 - JEWS AND CHRISTIANS IN MEDIEVAL EUROPE
Short Title: JEWS & CHRISTIANS-MEDIEVAL EUR
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will focus on Jewish-Christian coexistence in medieval Europe. Will examine the Jews’ legal status in Christendom, their communal life, economic activities, intellectual achievements, while also focusing on the complex dynamics of Jewish-Christian interaction, and the shifting patterns of persecution and acceptance. Cross-list: HIST 357.
MDEM 370 - INTRODUCTION TO TRADITIONAL CHINESE POETRY
Short Title: INTRO TO TRAD CHINESE POETRY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings are in English translation. Cross-list: ASIA 330, CHIN 330.

MDEM 373 - CHINESE ART AND VISUAL CULTURE
Short Title: CHINESE ART AND VISUAL CULTURE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Chinese Art and Visual Culture is an introductory seminar studying the history of traditional Chinese art and visual culture from ancient times to the nineteenth century. This course draws upon masterpieces and monuments from both archaeological finds and museum collections, including bronze vessels, funeral objects, painting, calligraphy, sculptures, architecture, ceramics, and so on. Designed for students who have no background in Chinese art, Chinese history, or art history, the seminar uses diverse teaching materials in multiple media beyond traditional textbook-based readings to achieve four main goals: 1) Develop visual literacy through a direct encounter with objects. The development of specialized vocabulary to describe, analyze, and communicate function, composition, and meaning in art. 2) Understand major artistic movements of art and architecture within historical, social, political contexts. 3) Develop specialized knowledge in art from specific geographical locations (e.g., China), time periods, arts or artistic movements. 4) Evaluate and use primary and secondary source materials. Cross-list: ASIA 372, HART 372.

MDEM 375 - INTRODUCTION TO CLASSICAL CHINESE NOVELS
Short Title: CLASSICAL CHINESE NOVELS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings are in English translation. Cross-list: ASIA 335, CHIN 335.

MDEM 376 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE
Short Title: EAST AND WEST
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology: paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: ASIA 376, HART 376.

MDEM 377 - MEDIEVAL MANUSCRIPTS
Short Title: MEDIEVAL MANUSCRIPTS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores illuminated European manuscripts from late antiquity through the early sixteenth century. It examines manuscripts' functions, patrons, makers, and materials and technique, as well as such issues as the relationship between text and image and the manuscript's ideological stance. Students have the opportunity to study original medieval illuminations. Cross-list: HART 377.

MDEM 378 - DUTCH ART IN THE AGE OF REMBRANDT
Short Title: DUTCH ART IN AGE OF REMBRANDT
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine Dutch and Flemish seventeenth-century art, including major masters, such as Rembrandt, Rubens, and Vermeer, and major developments, such as the rise of still life, genre, and landscape painting. Cross-list: HART 378.
MDEM 379 - WOMEN IN CHINESE LITERATURE
Short Title: WOMEN IN CHINESE LITERATURE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Cross-list: ASIA 399, SWGS 399.

MDEM 391 - THE REFORMATION & ITS RESULTS
Short Title: THE REFORMATION & ITS RESULTS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theology and church-state issues from 16th-century Reformation to 17th-century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Cross-list: RELI 391. Mutually Exclusive: Cannot register for MDEM 391 if student has credit for RELI 286.

MDEM 398 - INDEPENDENT STUDY IN MEDIEVAL AND EARLY MODERN STUDIES
Short Title: INDEPENDENT STUDY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study reading, or special research in medieval and early modern studies. Repeatable for Credit.

MDEM 402 - MIDDLE HIGH GERMAN
Short Title: MIDDLE HIGH GERMAN
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the phonology and morphology of Middle High German, such as will prepare students to read 'Tristan', 'Parzifal', and the 'Niebelungenlied', as well as the great lyric poets of that period. Emphasis will be on pronunciation and grammatical distinctions between Middle High and Modern High German as well as on the diverging semantic developments of the two vocabularies.

MDEM 404 - BEGINNINGS OF THE LANGUAGE AND LITERATURE OF FRANCE
Short Title: THE LANG AND LIT OF FRANCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes and external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Student will acquire a reading knowledge of Old French. Course taught in French. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: FREN 404. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

MDEM 411 - THE LITERARY AND HISTORICAL IMAGE OF THE MEDIEVAL WOMAN
Short Title: LIT & HIST IMAGE MED WOMAN
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FREN 311 or FREN 312
Description: Comparison and contrast of the presentation of the medieval woman in literature with evidence of historical women from contemporary documents and records.

MDEM 425 - COURTELY LOVE IN MEDIEVAL FRANCE
Short Title: COURTELY LOVE MEDIEVAL FRANCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: FREN 415. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

MDEM 427 - TOPICS IN EARLY MUSIC
Short Title: TOPICS IN EARLY MUSIC
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description:
MDEM 431 - ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH CENTURY
Short Title: ARCH OF GOTHIC CATHEDRAL
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on one of the most important contributions to the history of western architecture--the Gothic cathedral. The course will approach the material from a number of different perspectives--the formal and technical development of Gothic architecture; the Medieval architect and the design of Gothic buildings; the social, economic, and political history of "big church" building in the Middle Ages; Gothic architecture as experience and metaphor; and the afterlife of the Gothic cathedral from Vasari to the National Cathedral in Washington, D.C. Cross-list: HART 431.
MDEM 434 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: HART 434, SWGS 434.
MDEM 435 - MULTICULTURAL EUROPE, 1400-1700
Short Title: MULTICULTURAL EUROPE, 1400-1700
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The art of Europe was never the product of a single culture working in isolation. This seminar will explore the multicultural aspects of medieval and early modern Europe by focusing on the visual culture of groups who defined themselves or are today defined by nationality, race, or religion. Cross-list: HART 435, HIST 443.
MDEM 436 - LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR
Short Title: LIT & CULTURE OF MIDDLE AGES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages but also in other medieval literatures of Western Europe. Includes discussion of the legend's influence in diverse areas even in modern times. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Cross-list: FREN 416. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor
MDEM 444 - VISIONS AND VISONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Cross-list: RELI 444.
MDEM 456 - COLLEGIUM MUSICUM
Short Title: COLLEGIUM MUSICUM
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Performance of music up to the early 17th century. Does not count as chamber music. Instructor permission required. Repeatable for credit. Instructor Permission Required. Cross-list: MUSI 436. Repeatable for Credit.
MDEM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
MDEM 478 - MEDIEVAL STUDIES
Short Title: MEDIEVAL STUDIES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Special Topics in medieval Europe comparative literature. Repeatable for Credit.

MDEM 481 - ANCIENT AND MEDIEVAL PHILOSOPHY
Short Title: ANCIENT & MEDIEVAL PHILOSOPHY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics in the history of philosophy from the 4th century B.C. through the 14th century. Mutually Exclusive: Cannot register for MDEM 481 if student has credit for CLAS 301/MDEM 301/MDST 301/PHIL 301.

MDEM 494 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate Medieval and Early Modern Studies majors who wish to write a senior thesis. Students may enroll in MDEM 494 only with consent of a faculty advisor and the program director, and only if they intend to enroll in MDEM 495 as well. Senior Thesis is a year-long research course. Applicants will normally be required to have completed courses relevant to the proposed thesis topic (e.g. English, History, Art History, etc.), to be determined by the thesis advisor. Instructor Permission Required.

MDEM 495 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate Medieval and Early Modern Studies majors who wish to write a senior thesis. Students may enroll in MDEM 495 only with consent of a faculty advisor and the program director, and only if they enrolled in MDEM 494 in the previous semester. Senior Thesis is a year-long research course. Instructor Permission Required.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: MDEM

Program Description and Code
• Medieval and Early Modern Studies: MDEM

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Medieval and Early Modern Studies: MDEM

Undergraduate Minor Description and Code
• Minor in Medieval and Early Modern Studies: MDMM

CIP Code and Description
1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Medieval and Early Modern Studies

Program Learning Outcomes for the BA Degree with a Major in Medieval and Early Modern Studies
Upon completing the BA degree with a major in Medieval and Early Modern Studies, students will be able to:

1. Situate Medieval and Early Modern studies more broadly within several interdisciplinary fields, including history, art, philosophy, music, literature, and religion.
2. Define and apply appropriate disciplinary and/or interdisciplinary methodologies, vocabularies, concepts, and theories to critically respond to questions within the field of Medieval and Early Modern Studies.
3. Demonstrate the ability to define and respond to research questions and scholarly debates within the field, including the ability to analyze primary and secondary sources, draw conclusions from the analysis of these sources, and cite evidence in support of conclusions.
4. Demonstrate a firm grasp of written, visual, and oral communication, including critical writing principles such as appropriate citation, use of evidence, clarity, and grammatical correctness.
Requirements for the BA Degree with a Major in Medieval and Early Modern Studies

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BA degree with a major in Medieval and Early Modern Studies must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Degree Requirements

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<td>Additional Credit Hours to Complete Degree Requirements ( ^* )</td>
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<td>University Graduation Requirements (p. 29) ( ^* )</td>
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<td>Total Credit Hours</td>
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Footnotes and Additional Information

\( ^* \) Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. Of the 10 required courses (30 credit hours), a total of 5 courses (15 credit hours) must be taken at the 300-level or above. Please note that not all courses will be offered each academic year.

2. The 10 required courses (30 credit hours) must be taken from at least 3 different fields or departments (Anthropology, Art History, Asian Studies, Classical Studies, English, European Studies, French Studies, German Studies, History, Jewish Studies, Latin American Studies, Medieval and Early Modern Studies, Music, Philosophy, Religion, and Spanish and Portuguese).

Course Lists to Satisfy Requirements

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<td>HART 220</td>
<td>INTRODUCTION TO MEDIEVAL ART AND ARCHITECTURE OF WESTERN EUROPE</td>
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<td>LIVING IN THE CITY IN THE OTTOMAN EMPIRE</td>
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<td>ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES</td>
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<td>COFFEEHOUSES AND TEAHOUSES: A GLOBAL HISTORY</td>
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2021-2022 General Announcements PDF Generated 09/22/21
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<td>ISSUES IN THE HISTORY OF PRINTS, PRE-MODERN TO PRESENT</td>
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Recommended Coursework

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<td>SPPO 462</td>
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Policies for the BA Degree with a Major in Medieval and Early Modern Studies

**Program Restrictions and Exclusions**

Students pursuing the major in Medieval and Early Modern Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the major in Medieval and Early Modern Studies should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Medieval and Early Modern Studies (MDEM) are broad in theme and scope and prompt students to probe knowledge about the variety of often interrelated medieval and early modern civilizations from the 4th to the 18th centuries. They involve a broad, interdisciplinary spectrum of knowledge that provides students with the tools for thinking critically about formations of ideas in the long history of culture and cultural exchange among Europe, Asia, the Middle East, Africa, and the Americas. Many of them are introductions to the medieval and/or early modern periods in a particular field of study (e.g. History, Art History, Religion, Music).

**Additional Information**

For additional information, please see the Medieval and Early Modern Studies website: https://medieval.rice.edu/
Opportunities for the BA Degree with a Major in Medieval and Early Modern Studies

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Senior Thesis
Qualified majors may apply before their senior year for directed research leading to a senior thesis, carried out during both semesters of the senior year. Each semester will require 3 credit hours; these 6 credit hours (MDEM 494 and MDEM 495) are in addition to the credit hours required for the major.

To qualify for senior thesis, students must have an approved research proposal and the agreement of a faculty member to serve as advisor for that project. Applicants will normally be required to have a GPA of 3.75 in MDEM courses and to have completed courses relevant to the proposed thesis topic (e.g. English, History, Art History, etc.), to be determined by the thesis advisor. Applications should be submitted to the director of Medieval and Early Modern Studies and will be evaluated by the advisory board.

Students who are considering applying to write a senior thesis should consult the program director and potential advisor as early as possible. Normally students will apply before preregistration in the second semester of their junior year and will spend time during the following summer reading from a list they have developed with their advisor. The thesis normally will be between 7,500 and 15,000 words (approximately 30-60 pages) in length. Students will enroll MDEM 494 and MDEM 495.

Application Requirements
- Program thesis application form (available at program website and from the program director) signed by the program director and the faculty member who will supervise the project
- A 500 word abstract of the proposed project

Final Submission and Presentations
- An electronic copy of the final thesis must be submitted by the last day of final examinations for degree candidates. Presentations will take place at the MDEM Undergraduate Conference.

Minor in Medieval and Early Modern Studies

Program Learning Outcomes for the Minor in Medieval and Early Modern Studies
Upon completing the minor in Medieval and Early Modern Studies, students will be able to:

1. Define and apply appropriate disciplinary and/or interdisciplinary methodologies, vocabularies, concepts, and theories to respond critically to questions within the field of Medieval and Early Modern Studies.
2. Demonstrate the ability to define and respond to research questions and scholarly debates within the field, including the ability to analyze primary and secondary sources, draw conclusions from the analysis of these sources, and cite evidence in support of conclusions

Requirements for the Minor in Medieval and Early Modern Studies
Students pursuing the minor in Medieval and Early Modern Studies must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- No courses from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1461) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Minor Requirements

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<td>Core Requirements</td>
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Select 6 courses from the following categories (see course lists below): 1, 2

1. Anthropology
2. Art History
3. Asian Studies
4. Classical Studies
5. English
6. French Studies

Additional Information
For additional information, please see the Medieval and Early Modern Studies website: https://medieval.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.
Minor in Medieval and Early Modern Studies

German Studies
History
Jewish Studies
Medieval and Early Modern Studies
Music
Philosophy
Religion
Spanish and Portuguese

Total Credit Hours
18

Footnotes and Additional Information
1 Of the 6 required courses (18 credit hours), a total of 3 courses (9 credit hours) must be taken at the 300-level or above. Please note that not all courses listed above will be offered every academic year.
2 The 6 required courses (18 credit hours) must be taken from at least 2 different fields or departments (Anthropology, Art History, Asian Studies, Classical Studies, English, European Studies, French Studies, German Studies, History, Jewish Studies, Latin American Studies, Medieval and Early Modern Studies, Music, Philosophy, Religion, and Spanish and Portuguese).

Course Lists to Satisfy Requirements

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2021-2022 General Announcements PDF Generated 09/22/21
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<td>ENGL 210</td>
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<td>MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE</td>
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<td>SAINTS AND SINNERS</td>
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<td>COURTLY LOVE IN MEDIEVAL FRANCE</td>
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<td>LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR</td>
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<td>17TH CENTURY</td>
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<td>MEDIEVAL CIVILIZATIONS</td>
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<td>HIST 176</td>
<td>MEXICO: AN INTRODUCTION</td>
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<td>HIST 186</td>
<td>HISTORICAL SURVEY OF JEWISH CIVILIZATION FROM ITS ORIGINS TO THE PRESENT</td>
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<td>HIST 190</td>
<td>OCEANS IN WORLD HISTORY</td>
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<td>THE IDEA OF AFRICA</td>
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<td>HIST 205 / MDEM 205</td>
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<td>HIST 211 / MDEM 210</td>
<td>MEDIEVAL VIOLENCE</td>
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<td>HIST 213</td>
<td>THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING</td>
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<td>HIST 219</td>
<td>GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS</td>
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<td>HIST 222</td>
<td>HISTORY OF EARLY AFRICA</td>
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<td>HIST 226</td>
<td>COLONIAL SPANISH AMERICA</td>
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<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
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<td>NATIVE AMERICAN HISTORY: FROM EUROPEAN CONTACT TO THE ERA OF REMOVAL</td>
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<td>SLAVERY AND THE FOUNDING FATHERS</td>
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<td>HISTORY OF SOUTH ASIA</td>
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<td>HIST 281 / MDEM 281</td>
<td>GOLDEN AGE OF ISLAM</td>
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<td>FIGHTING THE ATLANTIC SLAVE TRADE</td>
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<td>OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD</td>
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<td>HIST 308 / MDEM 308</td>
<td>THE WORLD OF LATE ANTIQUITY</td>
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<td>HIST 311</td>
<td>SEX, GENDER, AND FAMILY IN EUROPE, 1300-1700</td>
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<td>JEWS AND CHRISTIANS IN THE MEDIEVAL ISLAMIC WORLD</td>
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<td>IMPERIAL GARDENS: A CULTURAL COMPARISON</td>
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<td>HIST 324 / MDEM 324</td>
<td>CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN</td>
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Minor in Medieval and Early Modern Studies

HIST 327 / MDEM 327  MEDIEVAL BORDERLANDS
HIST 344  EUROPEAN REFORMATIONS
HIST 357 / MDEM 357  JEWS AND CHRISTIANS IN MEDIEVAL EUROPE
HIST 361  HISTORY OF PREMODERN BRITAIN: TUDORS AND STUARTS, 1485-1707
HIST 365 / ECON 365  WORLD ECONOMIC HISTORY
HIST 374  JEWISH HISTORY, 1500-1948
HIST 392  PRE-MODERN POLITICAL THOUGHT FROM CICERO TO LOCKE
HIST 401  THE AGE OF ATILLA THE HUN
HIST 409  MUSLIMS, JEWS, CHRISTIANS, HERETICS, AND PAGANS IN THE AGE OF THE CRUSADES
HIST 412  EMPIRE AND INTERNATIONAL LAW
HIST 413  A HISTORY OF TRAVEL: FROM MEDIEVAL PILGRIMAGE TO THE HIPPIE TRAIL
HIST 434  ISLAM AND THE WEST
HIST 494  RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA

Code  Title  Credit Hours

Jewish Studies

JWST 201  GREAT BOOKS OF JEWISH HISTORY AND CULTURE

Code  Title  Credit Hours

Medieval and Early Modern Studies

MDEM 320  DIRECTED READING IN MEDIEVAL STUDIES
MDEM 411  THE LITERARY AND HISTORICAL IMAGE OF THE MEDIEVAL WOMAN
MDEM 477  SPECIAL TOPICS
MDEM 478  MEDIEVAL STUDIES
MDEM 494  SENIOR THESIS
MDEM 495  SENIOR THESIS

Code  Title  Credit Hours

Music

MUSI 222 / MDEM 222  MEDIEVAL AND RENAISSANCE ERAS
MUSI 436 / MDEM 456  COLLEGIUM MUSICUM
MDEM 427  TOPICS IN EARLY MUSIC

Code  Title  Credit Hours

Philosophy

MDEM 481  ANCIENT AND MEDIEVAL PHILOSOPHY
PHIL 281  HISTORY OF PHILOSOPHY I
PHIL 289  HISTORY OF ASIAN PHILOSOPHY

Code  Title  Credit Hours

PHIL 362  HISTORY OF ETHICS
PHIL 372  HISTORY OF SOCIAL AND POLITICAL PHILOSOPHY
PHIL 381  ANCIENT PHILOSOPHY

Religion

RELI 104 / MDEM 103  INTRODUCTION TO JEWISH MYSTICISM
RELI 105 / MDEM 105  INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT
RELI 108  INTRODUCTION TO JUDAISM
RELI 112  COMPARING CHRISTIANITIES
RELI 113  INTRODUCTION TO CHRISTIANITY IN AFRICA
RELI 116 / MDEM 116  MYSTICISM THROUGHOUT THE AGES
RELI 221 / ASIA 221  THE LIFE OF THE PROPHET MUHAMMAD
RELI 223  QUR'AN AND COMMENTARY
RELI 271 / MDEM 271  MEDIEVAL POPULAR CHRISTIANITY
RELI 350 / MDEM 350  DEMONS, MENTAL ILLNESS AND MEDICINE
RELI 363  JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT
RELI 367  REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART
RELI 384  PILGRIMAGE AND CRUSADE
RELI 391 / MDEM 391  THE REFORMATION & ITS RESULTS
RELI 406  CHRISTIANITY AND LATE ANTIQUITY
RELI 416  NEW TESTAMENT / CHRISTIAN ORIGINS
RELI 419  MYSTERY RELIGIONS
RELI 440  ISLAM'S MYSTICAL AND ESOTERIC TRADITION
RELI 441 / ASIA 441  MAGIC AND POPULAR RELIGION
RELI 444 / MDEM 444  VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
RELI 449  EARLY CHRISTIAN CONTROVERSIES

Code  Title  Credit Hours

Spanish and Portuguese

SPPO 347  INTRODUCTION TO MEDIEVAL AND EARLY MODERN SPANISH LITERATURE AND CULTURE
SPPO 462  DON QUIJOTE
Policies for the Minor in Medieval and Early Modern Studies

Program Restrictions and Exclusions

Students pursuing the minor in Medieval and Early Modern Studies should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in Medieval and Early Modern Studies should be aware of the following program-specific transfer credit guidelines:

- Transfer credit coursework cannot be applied or used to meet any of the minor's course requirements.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Additional Information

For additional information, please see the Medieval and Early Modern Studies website: https://medieval.rice.edu/

Opportunities for the Minor in Medieval and Early Modern Studies

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Military Science

The goal of the U.S. Army ROTC program is to develop technically competent, physically fit, and highly motivated men and women for positions of responsibility as commissioned officers in the active U.S. Army, the U.S. Army Reserve, and the National Guard. Upon completion of the curriculum, students will have an understanding of the fundamental concepts and principles of the military as an art and as a science. The leadership and managerial experience gained through ROTC provides great benefit for students in their military careers as well as in both their civilian endeavors.

Rice does not offer a degree in military science. However, interested students can obtain a degree in any of the other programs offered by Rice. Credit for courses in military science may be obtained by attending courses at the University of Houston. The financial aid available to an ROTC student may be used for Rice courses as well as the University of Houston ROTC courses.

For general university requirements, see Graduation Requirements (p. 29). For requirements for a specific degree program, see the pages for that degree program. For more information on the Army ROTC program in particular, contact the military science department at the University of Houston by calling 713-743-3875.

Statutory Authority

General statutory authority for establishment and operation of the ROTC program, including the scholarship program, is contained in Title 10, United States Code, Chapter 103 (Sec. 2102–2111). Specific rules and procedures are found in U.S. Army Regulation 145–1.

Course Credit

ROTC classes may be taken for elective credit toward any degree plan at the University of Houston or Rice University. Freshman- and sophomore-level classes are open to all students, regardless of age or physical condition. No military obligation is incurred as a result of enrollment in these courses. Junior- and senior-level courses are more restrictive and do require a military obligation. ROTC scholarship students also incur a military obligation.

Four-Year Program

The four-year program is divided into two courses: the basic course, which is normally attended by students during their freshman- and sophomore years; and the advanced course, attended during the junior and senior years. Advanced course students attend a six-week paid advanced camp in Fort Lewis, Washington, normally between their junior and senior years.

The Basic Course

The basic course consists of four semesters of military science, which include:

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<tr>
<td>MILI 121</td>
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Those students enrolled in the advanced course will be placed in the National Guard. Through the Simultaneous Membership Program (SMP), students enrolled in ROTC may also be members of the Army Reserve/National Guard and Army Reserve prior to enrolling in the advanced course. All students, including veterans, must have a minimum of 54 credit hours to pursue and accept a commission in the active army, the Army Reserve, or the National Guard. To be considered for contracting into the advanced course, the student must be a full-time student in a course of instruction that leads to a degree in a recognized academic field, have a minimum of two years of academic work remaining in a curriculum leading to a baccalaureate or advanced degree, be under age 30 when commissioned, and pass a physical and medical examination.

**Two-Year Program**

The two-year program is designed for students who did not take the basic course but otherwise are eligible to enroll in the advanced course. This program allows students completing their sophomore year to attend a four-week Leader's Training Course during June and July at Fort Knox, Kentucky, in lieu of taking the first two years of ROTC. There is no military obligation for attending Leader's Training Course. The army provides transportation, room, and board. Students are paid approximately $900 for the four-week period.

**Laboratory Requirements**

A military science laboratory is required for students enrolling in:

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<td>MILI 202</td>
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<td>MILI 301</td>
<td>ADVANCED LEADERSHIP</td>
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<td>MILI 401</td>
<td>ADAPTIVE LEADERSHIP</td>
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<td>MILI 402</td>
<td>LEADERSHIP IN A COMPLEX WORLD</td>
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This laboratory provides hands-on opportunities for marksmanship training, rappelling, drill and ceremonies, communications training, and other activities.

**Veterans**

Veterans who have served on active duty or in the Army Reserve or National Guard also are eligible for the ROTC program. Although veterans are not required to take the basic course, they are encouraged to do so. All students, including veterans, must have a minimum of 54 credit hours prior to enrolling in the advanced course.

**National Guard and Army Reserve Members**

Students enrolled in ROTC may also be members of the Army Reserve/National Guard. Through the Simultaneous Membership Program (SMP), those students enrolled in the advanced course will be placed in a leadership position as a cadet and will receive pay and entitlements from the National Guard or Army Reserve in the pay grade of Sergeant (E-5).

**Financial Assistance**

The United States Army offers, on a competitive nationwide basis, four-, three-, and two-year scholarships. The scholarships cover tuition 100%. Recipients also receive benefits for educational fees (to include lab fees), a book allowance, and a subsistence allowance ranging from $300 to $500 per month. Applicants must be U.S. citizens and must be under age 27 on the anticipated graduation date. Applications are available from the military science department. Veteran applicants can extend the age limit up to a maximum of three years, based on prior active duty service.

**Other Financial Aid**

All students enrolled in the advanced course will receive a subsistence allowance of $450 per month junior year and $500 per month senior year. For more information, contact the military science department. GI Bill® recipients still retain benefits.

**Tuition**

Members of the Army or the Army Reserve, National Guard, Texas State Guard, or other reserve forces may be exempted from the nonresident tuition fee and other fees and charges.

**Special Training**

Basic- and advanced-course students may volunteer for and may attend the U.S. Army Airborne and Air Assault courses during June, July, and August. Cadet Troop Leadership Training positions also are available to Advanced-course cadets during the summer months.

**Miscellaneous**

All participating cadets are eligible for our internal scholarships provided by our alumni and sponsors of the program. The Corps of Cadets sponsors an annual military ball in addition to other social events throughout the school year. The Department of Military Science sponsors extracurricular activities such as the University of Houston Color Guard and the Ranger Challenge Team.

Military Science does not currently offer an academic program at the graduate level.

**Chair and Professor**

Chairman Lieutenant Colonel Hung Ta

**Assistant Professors**

Major Ronyel Sanders
CPT Justin Eley
Sergeant First Class Timothy Gilley
Mr. Roland Thomas

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)
Military Science (MILI)

MILI 106 - INTERMEDIATE PHYSICAL FITNESS
Short Title: INTERMEDIATE PHYSICAL FITNESS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Physically demanding. Develops skills through team competition. Land navigation, assembly/disassembly of weapon, tactics, assembly of one-man rope bridge. Students are also required to attend fitness training 5 times a week. Participants compete for Ranger Challenge slots. Selected cadets compete against other teams at the annual Ranger Challenge competition. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Recommended prerequisite(s): Must be ROTC cadet. MUST BE ENROLLED IN ONE OF THE FOLLOWING COURSES: MILI 121, MILI 201, MILI 301 OR MILI 401. Faculty. Al Francis. Repeatable for Credit.

MILI 109 - INTRODUCTION TO PHYSICAL FITNESS
Short Title: INTRO TO PHYSICAL FITNESS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Open to all students. Utilizes Army fitness techniques; develops strength, flexibility and endurance; develops self-confidence through leadership training and physical activities. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Repeatable for Credit.

MILI 121 - INTRODUCTION TO LEADERSHIP
Short Title: INTRODUCTION TO LEADERSHIP
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Principles of effective leadership and reinforcement of self-confidence through participation in physically and mentally challenging training with upper-division ROTC students; develop communication skills to improve individual performance and group interaction. One hour classroom session and a required lab. No military commitment is required for attending this course. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.

MILI 122 - INTRODUCTION TO LEADERSHIP II
Short Title: INTRODUCTION TO LEADERSHIP II
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of MILI 121. One hour classroom session and a required lab. No military commitment is required for attending this course. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.

MILI 123 - LEADERSHIP LAB
Short Title: LEADERSHIP LAB
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course taught at the University of Houston. Must provide CC Form 139-r and DA 3425 to Military Science Dept. at UH prior to attendance. Department Permission Required.

MILI 201 - FOUNDATIONS OF LEADERSHIP
Short Title: FOUNDATIONS OF LEADERSHIP
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Characteristics of leadership, problem analysis, decision making, oral presentations, first aid, small unit tactics, land navigation, fitness training. Fitness training required two times per week in addition to class and lab. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.

MILI 202 - FOUNDATIONS OF LEADERSHIP II
Short Title: FOUNDATIONS OF LEADERSHIP II
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of MILI 201. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.
MILI 203 - LEADERSHIP LABORATORY
Short Title: LEADERSHIP LABORATORY
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course taught at the University of Houston. Must provide CC Form 139-rand DA 3425 to Military Science Dept. at UH prior to attendance. Department Permission Required.

MILI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory, Lecture, Seminar, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MILI 281 - LEADER TRAINING COURSE (LTC)
Short Title: LEADER TRAINING COURSE (LTC)
Department: Military Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 8
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Four week off campus field training practicum. Introduces students to the Army and Leadership. No military obligation is associated with this course. Course taught at the University of Houston. Department Permission Required.

MILI 301 - ADVANCED LEADERSHIP
Short Title: ADVANCED LEADERSHIP
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Leadership training, preparing combat orders, military instruction principles, small unit tactics, and tactical communications. Course is designed to prepare students for Leader Development Assessment Course (LDAC). In addition to class, students must attend lab and physical fitness training. Course taught at the University of Houston. Department Permission Required.

MILI 302 - ADVANCED LEADERSHIP II
Short Title: ADVANCED LEADERSHIP II
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MILI 301. Course taught at the University of Houston. Department Permission Required.

MILI 304 - LEADERSHIP LABORATORY
Short Title: LEADERSHIP LABORATORY
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.

MILI 349 - LEADER DEVELOPMENT ASSESSMENT
Short Title: LEADER DEVELOPMENT ASSESSMENT
Department: Military Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MILI 302
Description: Off campus field training practicum stressing application of leadership management with emphasis on tactical and special military skills. Course taught at the University of Houston. Department Permission Required.

MILI 398 - SPECIAL PROBLEMS
Short Title: SPECIAL PROBLEMS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.
MILI 401 - ADAPTIVE LEADERSHIP
Short Title: ADAPTIVE LEADERSHIP
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MILI 302
Description: Leadership and command, military law, administrative/staff operations and procedures, dynamics of the military team, training management, ethics and professionalism. Prepares students for commissioning as an Army Officer. In addition to class, students must attend lab and physical fitness training. Course taught at the University of Houston. Department Permission Required.

MILI 402 - LEADERSHIP IN A COMPLEX WORLD
Short Title: LEADERSHIP IN A COMPLEX WORLD
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MILI 302
Description: Continuation of MILI 401. Course taught at the University of Houston. Department Permission Required.

MILI 403 - LEADERSHIP LABORATORY
Short Title: LEADERSHIP LABORATORY
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.

MILI 439 - SPECIAL PROBLEMS
Short Title: SPECIAL PROBLEMS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.

MILI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Modern and Classical Literatures and Cultures

Contact Information
Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
demden@rice.edu

The Modern and Classical Literatures and Cultures Department houses the programs of Classical Studies, European Studies, French Studies, German Studies, Latin American Studies, and Spanish and Portuguese. Each program offers its own major. Additionally, the department offers undergraduate minors in Classical Civilizations, French Studies, German Studies, Greek Language and Literature, Latin Language and Literature, and Spanish and Portuguese.

The department offers focused and interdisciplinary instruction in the cultural, literary, intellectual, and political traditions outside the English-speaking world and on both sides of the Atlantic. The department and its programs also place an emphasis on the central role of foreign languages for the humanities and social sciences, which allows students to engage critically with a diverse and global society.

Department faculty are involved in allied interdisciplinary programs, such as Cinema and Media Studies, Politics, Law, and Social Thought, and Jewish Studies, as well as in the Center for the Study of Women, Gender, and Sexuality, and the Center for African and African American Studies.

Bachelor's Programs

• Bachelor of Arts (BA) Degree with a Major in Classical Studies (p. 676)
• Bachelor of Arts (BA) Degree with a Major in European Studies (p. 1026)
• Bachelor of Arts (BA) Degree with a Major in French Studies (p. 1041)
• Bachelor of Arts (BA) Degree with a Major in German Studies (p. 1054)
• Bachelor of Arts (BA) Degree with a Major in Latin American Studies (p. 1294)
• Bachelor of Arts (BA) Degree with a Major in Spanish and Portuguese (p. 1979)

Minors
• Minor in Classical Civilizations (p. 664)
• Minor in French Studies (p. 1043)
• Minor in German Studies (p. 1056)
• Minor in Greek Language and Literature (p. 1107)
• Minor in Latin Language and Literature (p. 1302)
• Minor in Spanish and Portuguese (p. 1982)

Modern and Classical Literatures and Cultures does not currently offer an academic program at the graduate level.

Chair
Christian J. Emden

Program Advisors
José F. Aranda, Jr., Latin American Studies
Esther Fernández, Spanish and Portuguese
Hilary S. Mackie, Classical Studies
Deborah Nelson-Campbell, French Studies
Astrid Oesmann, German Studies
Philip R. Wood, European Studies

Professors
José F. Aranda, Jr.
Jacqueline Couti
Luis Duno-Gottberg
Christian J. Emden
Beatriz González-Stephan
Gisela Heffes
Scott McGill
Deborah Nelson-Campbell
M. Rafael Salaberry
Uwe Steiner
Harvey E. Yunis

Associate Professors
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Sophie Esch
Esther Fernández
Julie Fette
Deborah A. Harter
Hilary S. Mackie
Astrid Oesmann
Philip R. Wood

Lecturer
Ted Somerville

Writer in Residence
Andrea Bajani

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Classical Studies (CLAS)

CLAS 102 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: HART 101, MDEM 111. Mutually Exclusive: Cannot register for CLAS 102 if student has credit for HART 220.

CLAS 107 - GREEK CIVILIZATION AND ITS LEGACY
Short Title: GREEK CIVILIZATION & LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An examination of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. The influence of ancient Greece on Western culture will be a focus. Case studies in the later reception of classical Greek literature (e.g., tragedy), philosophy (e.g., Socrates), history (e.g., democracy), and art (e.g., The Parthenon) will be examined. Cross-list: HUMA 107.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 108 - ROMAN CIVILIZATION AND ITS LEGACY
Short Title: ROMAN CIVILIZATION &ITS LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will investigate central aspects of Roman civilization: politics, religion, law, oratory, private life, public entertainment, literature, and visual art and architecture. We will also examine the place of ancient Rome in the western imagination, and the influence of ancient Rome on later politics, literature, and art. Cross-list: HUMA 111.
Course URL: classicallegacy.rice.edu/ (http://classicallegacy.rice.edu/)
CLAS 124 - CLASSICAL ANTIQUITY IN CHILDREN'S LITERATURE
Short Title: ANTIQUITY IN CHILDREN'S LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will study children's literature, from the Victorian period to the present day, in which models from classical antiquity and/or the idea of classical antiquity itself are prominent, seeking to understand the meanings "classical antiquity" held and holds for their authors and readers, and the agendas they served and serve. Taught in English.

CLAS 207 - LOVE LIFE IN CLASSICAL ANTIQUITY
Short Title: LOVE LIFE IN ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Love, sex, marriage and eroticism were important aspects of ancient Greek and Roman culture as they are of our own, though they were sometimes conceived of very differently. In this course we will consider the evidence for various aspects of sexual relationships in poetry, art, inscriptions, philosophy, and more.

CLAS 208 - THE FALL OF ROME
Short Title: THE FALL OF ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course will consider the fall of Rome as an historical event and an historical topic. We will examine how, why, and even if the Roman empire fell in antiquity. We will also consider the historical narrative of Rome's fall, including in Gibbon's Decline and Fall of the Roman Empire.

CLAS 209 - CAMENAE TO CHRISTIANITY: A SURVEY OF LATIN POETRY
Short Title: A SURVEY OF LATIN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of Latin poetry from its origins to its late period. Readings are in English. The course provides a broad overview of Latin literary history through the close study of Roman poetry and of the culture in which it was produced. Authors include Catullus, Virgil, Horace, and Ovid.

CLAS 210 - HOMER AND VIRGIL AND THEIR RECEPTION
Short Title: HOMER AND VIRGIL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course reads Homer's ILIAD and ODYSSEY and Virgil's AENEID in translation. Topics include the nature of oral poetry, the history of the epic genre, Virgilian intertextuality, the cultural and political contexts in which the poems arose, and case studies in the poets' reception.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 218 - CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY
Short Title: GREEK ART AND ARCHAEOLOGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Course URL: classicallegacy.rice.edu
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art and archaeology of the ancient Greek world. Artistic media, such as sculpture and vase painting will be examined in a broad range of the material culture ancient Greeks created and used. Consideration of these materials within their cultural, social and religious contexts will be discussed. Cross-list: HART 216.

CLAS 219 - OLD ENGLISH: READINGS IN BEOWULF
Short Title: OLD ENGLISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will read selections from Beowulf in the original Old English, and discuss its literary and historical importance. No prior knowledge of Old English required.

CLAS 225 - AUGUSTUS AND THE 'GOLDEN AGE' OF ROME
Short Title: AUGUSTUS & 'GOLDEN AGE' ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of Augustan Rome through the literature, art, and architecture that revolutionized the eternal city under its first Emperor, both through his agency and in more subversive form. We will ask how writers and artists responded to this moment of transformation, and how text and material culture interacted to shape Roman Imperial culture.
We will read 16 Greek tragedies by Aeschylus, Sophocles, and Euripides as well as contemporary criticism of tragedy by Aristophanes, Plato, and Aristotle. We will consider how ancient tragedies were staged, how they were received by their audiences, how they fit in the life of Athens, how they influenced later dramatic arts, and how they continue to stimulate thinking about the human situation.

The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: PLST 316.
CLAS 317 - THE SELF IN GREEK AND ROMAN THOUGHT
Short Title: SELF IN GREEK&ROMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores conceptions of the self from Homer to Augustine of Hippo, focusing especially on views of the mind or soul and its relation to the body, thought or reason and its relation to desire, human agency and responsibility, and the individual self in relation to others.

CLAS 319 - ANCIENTS VERSUS MODERNS
Short Title: ANCIENTS VERSUS MODERNS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Ancients and moderns have participated in constant dialogue – sometimes friendly, sometimes hostile – that still shapes the complexities of our own approaches to the past. This seminar traces approximately two millennia of conflict and compromise between so-called “ancients” and “moderns” from ancient Greece and Rome to the French Revolution and beyond.

CLAS 321 - SPECIAL TOPICS IN ANCIENT ART
Short Title: ROME: THE ETERNAL CITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to the major monuments of Rome, Pompeii, and Herculaneum. We will focus not only on the history and functions of these monuments in antiquity but also on how their meaning and representation has changed and evolved in the post-classical world. Instructor Permission Required. Cross-list: HART 318. Repeatable for Credit.

CLAS 324 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Cross-list: HART 327.

CLAS 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we’ll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we’ll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 326, HART 326.

CLAS 336 - INTRO TO INDO-EUROPEAN
Short Title: INTRO TO INDO-EUROPEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will begin with a brief survey of the Indo-European languages, followed by a detailed reconstruction of Proto-Indo-European phonology, morphology, and syntax. The second half of the course will deal with Indo-European culture, laws, society and poetics, together with a consideration of advanced topics in the individual branches. Cross-list: LING 336.
CLAS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CLAS 482 - CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE
Short Title: CAESAR'S PALACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Described as both a “Hall of Despotism” and a “Citadel of Majesty,” the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperorship. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Cross-list: HART 482.

CLAS 492 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work. Instructor Permission Required. Repeatable for Credit.

CLAS 493 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to Classical Studies majors in their final year. Thesis, approximately 7,500-15,000 words (30-60 pages), on a topic of the student's choice in consultation with a faculty member. Instructor Permission Required.

CLAS 494 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of CLAS 493. Open to Classical Studies majors in their final year. Thesis, approximately 7,500-15,000 words (30-60 pages), on a topic of the student's choice in consultation with a faculty member. Instructor Permission Required.

European Studies (EURO)
EURO 101 - INTRODUCTION TO EUROPEAN LITERATURE AND CULTURE I
Short Title: INTRO TO EURO LIT & CULTURE I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Antiquity to Renaissance. An introduction to major literary texts and other cultural artifacts of Europe dating from antiquity to the Renaissance. The course will contextualize texts and artifacts historically and culturally, and teach students to analyze them critically, both in relation to their original context and to present-day Europe.

EURO 102 - INTRODUCTION TO EUROPEAN LITERATURE AND CULTURE II
Short Title: INTRO TO EURO LIT & CULTURE II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Antiquity to Renaissance. An introduction to major literary texts and other cultural artifacts of Europe dating from Renaissance to the present day. The course will contextualize the aforementioned texts and artifacts historically and culturally and will teach students to analyze them critically, both in relation to their original context and to present-day Europe.

EURO 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
### EURO 320 - TELL-ALL: SAYING "I" IN CONTEMPORARY LITERATURE

**Short Title:** TELL-ALL CONTEMPORARY LIT  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Why do contemporary writers want to "tell all" in their novels, memoirs, exposés? This hybrid literary studies/creative writing course explores "I" genres in contemporary literature, asking why authors risk their lives, their reputations, and their families in the name of literature, truth and freedom of speech.

### EURO 401 - CONSTRUCTING EUROPE: CONTESTED IDENTITIES

**Short Title:** CONSTRUCTING EUROPE  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This capstone course offers a critical investigation of European cultural narratives and social imaginaries. Central topics include reason (science, humanism, secularism); freedom (individualism, capitalism, democracy, nation-states, revolution); universalism (Greek, Roman, and Christian origins, religious toleration, imperialism, globalization, the EU, resurgent nationalism).

### EURO 477 - SPECIAL TOPICS

**Short Title:** SPECIAL TOPICS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory, Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

### EURO 499 - EUROPEAN STUDIES HONORS THESIS

**Short Title:** EUROPEAN STUDIES HONORS THESIS  
**Department:** Modrn & Classicl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** EURO 101 and EURO 102  
**Description:** Two-semester honors thesis in European Studies. Independent research projects by outstanding European Studies majors lead to honors theses. Undertaken in close cooperation with a departmental faculty member. This is 3-credit course which will be repeated in sequential semesters for a total of 6 credits. Permission of instructor only. Department Permission Required. Repeatable for Credit.

### French Studies (FREN)

#### FREN 106 - ACCELERATED FIRST-YEAR FRENCH

**Short Title:** ACCEL 1ST YR FRENCH  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Alternate first-year French for students with previous knowledge of another romance language, or limited previous French knowledge with a significant (1+ year) gap in study. Covers equivalent of FREN 141 and 142. Upon completion, students are prepared for FREN 263 or Rice-in-France. Mutually exclusive: cannot earn credit for FREN 141/142. Mutually Exclusive: Cannot register for FREN 106 if student has credit for FREN 141/FREN 142.

#### FREN 141 - FIRST YEAR FRENCH I

**Short Title:** FIRST YEAR FRENCH I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Development of interactional competence in French (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 141 if student has credit for FREN 101/FREN 106/FREN 222.

#### FREN 142 - FIRST YEAR FRENCH II

**Short Title:** FIRST YEAR FRENCH II  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Continuation of FREN 141. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 142 if student has credit for FREN 106/FREN 262.
FREN 222 - AP/OTH CREDIT FRENCH LANGUAGE
Short Title: AP/OTH CREDIT FRENCH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for FREN 222 if student has credit for FREN 141.

FREN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FREN 263 - SECOND YEAR FRENCH I
Short Title: SECOND YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 106 or FREN 142
Description: Continuation of FREN 142. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 263 if student has credit for FREN 201.

FREN 264 - SECOND YEAR FRENCH II
Short Title: SECOND YEAR FRENCH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 263
Description: Continuation of FREN 263. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 264 if student has credit for FREN 202.

FREN 301 - ADVANCED GRAMMAR AND ITS LITERARY AND CULTURAL APPLICATIONS
Short Title: ADV GRAM & LIT & CULTURAL APP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Offered every semester, this course is an integrated study of literary and cultural texts as a springboard for advanced level refinements of grammar. Recommended Prerequisite(s): FREN 202 or 264 or Placement Test.

FREN 302 - WRITING WORKSHOP
Short Title: WRITING WORKSHOP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is offered annually and is required of all majors. It emphasizes composition and exposition through the practice of such genres as narration, description, portrait, essay, and "commentaire composite". Formerly FREN 336. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or FREN 301 or Placement Test. Mutually Exclusive: Cannot register for FREN 302 if student has credit for FREN 336.

FREN 305 - LITERARY AND CULTURAL ANALYSIS: THE ART OF READING
Short Title: LITERARY AND CULTURAL ANALYSIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the unique critical skills necessary for reading and analysis across the arts and social sciences. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 307 - THE MANY FACETS OF FRENCH CULTURAL IDENTITY
Short Title: FRENCH CULTURAL IDENTITY I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: With the help of nine French films and selected readings, we will discuss what it means to be French today. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 308 - BEAUTY AND THE BEAST(S): SEX, VIOLENCE, AND FOLKTALES IN THE AFRICAN DIASPORA
Short Title: BEAUTY AND THE BEAST(S)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex and gender in folktales and fairytales from the African diaspora to the Americas. In so doing, this course will also put European and African folklore in conversation with the New World’s oral traditions. Taught in English.

FREN 311 - MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE
Short Title: PRE-REV FRENCH LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of French culture, literature, and artifacts from the Middle Ages until the Revolution. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 312 - MAJOR LITERARY WORKS AND ARTIFACTS OF POST-REVOLUTIONARY FRANCE
Short Title: MAJ LIT WORKS POST-REV FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of 19th and 20th century poetry, fiction, and cinema through the major literary and artistic movements: romanticism, realism, symbolism, Dada, surrealism, and existentialism. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 313 - MAJOR LITERARY WORKS AND ARTIFACTS OF THE FRANCOPHONE WORLD
Short Title: MAJ LITERARY WORKS & ARTIFACTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the artistic, historical, and philosophical textures of French cultures outside Europe, focusing especially on Africa North and South of the Sahara, the Caribbean, North America, and on the evolution of the concept of "francophonie" since World War II. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 321 - INTRODUCTION TO FRENCH SOCIETY AND CULTURE
Short Title: INTRO FRENCH SOCIETY & CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides grounding in social, political, cultural, and economic aspects of contemporary France. The course will focus on themes such as youth culture, Europeanization, immigration, and gender debates. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 323 - FROM EXISTENTIALISM TO CYBERPUNK
Short Title: EXISTENTIALISM TO CYBERPUNK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Films and novels. Investigations of human consciousness, subjectivity and identity -- from Sartre's existentialism of the "absurd", through Robbe-Grillet's "anti-humanism", to the cyberpunk science-fictional studies of "post-humanity", genetic manipulation, environmental collapse and post-religious mysticism, by contemporary figures like Dantec and Houellebecq. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 324 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONIZATION TO GLOBALIZATION
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: POLI 324, RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for FREN 324 if student has credit for FREN 524/RELI 604.

FREN 325 - FRENCH THEORY, IN ENGLISH
Short Title: FRENCH THEORY, IN ENGLISH
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to contemporary French theory and philosophy in their historical context, from decolonization and the Cold War to the present. Along the way, we will discuss French phenomenology, Marxism, structuralism, feminism, poststructuralism, and post-continental philosophy, including their impact on US culture. Taught in English.

FREN 332 - FRENCH PHONETICS
Short Title: FRENCH PHONETICS
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Acquisition of French phonetic system through intensive class and laboratory practice. Contrast analysis of the French and English phonetic systems. Minimal use of technical terminology. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 337 - SHAKESPEARE IN THE CARIBBEAN: POST/Colonial READINGS
Short Title: SHAKESPEARE IN THE CARIBBEAN
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines English translations of Caribbean and Latin American writers' retellings of Shakespeare's The Tempest. Students will explore the construction of identity (including race and gender) and otherness since the beginning of the colonial project (1492). We will question the relationship between colonized and colonizer, and tropes such as the Master/Slave relationship. Taught in English.

FREN 340 - GENDER AROUND THE WORLD
Short Title: GENDER AROUND THE WORLD
Department: Modrn & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the challenges of defining gender, race, and identity in Africa, Asia, and the Caribbean, or the Global South as this area is also known. The nations of the Global South are newly industrialized or in the process of industrializing and have had to battle the widespread effects of colonialism and globalization. Students will investigate the pervasiveness of stereotypes in literature, film, popular culture and the media in western and non-western contexts. We will examine theories from the Global South to avoid the simplification of Eurocentric analysis. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 351 - PROVINCES OF FRANCE
Short Title: PROVINCES OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the amazing diversity in the history, languages, economic bases, traditions, and cultures of the original provinces in order to arrive at a better understanding of France as it exists today. For an additional credit hour, students may participate in a two week on site visit to a location in France. The location will vary, contact the instructor or the department for details. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 355 - MODERN SHORT STORY: TOWARDS AN ETHICS OF FICTION
Short Title: MODERN SHORT STORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of great modern short fiction with emphasis on reading as an ethical enterprise. Selected critical essays complement works from Melville to Maupassant, Flaubert to Kafka to O'Connor as we talk about alienation and solitude, death and violence and the vicissitudes of family. Taught in English. Cross-list: ENGL 355. Recommended Prerequisite(s): Any 200-level course or above in English or French Studies, or EURO 101 or EURO 102

FREN 356 - TRANSLATION AS INTERPRETATION: CLOSE ENCOUNTERS WITH POETS OF THE MODERN AGE
Short Title: TRANSLATION AS INTERPRETATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course dedicated to reading closely some of the great poets of the modern period — from Hugo to Baudelaire to Prévert—and to the art of translation as a tool for reflecting on the subtleties of the French language and the special shape of the poetic. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 370 - WOMEN IN TALES OF THE FANTASTIC
Short Title: WOMEN IN TALES OF FANTASTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore those stories “behind the story” of the 19th century—that strange and often misunderstood genre, the “fantastic tale.” Reading such writers as Gautier, Balzac, and Maupassant, we will discuss this genre's anxieties about madness and machines, misbehaving objects, and especially about women and their bodies. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 380 - FLAUBERT AND THE ART OF TRANSLATION: EXPERIMENTS IN WRITING
Short Title: WRITING FLAUBERT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Flaubert was both a romantic and a realist who achieved the acutely modern through legend and myth in prose that was poetic. This will be a course in which he anchors our study of short, innovative prose works of the 19th century, encountered, each one, through the imaginative art of translation. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test

FREN 401 - TRANSLATION
Short Title: TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the theory and practice of translation. Includes translation of modern texts from and into English. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor
FREN 402 - GLOBAL FRENCH CINEMA (IN ENGLISH)

Short Title: GLOBAL FRENCH CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Cinema from France and the French-speaking world (especially Africa) - both the canon of "art" cinema and smash successes of commercial "entertainment." Discussion of this distinction. Critical and theoretical discourse in film studies with special attention to French contributions. Globalization in cinema. Recommended Prerequisite(s): Completion of one 300-level course.

FREN 403 - SPECIAL TOPICS

Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Independent Study
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with the department for additional information. Taught in French. Instructor Permission Required. Repeatable for Credit.

FREN 404 - BEGINNINGS OF THE LANGUAGE AND LITERATURE OF FRANCE

Short Title: THE LANG AND LIT OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes and external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Student will acquire a reading knowledge of Old French. Course taught in French. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 404. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 407 - CINEMA IN FRENCH

Short Title: CINEMA IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cinema In French -- In France and the French-speaking world (especially Africa): both the canon of "auteurs" of "high culture" and commercial "mere entertainment." Discussion of this distinction, and introduction to critical and theoretical discourse in film studies. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 409 - NOVELS AND FILMS

Short Title: NOVELS AND FILMS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Comparison between French novels from the 16th to the 20th centuries and movies that have been based on them, in some cases more than one movie based on a given novel. The class will read each novel in question and then examine how the director perceived it when making the film. For example, La Reine Margot, Tous les Matins du Monde, Liaisons Dangereuses, Madame Bovary, Cyrano de Bergerac, Hiroshima mon amour. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 411 - THE LEGACY OF COURTLY LITERATURE

Short Title: LEGACY OF COURTLY LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the various ways that courtly literature has evolved into modern times and stages through which the themes have passed. We will study courtly themes in literature (French, English, Spanish, German, Italian), film, art, and music from the Middle Ages to modern times. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 412 - SAINTS AND SINNERS
Short Title: SAINTS AND SINNERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of sanctity and sin in medieval culture through literary and some historical texts. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 413 - BLACK VENUS/VÉNUS NOIRE: REPRESENTATIONS OF BLACK WOMEN IN THE LONG 19TH CENTURY
Short Title: BLACK VENUS/VÉNUS NOIRE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the mythology of the black woman's body in the French/Francophone imaginary, namely in the literary rewriting of the "primitive" in the long 19th century. Students will examine how this eroticized body bears traces of its social, political and cultural codification and symbolizes anxieties born out of the colonial encounter. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 414 - SEX AND RACE IN THE FRENCH ATLANTIC
Short Title: SEX AND RACE - FRENCH ATLANTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex, gender, and race in folktales and fairy tales in French from the Americas. In so doing, this course will also put European and African folklore in conversation with the New World's oral traditions. Effective May 15, 2021, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 415 - COURTLY LOVE IN MEDIEVAL FRANCE
Short Title: COURTLY LOVE MEDIEVAL FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 425. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor. Mutually Exclusive: Cannot register for FREN 415 if student has credit for FREN 515.

FREN 416 - LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR
Short Title: LIT & CULTURE OF MIDDLE AGES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages but also in other medieval literatures of Western Europe. Includes discussion of the legend's influence in diverse areas even in modern times. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Cross-list: MDEM 436. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 424 - WOMEN IN FRANCE
Short Title: WOMEN IN FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies women in education, the workplace, politics, and in social and cultural institutions in French society. The class explores the history of the French women's movement and analyzes French concepts of gender and feminism in comparison to American models. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: SWGS 424. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 430</td>
<td>17TH CENTURY</td>
<td>17TH CENTURY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Thematic approach to examining the main political, religious, philosophical, and literary discourses of the golden age of absolutism. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.</td>
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<tr>
<td>FREN 433</td>
<td>FRENCH CARIBBEAN ECOCRITICISM</td>
<td>FRENCH CARIBBEAN ECOCRITICISM</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course examines French Caribbean writers' representations of natural and human disasters, and their impact on human interactions, human societies, and nature. Contrary to scholars considered to be in the first-wave of ecocriticism, these writers explore the social dimensions of environmentalism as well as the ecological implications of colonialism and neocolonialism. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.</td>
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<tr>
<td>FREN 450</td>
<td>POETRY &amp; POETICS IN THE 19TH CENTURY</td>
<td>POETRY &amp; POETICS 19TH CENTURY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Study of the poetry and prose poetry of the 19th century from the Romantic period to the Symbolist era, through such writers as Desbordes-Valmore, Lamartine, Musset, Vigny, Hugo, Nerval, Baudelaire, Verlaine, Rimbaud, and Mallarme. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.</td>
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<tr>
<td>FREN 451</td>
<td>FRANCE - AMERICA: IMAGE AND EXCHANGE</td>
<td>FRANCE-AMER: IMAGE &amp; EXCHANGE</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course studies the history and memory of World War Two in France. Students will learn how literature and film contributed to the making and undoing of national myths about collaboration and resistance and participation in the Holocaust. How has contemporary French society reconciled with this dark period of history? Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.</td>
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<td>FREN 452</td>
<td>WORLD WAR TWO IN FRENCH HISTORY, LITERATURE, AND FILM</td>
<td>WORLD WAR TWO IN FRENCH HIST</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This undergraduate course analyzes French and American culture and identity through transatlantic encounters. We study French intellectuals (Tocqueville, Beauvoir, Baudrillard) who traveled to the US, and images of America in French novels, comic strips, films. We also examine American gazes toward the French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.</td>
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<tr>
<td>FREN 453</td>
<td>IMMIGRATION AND CITIZENSHIP IN CONTEMPORARY FRANCE</td>
<td>IMMIGRATION AND CITIZENSHIP</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course examines the impact of immigration on contemporary French society and analyzes debates over citizenship, integration, and multiculturalism. Taught in French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.</td>
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FREN 459 - THE BATTLES OF ALGIERS: FROM CHARLES X TO CHARLIE-HEBDO
Short Title: THE BATTLES OF ALGIERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical, literary, and visual materials from the 19th century to the present will illustrate the global perception of a war that left an indelible inscription in contemporary debates on democracy and reform. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 460 - WOMEN IN FICTION AND HISTORY: NOTIONS OF THE FEMININE SINCE THE FRENCH REVOLUTION
Short Title: WOMEN, FRENCH FICTION, HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading closely lyric, fictional, historical, and critical texts from Olympe de Gouges and Baudelaire to Rachilde and Irigaray, we will explore how women have been represented (and misrepresented) since the French Revolution, and how notions of the feminine since the 18th century still plague women's place and power in the 21st. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FREN 478 - THE CARIBBEAN IN FRENCH
Short Title: THE CARIBBEAN IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the undergraduate senior version of the graduate level seminar FREN/ARCR 578. Both the course's reading list and the length of the research are adjusted to accommodate undergraduate needs. The seminar examines the history, political writings, literature and the arts of the French Caribbean from the beginning of colonization to the present. It will include figures such as Saint-John Perse, Roumain, Césaire, Fanon, Depestre, Schwarz-Bart, Warner-Vieyra, Glissant, Condé, Chamoiseau, Laferrière, as well as the Caribbean arts and film. Taught in English. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: ARCR 478. Mutually Exclusive: Cannot register for FREN 478 if student has credit for FREN 578.

FREN 493 - FALL HONOR THESIS
Short Title: FALL HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.

FREN 494 - SPRING HONOR THESIS
Short Title: SPRING HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.
GERM 106/GERM 106/GERM 222.
Mutually Exclusive: Cannot register for GERM 141 if student has credit for GERM 141/GERM 142. No prior knowledge of this language is necessary. Placement Test is centered, critical-thinking approach to language analysis/acquisition.

Development of interactional competence in German (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for GERM 142 if student has credit for GERM 263 if student has credit for GERM 201.

GERM 141 - FIRST YEAR GERMAN I
Short Title: FIRST YEAR GERMAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in German (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition.
No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for GERM 141 if student has credit for GERM 101/GERM 106/GERM 222.

GERM 142 - FIRST YEAR GERMAN II
Short Title: FIRST YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 141
Description: Continuation of GERM 141. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for GERM 142 if student has credit for GERM 106/GERM 262.

GERM 222 - AP/OTH CREDIT IN GERMAN LANGUAGE
Short Title: AP/OTH CREDIT GERMAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for GERM 222 if student has credit for GERM 141.

GERM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GERM 263 - SECOND YEAR GERMAN I
Short Title: SECOND YEAR GERMAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 142
Description: Continuation of GERM 142. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 263 if student has credit for GERM 201.
GERM 264 - SECOND YEAR GERMAN II
Short Title: SECOND YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 263
Description: Continuation of GERM 263. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 264 if student has credit for GERM 202.
Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)

GERM 280 - HISTORY OF CINEMA AND MEDIA I: INVENTION TO 1945
Short Title: HISTORY OF CINEMA AND MEDIA I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will introduce students to the history of cinema from its inception to 1945 by considering individual cinematic artifacts in their technological, economic, aesthetic, political, and social contexts. Cross-list: CMST 201.

GERM 301 - THIRD YEAR GERMAN I
Short Title: THIRD YEAR GERMAN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary German speaking cultures through the use of authentic materials (film, media, literature). Taught in German. Recommended Prerequisite(s): GERM 264 or Instructor Permission.

GERM 302 - THIRD YEAR GERMAN II
Short Title: THIRD YEAR GERMAN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on complex topics in contemporary German speaking cultures through the use of authentic materials (film, media, literature). Recommended Prerequisite(s): GERM 301 or Permission of Instructor.

GERM 303 - GERMAN FOR PROFESSIONALS: BUSINESS AND RESEARCH
Short Title: GERMAN FOR PROFESSIONALS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GERM 302
Description: This course introduces students to current issues and language use in German technology, business, and international relations, and it explores these issues in larger cultural contexts. Assignments allow students to explore areas of individual interest and encourage exploration of international career opportunities including GERM 399 The German Studies Internship. Taught in German.

GERM 305 - ENLIGHTENMENT AND ROMANTICISM (1750-1850)
Short Title: ENLIGHTENMENT (1750-1850)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the major social, political and cultural developments in the period between 1700-1850, which contributed to the emergence of modern German cultural identity within the European context. Covers wide range of theoretical and literary works by Kant, Lessing, Schiller, Goethe, Eichendorff, Hoffmann, Heine, and others. Taught in German.

GERM 306 - REALISM TO MODERNITY (1850-PRESENT)
Short Title: REALISM TO MODERNITY-1850-PRES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: German history and culture during the late 19th and the 29th century have been rather turbulent: From Wilhelminian empire to Weimar democracy to Hitler fascism to socialist division to German reunification to entry into the European Union. All these political changes will be commented on by cultural reflections in textual and filmic forms. Literary texts will include Fontane, Mann, Kafka, Boll, Grass, Wolf and Maron. Taught in German.
GERM 307 - FOLK AND FAIRY TALE IN GERMAN: TRADITION, STRUCTURE, ARTISTRY
Short Title: FOLK & FAIRY TALE IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The folk tales collected by the Brothers Grimm still exhibit all the principle characteristics and functions of oral literature, i.e. the reproduction of an audience's cultural identity and the securing of that identity. Nevertheless, these characteristics are still preserved in fairy tales written by specific authors for a reading audience. Examples of the latter are mainly from authors of Romanticism and Realism. Taught in German.

GERM 309 - GERMAN POETRY
Short Title: GERMAN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: If the soul speaks out, alas! it is no longer the soul that speaks" - in Schiller's famous line one of the many fascinating paradoxes of lyric poetry is expressed. With the tradition of the "Lied," poems set to music, German poetry of the Classical-Romantic epoch was soon to become the epitome of lyric poetry as such. There were, however, poems of quite different kinds before and after Goethe, Eichendorff, and Heine. Without neglecting the Classical-Romantic period, the course will explore the history of lyric expression in German literature from the early modern period to the present in both poems and theoretical texts. Taught in German.

GERM 311 - BERLIN: PAST AND PRESENT
Short Title: BERLIN: PAST AND PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course introduces students to German history and culture as mirrored in the history of the city that is "always in progress and never accomplished." With an emphasis on the period from the 1920's to the present, class discussions encompass literature and theory, politics and social life, as well as architecture, fine arts and film. Taught in German.

GERM 320 - TWENTIETH CENTURY GERMAN THOUGHT AND LITERATURE IN GERMAN
Short Title: 20TH CENTURY GERMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on the way in which major events of twentieth century German history and culture -- especially World War I, the founding of the Weimar Republic, and National Socialism and the Holocaust -- have been dealt with in literature, philosophy, and the social sciences.

GERM 322 - MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY
Short Title: MARX, FREUD, EINSTEIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Like no others, these three thinkers of the 19th and 20th centuries have influenced the intellectual, historical, social and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English. Cross-list: HUMA 322.

GERM 324 - BERLIN: RESIDENCE, METROPOLIS, CAPITAL
Short Title: BERLIN:RESIDENCE,METRO,CAPITAL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course offers an introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Berlin has always been a city of contradictions: from imperial glamour to proletarian slums, from the Roaring Twenties to Hitler's seizure of power. Emerging from the ruins of WW II Berlin became both the capital of Socialism and the display window of the Free World. After the fall of the wall, Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English. Cross-list: HUMA 324.
GERM 325 - MODERN GERMAN WRITERS: KAFKA
Short Title: MODERN GERMAN WRITERS: KAFKA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Goethe's vision of "world-literature" came true in the twentieth century. German authors, among them Kafka, transcended the confines of national traditions and redefined the concepts of literature and authorship in view of a modern globally dispersed audience. Topics may vary. Taught in English. Cross-list: HUMA 325. Repeatable for Credit.

GERM 326 - THE GERMAN FAIRY TALE: OLD AND NEW
Short Title: GERMAN FAIRY TALE: OLD & NEW
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the "literary" fairy tale from Goethe and the Romantics to the 20th century. Taught in English. Cross-list: HUMA 372.

GERM 327 - GERMAN EXPRESSIONISM IN EUROPEAN CONTEXT: HISTORY, LITERATURE AND FINE ARTS
Short Title: GERMAN EXPRESSIONISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The literature, fine arts and film of German Expressionism represent the most concentrated breakthrough of modernity. In addition to focusing on this accomplishment in its European context, the course will also discuss Nietzsche's influence, the movement's ambivalent reaction to WWI and its misappropriation by communism and nationalism. Taught in English.

GERM 328 - GERMAN ADAPTATIONS: TEXT TO FILM
Short Title: GERMAN ADAPTATIONS: TEXT-FILM
Department: Modrn & Classicl Lit & Film
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Prominent novels of the 20th century will be studied for their possibilities or impossibilities of rendition from print medium to cinematic medium. From the myriad of adaptations we will concentrate on Thomas Mann: Tod in Venedig; Franz Kafka: Das Schloss; Klaus Mann: Mephisto; Gunter Grass: Die Blechtrommel; H. Boll: Katharina Blum; Jurek Becker. Jacob der Lugner. All films are subtitled in English. Taught in English. Cross-list: HUMA 328.

GERM 329 - LITERATURE OF THE HOLOCAUST AND EXILE
Short Title: LIT OF HOLOCAUST & EXILE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of the time, i.e., Th. and H. Mann, Brecht, Benjamin, Werfel, Doblin, J. Roth, S. Zweig, N. Sachs, Celan, Auslander. Taught in English. Cross-list: HUMA 329.

GERM 330 - LITERATURE AND FILM IN EAST GERMANY: BEHIND THE IRON CURTAIN
Short Title: LIT AND FILM: EAST GERMANY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will introduce students to the literature and filmic culture of East Germany, as well as to its social, political, and cultural context. It will also ask how literature and film not only reflect history but also respond to history by mobilizing their own political force.
GERM 333 - NIETZSCHE: PHILOSOPHY, POLITICS, HISTORY
Short Title: NIETZSCHE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Situates Nietzsche's thought on language, history, and the body within its historical context, and examines the validity of his arguments in a world increasingly challenged by scientific knowledge. Focuses on Nietzsche's views on truth, genealogy, nihilism, morality, and science, which continue to be relevant for current debates within the humanities. Taught in English.

GERM 334 - NATIONALISM AND CITIZENSHIP
Short Title: NATIONALISM AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical review of modern concepts of nationalism and citizenship. Topics include: theories of nationalism and citizenship, space and territory, identity, monuments, the emergence of nation states, multicultural democracy, transnationalism, and political belonging. Course provides links between political theory, public policy, literature, visual culture, architecture, and historical anthropology.

GERM 335 - GERMAN FILM (IN ENGLISH)
Short Title: GERMAN FILM (IN ENGLISH)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores filmic representations of communities, their complex mechanisms of inclusion and exclusion, their inevitable dynamics of otherness, as well as practices of modern states toward communal regulation and control. While communities biologically denote the interaction of organisms sharing an environment, we will examine the practices of power that states wield toward the maximization of "life." Hence the questions of biopower, health politics, eugenics, sexism, racism, and genocide. How do films negotiate the precarious politics of communal life, what are their strategies for resistance, and what their moments of complicity? We will explore how film reflects communal life in twentieth-century German history, but also, and perhaps primarily, how film responds to that history by generating its own speaking power and mobilizing its own political force. Mutually Exclusive: Cannot register for GERM 335 if student has credit for FSEM 136/GERM 136.

GERM 336 - NATIONAL SOCIALISM AND FILM
Short Title: NATIONAL SOCIALISM AND FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores films made in Nazi Germany as well as films about Nazi Germany and the corresponding crisis of justice in the mid-twentieth century. We will analyze cinematic responses to the rise of the fascist movement, World War II, the Holocaust, and the post-war years. Particular attention will be paid to the value of film as propagandistic tool, ways in which it can configure and contest our image of national identity, and the relation between mass manipulation and mass murder. Taught in English. Mutually Exclusive: Cannot register for GERM 336 if student has credit for FSEM 132/GERM 132.

GERM 337 - VIENNA 1800 TO THE PRESENT - LASTING CENTER OF GERMAN CULTURE
Short Title: VIENNA 1800 TO THE PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Despite Vienna's drastic political changes from 1800 to 2000, it is still synonymous with German culture in its fusion of literature, music and the fine arts.

GERM 338 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN
Short Title: NEW GERMAN FILM: HITLER'S CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerr, Garnier, Tykwer, and others. The first 20 years of German film were oriented coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: HUMA 373, SWGS 361.
GERM 339 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY  
Short Title: FROM EXPRESSIONISM TO FASCISM  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. Cross-list: HART 398.

GERM 340 - WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS  
Short Title: WALTER BENJAMIN  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English. Cross-list: HUMA 340.

GERM 341 - A SHORT HISTORY OF GERMAN THOUGHT ON HISTORY  
Short Title: GERMAN THOUGHT ON HISTORY  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: From early modern times onward history has played and still plays a crucial role in German thought. Why? An answer to this question is to be sought in history; in authors such as Lessing, Kant, Hegel, Marx, and Nietzsche who contributed to what in German is called "Philosophy of History."

GERM 345 - FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945  
Short Title: GERMAN HISTORY, 1890-1945  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, and political culture, the Nazi social revolution, and the Holocaust. Taught in English. Cross-list: HIST 355.

GERM 349 - GERMAN POLITICAL THOUGHT  
Short Title: GERMAN POLITICAL THOUGHT  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Advanced seminar in political thought. Traces the development and influence of one of the most important traditions of modern political thought from the Enlightenment to the present. Topics include: natural law, public sphere, intellectuals and the modern state, civil society, mass democracy. Reading intensive and research oriented. Taught in English.

GERM 351 - HOLOCAUST MEMORY IN MODERN GERMANY  
Short Title: HOLOCAUST MEMORY  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3,4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course traces and examines forms of Holocaust memory and memorialization in film, literature, art, architecture, city planning, museums, and memorials in Germany. For an additional credit hour, students will participate in a week-long trip to Berlin. Instructor Permission Required. Cross-list: HART 387.
GERM 352 - POLITICS OF THE FLESH IN GERMAN LITERATURE, THOUGHT AND FILM  
Short Title: THE POLITICS OF THE FLESH  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will introduce students to the complex relation between the sphere of politics and the human body as negotiated in German literature, thought and film. We will examine the practices of power that states wield toward the maximization of "life" and discuss such pressing issues as biopower, eugenics, racism, sexism and genocide. Taught in English.

GERM 361 - THE AGE OF GOETHE: POETRY AND TRUTH  
Short Title: AGE OF GOETHE: POETRY & TRUTH  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The "Age of Goethe" is generally referred to as the "classical" decade of German literature and culture. It was, however, by no means exclusively the age of Goethe and Schiller, but also of Kant and Herder, Holderlin and Kleist, and the beginning of the Romantic movement. While German intellectuals debated revolution in the lofty realm of letters, their French contemporaries took to the streets and staged a political revolution that culminated in the execution of their king. Germany as the "land of the poets and philosophers" is a myth indeed, and a rather ambivalent one, too. The course explores the age of Goethe, its "poetry" and its "truth," by way of reading key texts of that period in their intellectual, historical, and political contexts. Taught in German.

GERM 362 - NEW REALITIES: LITERATURE AND POLITICS IN THE 19TH CENTURY  
Short Title: 19TH C. LITERATURE & POLITICS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: In German arts and letters, the nineteenth century is usually referred to as the age of Realism. As a reaction to Neo-Classicism, Romanticism, and Idealism, intellectual life turned towards the new realities in the sciences as well as society and politics. Industrialization, urbanization, the social question, women's liberation and the founding of the "Reich" created a new sense of reality and gave way to new forms of expression in literature and the arts. While optimism regarding the process of mankind prevailed, pessimism spread amongst the more thoughtful. Readings include texts by Heine, Fontaine, Keller, Hauptmann, Marx, Schopenhauer and Nietzsche. Taught in German.

GERM 363 - THE WEIMAR REPUBLIC, 1919-1933  
Short Title: THE WEIMAR REPUBLIC, 1919-1933  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Seminar in Germany's first democracy and one of the most formative moments of modernity. Covers political culture, constitutional conflict, literary and intellectual movements and urban visual culture from the end of the First World War and the spectacular modernity of 1920s Berlin to the rise of the Nazis. Taught in German.

GERM 364 - THE EXPRESSIONIST VISION OF "NEW MAN"  
Short Title: EXPRESSIONIST VISION  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Inspired by Nietzsche's concept of the "Superman," the Expressionist writers and artists (roughly between 1910 and 1920) strove towards a total renewal of society. They attached its patriarchal foundation, blamed the anonymity of the metropolitan mass society with the newly formed proletariat on hand and the materialistic life-style on the other for the general dissociation of individuals. The major literary forms were poetry and drama, which were either activist or experimenting with newly created metaphors. The prose employs the genre of the grotesque. The visual artists are influenced by van Gogh. As a totally new medium, the film incorporates all these aspects and elements. Taught in German.

GERM 380 - GERMAN HISTORY IN FILM: INTERNATIONAL PERSPECTIVES  
Short Title: GERMAN HISTORY IN FILM  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores how German history and its effects on Europe and the world have been presented in international film. Special attention will be paid to films dealing with traumatic moments and developments before, during and after World War I, World War II, the Holocaust and the Cold War.
GERM 399 - THE GERMAN STUDIES INTERNSHIP
Short Title: THE GERMAN STUDIES INTERNSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Office of the Dean of humanities and relevant faculty from German Studies match students individually with one of a variety of projects in the areas of diplomacy, engineering, pedagogy, public culture. Students conduct research or related activities under the guidance of on-site supervisor and the section instructor on record. Instructor Permission Required.

GERM 401 - TOPICS IN GERMAN LITERATURE AND CULTURE
Short Title: TOPICS IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will work with sophisticated texts to enable students to bring their proficiency in the various modalities of German to the advanced level. Taught in German. Repeatable for Credit.

GERM 402 - GERMAN TRANSLATION
Short Title: GERMAN TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar on German-English translations. With stylistic exercises covering a broad range of genres: poetry, novels, essays, historical documents, legal documents, journalism, etc. Taught in German. Effective May 15, 2019, this course does not carry D1 credit.

GERM 410 - THE POLITICS OF GERMAN FILM (IN GERMAN)
Short Title: THE POLITICS OF GERMAN FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores film in the context of German politics and history. It examines why film has been such a contested subject in German philosophy and the social sciences. Assignments will include films from the Weimar Republic and Nazi Germany to postwar New German Cinema and today’s filmic presentation of German history and politics. Selected directors include: Maren Ade, Rainer Werner Fassbinder, Florian Henckel von Donnersmarck, Werner Herzog, Fritz Lang, Margarete von Trotta, and Tom Tykwer. The course also provides an introduction to German film theory examining selected works by Theodor W. Adorno, Walter Benjamin, Siegfried Kracauer, and Georg Lukács. Taught in German.

GERM 411 - THE POETICS OF JUSTICE IN GERMAN LITERATURE, THOUGHT, AND FILM
Short Title: THE POETICS OF JUSTICE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar will introduce students to the ongoing concern with law and its relation to justice in German literature, thought, and film. We will examine works that stage actual and figurative trials, and will ask how these enactments serve as a catalyst for civilization’s most pressing normative questions.

GERM 420 - GERMAN POLITICS/CULTURE AFTER 1945
Short Title: GERM. POLI/CULTURE AFTER 1945
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar will introduce students to the ongoing concern with law and its relation to justice in German literature, thought, and film. We will examine works that stage actual and figurative trials, and will ask how these enactments serve as a catalyst for civilization’s most pressing normative questions.

GERM 425 - VIENNA AND ITS PEOPLE
Short Title: VIENNA AND ITS PEOPLE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will look at the people of Vienna from the turn of the century to the present. Our readings, film viewings and discussions will introduce us to the Viennese as people of all classes and ethnic and national groups. Taught in German. Recommended Prerequisite(s): Intermediate high proficiency (speaking & writing).

GERM 430 - GERMAN INTELLECTUAL HISTORY
Short Title: GERMAN INTELLECTUAL HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced seminar on key topics in modern German intellectual history, including history of science and scholarship, from 1700 to the present. Ideal preparation for graduate school in the humanities. Taught in German.
GERM 435 - CONCEPTS OF HISTORY FROM G.E. LESSING TO W. BENJAMIN
Short Title: CONCEPTS OF HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The twentieth-century Italian philosopher Benedetto Croce called philosophy of history (Geschichtsphilosophie) a "German discipline." There is indeed a long and rich tradition of texts in German thought that focus on making sense of the seemingly senseless, on speculating about the origin, the course, the aim, or, quite generally, the "meaning" of history. Based on selected texts by Lessing, Kant, Heine, Hegel, Nietzsche, Ranke, Burckhardt, Benjamin, and others, the course discusses different concepts of history from the early eighteenth to the twentieth century. Taught in German.

GERM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GERM 491 - FALL - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: FALL-IND WRK GERM LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 492 - SPRING - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: SPRING-IND WRK GERM LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 493 - FALL HONOR THESIS
Short Title: FALL HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Department Permission Required.

GERM 494 - SPRING HONORS THESIS
Short Title: SPRING HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a department faculty member. Department Permission Required.

GERM 541 - FIRST-YEAR GERMAN I FOR GRADUATE STUDENTS
Short Title: 1ST YR GERMAN I FOR GRAD STUD
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is targeted at graduate students of different disciplines as an introduction to the fundamentals of listening, reading, writing, spoken production and interaction in German. This course is student-centered, uses a critical-thinking approach and intends to make students aware of contextualized language use and socioculturally significant interactions.

GERM 542 - FIRST-YEAR GERMAN II FOR GRADUATE STUDENTS
Short Title: 1ST YR GERMAN II FOR GRAD STUD
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): GERM 541
Description: This course builds on GERM 541. Based on an active student-centered critical-thinking approach, this course wants to make students aware of language use in context and socioculturally significant interactions. The emphasis is on interactional communication, reading, writing, translations, and intercultural awareness and understanding.

Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)
GREE 101 - ELEMENTARY GREEK I
Short Title: ELEMENTARY GREEK I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of GREE 101. Effective May 15, 2019, this course does not carry D1 credit.

GREE 102 - ELEMENTARY GREEK II
Short Title: ELEMENTARY GREEK II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Reading-based introduction to ancient Greek. Readings include passages from classical and New Testament authors. Explanation and analysis of basic grammar, including comparison with English grammar. Besides translating Greek to English (and vice versa), we will consider the language and literature in their historical context, and practice reading ancient Greek aloud. Effective May 15, 2019, this course does not carry D1 credit.

GREE 201 - INTERMEDIATE GREEK I: PROSE
Short Title: INTERMEDIATE GREEK I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of forms and syntax. Readings from Plato.

GREE 202 - INTERMEDIATE GREEK: EURIPIDES MEDEA/BIBLICAL KOINE
Short Title: INTERMEDIATE GREEK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Section 1 reads Euripides or Sophocles. Section 2 reads excerpts from New Testament, Septuagint, and Early Christian writers. Includes review of forms and syntax.

GREE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 302 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to third and fourth year undergraduates. An opportunity to read the Iliad/Odyssey in the original Greek. Includes review of forms and syntax as well as discussion of Homeric dialect, meter, poetics, and oral tradition. May be repeated (once) for credit.

GREE 305 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO/ARISTOTLE/NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Greek prose for third or fourth year undergraduates. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 301, with additional texts. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 502. Mutually Exclusive: Cannot register for GREE 305 if student has credit for GREE 502. Repeatable for Credit.
GREE 306 - ADVANCED GREEK: POETRY
Short Title: ADVANCED GREEK: POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on Greek poetic texts, with an emphasis on Attic tragedy. The course will emphasize poetic vocabulary and grammar, meter, and performance contexts. Texts change each semester. Repeatable for Credit.

GREE 307 - ADVANCED GREEK: PROSE
Short Title: ADVANCED GREEK: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on prose texts, with an emphasis on fifth- and fourth-century authors. The course will emphasize vocabulary, grammar, and historical contexts. Texts change each semester, repeatable for credit. Repeatable for Credit.

GREE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 492 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required. Repeatable for Credit.

GREE 502 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to graduate students. Read the Iliad/Odyssey in the original Greek. Review of forms and syntax. Discussion of Homeric dialect, meter, poetics, and oral tradition. Requirement beyond GREE 302: oral presentation analyzing diction and poetic formulas in a specific passage. Repeatable (once) for credit. Graduate/Undergraduate Equivalency: GREE 302. Mutually Exclusive: Cannot register for GREE 502 if student has credit for GREE 302. Repeatable for Credit.

GREE 503 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: DIRECTED READING GRAD STUDENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Repeatable for Credit.

GREE 504 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: GR STUDENTS DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

GREE 505 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO,ARISTOTLE,NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Greek prose for graduate students in related disciplines. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 501, with additional texts. Additional work required beyond GREE 305, in the form of an oral presentation analyzing the language and style of one or more text in terms of its historical, social, and generic context. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 305. Mutually Exclusive: Cannot register for GREE 505 if student has credit for GREE 305. Repeatable for Credit.
GREE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Latin (LATI)

LATI 101 - ELEMENTARY LATIN I
Short Title: ELEMENTARY LATIN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 101.

LATI 102 - ELEMENTARY LATIN II
Short Title: ELEMENTARY LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 101 or MDST 101
Description: Continuation of LATI 101 and MDST 101. Graduate students require permission of instructor. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 102.

LATI 104 - AP/OTH CREDIT IN ELEMENTARY LATIN
Short Title: AP/OTH CREDIT ELEMENTARY LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 201 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Readings in Virgil. Cross-list: MDEM 211.

LATI 202 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211
Description: Readings in Virgil. Cross-list: MDEM 212.

LATI 204 - AP/OTH CREDIT IN INTERMEDIATE LATIN
Short Title: AP/OTH CREDIT INTERM. LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
LATI 301 - CICERO AND SALLUST
Short Title: CICERO AND SALLUST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: The course will read selections from Cicero and Sallust on the Catilinarian Conspiracy. Close attention will be given to the authors’ style and to their rhetorical and historiographical methods. We will also examine the events of the conspiracy and the political culture of the late Roman Republic. Recommended Prerequisite(s): Four semesters of Latin or the equivalent.

LATI 302 - ADVANCED LATIN
Short Title: ADVANCED LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Propertius’ elegies with a view to understanding the poetics of Latin love elegy and the relationship of this genre to its social context. D1 credit.

LATI 303 - ADVANCED LATIN: PLAUTUS AND TERENCE
Short Title: ADV LATIN: PLAUTUS & TERENCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Plautus’ Pseudolus and Terence’s Adelphoe. We will consider the background of Greek comedy and the contemporary social situation in Rome.

LATI 304 - ADVANCED LATIN: ROMAN EPIC
Short Title: ADV. LATIN: ROMAN EPIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Latin epic poetry, from the Republic through late antiquity. Topics will include the nature of the epic genre, the development of Roman epic, the styles of individual epic poets, and the works’ political and cultural contexts.

LATI 305 - ADVANCED LATIN: HORACE
Short Title: ADVANCED LATIN: HORACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Horace.

LATI 306 - ADVANCED LATIN: OVID’S METAMORPHOSES
Short Title: OVID’S METAMORPHOSES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Ovid’s Metamorphoses. Repeatable for Credit.

LATI 307 - LATIN POETRY OF LATE ANTIQUITY
Short Title: LATIN POETRY OF LATE ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Latin poetry, ca. 300 CE - ca. 600 CE. Topics include the relationship of this poetry to its classical past, its identity as "late" literature, the historical contexts and purposes of the texts and the development of a Christian Latin poetic tradition.

LATI 308 - LUCRETIUS
Short Title: LUCRETIUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will study the great philosophical poem of the Roman Epicurean Lucretius, De Rerum Nature (On the Nature of Things). In addition to selections from the Latin, students will read the entire poem in English translation as well as scholarship on the poem from a variety of perspectives.
LATI 309 - RECOVERY, REBIRTH, REGENERATION: CLASSICS AND THE EUROPEAN RENAISSANCE
Short Title: CLASSICS/EUROPEAN RENAISSANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A thorough examination of the art of translating Latin literature; study a range of translations of select Latin texts; and produce their own translations of prose and verse Latin originals. Taught in English.

LATI 317 - READINGS IN LIVY
Short Title: READINGS IN LIVY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Selections from the Roman historian Livy. Close attention will be given to Livy's prose style and narrative techniques. We will also examine his historical method, the Augustan context of his work, and the information he provides as a source on Roman history. Repeatable for Credit.

LATI 318 - READINGS IN CICERO
Short Title: CICERO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course features readings in Cicero (1st c. BCE), the politician, orator, and philosopher of first-century BCE Rome. The single most influential writer in Latin, Cicero is also a primary source for the fall of the Roman Republic. Spring 2016 will focus on the speech Pro Caelio, addressed to a law course in defense of the Roman aristocrat Caelius Rufus, and one of Cicero's most entertaining speeches. Repeatable for Credit.

LATI 320 - SILVER LATIN PROSE: SENECA AND TACITUS
Short Title: SENECA AND TACITUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Latin culture during the Silver Age (AD 18-133) developed in unforeseen directions, which remain provocative and stimulating today. This course will focus on the two writers who developed new pathways in prose writing and new ideas about Rome, the moralist Seneca and the historian Tacitus. We will read one of Seneca's moral essays, De brevitate vitae, and book four of Tacitus' Annals.

LATI 350 - TRANSLATING LATIN LITERATURE: THEORY AND PRACTICE
Short Title: TRANSLATING LATIN LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A thorough examination of the art of translating Latin Literature. Students will survey ancient and modern theories of translation; study a range of translations of select Latin texts; and produce their own translations of prose and verse Latin originals. Taught in English.
Latin American Studies (LASR)

LASR 158 - INTRODUCTION TO LATIN AMERICAN STUDIES
Short Title: INTRO LATIN AMERICAN STUDIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Description: This course immerses students into Caribbean and Latin American studies by introducing them to the history, society, politics, and culture of the region, through a cross-disciplinary and a multi-national approach. Taught in English. Open to all students. Cross-list: SPPO 158.

LASR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LASR 251 - CONTINUITIES AND CHANGES IN BRAZILIAN HISTORY
Short Title: BRAZIL: CONTINUITY & CHANGE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate level students.
Description: An exploration of themes essential to understanding modern Brazil, such as the origins of a multi-racial society, the transition from monoculture to industry, authoritarian and democratic trends, the emergence of a uniquely Brazilian culture, and the conflicts - environmental, political, and economic - over the development of the Amazon. Cross-list: HIST 251.
LASR 350 - PIRATES, REBELS, NARCOS: LATIN AMERICAN OUTLAWS IN THE POLITICAL-CULTURAL IMAGINATION
Short Title: PIRATES, REBELS, NARCOS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The outlaw is a central figure in the political-cultural imagination on Latin America. Through a study of popular culture and literature, this course provides a critical exploration of this figure: from pirates and runaway slaves in colonial times, to nineteenth century bandits, and more recently guerrillas and narcos. Taught in English. Recommended Prerequisite(s): LASR 158.

LASR 373 - WOMEN'S SOCIAL MOVEMENTS IN LATIN AMERICA AND THE CARIBBEAN
Short Title: WOMEN'S SOCIAL MOVEMENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will examine the historical development of women's social movements in Latin America and the Caribbean. We will explore how they are transforming the region through their diverse forms of political engagement. This is a lecture/seminar course that emphasizes writing and discussion. Cross-list: SWGS 373.

LASR 374 - FEMINIST AND QUEER THEORY IN THE AFRICAN DIASPORA
Short Title: FEM THEORY IN AFRICAN DIASPORA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an interdisciplinary overview of the body of Black feminist and queer theory that has emerged within the last forty years. We will examine these frameworks in order to understand how racial difference shapes gender and sexual identities. This is a seminar that emphasizes research and discussion. Cross-list: SWGS 374.

LASR 375 - LATINA AND AFRICAN AMERICAN WOMEN'S ACTIVISM IN THE URBAN METROPOLIS
Short Title: WOMEN'S ACTIVISM URBAN METRO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will investigate the contemporary writings of Latina and African American women in urban spaces across the U.S. Understanding these women's experiences in relationship to each other will reveal the shared, yet distinct, trajectories that orient their struggle to resist poverty, racism, homophobia, and sexual and reproductive violence. Cross-list: SWGS 375.

LASR 376 - CHICANA AND LATINA EXPERIENCE THRU FILM
Short Title: CHICANA/LATINA EXP THRU FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the Chicana and Latina experience in the U.S. We examine these women's response to each other and forces of conquest, capitalism, and patriarchy. Novels, oral life histories, film, and art will be used to interrogate these women's conceptualization and assertion of feminism, activism, and history. Cross-list: SWGS 376.

LASR 378 - LATIN AMERICAN POLITICAL THOUGHT: IDENTITY, LIBERATION, MODERNITY
Short Title: LATIN AM. POLITICAL THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course gives students an overview of the main thinkers, currents, concepts, and topics in Latin American and Latinx political thought. It is organized around three modules that address central topics: identity & transculturation; liberation; and modernity. Taught in English. Counts toward the minor in PLST.
LASR 490 - RECLAIMING THE FUTURE: CONTEMPORARY TECHNOLOGY, CULTURE & SOCIETY IN LATIN AMERICA
Short Title: TECH CULTURE & SOC IN LATIN AM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is the role of technology in helping Latin America articulate a post-neoliberal future? This course examines the past, present, and future of the relation between technology and society in Latin America, focusing on contemporary efforts in popular culture and media to syncretize old and new forms of knowledge and techno-social production. Taught in English.

LASR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LASR 490 - INDEPENDENT STUDY IN LATIN AMERICAN STUDIES
Short Title: INDEPENDENT STUDIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable-credit course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Language may be in English or Spanish. Instructor permission required. Repeatable for credit. Instructor Permission Required. Repeatable for Credit.

LASR 491 - LATIN AMERICAN STUDIES CAPSTONE
Short Title: LATIN AMERICAN STUDIES CAPSTN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will write original seminar paper on Latin America incorporating reading and research in English and in the Spanish or Portuguese language sources; to be drawn from their research conducted during a study abroad semester in Latin America.

LASR 492 - DIRECTED RESEARCH
Short Title: DIRECTED RESEARCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation on any aspect of Latin America, Latin American studies, or U. S. Latinx studies. This course includes directed research and/or a research project. Student will work independently with only minimal faculty supervision. Permission of the instructor is required. Instructor Permission Required. Repeatable for Credit.

Portuguese (PORT)
PORT 106 - ACCELERATED FIRST YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL FIRST YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year Portuguese for students who have a good command of Spanish. This is an intensive course covering the equivalents of PORT 141 and 142. Students will be prepared for PORT 206 upon completion of the course. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 106 if student has credit for PORT 142/PORT 222.

PORT 141 - FIRST YEAR PORTUGUESE I
Short Title: FIRST YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Portuguese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 141 if student has credit for PORT 222.
PORT 142 - FIRST YEAR PORTUGUESE II
Short Title: FIRST YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of PORT 141. Development of interactional competence in Portuguese (sociolinguisitc and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 142 if student has credit for PORT 106/PORT 262.

PORT 206 - ACCELERATED SECOND YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL SECOND YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 106
Description: Alternate second year Portuguese for students who have a very good command of Spanish. This intensive course covers the equivalent of PORT 263 and PORT 264. It will focus on the development of interactional competence in Portuguese to communicate satisfactorily with Portuguese speakers. Mutually Exclusive: Cannot register for PORT 206 if student has credit for PORT 263/PORT 264.

PORT 222 - AP/OTH CREDIT IN PORTUGUESE LANGUAGE
Short Title: AP/OTH CREDIT PORT LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 141 or PORT 106. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 106/PORT 141.

PORT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PORT 263 - SECOND YEAR PORTUGUESE I
Short Title: SECOND YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 142
Description: Continuation of PORT 142. Development of interactional competence in Portuguese (sociolinguisitc and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 263 if student has credit for PORT 201/PORT 206.

PORT 264 - SECOND YEAR PORTUGUESE II
Short Title: SECOND YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 263
Description: Continuation of PORT 263. Development of interactional competence in Portuguese (sociolinguisitc and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 264 if student has credit for PORT 202/PORT 206.

PORT 301 - THIRD YEAR PORTUGUESE I
Short Title: THIRD YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 206 or PORT 264
Description: Continuation of PORT 206 or 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.
PORT 302 - BRASIL: CULTURA E SOCIEDADE
Short Title: BRASIL: CULTURE AND SOCIETY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 301
Description: The purpose of this course is to develop speaking, reading, and writing skills via the analysis of Brazilian literary and cultural texts. Through a multidisciplinary approach, students will be introduced to cultural analysis using a broad range of sources such as literature, film, and other audio-visual materials.

PORT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Spanish (SPAN)

SPAN 141 - FIRST YEAR SPANISH I
Short Title: FIRST YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Spanish (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 141 if student has credit for SPAN 161/SPAN 222.

SPAN 142 - FIRST YEAR SPANISH II
Short Title: FIRST YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 301
Description: Continuation of SPAN 141. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 142 if student has credit for SPAN 262.

SPAN 204 - INTERMEDIATE SPANISH FOR HERITAGE LEARNERS
Short Title: INT SPAN HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is for students who have been exposed to Spanish at home, through relatives and/or in the community and who wish to improve their confidence and intermediate fluency by expanding their formal knowledge of the language and of Hispanic cultures. Authentic materials such as short stories, poetry, films and articles will be used to develop reading, writing, speaking and listening skills. Placement Test is required.

SPAN 222 - AP/OTH CREDIT IN SPANISH LANGUAGE
Short Title: AP/OTH CREDIT SPANISH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 222 if student has credit for SPAN 101/SPAN 141/SPAN 161.
SPAN 225 - AP/OTH CREDIT IN INTERMEDIATE SPANISH
Short Title: AP/OTH CREDIT INTERM. SPAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 225 if student has credit for SPAN 201/SPAN 263.

SPAN 264 - SECOND YEAR SPANISH II
Short Title: SECOND YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 142
Description: Continuation of SPAN 142. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for SPAN 264 if student has credit for SPAN 202.

SPAN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPAN 263 - SECOND YEAR SPANISH I
Short Title: SECOND YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 142
Description: Continuation of SPAN 142. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for SPAN 263 if student has credit for SPAN 201/SPAN 263.

SPAN 303 - ADVANCED SPANISH FOR HERITAGE STUDENTS
Short Title: ADV SPAN HERITAGE STUDENTS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SPAN 204
Description: SPAN 303 aims to bring students to advanced proficiency in Spanish, enabling them to interact confidently in a wide variety of contexts, while providing them with cultural insights about the Hispanic world. It is designed for students who come with heritage exposure and at least intermediate proficiency in Spanish.

SPAN 321 - SPECIAL TOPICS: ADVANCED SPANISH I
Short Title: SPECIAL TOPICS: ADV SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SPAN 264
Description: This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 322 - SPECIAL TOPICS: ADVANCED SPANISH II
Short Title: SPECIAL TOPICS: ADV SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SPAN 321
Description: This is a continuation of SPAN 321. This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 323 - SPANISH PROFESSIONAL PRACTICUM I
Short Title: SPANISH PROFESSIONAL PRAC I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This hybrid course combines practicum hours and course hours (whether face to face or online) for students who are interested in using their Spanish-language skills in professional settings. Practicum working hours to be determined between student and instructor. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required.
Spanish and Portuguese (SPPO)

**SPPO 158 - INTRODUCTION TO LATIN AMERICAN STUDIES**

*Short Title:* INTRO LATIN AMERICAN STUDIES  
*Department:* Modrn & Classicl Lit & Culture  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Formerly SPAN 158. This course immerses students into Caribbean and Latin American studies by introducing them to the history, society, politics, and culture of the region, through a cross-disciplinary and a multi-national approach. Taught in English. Open to all students. Cross-list: LASR 158.

**SPPO 238 - SPECIAL TOPICS**

*Short Title:* SPECIAL TOPICS  
*Department:* Modrn & Classicl Lit & Culture  
*Grade Mode:* Standard Letter  
*Course Type:* Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**SPPO 328 - GAZING AT DISASTER: VISUAL CULTURE AND CATASTROPHE IN LATIN AMERICA**

*Short Title:* GAZING AT DISASTER  
*Department:* Modrn & Classicl Lit & Culture  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* This course explores the visual representation of Natural Disasters in the Caribbean and Latin America. Going beyond an enquiry on the role of climate change and environmental transformations in the region's history and culture, we explore the potential and limitations of visual discourse to communicate catastrophe. Taught in Spanish.

**SPPO 330 - HISPANIC WRITING SEMINAR**

*Short Title:* HISPANIC WRITING SEMINAR  
*Department:* Modrn & Classicl Lit & Culture  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* In this writing intensive seminar, students will learn the skills to think and write critically in Spanish about literary and cultural production from the global Hispanic world. Taught in Spanish.

**SPPO 331 - BRASIL ATUAL**

*Short Title:* BRASIL ATUAL  
*Department:* Modrn & Classicl Lit & Culture  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Upper-Level  
*Description:* Course examines topics in contemporary Brazil as presented in media, literature, film, and music. Works address persistent race, class, and gender inequalities, national identity, urban life, and environmental issues, among other topics. Further development of speaking, writing and vocabulary enrichment emphasized through discussions and interactive activities. Taught in Portuguese. Mutually Exclusive: Cannot register for SPPO 331 if student has credit for PORT 331.
SPPO 332 - APPROACHES TO HISPANIC LITERATURES
Short Title: APPROACHES HISPANIC LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Hispanic Literature where students will become familiar with the methodology of literary analysis to approach different genres and develop original and critical interpretation of texts. Course will give a wide and solid literary and analytical context for more advanced courses in Spanish and Latin American literature. Taught in Spanish. Distribution 1 credit effective Fall 2021.

SPPO 333 - CURRENT HEALTHCARE ISSUES IN LATINX COMMUNITIES
Short Title: LATINX HEALTHCARE ISSUES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines social, cultural, ethical, and humanitarian issues as related to healthcare and Latinx communities in the United States. The course will make use of current multimodal media to guide students in close reading, interpretation, and critical thinking and response. When appropriate, the historical context for current issues will also be considered. Taught in Spanish. Recommended Prerequisite(s): SPAN 322

SPPO 340 - INTRODUCTION TO SPANISH LINGUISTICS
Short Title: INTRO TO SPANISH LINGUISTICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the study of the Spanish language covering the following areas of research: history, phonetics/phonology, morphosyntactic system, lexicon, semantics, pragmatics, sociolinguistics, and language acquisition. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 340 if student has credit for SPAN 352.

SPPO 341 - DIALECTS IN CONTACT: SEARCHING FOR THE 'INTERNATIONAL' FORM OF SPANISH
Short Title: DIALECTS IN CONTACT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 350. Course will analyze the essence of language against the essence of dialects to determine (i) the logical and linguistic rationale behind judgments about language, (ii) social and political factors that lead to various decisions, and (iii) the role of popular beliefs on traditional views of proper language use. Taught in Spanish.

SPPO 344 - MAPPING LATIN AMERICAN CULTURE
Short Title: MAPPING LATIN AMER CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores key issues in Latin American culture. Important aspects of the contemporary situation in Latin America are also studied, including phenomena such as globalization, the rise of mega-cites, migration, authoritarianism, the impact of colonization and the rise of national states. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 344 if student has credit for SPAN 345.

SPPO 345 - ART IN LATIN AMERICAN LITERATURE
Short Title: INTERNATIONAL FORM OF SPANISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores important moments in the history of Latin American European and North American Art by reading literary works that dramatize the transformations of several key artistic movements. 19th century landscape painting, Post-impressionism, Surrealism, Muralism, and 1960s experimental art will be studied through the novels and poems of important Latin American authors. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 345 if student has credit for SPAN 343.
SPPO 347 - INTRODUCTION TO MEDIEVAL AND EARLY MODERN SPANISH LITERATURE AND CULTURE
Short Title: MEDIEVAL&EARLY SPAN LIT&CULTUR
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course traces the literary history of Spain from the Medieval period to the 1700's. Students will analyze a wide range of masterpieces in poetry, prose, and drama that have marked the ideological and cultural development of the Iberian Peninsula. Taught in Spanish.

SPPO 348 - INTRODUCTION TO MODERN SPANISH LITERATURE AND CULTURE, 18TH-21ST CENTURY
Short Title: INTRO MODERN SPAN LIT&CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course is a panoramic introduction to literary, ideological, cultural, and artistic trends from the Enlightenment to the present. Study will include a wide array of exceptional works, (novels, plays, essays, short stories and poems) from authors who have left milestones in modern Spanish literature. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 348 if student has credit for SPAN 334.

SPPO 350 - BRAZILIAN LITERATURE AND CULTURE
Short Title: BRAZILIAN LITERATURE & CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the literature of the region known as "Cono Sur." Often considered the national literature of Argentina and Uruguay, the "gaucho literature" encompasses a wide variety of texts, from traditional ballads to novels, plays and poetry. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 350 if student has credit for SPAN 346.

SPPO 351 - LITERATURES FROM THE SOUTHERN CONE
Short Title: LIT FROM THE SOUTHERN CONE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the literature of the region known as "Cono Sur." Often considered the national literature of Argentina and Uruguay, the "gaucho literature" encompasses a wide variety of texts, from traditional ballads to novels, plays and poetry. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 351 if student has credit for SPAN 384.

SPPO 353 - CARIBBEAN LITERATURE
Short Title: CARIBBEAN LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to major writers and theories of Caribbean literature, by focusing on the representation of places, peoples, and practices. Close attention will be paid to historical and cultural contexts, while conducting an in-depth analysis of literary texts from different genres. Taught in Spanish. Topics vary. Mutually Exclusive: Cannot register for SPPO 353 if student has credit for SPAN 391.

SPPO 354 - CHICANO/A LITERATURE
Short Title: CHICANO/A LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: ENGL 371, SWGS 354. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
**SPPO 356 - RACE, GENDER, CLASS, & ENVIRONMENT IN CENTRAL AMERICAN CULTURES**
- **Short Title:** UNDERSTANDING CENTRAL AMERICA
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This class explores the diverse cultures and complex histories of the seven Central American countries: Panama, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and Belize. This panoramic course discusses Central American literature, visual culture, and music with a special emphasis on topics such as race, gender, class, environment, geopolitics, revolution, trauma, and migration. Taught in Spanish.

**SPPO 360 - SECOND LANGUAGE ACQUISITION: LINGUISTIC, COGNITIVE AND SOCIAL DIMENSIONS**
- **Short Title:** SECOND LANGUAGE ACQUISITION
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Second language acquisition seeks to describe the development of a second language. It also attempts to provide an explanatory account of the internal and external factors that guide this process. This course surveys various theoretical approaches to the analysis of second language (L2) acquisition. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 360 if student has credit for SPAN 380.

**SPPO 361 - WOMEN AND GENDER IN SPANISH CULTURE**
- **Short Title:** WOMEN & GENDER IN SPAN CULTURE
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Contemporary global women’s social movements contest misogyny, gender inequality and violence. This course explores representations of women and gender in Spanish literature, art, and culture through a revisionist lens, focusing on the extensive work still needed to rectify the injustices propagated by patriarchy. Taught in Spanish.

**SPPO 363 - CONSTRUCTS AND CONTEXTS IN L2 LEARNING: RESEARCH ON STUDY ABROAD**
- **Short Title:** RESEARCH ON STUDY ABROAD
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** The object of this course is to analyze the effect of context of learning on both the definition of second language competence and the process by which that competence is acquired. Both theoretical constructs (i.e., definition and process) may be categorically different depending on the context in which acquisition occurs. Taught in Spanish (some readings in English).

**SPPO 364 - SPANISH CREATIVE WRITING**
- **Short Title:** SPANISH CREATIVE WRITING
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This course will explore Spanish creative writings through an aesthetic experience. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 364 if student has credit for SPAN 383. Repeatable for Credit.

**SPPO 368 - LATIN AMERICAN SHORT FICTION**
- **Short Title:** LATIN AMERICAN SHORT FICTION
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Latin American writers have achieved great distinction in the genre of the short story. This course studies texts by some of the continent’s best-known short-story writers, such as Cortazar, Borges, Montero, Rufio, Fuentes, Garcia Marquez, Elena Garro, Ana Lydia Vega, Clarice Lispector, Benedetti, Uslar Pietri, Massiani, Leibniz, Ais, and Carpentier. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 368 if student has credit for SPAN 388.
SPPO 370 - DISABLED BODIES: ILLNESS AND LITERATURE IN LATIN AMERICA
Short Title: LATIN AMERICAN ILLNESS & LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is an illness? How do we define a sick body? How can literature, films and art convey suffering and healing? How do traditional histories of medicine structure sickness? Is there a perception – and representation – of illness that can be specific to Latin American culture? How does the Spanish language address issues of sickness, disability, and pain? This course will explore experiences of illness, suffering and pain through the readings of narratives, works of theory and criticism, and the writings of artists themselves. Discussions will place the narratives of illness in the intersections with the history of public health, biomedical history, and the sociocultural history of disease in Latin America. Within the framework of the Medical Humanities minor, students will learn to recognize the value and relevance of literature and writing to their personal, educational and professional growth. There is an experiential learning component, at Aishel House Houston, associated with the course. Taught in Spanish.

SPPO 373 - THE MEXICAN REVOLUTION IN LITERATURE, MUSIC AND VISUAL ARTS
Short Title: THE MEXICAN REVOLUTION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the defining moment of modern Mexico: the revolution of 1910-1920/40. Through a study of major literary works, songs, films, photographs, and paintings, the class explores the complex political and cultural legacy of the Mexican Revolution to this date. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 373 if student has credit for SPAN 348.

SPPO 375 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. (The trip is optional. There is a course fee.) Course taught in Spanish. Instructor Permission Required. Cross-list: FILM 339, HART 304. Mutually Exclusive: Cannot register for SPPO 375 if student has credit for SPAN 392.

SPPO 377 - BRAZILIAN MUSIC AND SOCIAL MOVEMENTS
Short Title: BRAZIL: MUSIC&SOCIAL MOVEMENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in English. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.

SPPO 380 - SOCIAL ISSUES IN SPAIN
Short Title: SOCIAL ISSUES IN SPAIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of diverse cultural aspects of today's Spain through films and newspaper articles. The topics discussed will serve as a springboard for further development of writing skills. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 380 if student has credit for SPAN 378.

SPPO 381 - SPANISH CINEMA
Short Title: SPANISH CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will examine how Spanish film has represented the sociocultural and political life of the country -- from the Francoist years, exposing the image of a Catholic and homogenous Spain, to a post-Francoist era open to reveal social problems from a more secular and global perspective. Taught in Spanish.

SPPO 382 - THEATER AND PERFORMANCE WORKSHOP
Short Title: THEATER & PERFORMANCE WORKSHOP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to a wide array of Spanish plays from the Early Modern period to the present. Participants will also have the opportunity to create a series of original scenes, that they will adapt, direct and perform as the final outcome of the seminar. Taught in Spanish.
SPPO 384 - THE SPANISH AVANT-GARDE
Short Title: THE SPANISH AVANT-GARDE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: This cross-genre, multimedia course examines the contributions of major figures (Picasso, Gris, Dali, Diego, Alberti, Lorca, Bunuel, Gomez de la Serna) to the Spanish avant-garde in the 20th century. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 384 if student has credit for SPAN 377.

SPPO 385 - TRENDS IN HISPANIC CINEMA
Short Title: TRENDS IN HISPANIC CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 390. This course examines the ways in which films in both Spain and Latin America have represented the cultural contexts of their countries. Focus is on the theme of power, and the consequences on social and individual lives. Taught in Spanish. Cross-list: SWGS 390.

SPPO 410 - THE CITY IN LATIN AMERICA
Short Title: THE CITY IN LATIN AMERICA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore representations of the city in both new Latin American writings and films, with a special focus on the changing urban landscape, the representation of poverty and the excluded from the new global economy, environmental issues and biopolitics, as well as hybrid cultures and multicultural identities. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 410 if student has credit for SPAN 402.

SPPO 411 - LITERATURE AND THE ENVIRONMENT IN LATIN AMERICA
Short Title: LITERATURE AND THE ENVIRONMENT IN LATIN AMERICA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will analyze certain types of cultural productions (fiction, movies, etc.) produced in geographical contact zones, that generate hybrid languages and genres. These are products of migrations and nomadic people. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 411 if student has credit for SPAN 403.

SPPO 412 - BOOM-BOOM-CRACK: LATIN AMERICAN NOVEL
Short Title: BOOM-BOOM-CRACK: LATIN AMERICAN NOVEL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Works by Asturias, Carpenter, Rulfo, Onetti, Vargas Llosa, Cortazar, Fuentes, and others. Examines how Spanish American novelists from the 1940s onward appropriated the techniques of European modernist literature and infused them with new cultural content. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 412 if student has credit for SPAN 462.

SPPO 415 - BORDER NARRATIVES
Short Title: BORDER NARRATIVES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will analyze certain types of cultural productions (fiction, movies, etc.) produced in geographical contact zones, that generate hybrid languages and genres. These are products of migrations and nomadic people. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 415 if student has credit for SPAN 453.

SPPO 420 - LATIN AMERICAN LITERATURE IN THE MOVIES
Short Title: LATIN AMERICAN LITERATURE IN THE MOVIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course analyzes the relation between literary texts and the movies, and establishes connections and adaptations of both. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 420 if student has credit for SPAN 405/SPAN 505.
SPPO 422 - LATIN AMERICAN CINEMA
Short Title: LATIN AMERICAN CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the national cinemas of various regions of Latin America. Special attention is given to the different periods of its development, to the close relationship between political contexts and filmmaking, to the understanding of Latin American cinema from cultural studies views, and to the current shaping of Latin America in light of globalization. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 422 if student has credit for SPAN 406.

SPPO 427 - MULTICULTURALISM IN SPANISH LITERATURE AND CULTURE
Short Title: MULTICULTURALISM IN SPAN LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates how multiculturalism and race have operated in the Iberian Peninsula through literary texts, legal and historical documents, film, and visual and performative arts. Particular attention will be paid to the coexistence of different identities—religious, racial, and ethnic, in particular. Taught in Spanish. Recommended Prerequisite(s): SPPO 330 or SPPO 332

SPPO 430 - LATIN AMERICAN WOMEN'S CULTURE
Short Title: LATIN AMERICAN WOMEN'S CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 456. Studies the cultural production (literary, artistic, cinematic) of intellectual women in Latin America. Examines the struggles for interpretive power in works by women from the colonial period to the present. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SWGS 466.

SPPO 435 - LANGUAGE IDEOLOGIES AND LANGUAGE IDENTITIES
Short Title: LANGUAGE IDEOLOGIES/IDENTITIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar focuses on the analysis of the interaction of the concepts of language identity (primarily identified at an individual level) and language ideology (described as an institutional/political perspective about the nature of language and its role in society). Some of the topics include: construction and negotiation of social identity through language use, language and nationhood, language policies/planning, beliefs about proper language use, gender-biased language, language contact and multilingualism, bilingual education, etc. Taught in Spanish (some readings in English).

SPPO 450 - TWENTIETH CENTURY MEXICAN NOVEL
Short Title: TWENTIETH CENTURY MEXICAN NOVL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to major Mexican novels of the Twentieth Century, including works by Juan Rulfo, Carlos Fuentes, Elena Garro, Jose Emilio Pacheco, Elena Poniatowska, Jorge Volpi and Cristina Rivera Garza. We will examine these works through a variety of methods including historical biographical analysis as well as through formalist approaches. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 450 if student has credit for SPAN 373.

SPPO 452 - WITNESSING, TRUTH & TRAUMA: TESTIMONIAL WRITING IN MEXICO & CENTRAL AMERICA
Short Title: WITNESSING, TRUTH & TRAUMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar provides an exploration of testimonial writing, a crucial and controversial Latin American genre that aims at giving voice to those marginalized within society. Looking at testimonials by indigenous militants, poor women, war crime survivors, and insurgents the course explores the meaning of truth and fiction, historical reckoning, and trauma. Taught in Spanish.
SPPO 462 - DON QUIJOTE
Short Title: DON QUIJOTE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cervantes’s masterpiece is studied in its relationship to the books of knight errantry, and to the picaresque and pastoral novels, with emphasis on the innovative techniques of Cervantes which contribute to the birth of the modern novel. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 462 if student has credit for SPAN 412.

SPPO 466 - THE SPANISH CIVIL WAR
Short Title: THE SPANISH CIVIL WAR
Department: Modrn & Classsicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Prelude to World War II and culmination of perennial struggles between the so-called “two Spains,” the Spanish Civil War (1936-39) is a watershed moment in modern Spanish and European history. Interdisciplinary, multi-media approach: the war seen through Spanish and foreign novels, poetry, film, painting, journalism, songs, and posters. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 466 if student has credit for SPAN 375.

SPPO 467 - 20TH-CENTURY SPANISH NOVEL
Short Title: 20TH-CENTURY SPANISH NOVEL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the evolution of the Spanish novel as a work of art while exploring how cultural issues are incorporated into fictional worlds. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 467 if student has credit for SPAN 430.

SPPO 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture, Seminar, Internship/Practicum, Laboratory, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPPO 490 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research in Hispanic literature, Hispanic linguistics, Hispanic culture and civilization. Open to qualified juniors and seniors interested in a topic not covered in other courses. Instructor Permission Required. Mutually Exclusive: Cannot register for SPPO 490 if student has credit for SPAN 490.

SPPO 491 - DIRECTED RESEARCH
Short Title: DIRECTED RESEARCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation on any aspect of literature, linguistics, cinema, or cultural studies from Spain, Latin America, or U. S. Latinx communities. This course includes directed research and/or a research project. Student works independently with only minimal faculty supervision. Permission of instructor required. Instructor Permission Required. Repeatable for Credit.

SPPO 492 - SUMMER INTERNSHIP IN MADRID
Short Title: SUMMER INTERNSHIP IN MADRID
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will offer the opportunity of an internship with Spanish companies or non-governmental organizations (NGO). In this professional practice, participants will be immersed in daily business activities and special projects associated with their particular area of interest. Nearly all interactions with supervisors and colleagues will be in Spanish. 5-Week Summer Session Course. Instructor Permission Required.

SPPO 495 - HONORS THESIS
Short Title: HONORS THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding Hispanic Studies majors leading to a substantial honors essay, undertaken in close cooperation with a departmental faculty member, who must first approve the thesis proposal. Department Permission Required. Mutually Exclusive: Cannot register for SPPO 495 if student has credit for SPAN 495.
SPPO 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory, Lecture/ Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code for Classical Studies: CLAS
• Course offerings/subject code for European Studies: EURO
• Course offerings/subject code for French Studies: FREN
• Course offerings/subject code for German Studies: GERM
• Course offerings/subject code for Greek: GREE
• Course offerings/subject code for Latin: LATI
• Course offerings/subject code for Latin American Studies: LASR
• Course offerings/subject code for Portuguese: PORT
• Course offerings/subject code for Spanish: SPAN
• Course offerings/subject code for Spanish and Portuguese: SPPO

Department Description and Code
• Modern and Classical Literatures and Cultures: MCLC

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Descriptions and Codes
• Major in Classical Studies: CLST
• Major in European Studies: EURO
• Major in French Studies: FREN
• Major in German Studies: GERM
• Major in Latin American Studies: LASR
• Major in Spanish and Portuguese: SPPO

Undergraduate Minor Descriptions and Codes
• Minor in Classical Civilizations: CLCV
• Minor in French Studies: FREM
• Minor in German Studies: GEMM
• Minor in Greek Language and Literature: GRLL
• Minor in Latin Language and Literature: LALL
• Minor in Spanish and Portuguese: SPPM

CIP Code and Description
• CLST Major/Program: CIP Code/Title: 16.1200 - Classics and Classical Languages, Literatures, and Linguistics, General
• EURO Major/Program: CIP Code/Title: 05.0106 - European Studies/Civilization
• FREN Major/Program: CIP Code/Title: 16.0901 - French Language and Literature
• GERM Major/Program: CIP Code/Title: 16.0501 - German Language and Literature
• LASR Major/Program: CIP Code/Title: 05.0107 - Latin American Studies
• SPPO Major/Program: CIP Code/Title: 16.0999 - Romance Languages, Literatures, and Linguistics, Other
• CLCV Minor: CIP Code/Title: 16.1299 - Classics and Classical Languages, Literatures, and Linguistics, Other
• FREM Minor: CIP Code/Title: 16.0901 - French Language and Literature
• GEMM Minor: CIP Code/Title: 16.0501 - German Language and Literature
• GRLL Minor: CIP Code/Title: 16.1202 - Ancient/Classical Greek Language and Literature
• LASR Minor: CIP Code/Title: 16.1203 - Latin Language and Literature
• SPPM Minor: CIP Code/Title: 16.0999 - Romance Languages, Literatures, and Linguistics, Other

Museums and Cultural Heritage
Contact Information
Museums and Cultural Heritage
https://much.rice.edu
116 Humanities Building
713-348-4548

Farès el-Dahdah
Program Co-Director
fdahdah@rice.edu

Fabiola López-Durán
Program Co-Director
fld@rice.edu

Museums and Cultural Heritage incorporates the fields of architecture, anthropology, art, history, and cultural studies to study the identification, preservation, and/or representation of art and heritage materials. Such materials often serve as the evidentiary basis for humanistic, architectural, and social science disciplines. The Museums and Cultural Heritage minor is an interdisciplinary course of study, housed in the School of Humanities.

Students in the minor will learn about the preservation and use of tangible and intangible cultural heritage for study, archival purposes, and public display through the study of museums and cultural heritage institutions, new digital analysis tools and media, and traditional methods of preservation and analysis.

Minor
• Minor in Museums and Cultural Heritage (p. 1509)

Museums and Cultural Heritage does not currently offer an academic program at the graduate level.
Co-Directors and Advisors
Leo Costello
Fabiola López-Durán

Professors
Farès el-Dahdah
Jeffrey B. Fleisher
W. Caleb McDaniel
Susan Keech McIntosh

Associate Professors
Leo Costello
Reto Geiser
Fabiola López-Durán
Kerry Ward

Steering Committee
Leo Costello
Farès el-Dahdah
Jeffrey B. Fleisher
Reto Geiser
Fabiola López-Durán
Susan Keech McIntosh
Kerry Ward

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester’s course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject codes: Courses from various subjects may apply towards this program

Program Description and Code
• Museums and Cultural Heritage: MUCH

Undergraduate Minor Description and Code
• Minor in Museums and Cultural Heritage: MUCH

CIP Code and Description 1
• MUCH Minor: CIP Code/Title: 30.1401 · Museology/Museum Studies

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Museums and Cultural Heritage

Program Learning Outcomes for the Minor in Museums and Cultural Heritage
Upon completing the minor in Museums and Cultural Heritage, students will be able to:

1. Understand the historical, changing uses and meanings of art/cultural objects and collections in museums, particularly with regard to the concept of heritage.
2. Explain the historical and contemporary issues that affect art objects and cultural heritage, including recovery and preservation, and presentation to the public for education, research, and continued practice/use.
3. Work with primary sources relating to art and cultural heritage focusing on visual analysis, recovery and preservation methods, or archival research.
4. Conduct independent and collaborative research in museums and cultural heritage based in a specific disciplinary methodology and communicate it to a public audience through oral, written, visual, or other practical means.

Requirements for the Minor in Museums and Cultural Heritage
Students pursuing the minor in Museums and Cultural Heritage must complete:

• A minimum of 6 courses (18-21 credit hours, depending on course selection) to satisfy minor requirements.
• A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1511) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 341</td>
<td>MUSEUMS AND HERITAGE: EXHIBITING ART, EXHIBITING CULTURE</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the Minor in Museums and Cultural Heritage: 18-21
## Elective Requirements

### Museums or Preservation

Select 2 courses from the following: 6-7

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 362</td>
<td>ARCHAEOLOGICAL FIELD TECHNIQUES</td>
</tr>
<tr>
<td>ARCH 323</td>
<td>SEMINAR IN ARCHITECTURE</td>
</tr>
<tr>
<td>ARTS 378</td>
<td>EXHIBITION DESIGN</td>
</tr>
<tr>
<td>FILM 327 / ARTS 327 / ANTH 324</td>
<td>DOCUMENTARY PRODUCTION</td>
</tr>
<tr>
<td>FILM 430</td>
<td>ADVANCED METHODS IN SOUND, CINEMATOGRAPHY, AND EDITING</td>
</tr>
<tr>
<td>HART 101 / CLAS 102 / MDEM 111</td>
<td>INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOthic</td>
</tr>
<tr>
<td>HART 201</td>
<td>ART AND ARCHITECTURE OF ANCIENT ROME</td>
</tr>
<tr>
<td>HART 216 / CLAS 218</td>
<td>CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY</td>
</tr>
<tr>
<td>HART 297</td>
<td>SPECIAL TOPICS IN MUSEUM CURATORIAL STUDIES</td>
</tr>
<tr>
<td>HART 307</td>
<td>TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING, 13TH-20TH CENTURIES</td>
</tr>
<tr>
<td>HART 318 / CLAS 321</td>
<td>SPECIAL TOPICS IN ANCIENT ART</td>
</tr>
<tr>
<td>HART 397</td>
<td>HART IN THE WORLD FIELD STUDY</td>
</tr>
<tr>
<td>HIST 244</td>
<td>MUSEUMS IN WORLD HISTORY</td>
</tr>
<tr>
<td>HIST 318</td>
<td>DIGITAL HISTORY METHODS</td>
</tr>
<tr>
<td>HIST 343</td>
<td>HISTORY OF AFRICA IN THE MUSEUM</td>
</tr>
<tr>
<td>MUCH 308 / HART 312</td>
<td>ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION</td>
</tr>
<tr>
<td>RELI 335</td>
<td>MEDICINE AND THE MUSEUM: CLINICAL AESTHETICS AND THE MUSEUM OF FINE ARTS, HOUSTON</td>
</tr>
<tr>
<td>SOCI 365 / ANTH 365</td>
<td>POLITICS OF REPRESENTATION: HOW WE UNDERSTAND &quot;WAR&quot; AND &quot;THE RACIAL OTHER&quot;</td>
</tr>
</tbody>
</table>

### Cultural Heritage

Select 2 courses from the following: 6-8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 205</td>
<td>INTRODUCTION TO ARCHAEOLOGY</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>INTRODUCTION TO ARCHAEOLOGICAL SCIENCE</td>
</tr>
<tr>
<td>ANTH 308 / SWGS 336</td>
<td>THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION</td>
</tr>
<tr>
<td>ANTH 312 / MDEM 311</td>
<td>THE ARCHAEOLOGY OF AFRICA</td>
</tr>
<tr>
<td>ANTH 345</td>
<td>THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT</td>
</tr>
<tr>
<td>ANTH 355</td>
<td>SPACE, PLACE, AND LANDSCAPE</td>
</tr>
<tr>
<td>ANTH 363</td>
<td>THE ARCHAEOLOGY OF CITIES AND STATES</td>
</tr>
</tbody>
</table>

## Practicum Requirement

Select 1 course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART 300</td>
<td>MUSEUM INTERNSHIP I</td>
</tr>
<tr>
<td>HART 301</td>
<td>MUSEUM INTERNSHIP II</td>
</tr>
<tr>
<td>HART 400</td>
<td>BAYOU BEND UNDERGRADUATE INTERNSHIP I</td>
</tr>
<tr>
<td>HART 401</td>
<td>BAYOU BEND UNDERGRADUATE INTERNSHIP II</td>
</tr>
<tr>
<td>HUMA 406</td>
<td>ARTS AND CULTURE INTERNSHIP</td>
</tr>
<tr>
<td>HUMA 407</td>
<td>ARTS AND CULTURE INTERNSHIP 2</td>
</tr>
<tr>
<td>MUCH 423</td>
<td>PRACTICUM IN CULTURAL HERITAGE</td>
</tr>
</tbody>
</table>

## Capstone Symposium

Select 1 course from the following: 0

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
</table>

## Total Credit Hours

18-21

## Footnotes and Additional Information

1. A maximum of 2 courses (6 credit hours) from the same subject code can be counted toward the Elective Requirements for the minor.

2. One of the following courses must be completed before starting a practicum to provide adequate background knowledge: the Core Requirement: ANTH 341; or one of the following Elective Requirements: ANTH 345, HART 312, or HIST 244.
The determination of distribution credit eligibility is done initially as part of the new course creation process. Additionally, as part of an annual roll call coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Humanities Research Center (HRC) address emergent and interdisciplinary fields of knowledge that typically do not have a home in a traditional department. These courses introduce non-humanistic students to humanistic methods and areas of study, as well as advance the abilities of humanities majors to make connections among disciplines.

**Policies for the Minor in Museums and Cultural Heritage**

**Program Restrictions and Exclusions**

Students pursuing the minor in Museums and Cultural Heritage should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the minor in Museums and Cultural Heritage should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing may apply toward the minor.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process. Additionally, as part of an annual roll call coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

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**Additional Information**

For additional information, please see the Museums and Cultural Heritage website: https://much.rice.edu

**Opportunities for the Minor in Museums and Cultural Heritage**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**

For additional information, please see the Museums and Cultural Heritage website: https://much.rice.edu

See https://humanities.rice.edu/student-life/ for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

**Music**

**Contact Information**

Music
https://music.rice.edu/
Alice Pratt Brown Hall
713-348-4854

Matthew Loden
Dean (beginning October 2021)
mloden@rice.edu

Robert A. Yekovich
Dean (through September 2021)
yekovr@rice.edu

Geoffrey Scott
Assistant Dean
At the undergraduate level, the Shepherd School of Music offers both professional training and a broad liberal arts curriculum. Degree programs include a BA degree in music and a BMus degree in performance, composition, music history, and music theory. Acceptance into a five-year honors program leads to the simultaneous awarding of the BMus and MMus degrees.

At the graduate level, the school offers professional music training for qualified students in the fields of music composition, performance, or research that is supported by lab or performing ensembles. This training includes theory and history seminars. Advanced degree programs include a MMus degree in composition, orchestral conducting, musicology, and performance; a post-master’s Artist Diploma (AD) in orchestral conducting and performance; and a DMA degree in composition and selected areas of performance.

Other Musical Opportunities
For Non-Majors
Students who are not music majors may take the following courses designed for the general student. Other music courses not on this list require the permission of the instructor, and the approval of the dean of the Shepherd School.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 117</td>
<td>FUNDAMENTALS OF MUSIC I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 125</td>
<td>TOPICS IN MUSIC THEORY FOR NON-MAJORS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 141–MUSI 197 for individual instruction in all instruments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 221</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 314</td>
<td>MUSIC IN WESTERN CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 317</td>
<td>THEORY FOR NON-MAJORS I</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 318</td>
<td>THEORY FOR NON-MAJORS II</td>
<td></td>
</tr>
<tr>
<td>MUSI 334</td>
<td>CAMPANILE ORCHESTRA</td>
<td>1</td>
</tr>
<tr>
<td>or MUSI 335 UNDERGRADUATE CHORUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 340</td>
<td>RICE SYMPHONIC BAND</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 342</td>
<td>RICE JAZZ ENSEMBLE</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 345</td>
<td>APPLIED STUDIES IN JAZZ</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 415</td>
<td>BAND ARRANGING</td>
<td>1</td>
</tr>
</tbody>
</table>

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Bachelor’s Programs
- Bachelor of Music (BMus) Degree with a Major in Bassoon Performance (p. 1580)
- Bachelor of Music (BMus) Degree with a Major in Cello Performance (p. 1583)
- Bachelor of Music (BMus) Degree with a Major in Clarinet Performance (p. 1585)
- Bachelor of Music (BMus) Degree with a Major in Composition (p. 1587)
- Bachelor of Music (BMus) Degree with a Major in Double Bass Performance (p. 1589)
- Bachelor of Music (BMus) Degree with a Major in Flute Performance (p. 1592)
- Bachelor of Music (BMus) Degree with a Major in Harp Performance (p. 1594)
- Bachelor of Music (BMus) Degree with a Major in Horn Performance (p. 1596)
- Bachelor of Music (BMus) Degree with a Major in Music History (p. 1598)
- Bachelor of Music (BMus) Degree with a Major in Music Theory (p. 1602)
- Bachelor of Music (BMus) Degree with a Major in Oboe Performance (p. 1604)
- Bachelor of Music (BMus) Degree with a Major in Organ Performance (p. 1607)
- Bachelor of Music (BMus) Degree with a Major in Percussion Performance (p. 1609)
- Bachelor of Music (BMus) Degree with a Major in Piano Performance (p. 1611)
- Bachelor of Music (BMus) Degree with a Major in Trombone Performance (p. 1613)
- Bachelor of Music (BMus) Degree with a Major in Trumpet Performance (p. 1616)
- Bachelor of Music (BMus) Degree with a Major in Tuba Performance (p. 1618)
- Bachelor of Music (BMus) Degree with a Major in Viola Performance (p. 1620)
- Bachelor of Music (BMus) Degree with a Major in Violin Performance (p. 1622)
- Bachelor of Music (BMus) Degree with a Major in Vocal Performance (p. 1625)
- Bachelor of Arts (BA) Degree with a Major in Music (p. 1578)

Master’s Programs
- Master of Music (MMus) Degree in the field of Bassoon Performance (p. 1655)
- Master of Music (MMus) Degree in the field of Cello Performance (p. 1658)
- Master of Music (MMus) Degree in the field of Clarinet Performance (p. 1661)
- Master of Music (MMus) Degree in the field of Composition (p. 1665)
- Master of Music (MMus) Degree in the field of Double Bass Performance (p. 1668)
- Master of Music (MMus) Degree in the field of Flute Performance (p. 1671)
• Master of Music (MMus) Degree in the field of Harp Performance (p. 1674)
• Master of Music (MMus) Degree in the field of Horn Performance (p. 1677)
• Master of Music (MMus) Degree in the field of Musicology (p. 1680)
• Master of Music (MMus) Degree in the field of Oboe Performance (p. 1683)
• Master of Music (MMus) Degree in the field of Orchestral Conducting (p. 1687)
• Master of Music (MMus) Degree in the field of Organ Performance (p. 1690)
• Master of Music (MMus) Degree in the field of Percussion Performance (p. 1693)
• Master of Music (MMus) Degree in the field of Piano Chamber Music and Accompanying (p. 1696)
• Master of Music (MMus) Degree in the field of Piano Performance (p. 1699)
• Master of Music (MMus) Degree in the field of String Quartet Performance (p. 1702)
• Master of Music (MMus) Degree in the field of Trombone Performance (p. 1705)
• Master of Music (MMus) Degree in the field of Trumpet Performance (p. 1708)
• Master of Music (MMus) Degree in the field of Tuba Performance (p. 1711)
• Master of Music (MMus) Degree in the field of Viola Performance (p. 1714)
• Master of Music (MMus) Degree in the field of Violin Performance (p. 1717)
• Master of Music (MMus) Degree in the field of Vocal Performance (p. 1720)

Post-Master's Performance Programs
• Artist Diploma (AD) in the field of Bassoon Performance (p. 1545)
• Artist Diploma (AD) in the field of Cello Performance (p. 1547)
• Artist Diploma (AD) in the field of Clarinet Performance (p. 1549)
• Artist Diploma (AD) in the field of Double Bass Performance (p. 1551)
• Artist Diploma (AD) in the field of Flute Performance (p. 1552)
• Artist Diploma (AD) in the field of Harp Performance (p. 1554)
• Artist Diploma (AD) in the field of Horn Performance (p. 1556)
• Artist Diploma (AD) in the field of Oboe Performance (p. 1558)
• Artist Diploma (AD) in the field of Opera Performance (p. 1560)
• Artist Diploma (AD) in the field of Orchestral Conducting (p. 1562)
• Artist Diploma (AD) in the field of Organ Performance (p. 1563)
• Artist Diploma (AD) in the field of Percussion Performance (p. 1565)
• Artist Diploma (AD) in the field of Piano Performance (p. 1567)
• Artist Diploma (AD) in the field of Trombone Performance (p. 1569)
• Artist Diploma (AD) in the field of Trumpet Performance (p. 1571)
• Artist Diploma (AD) in the field of Tuba Performance (p. 1573)
• Artist Diploma (AD) in the field of Viola Performance (p. 1574)
• Artist Diploma (AD) in the field of Violin Performance (p. 1576)

Doctoral Programs
• Doctor of Musical Arts (DMA) Degree in the field of Cello Performance (p. 1627)
• Doctor of Musical Arts (DMA) Degree in the field of Clarinet Performance (p. 1629)
• Doctor of Musical Arts (DMA) Degree in the field of Composition (p. 1632)
• Doctor of Musical Arts (DMA) Degree in the field of Double Bass Performance (p. 1634)
• Doctor of Musical Arts (DMA) Degree in the field of Flute Performance (p. 1636)
• Doctor of Musical Arts (DMA) Degree in the field of Oboe Performance (p. 1639)
• Doctor of Musical Arts (DMA) Degree in the field of Organ Performance (p. 1641)
• Doctor of Musical Arts (DMA) Degree in the field of Percussion Performance (p. 1643)
• Doctor of Musical Arts (DMA) Degree in the field of Piano Performance (p. 1646)
• Doctor of Musical Arts (DMA) Degree in the field of Viola Performance (p. 1648)
• Doctor of Musical Arts (DMA) Degree in the field of Violin Performance (p. 1651)
• Doctor of Musical Arts (DMA) Degree in the field of Vocal Performance (p. 1653)

Dean
Matthew Loden (beginning October 2021)
Robert A. Yekovich (through September 2021)

Professors
Karim Al-Zand
Robert Atherholt
Gregory Barnett
Anthony K. Brandt
Barbara Butler
Leone Buyse
Shih-Hui Chen
Kenneth Cowan
James F. Dunham
Paul V. H. Ellison
Norman Fischer
Arthur W. Gottschalk
Richard Hawley
Desmond Hoebig
Miah Im
Thomas I. Jaber
Pierre D. Jalbert
Benjamin C. Kamins
Paul Kantor
Richard A. Lavenda
Cho-Liang Lin
Matthew Loden
Ana María Martínez
Jon Kimura Parker
Timothy Pitts
Larry Rachleff
Robin Rice
Kurt Stallmann
Nova Thomas
Ivo-Jan van der Werff
William VerMeulen
Music (MUSI)

MUSI 117 - FUNDAMENTALS OF MUSIC I
Short Title: FUNDAMENTALS OF MUSIC I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For non-music majors with minimal music preparation. Rudiments of pitch and duration. Study of scales, chord structure, tonality, and forms.

MUSI 119 - EXPERIENCING MUSIC, EXPRESSING CULTURE: AN INTRODUCTION TO CHINESE MUSIC
Short Title: INTRODUCTION TO CHINESE MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is an introduction to Chinese music in the context of its historical and cultural evolution. It will explore the music on its own terms and in comparison to Western classical music.

MUSI 125 - TOPICS IN MUSIC THEORY FOR NON-MAJORS
Short Title: TOPICS IN MUS THEORY NONMAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is an umbrella listing for a small number of special topics courses offered to non-music majors. Each one will be a special topic that focuses on a different aspect of music. Each course will have its own syllabus, which will be uploaded when appropriate. FALL 2021, Section 003: For Indians, Pakistanis and other South Asians far from their homelands, native culture forms an essential part of their identity in the new environment. Among first-generation immigrants, traditional South Asian music was an important aspect of cultural retention, while second and later generations have created new musical expressions reflecting their dual identity as descendants of immigrants as well as nationals of their own homeland. This class focuses on the hybrid musical creations of emergent youth cultures, with particular emphasis on Bhangra-pop, the Asian Underground movement in 1990’s Britain, and “desi” electronic party music in North America.
MUSI 141 - CLASSICAL GUITAR/NON-MAJOR
Short Title: CLASSICAL GUITAR/NON-MAJOR
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Private instruction on guitar. Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 151 - FLUTE FOR NON-MAJORS
Short Title: FLUTE FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 153 - OBOE FOR NON-MAJORS
Short Title: OBOE FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 155 - CLARINET FOR NON-MAJORS
Short Title: CLARINET FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 157 - BASSOON FOR NON-MAJORS
Short Title: BASSOON FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 161 - HORN FOR NON-MAJORS
Short Title: HORN FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 163 - TRUMPET FOR NON-MAJORS
Short Title: TRUMPET FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 165 - TROMBONE FOR NON-MAJORS
Short Title: TROMBONE FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 167 - TUBA FOR NON-MAJORS
Short Title: TUBA FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 171 - PERCUSSION FOR NON-MAJORS
Short Title: PERCUSSION FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.
MUSI 173 - VOICE FOR NON-MAJORS
Short Title: VOICE FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 181 - PIANO FOR NON-MAJORS
Short Title: PIANO FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 183 - ORGAN FOR NON-MAJORS
Short Title: ORGAN FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 187 - HARP FOR NON-MAJORS
Short Title: HARP FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 191 - VIOLIN FOR NON-MAJORS
Short Title: VIOLIN FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 193 - VIOLONCELLO FOR NON-MAJORS
Short Title: VIOLONCELLO FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 195 - VIOLONCELLO FOR NON-MAJORS
Short Title: VIOLONCELLO FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 197 - DOUBLE BASS FOR NON-MAJORS
Short Title: DOUBLE BASS FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 205 - UNDERGRADUATE PERFORMANCE SEMINAR
Short Title: UG PERFORMANCE SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to students with a major in Bassoon Performance, Cello Performance, Clarinet Performance, Composition, Double Bass Performance, Music History, Horn Performance, Harp Performance, Oboe Performance, Organ Performance, Percussion Performance, Piano Performance, Music Theory, Trombone Performance, Trumpet Performance, Tuba Performance, Music Division, Music, Viola Performance, Violin Performance or Vocal Performance. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to create a dynamic performance experience. Practical exercises that harness, develop and enhance performance skills will be a major focus. Areas of study include efficient practice and performance preparation, confidence on stage, and audience communication. A final performance will incorporate skills developed throughout the semester. NOTE: For Music Majors Only
MUSI 211 - THEORY I  
Short Title: THEORY I  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Intensive study of the fundamentals of pitch, rhythm, and timbre. Introduction to diatonic harmony and harmonic progression.

MUSI 212 - THEORY II  
Short Title: THEORY II  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Harmony and counterpoint of the Baroque and Classical Eras.

MUSI 220 - SURVEY OF WORLD MUSIC  
Short Title: SURVEY OF WORLD MUSIC  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Traditional, popular and classical musical styles from around the world will be explored for their sonic qualities as well as from an ethno musicological perspective, i.e., in terms of the musics' interaction with cultural elements such as cosmology, social structure, art, language, economics and politics.

MUSI 221 - MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD  
Short Title: MUSIC, MAGIC, AND SCIENCE  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Modern science, as a privileged domain of knowledge of the world and of ourselves, has profoundly affected almost every aspect of our lives. This class will take a historical perspective on the relationship between science and modernity with a particular focus on music— a topic which has puzzled philosophers for millennia, and one which poses special problems for the modes of knowledge that characterize scientific modernity. Is music a "universal language"? Why does music so powerfully affect our emotions? Why are some sounds pleasing and others are not? Our goal in this class is to explore what scientific approaches to these questions can tell us about the place of science in the modern world—as well as how and why science has become so important to our imagining of ourselves as thinking, feeling, and willing beings. Armed with this historical knowledge, we will also read recent examples of popular science writing on sound and music a way to think about how we can we become better consumers of scientific knowledge as it is disseminated in the public sphere. Graduate/Undergraduate Equivalency: MUSI 530.

MUSI 222 - MEDIEVAL AND RENAISSANCE ERAS  
Short Title: MEDIEVAL AND RENAISSANCE ERAS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Prerequisite(s): MUSI 211 or MUSI 317  
Course Level: Undergraduate Lower-Level  
Description: Introduction to the study of Western music history, with emphasis on music before 1600. Score reading ability required. Cross-list: MDEM 222.

MUSI 231 - AURAL SKILLS AND PERFORMANCE TECHNIQUE I  
Short Title: AURAL SKILLS & PERFORM TECH I  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Preliminary studies in ear-training, sight-singing, and dictation.
MUSI 232 - AURAL SKILLS AND PERFORMANCE TECHNIQUE II
Short Title: AURAL SKILLS & PERF TECH II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of MUSI 231.

MUSI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Music
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MUSI 240 - UNITY AND VARIETY IN MUSIC
Short Title: UNITY AND VARIETY IN MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In music, as in life, we need unity and variety; expectations met and occasional surprises. Through studying folk, pop, and art songs, piano solos, instrumental sonatas, chamber and orchestral music, this course helps students become more perceptive listeners by investigating how composers manipulate musical elements to balance unity and variety. Must be able to read music.

MUSI 252 - SECONDARY CLARINET
Short Title: SECONDARY CLARINET
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 257 - SECONDARY BASSOON
Short Title: SECONDARY BASSOON
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 261 - SECONDARY HORN
Short Title: SECONDARY HORN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 263 - SECONDARY TRUMPET
Short Title: SECONDARY TRUMPET
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 265 - SECONDARY TROMBONE
Short Title: SECONDARY TROMBONE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 267 - SECONDARY TUBA
Short Title: SECONDARY TUBA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 271</td>
<td>SECONDARY PERCUSSION</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 273</td>
<td>SECONDARY VOICE</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>Repeatable for Credit.</td>
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<td>MUSI 281</td>
<td>SECONDARY PIANO</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
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<tr>
<td>MUSI 283</td>
<td>SECONDARY ORGAN</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
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<tr>
<td>MUSI 285</td>
<td>SECONDARY HARPSCHECHORD</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
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<tr>
<td>MUSI 287</td>
<td>SECONDARY HARP</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
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<tr>
<td>MUSI 291</td>
<td>SECONDARY VIOLIN</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 293</td>
<td>SECONDARY VIOLA</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 295</td>
<td>SECONDARY VIOLONCELLO</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 297</td>
<td>SECONDARY DOUBLE BASS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 303</td>
<td>UNDERGRAD COMPOSITION SEMINAR</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>1</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
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</tbody>
</table>
MUSI 305 - COMPOSITION ELECTIVE
Short Title: COMPOSITION ELECTIVE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Creative composition employing 20th and 21st century vocabularies. Repeatable for Credit.

MUSI 307 - COMPOSITION FOR NON-MAJORS
Short Title: COMPOSITION FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Must register with the Shepherd School of Music and the Registrar’s office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 311 - THEORETICAL STUDIES III
Short Title: THEORETICAL STUDIES III
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of music from the Classical Era through the late Nineteenth Century, with particular focus on phrase structure, form and chromatic harmony.

MUSI 312 - THEORETICAL STUDIES IV
Short Title: THEORETICAL STUDIES IV
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analysis of selected works composed since 1900

MUSI 314 - MUSIC IN WESTERN CULTURE
Short Title: MUSIC IN WESTERN CULTURE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the history of Western music.

MUSI 315 - MULTI-MEDIA COMPOSITION
Short Title: MULTI-MEDIA COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The purpose of this course is to study and analyze works in the repertoire, and to develop new multi-media compositions for performance. Students will be exposed to basic tools and techniques of multi-channel audio, lighting, video, and projection. Students will engage in experiments with sounds, images, movement, and light in space by working to complete a number of short projects. Students will also be encouraged to workshop new pieces as preparation for future performances. Instructor Permission Required. Repeatable for Credit.

MUSI 317 - THEORY FOR NON-MAJORS I
Short Title: THEORY FOR NON-MAJORS I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of harmony, melody, rhythm, and form.

MUSI 318 - THEORY FOR NON-MAJORS II
Short Title: THEORY FOR NON-MAJORS II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 317
Description: Continuation of MUSI 317.

MUSI 321 - BAROQUE AND EARLY CLASSICAL ERAS
Short Title: BAROQUE & EARLY CLASSICAL ERAS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MUSI 212 or MUSI 317) and (MUSI 222 or MDEM 222)
Description: Advanced historical studies in music of the seventeenth and eighteenth centuries. Score reading ability required.
MUSI 322 - CLASSICAL AND ROMANTIC ERAS
Short Title: CLASSICAL AND ROMANTIC ERAS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 232
Description: Continuation of MUSI 232.

MUSI 329 - SPECIAL STUDIES IN MUSIC HISTORY
Short Title: SPEC STUDIES IN MUSIC HISTORY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Special studies in music history. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 331 - AURAL SKILLS AND PERFORMANCE TECHNIQUES III
Short Title: AURAL SKILLS & PERF TECH III
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 331.

MUSI 332 - AURAL SKILLS AND PERFORMANCE TECHNIQUES IV
Short Title: AURAL SKILLS & PERF TECH IV
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 331.

MUSI 334 - CAMPANILE ORCHESTRA
Short Title: CAMPANILE ORCHESTRA
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Registration is by audition only. This course requires weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 335 - UNDERGRADUATE CHORUS
Short Title: RICE CHORALE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 336 - UNDERGRADUATE OPERA WORKSHOP
Short Title: UNDERGRADUATE OPERA WORKSHOP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Operatic techniques for the singer/actor: the cultivation, through study and performance, of free, expressive and significant movement on stage, and the development of musical, dramatic and muscular sensitivity as the basis of good opera theater. Participation in scenes programs. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 337 - UNDERGRADUATE ORCHESTRA
Short Title: UNDERGRADUATE ORCHESTRA
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 338 - UNDERGRADUATE CHAMBER MUSIC
Short Title: CHAMBER MUSIC - UG
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. NOTE: ALL STUDENTS INTERESTED IN REGISTERING FOR CHAMBER MUSIC SHOULD REGISTER IN SECTION 1. Repeatable for Credit.
MUSI 339 - UNDERGRADUATE ORCHESTRAL REPETTOIRE
Short Title: UG ORCHESTRAL REP
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Section 1: Violin; Section 2: Viola; Section 3: Cello; Section 4: Double Bass; Section 5: Woodwinds; Section 6: Brass; Section 7: Percussion; Section 8: Harp. Repeatable for Credit.

MUSI 340 - RICE SYMPHONIC BAND
Short Title: RICE SYMPHONIC BAND
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Section 1: SYMPHONIC BAND, TUD Band Hall; Section 2: CHAMBER MUSIC FOR NON-MAJORS: students with already-formed chamber ensembles will apply for this course in the fall. See bands.rice.edu for applications. Those selected will be given instructor permission for the spring semester. Repeatable for Credit.

MUSI 341 - JUNIOR RECITAL
Short Title: JUNIOR RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 342 - RICE JAZZ ENSEMBLE
Short Title: RICE JAZZ ENSEMBLE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Section 1, Jazz Ensemble; Section 2, Jazz Lab. TUD Band Hall. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 345 - APPLIED STUDIES IN JAZZ
Short Title: APPLIED STUDIES IN JAZZ
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Private lessons on specific advanced techniques in jazz improvisation. Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 351 - CONCENTRATION FLUTE
Short Title: CONCENTRATION FLUTE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 353 - CONCENTRATION OBOE
Short Title: CONCENTRATION OBOE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 355 - CONCENTRATION CLARINET
Short Title: CONCENTRATION CLARINET
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 357 - CONCENTRATION BASSOON
Short Title: CONCENTRATION BASSOON
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 361 - CONCENTRATION HORN
Short Title: CONCENTRATION HORN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 363 - CONCENTRATION TRUMPET
Short Title: CONCENTRATION TRUMPET
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 365 - CONCENTRATION TROMBONE
Short Title: CONCENTRATION TROMBONE
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 367 - CONCENTRATION TUBA
Short Title: CONCENTRATION TUBA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 371 - CONCENTRATION PERCUSSION
Short Title: CONCENTRATION PERCUSSION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 373 - CONCENTRATION VOICE
Short Title: CONCENTRATION VOICE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 377 - UNDERGRADUATE OPERA PERFORMANCE
Short Title: UG OPER PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 1-2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After audition, Director of Opera Studies makes role assignments and grants credit to roles. Leading roles get 2 credits, small roles and chorus in opera get 1 credit. Repeatable for Credit.

MUSI 378 - CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC
Short Title: CROSS-CULTURAL ASIAN MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on traditional and contemporary art music from Asia. The classroom lectures are designed to introduce and accompany one or two events which will include live performances, workshops, lectures by invited performers and scholars. This course may be repeated since each year the countries and invited guest performers/scholars will represent different geographical areas. Cross-list: ASIA 378. Repeatable for Credit.

MUSI 379 - CREATIVITY UP CLOSE
Short Title: CREATIVITY UP CLOSE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This inter-disciplinary course explores creativity in human behavior and society. Seminars focus on the neuroscience, psychology, sociology and economics of creativity. Students develop hands-on creative projects in oral history, music, industrial design and video. No prior experiences in study of these disciplines required.

MUSI 381 - CONCENTRATION PIANO
Short Title: CONCENTRATION PIANO
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 383 - CONCENTRATION ORGAN
Short Title: CONCENTRATION ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 384 - CONCENTRATION ORGAN INTENSIVE
Short Title: CONCENTRATION ORGAN INTENSIVE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 387 - CONCENTRATION HARP
Short Title: CONCENTRATION HARP
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 389 - COLLABORATIVE PIANO SKILLS
Short Title: COLLABORATIVE PIANO SKILLS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A practicum exploring the pianist as an ensemble player. 3 sessions weekly. Performance class for pianists in partnership with instrumentalists and singers-particular techniques discovered in balance, pedaling, articulation, style, etc.; Supervised sight-reading private appointment with instructor on individual repertoire-songs, sonatas, concerto reductions, etc. Instructor Permission Required. Repeatable for Credit.

MUSI 391 - CONCENTRATION VIOLIN
Short Title: CONCENTRATION VIOLIN
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 393 - CONCENTRATION VIOLA
Short Title: CONCENTRATION VIOLA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 395 - CONCENTRATION VIOLONCELLO
Short Title: CONCENTRATION VIOLONCELLO
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 397 - CONCENTRATION DOUBLE BASS
Short Title: CONCENTRATION DOUBLE BASS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 401 - COMPOSITION FOR MAJORS
Short Title: COMPOSITION FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 403 - BASIC ELECTRONIC MUSIC
Short Title: BASIC ELECTRONIC MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to electronic and computer music.

MUSI 404 - ELECTRONIC MUSIC COMPOSITION
Short Title: ELECTRONIC MUSIC COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 403.
MUSI 405 - MUSIC BUSINESS AND LAW
Short Title: MUSIC BUSINESS AND LAW
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A comprehensive overview of entrepreneurship and the music economy, as applicable to the classical musician, and of pertinent sections of intellectual property law.

MUSI 407 - CHAMBER MUSIC IN THE CLASSIC PERIOD
Short Title: CHAMBER MUSIC CLASSIC PERIOD
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Performance styles and rhetoric are examined and directed toward performance approaches to the music of Haydn, Mozart, and early Beethoven, and others. Practical application of dances, textures, and popular topics of the time as well as an understanding of harmonic and formal implications. String quartet majors only - other music majors may audit.

MUSI 410 - THE ALEXANDER TECHNIQUE FOR PERFORMANCE
Short Title: ALEXANDER TECH-PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Music students will gain awareness of how the Alexander Technique can offer a powerful means to enhance their preparation for high stakes performances. In gaining an awareness of habitual patterns of movement that may interfere with optimal performance, they will discover constructive ways of working toward their goals. Instructor Permission Required. Repeatable for Credit.

MUSI 413 - INTRODUCTION TO DALCROZE EURHYTHMICS
Short Title: DALCROZE EURHYTHMICS
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Dalcroze Eurhythmics is a musical education which aims to engage and utilize one's whole being in the learning process. Students will explore very basic to quite complex rhythmic concepts through experiencing their own inner fluidity and spatial energy. The class is designed around the philosophy and teachings of Emile Jaques-Dalcroze. Department Permission Required.

MUSI 414 - PIANO CHAMBER MUSIC LITERATURE
Short Title: PIANO CHAMBER MUSIC LITERATURE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey on 20th and 21st century chamber music with piano. Instructor Permission Required.

MUSI 415 - BAND ARRANGING
Short Title: BAND ARRANGING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Creative band arranging for marching, jazz, and concert bands. Study of contemporary harmony, musical style, and scoring supported by practical performance and analysis of student projects. Meets in TUD S101A. Repeatable for Credit.

MUSI 416 - ORCHESTRATION
Short Title: ORCHESTRATION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Intensive study of the individual instruments of the orchestra and orchestrational techniques from the classical period through the present. Works for analysis include those by Mozart, Beethoven, and Ravel. Students will also form an ensemble and arrange/orchestrate works for the ensemble.

MUSI 417 - MUSIC FOR MEDIA
Short Title: MUSIC FOR MEDIA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of writing music for linear and non-linear media, includes motion pictures, television, interactive and passive multimedia and digital games. Instructor Permission Required.
MUSI 421 - THE MODERN ERA
Short Title: THE MODERN ERA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 322
Description: Advanced historical studies in music of the twentieth and twenty-first centuries. Score reading ability required.

MUSI 426 - PIANO LITERATURE - SURVEY
Short Title: PIANO LITERATURE - SURVEY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level

MUSI 432 - GRADUATE AURAL SKILLS REVIEW
Short Title: GRADUATE AURAL SKILLS REVIEW
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A remedial course in ear-training, sight-singing, and musical dictation.

MUSI 435 - CONTEMPORARY MUSIC ENSEMBLE
Short Title: CONTEMPORARY MUSIC ENSEMBLE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Note: Does not count as chamber music. Not offered regularly. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 436 - COLLEGIUM MUSICUM
Short Title: COLLEGIUM MUSICUM
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The performance of vocal and instrumental music of the Renaissance and Baroque eras in which instrumentalists use period instruments. Specific repertory will depend on student interest and on the availability of instruments. The class entails two hours of evening rehearsal each week and an end-of-semester recital of music prepared. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Instructor Permission Required. Cross-list: MDEM 456. Repeatable for Credit.

MUSI 441 - SENIOR RECITAL
Short Title: SENIOR RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 444 - PRACTICUM IN CONTEMPORARY MUSIC
Short Title: PRACTICUM IN CONTEMPORARY MUSI
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A creative course in which the students both compose and perform. The course includes both compositional studies and free composition, and culminates in a class concert of original works written for the class ensemble. Repeatable for Credit.

MUSI 445 - KEYBOARD HARMONY AND FIGURED BASS I
Short Title: KEYBOARD HARMONY & FIG BASS I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A study in skills of harmonization at the keyboard, realization of figured bass, score and clef reading, transposition, and modulation.
MUSI 446 - KEYBOARD HARMONY AND FIGURED BASS II
Short Title: KEYBOARD HARMONY & FIG BASS II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 483 or MUSI 683
Description: A continued exploration of skills introduced in MUSI 445. In addition to further study in score reading, and harmonization at the keyboard, students will learn to realize continuo accompaniments from scores using figured bass.

MUSI 447 - INTRODUCTION TO PIANO TECHNOLOGY
Short Title: INTRO TO PIANO TECHNOLOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the tuning and maintenance of pianos. Includes the theory and acoustics of tuning, a brief history of the piano, and a general exposure to restoration, as well as "hands-on" experience.

MUSI 448 - PIANO TECHNOLOGY PRACTICUM FOR PIANISTS
Short Title: PIANO TECH PRACTICUM PIANISTS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A practicum exploring the basic maintenance procedures of the modern pianoforte. Students will learn cleaning and unison tuning as well as basic action regulation.

MUSI 449 - UNDERGRADUATE INDEPENDENT STUDY
Short Title: UNDERGRAD INDEPENDENT STUDY
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 450 - QUALIFYING RECITAL
Short Title: QUALIFYING RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 451 - FLUTE FOR MAJORS
Short Title: FLUTE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 453 - OBOE FOR MAJORS
Short Title: OBOE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 455 - CLARINET FOR MAJORS
Short Title: CLARINET FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 457 - BASSOON FOR MAJORS
Short Title: BASSOON FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 461 - HORN FOR MAJORS
Short Title: HORN FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

2021-2022 General Announcements PDF Generated 09/22/21
MUSI 463 - TRUMPET FOR MAJORS
Short Title: TRUMPET FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 465 - TROMBONE FOR MAJORS
Short Title: TROMBONE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 467 - TUBA FOR MAJORS
Short Title: TUBA FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 471 - PERCUSSION FOR MAJORS
Short Title: PERCUSSION FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 472 - GENERAL PERCUSSION STUDIES
Short Title: GENERAL PERCUSSION STUDIES
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A class that will address other issues of percussion playing to prepare for a job that is not related to regular classical studies, i.e. drum set, jazz kits, rudimental drumming, instrument building, playing shows, sight-reading, etc. The emphasis of the class will vary each semester. Repeatable for Credit.

MUSI 473 - VOICE FOR MAJORS
Short Title: VOICE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Undergraduate Performance Seminar is required for all freshmen and sophomores. The seminar will meet on Tuesday and Thursday from 1:00-1:50. Repeatable for Credit.

MUSI 475 - THEORY OF VOCAL PERFORMANCE TECH
Short Title: THEORY OF VOCAL PERFORM TECH
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Primarily for conductors and composers.

MUSI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MUSI 481 - PIANO FOR MAJORS
Short Title: PIANO FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 483 - ORGAN FOR MAJORS
Short Title: ORGAN FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 487 - HARP FOR MAJORS  
Short Title: HARP FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 491 - VIOLIN FOR MAJORS  
Short Title: VIOLIN FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 492 - STRING TECHNOLOGY  
Short Title: STRING TECHNOLOGY  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An introduction and practicum in the maintenance and repair of string instruments. Instructor Permission Required.

MUSI 493 - VIOLA FOR MAJORS  
Short Title: VIOLA FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 495 - VIOLONCELLO FOR MAJORS  
Short Title: VIOLONCELLO FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 497 - DOUBLE BASS FOR MAJORS  
Short Title: DOUBLE BASS FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 500 - IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES  
Short Title: IMAGINATION AND COMMUNICATION  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course focuses on teaching communication skills through techniques from other areas of the performing arts. Through exercises that enhance imagination and creativity, students will learn to use their physical presences more effectively, thus becoming more effective communicators with audiences, musician colleagues, and future employers. Department Permission Required.

MUSI 501 - ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING  
Short Title: MUSIC PERFORMANCE ENHANCEMENT  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course prepares music students to communicate with audiences effectively beyond their musical performance through the use of words, both written and oral. Students will study, practice, and gain practical experience in writing and speaking about music through a variety of performance situations. Department Permission Required.

MUSI 502 - CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS  
Short Title: CONDUCTING  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is designed to present an array of conducting tools to instrumentalists, vocalists and composers. Discussions and presentations will cover diverse topics ranging from baton technique to education/outreach programming. Department Permission Required.
MUSI 503 - MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION
Short Title: MUSIC AND PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students learn effective ways to address the physical and mental stress of performance by developing an awareness of the mind/body connection. This course introduces a variety of techniques that help musicians to notice and change unhelpful practice habits and move toward a better performance experience. Department Permission Required.

MUSI 504 - COMPUTER ASSISTED MUSIC COMPOSITION
Short Title: COMPUTER ASSISTED MUSIC COMP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course not offered regularly. Instructor Permission Required.

MUSI 505 - MULTIMEDIA AUTHORING
Short Title: MULTIMEDIA AUTHORIZING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course not offered regularly. Instructor Permission Required.

MUSI 506 - TECHNOLOGY FOR MUSICIANS
Short Title: TECHNOLOGY FOR MUSICIANS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide student musicians with the computer skills necessary for modern musical life. Computer assisted notation, the basics of audio/video production, and website creation will be covered as students learn to use a number of computer applications. Department Permission Required.

MUSI 507 - FUNDAMENTALS OF PRIVATE TEACHING
Short Title: PRIVATE TEACHING FUNDAMENTALS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the teaching of individual lessons to music students. It will emphasize effective ways to start a beginning student, how to develop musicianship, and how to teach good practice habits. Department Permission Required.

MUSI 508 - FUNDAMENTALS OF PRIVATE TEACHING
Short Title: PRIVATE TEACHING FUNDAMENTALS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the teaching of individual lessons to music students. It will emphasize effective ways to start a beginning student, how to develop musicianship, and how to teach good practice habits. Department Permission Required.

MUSI 509 - THE ALEXANDER TECHNIQUE FOR MUSICIANS
Short Title: THE ALEXANDER TECHNIQUE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Alexander Technique is a mind/body educational process that teaches balance, poise and efficiency of movement. Students will discover how the Technique can be applied to performance and practice, thus gaining greater awareness and ease within their art. Department Permission Required.

MUSI 510 - PROFESSIONAL DEVELOPMENT FOR MUSICIANS
Short Title: PRO DEVELOPMENT FOR MUSICIANS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the practical aspects of building and sustaining a career in music. Using networking, self-promotion, and presentation skills, students will create projects needed for pursuing their careers. Guest speakers will offer additional resources for students as they learn how to navigate the world of the Music Business. Department Permission Required.

MUSI 511 - GRADUATE THEORY REVIEW
Short Title: GRADUATE THEORY REVIEW
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A comprehensive review of Common Practice theory, plus a brief introduction to 20th Century analysis.

MUSI 512 - ANALYTICAL SYSTEMS
Short Title: ANALYTICAL SYSTEMS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of tools for the analysis of rhythm & meter, long-range tonal voice-leading, non-diatonic scales, and timbre/gesture.

MUSI 513 - MODAL COUNTERPOINT
Short Title: MODAL COUNTERPOINT
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applied contrapuntal techniques of the 16th century, and analysis of selected works.
MUSI 514 - SCORE READING AND THEORY AT THE KEYBOARD
Short Title: SCORE READING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced studies in reading an orchestral score at the keyboard. Department Permission Required.

MUSI 515 - MUSIC ENTREPRENEURSHIP
Short Title: MUSIC ENTREPRENEURSHIP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Music Entrepreneurship introduces the music student to the idea and development of a business strategy via introduction to the business plan model. Students learn to develop mission statements, analyze markets and competition, research advertising and promotional strategies and put together financial assumptions and forecast into business friendly templates. Department Permission Required.

MUSI 516 - ADVANCED ORCHESTRATION
Short Title: ADV ORCHESTRATION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 416
Description: Advanced studies in orchestral techniques from the classical era through the present day.

MUSI 517 - EARLY MODERN MASTERS
Short Title: EARLY MODERN MASTERS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analysis of music from 1900-1950. Repeatable for Credit.

MUSI 518 - THE ART AND BUSINESS OF STUDIO TEACHING
Short Title: ART & BUSINESS STUDIO TEACHING
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent studio teaching offers musicians both income stability and flexibility in scheduling, but requires clarity of approach, organization, and business savvy to be effective and rewarding. In addition to practicing these skills, students will learn how to attract students and build a reputation as an exemplary teacher. Department Permission Required.

MUSI 519 - THEMATIC PROGRAMMING: THE ART OF THE RECITAL
Short Title: THEMATIC PROGRAMMING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course concentrates on ways to revitalize and re-invent the traditional recital so that it appeals to performer and audience alike. After gaining an understanding of innovative and thematic programming, presentational skills and production planning, students will create, produce and perform an invigorating and exiting recital program. Department Permission Required.

MUSI 520 - GRADUATE REVIEW OF MUSIC HISTORY I
Short Title: GRAD REVIEW OF MUSIC HIST I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of Medieval, Renaissance, and Baroque music for graduate students. Assigned on the basis of placement exam only.

MUSI 521 - GRADUATE REVIEW OF MUSIC HISTORY II
Short Title: GRAD REVIEW OF MUSIC HIST II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of Classical, Romantic and 20th century music for graduate students. Assigned on the basis of placement exam only.

MUSI 522 - BIBLIOGRAPHY AND RESEARCH METHODS
Short Title: BIBLIO&RESEARCH METHODS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of bibliography methods and techniques in research methodology.

MUSI 523 - AMERICAN MUSIC
Short Title: AMERICAN MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploration of art music in the United States, ca. 1800-ca. 1940, with reference to earlier American and European styles.
MUSI 525 - PERFORMANCE PRACTICES SEMINAR
Short Title: PERFORMANCE PRACTICES SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of performing practices of music prior to the Romantic era. Topics will range from pre-performance considerations of pitch and tuning systems to those of performance, such as basso continuo realization, improvisation, vibrato, and articulation. Course not offered regularly.

MUSI 527 - TOPICS IN EARLY MUSIC
Short Title: TOPICS IN EARLY MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced study in selected topics in music history prior to 1600. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 528 - TOPICS IN THE 17TH AND 18TH CENTURIES
Short Title: TOPICS IN 17TH&18TH CENTURIES
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the 17th and 18th Centuries. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 530 - MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD
Short Title: MUSIC, MAGIC, AND SCIENCE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the place of music vis-a-vis changing conceptions of the natural and supernatural worlds in Western modernity. Topics include music and occult science in the Renaissance, the impact of the Scientific Revolution and the Enlightenment on musical thought; the development of modern acoustics, and contemporary approaches of the field of music cognition. Graduate/Undergraduate Equivalency: MUSI 221.

MUSI 531 - ORCHESTRAL REPERTOIRE
Short Title: ORCHESTRAL REPERTOIRE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1: violin; Section 2: viola; Section 3: cello; Section 4: double bass; Section 5: woodwinds; Section 6: brass; Section 7: percussion; Section 8: harp. Repeatable for Credit.

MUSI 532 - THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY
Short Title: THE FELDENKRAIS METHOD
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will experience the Feldenkrais Method through the group learning modality of "Awareness Through Movement" in order to develop a practice that will serve to mitigate stress, reduce the likelihood of repetitive use injuries and create a more easeful presence in performance. Department Permission Required.

MUSI 533 - GRADUATE CONDUCTING SEMINAR
Short Title: GRADUATE CONDUCTING SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
MUSI 534 - PROGRAM MUSIC IN THE 19TH CENTURY
Short Title: PROGRAM MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore grammaticism in Western art music with a particular focus on orchestral repertoire of the nineteenth century (including works by Beethoven, Mendelssohn, Berlioz, Liszt, Tchaikovsky, Strauss, Mahler, and Debussy). Alongside formal issues, we will consider historical perspectives on this repertoire as well as long-lived aesthetic debates about music’s capacity to represent the external world.

MUSI 536 - LEADERSHIP THROUGH THE ARTS
Short Title: LEADERSHIP THROUGH THE ARTS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore ways individuals in varied disciplines can combine forces to developed launch a creative concept which will be performed of the public on campus. Instructor Permission Required.

MUSI 537 - SATIE, COCTEAU, & LES SIX: PARIS IN THE 1920s AND BEYOND
Short Title: SATIE, COCTEAU, AND LES SIX
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the musical realization of Apollinaire's "new spirit" in the works of Erik Satie, as promoted by Jean Cocteau circa 1918, and the attraction that this new aesthetic had for young composers known as Les Six. With special attention to the works of Francis Poulenc, especially those represented in the Lambiotte Poulenc Archive housed in the Woodson Research Center.

MUSI 538 - THE ART OF PERFORMANCE: PRESENCE ON STAGE
Short Title: PRESENCE ON STAGE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will gain skills promoting stage presence in performance and in daily life. By identifying, developing and implementing elements of mental, physical, visual, aural and musical presence, they will learn how to develop an expressive, confident, communicative, creative and polished performance. Department Permission Required.

MUSI 540 - APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM
Short Title: APPLIED JAZZ IMPROVISATION
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to introduce and develop Jazz improvisational skills for the classically trained musician. Students will use "swing style" accompaniment to learn to develop and perform improvised Jazz solos on a variety of harmonic formats. Department Permission Required.

MUSI 543 - MUSIC AND MODERNISM IN FRANCE
Short Title: FRENCH MODERNISM
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course considers musical culture in France around the turn of the twentieth century, particularly the music of Debussy, in light of contemporaneous “modernisms” in visual art and literature (Impressionism, Post-Impressionism, Decadence, Symbolism).

MUSI 545 - LITURGICAL ORGAN PLAYING
Short Title: LITURGICAL ORGAN PLAYING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: A course devoted to the service-playing skills required of a parish organist. Students will study effective techniques of accompanying congregational song from the organ. Emphasis will be placed on introductions, interludes, modulations for hymns and appropriate choices of registration, repertoire and hymnody for ceremonial occasions and liturgical year. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 546 - ACCOMPANYING AT THE ORGAN
Short Title: ACCOMPANYING AT THE ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: This course explores accompanying skills essential to the professional organist using a variety of choral literature customarily accompanied from the organ. Transcribed accompaniments will be mixed with original choral or vocal works scored for organ accompaniment from a variety of styles and periods. Concurrent enrollment in MUSI 483 or MUSI 683 is required.
MUSI 547 - CHURCH MUSIC SEMINAR I
Short Title: CHURCH MUSIC SEMINAR I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: A course devoted to the musical and administrative skills required of church music programs serving persons of all ages. Students will develop choral conducting techniques in addition to a knowledge of choral literature, liturgy, and the musical and theological materials available to those who create worship. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 548 - CHURCH MUSIC SEMINAR II
Short Title: CHURCH MUSIC SEMINAR II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: This course will further develop choral conducting techniques and provide instruction in vocal techniques appropriate for use in choral rehearsals. Large-scale choral works will be analyzed and discussed in order to refine systems of score study and rehearsal planning. Further discussion of liturgical traditions and appropriate repertoire selection. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 549 - VOCAL PHYSIOLOGY & FUNCTION
Short Title: VOCAL PHYSIOLOGY & FUNCTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to anatomy, physiology and function of the singing voice.

MUSI 551 - MUSIC OF RICHARD STRAUSS
Short Title: MUSIC OF RICHARD STRAUSS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of Strauss's musical style and professional reputation in the context of changing aesthetic and political perspectives from the 1880s to the 1940s. Analysis of selected lieder, symphonic poems, and operas, including "Salome" and "Der Rosenkavalier".

MUSI 555 - APPRENTICESHIP
Short Title: APPRENTICESHIP
Department: Music
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 569 - BRASS PEDAGOGY
Short Title: BRASS PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 570 - ADVANCED OPERA STUDIES
Short Title: ADVANCED OPERA STUDIES
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced operatic techniques for the singer/actor, including acting, movement, stage combat, makeup and audition techniques and preparation. On occasion this course may require rehearsals and performances outside of class time. Repeatable for Credit.

MUSI 571 - VOCAL COACHING
Short Title: VOCAL COACHING
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 572 - GRADUATE OPERA PERFORMANCE
Short Title: GRADUATE OPERA PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 1-2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After audition, Director of Opera Studies makes role assignments and grants credit to roles. Leading roles get 2 credits, small roles and chorus in Opera get 1 credit. Repeatable for Credit.

MUSI 573 - ITALIAN DICTION
Short Title: ITALIAN DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
MUSI 574 - GERMAN DICTION
Short Title: GERMAN DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 575 - VOICE REPERTOIRE I
Short Title: VOICE REPERTOIRE I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 576 - VOICE REPERTOIRE II
Short Title: VOICE REPERTOIRE II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 577 - ENGLISH DICTION
Short Title: ENGLISH DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 578 - FRENCH DICTION
Short Title: FRENCH DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 581 - ARIA REPERTOIRE
Short Title: ARIA REPERTOIRE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A comprehensive survey of operatic arias from the standard repertoire for pianists. The survey will be structured according to vocal Fachs and stylistic/historical perspectives. Instructor Permission Required. Repeatable for Credit.

MUSI 583 - INSTRUMENTAL ACCOMPANYING TECHNIQUES
Short Title: INSTRUMENT ACCOMPANY TECHNQ
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate piano chamber music majors, emphasizing practical skills of accompanying strings and wind instruments in a wide variety of repertoire. Instructor Permission Required.

MUSI 584 - VOCAL ACCOMPANYING TECHNIQUES FOR PIANISTS
Short Title: VOCAL ACCOMP TECH FOR PIANISTS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate piano majors, emphasizing practical skills of accompanying singers. Instructor Permission Required.

MUSI 585 - SONATA CLASS
Short Title: SONATA CLASS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Class focuses on major duo-sonata repertoire for any string or wind instrument with piano. The course consists of up to 10 private coachings; studio class once each month; and final recital. Students may enroll as a duo or as individuals. Students may choose their repertoire and partners for the semester, and may prepare one or two sonatas. Repeatable for Credit.

MUSI 587 - GRADUATE DICTION FOR SINGERS
Short Title: GRADUATE DICTION FOR SINGERS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Principals of lyric diction in Italian, English, French, and German. Repeatable for Credit.

MUSI 588 - PIANO PEDAGOGY
Short Title: PIANO PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of the group piano area which includes a comprehensive study of standard methods, in-depth discussion of group vs. individual lessons, and a supervised student teaching practicum.
MUSI 599 - STRING PEDAGOGY
Short Title: STRING PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1 Violin(open to all violin students); Section 2 Viola;
Section 3 Cello; Section 4 Double Bass.

MUSI 601 - COMPOSITION FOR MAJORS ADVANCED AND GRADUATES
Short Title: COMPOSITN FOR MAJORS ADV&GRAD
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 603 - GRADUATE COMPOSITION SEMINAR
Short Title: GRAD COMPOSITION SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 605 - ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS
Short Title: ADV ELECT&COMP MUSIC SYSTEMS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics and applications in computer and electronic music composition. Instructor Permission Required. Repeatable for Credit.

MUSI 606 - ADVANCED COMPUTER SOUND SYNTHESIS
Short Title: ADV COMPUTER SOUND SYNTHESIS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 605
Description: Continuation of MUSI 605. Department Permission Required. Repeatable for Credit.

MUSI 608 - IMPROVISATION AT THE ORGAN
Short Title: IMPROVISATION AT THE ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: A course devoted to advancing knowledge and developing skills of improvisation at the organ. Discussion and analysis of themes, modality vs. tonality, modulations, harmonizations of scales, modes, chorales and plainchant will lead to improvisations in such forms as the chorale partita, monothematic sonata, passacaglia, French suite, fugue, and other forms. Concurrent enrollment in MUSI 483 or MUSI 683 is required. Repeatable for Credit.

MUSI 611 - CLASSROOM PEDAGOGY
Short Title: CLASSROOM PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The practical application of various teaching methods, and an in depth study of college-level materials.

MUSI 613 - TONAL COUNTERPOINT
Short Title: TONAL COUNTERPOINT
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 18th Century counterpoint in the style of J.S. Bach. Instructor Permission Required.

MUSI 614 - SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION
Short Title: MUSIC THEORY & COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics may vary. Please consult with the department for additional information. Repeatable for Credit.
MUSI 615 - MUSIC OF RAVEL: MUSIC THEORY AND COMPOSTION
Short Title: MUSIC OF RAVEL

Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An in-depth study of Ravel's music using several approaches, including investigation of additive harmony, Ravel's use of alternative scales, and the relationship between Ravel's music and contemporary trend in poetry and psychology. Recommended prerequisite(s): Ability to read music well and some previous study in music theory.

MUSI 619 - HISTORY OF THE 20TH CENTURY PIANISM
Short Title: 20TH CENTURY PIANISM HISTORY

Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A critical survey of the great pianists of the 20th century covering the stylistic and pianistic traits of each, including a selective discography for each pianist.

MUSI 620 - HISTORICAL OVERVIEW OF PIANO TECHNIQUE
Short Title: HIST OVERVIEW OF PIANO TECHNIQ

Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of the teaching of piano technique from the historical perspective. The focus will be on documents and quotes from historical pedagogues such as C.P.E. Bach, Clementi, Chopin, and the pianists of the 20th century.

MUSI 621 - SELECTED STUDIES IN MUSIC HISTORY
Short Title: SELECTED STUDIES IN MUSIC HIST

Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on individual topics in music history. Content varies. Repeatable for Credit.

MUSI 622 - MUSIC SINCE 1950
Short Title: MUSIC SINCE 1950

Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study and analysis of composers and music from Post-World War II to the present.

MUSI 623 - J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION
Short Title: J.S. BACH: CAREER, WORKS & CRITICAL RECEPTN

Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of Bach's music and the social circumstances in which he created it. A substantial portion of the course will focus on issues and controversies in recent Bach scholarship.

MUSI 624 - SEMINAR ON A SELECTED COMPOSER
Short Title: SEM ON SELECT COMPOSER

Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced study of the music of a single composer. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 625 - MOZART OPERAS
Short Title: MOZART OPERAS

Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of three or four of Mozart's operas in-depth, with a focus on how music shapes drama, interpretation, characterization, and meaning.

MUSI 626 - THE CLASSICAL STYLE
Short Title: THE CLASSICAL STYLE

Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the way in which Haydn, Mozart, and Beethoven create large musical forms that have purely musical meaning which does not derive from a text. We will consider various approaches to understanding musical meaning including rhetoric, structure, and style.

MUSI 627 - ROMANTIC SONGS AND PIANO PIECES
Short Title: ROMANTIC SONGS & PIANO PIECES

Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of songs and piano character pieces of Schumann, Chopin, Mendelssohn, and Schubert from analytical and historical perspectives.
MUSI 637 - ADVANCED CONDUCTING FOR MAJORS
Short Title: ADVANCED CONDUCTING FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A historical study of organ literature coordinated with a study of the development of the organ as a musical instrument. Students will study and research organ music before 1750, developing familiarity with the period and national styles, an understanding of characteristic instruments, as well as practices of registration and performance. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 640 - RICE CHORALE - ADVANCED
Short Title: RICE CHORALE - ADVANCED
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: On occasion this course may require weekend rehearsals and performances. Consult the Instructor regarding possible conflicts. Repeatable for Credit.

MUSI 641 - MASTER'S RECITAL I
Short Title: MASTER'S RECITAL I
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 642 - ACCOMPANYING
Short Title: ACCOMPANYING
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Accompanying a single student recital, including the preview, dress rehearsal, performance, their lessons with the soloist's teacher, and practice times mutually agreeable to soloist and accompanist. OR accompanying private lessons in studios as assigned for a total of four hours per week. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 645 - ORGAN LITERATURE BEFORE 1750
Short Title: ORGAN LITERATURE BEFORE 1750
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A historical study of organ literature coordinated with a study of the development of the organ as a musical instrument. Students will study and research organ music before 1750, developing familiarity with the period and national styles, an understanding of characteristic instruments, as well as practices of registration and performance. Concurrent enrollment in MUSI 483 or MUSI 683 is required.
MUSI 647 - MASTER'S THESIS
Short Title: MASTER'S THESIS
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Composition majors are required to attend 3 hours of orchestra rehearsal per week to satisfy the course requirement. Repeatable for Credit.

MUSI 649 - GRADUATE INDEPENDENT STUDY
Short Title: GRAD INDEPENDENT STUDY
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 651 - FLUTE FOR MAJORS-ADVANCED
Short Title: FLUTE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 653 - OBOE FOR MAJORS-ADVANCED
Short Title: OBOE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 655 - CLARINET FOR MAJORS-ADVANCED
Short Title: CLARINET FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 656 - BASSOON FOR MAJORS-ADVANCED
Short Title: BASSOON FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced instruction for Music Majors in bassoon. Repeatable for Credit.

MUSI 661 - HORN FOR MAJORS-ADVANCED
Short Title: HORN FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 663 - TRUMPET FOR MAJORS-ADVANCED
Short Title: TRUMPET FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 665 - TROMBONE FOR MAJORS-ADVANCED
Short Title: TROMBONE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 667 - TUBA FOR MAJORS-ADVANCED
Short Title: TUBA FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 671 - PERCUSSION FOR MAJORS-ADVANCED
Short Title: PERCUSSION FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 673 - VOICE FOR MAJORS-ADVANCED
Short Title: VOICE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
MUSI 677 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MUSI 681 - PIANO FOR MAJORS-ADVANCED  
Short Title: PIANO FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 682 - ACCOMPANYING/VOCAL COACHING SEMINAR  
Short Title: ACCOMP/VOCAL COACHING SEMINAR  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Intensive studies of both song art and solo opera repertoire that is limited to the individual singers who will be involved with each pianist. All facets related to preforming and coaching repertoire with upper level undergraduate and graduate level singers will be explored. Instructor Permission Required. Repeatable for Credit.

MUSI 683 - ORGAN FOR MAJORS-ADVANCED  
Short Title: ORGAN FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 687 - HARP FOR MAJORS-ADVANCED  
Short Title: HARP FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 689 - PIANO FOR CHAMBER MUSIC AND ACCOMPANYING MAJORS, ADVANCED/GRADUATE  
Short Title: PIANO CHAMBER MUSIC&ACCOMP MAJ  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 690 - INDIVIDUAL INSTRUMENT COACHING FOR STRING QUARTET MAJORS  
Short Title: IND INST COACH-STR QTET MAJ  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Advanced individual instrumental coaching for students in the M.Mus. string quartet program. Repeatable for Credit.

MUSI 691 - VIOLIN FOR MAJORS-ADVANCED  
Short Title: VIOLIN FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 693 - VIOLA FOR MAJORS-ADVANCED  
Short Title: VIOLA FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 695 - VIOLONCELLO FOR MAJORS-ADVANCED  
Short Title: VIOLONCELLO FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 697 - DOUBLE BASS FOR MAJORS-ADVANCED  
Short Title: DOUBLE BASS FOR MAJORS-ADV  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.
MUSI 698 - ADVANCED STRING QUARTETS
Short Title: ADVANCED STRING QUARTETS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Private lessons for graduate students enrolled in the M.Mus. string quartet program. Repeatable for Credit.

MUSI 700 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Description: Repeatable for Credit.

MUSI 706 - APARTNERSHIP - ARTISTIC OUTREACH
Short Title: APARTNERSHIP ARTISTIC OUTRCH
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Corequisite: MUSI 698
Description: Repeatable for Credit.

MUSI 707 - DOCTORAL INDEPENDENT STUDY, COMPOSITION
Short Title: DOCTORAL IND.STUDY,COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the major musical styles and composers of western art music before 1400 and their historical, cultural, and sociological contexts.

MUSI 708 - MUSIC OF THE MIDDLE AGES
Short Title: MUSIC OF THE MIDDLE AGES
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the major musical styles and composers of Western art and music between 1400 and 1600 and their historical, cultural, and sociological contexts.

MUSI 711 - ANALYTICAL APPROACHES
Short Title: ANALYTICAL APPROACHES
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In depth exploration of tonal and post-tonal analytical procedures. Required of all doctoral students. Recommended prerequisite(s): MUSI 512 or equivalent.

MUSI 712 - SEMINAR IN ADVANCED ANALYSIS
Short Title: SEMINAR IN ADVANCED ANALYSIS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 711
Description: This class will build on the concept and materials presented in MUSI 711. Students will do in-depth analyses of significant pieces from several style periods. Instructor Permission Required.

MUSI 713 - SPECIAL TOPICS IN ADVANCED ANALYSIS
Short Title: SPECIAL TOPICS. ADV. ANALYSIS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 711
Description: Special topics in Advanced Analysis will be presented by a resident scholar, reflecting current trends in music theory and analysis, and discussing his or her research in these areas. Instructor Permission Required. Repeatable for Credit.

MUSI 716 - MUSIC OF SCHOENBERG
Short Title: MUSIC OF SCHOENBERG
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the music of Arnold Schoenberg in the context of the major musical centers and artistic movements that colored his works: Vienna, Berlin, romanticism, expressionism and the New Objectivity.
MUSI 722 - MUSIC OF STRAVINSKY
Short Title: MUSIC OF STRAVINSKY
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of Igor Stravinsky's major ballets.

MUSI 723 - AESTHETICS OF MUSIC
Short Title: AESTHETICS OF MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to music aesthetics, focusing on contemporary theories and writings.

MUSI 725 - ORGAN LITERATURE SEMINAR
Short Title: ORGAN LITERATURE SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: This course is devoted to intensive study of an area of organ literature, design, or performance practice. Emphasis will be placed upon in-depth study or the works of a selected composer or genre. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 733 - DOCTORAL SEMINAR I: CAREER SKILLS
Short Title: DOC. SEMINAR I: CAREER SKILLS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: This course is devoted to intensive study of an area of organ literature, design, or performance practice. Emphasis will be placed upon in-depth study or the works of a selected composer or genre. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 736 - SOLO REPERTORY FOR DOCTORAL STUDENTS
Short Title: SOLO REP FOR DOC. STUDENTS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 733
Description: One semester required of all doctoral students in performance areas. Additional semesters may be taken at the discretion of the major teacher. Repeatable for Credit.

MUSI 737 - DOCTORAL INDIVIDUAL PROJECT
Short Title: DOCTORAL INDIVIDUAL PROJECT
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 733
Description: In-depth study of chamber music and concert repertory. Required of, and limited to, all doctoral music students.

MUSI 739 - PEDAGOGY FOR DOCTORAL STUDENTS
Short Title: PEDAGOGY FOR DOCTORAL STUDENTS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 733
Description: The study of methods and materials specific to each student's major, focusing on the teaching of private studio lessons and instrumental or vocal classes for college-level students. Includes practical training. Each student will work with their major teacher or a faculty member designated by their department.

MUSI 741 - MASTER'S RECITAL II
Short Title: MASTER'S RECITAL II
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.
MUSI 742 - STRING QUARTET RECITAL
Short Title: STRING QUARTET RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Each recital will include a format chosen by the quartet and natural to them in which they relate to the general public in a meaningful, non-technical way (i.e., pre-concert question and answer session, etc.). These are not lecture-recitals in the traditional, academic sense: their aim is to give the quartet guidance and experience in how to impart substantive information that help non-musicians deepen their concert-going experience. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Repeatable for Credit.

MUSI 747 - SURVEY-ORCHESTRAL REPERTOIRE
Short Title: SURVEY-ORCHESTRAL REPERTOIRE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of the techniques of orchestral playing with emphasis on preparation of orchestral excerpts for professional auditions.

MUSI 749 - VOCAL PHYSIOLOGY & FUNCTION FOR DOCTORAL STUDENTS
Short Title: VOCAL PHYSIOLOGY & FUNCTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to anatomy, physiology & function of the singing voice.

MUSI 750 - DOCTORAL DOCUMENT
Short Title: DOCTORAL DOCUMENT
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised research and writing of doctoral document. Repeatable for Credit.

MUSI 751 - DOCTORAL SOLO RECITAL
Short Title: DOCTORAL RECITAL-SOLO
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Repeatable for Credit.

MUSI 752 - DOCTORAL CHAMBER MUSIC RECITAL
Short Title: DOCTORAL RECITAL-CHAMBER
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doctoral Chamber music recitals will on occasion require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Department Permission Required.

MUSI 753 - DOCTORAL CONCERTO RECITAL
Short Title: DOCTORAL RECITAL-CONCERTO
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doctoral students will perform a concerto as the soloist with an orchestra. This may require weekend rehearsals and performances. A preview is not required for the concerto recital. Department Permission Required.

MUSI 754 - DOCTORAL LECTURE-RECITAL
Short Title: DOCTORAL RECITAL-LECTURE
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The lecture-recital is a combination of performance and lecture on a topic approved by the Graduate Studies Committee. The lecture portion, which is approximately 50% of the program, should reflect significant research and analysis, including a discussion of performance practice where applicable. Department Permission Required.

MUSI 760 - INDIVIDUAL AND COMMITTEE INSTRUCTION FOR ARTIST DIPLOMA
Short Title: INDIV & COMMITTEE INSTR FOR AD
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly lessons with principal teacher as well as periodically scheduled mentoring and coaching sessions with members of Diploma Committee. Will cover all areas of performance related to chosen field. Repeatable for Credit.
MUSI 761 - ARTIST DIPLOMA RECITAL
Short Title: ARTIST DIPLOMA RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Description: Public performance exhibiting highest level of technical mastery and artistic interpretation. Department Permission Required. Repeatable for Credit.

MUSI 762 - ARTIST DIPLOMA SEMINAR
Short Title: ARTIST DIPLOMA SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Instruction of matters of musical style and historically informed performance practice. Performance within the class is expected. Survey performance practices ranging from the Baroque period through 21st century.

MUSI 763 - ARTIST DIPLOMA SPECIAL PROJECT
Short Title: ARTIST DIPLOMA SPECIAL PROJECT
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Application of both performance and career-building skills directly in the market place. Repeatable for Credit.

MUSI 764 - ARTIST DIPLOMA PERFORMANCE
Short Title: ARTIST DIPLOMA PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Participation in orchestra, chamber music, sinfonietta, opera or scenes programs as determined by individual track. Repeatable for Credit.

MUSI 800 - DISSERTATION
Short Title: DISSERTATION
Department: Music
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Students are required to write an original composition of substantial dimensions. The composition must be publicly defended and submitted, following the university's regulations and procedures for candidacy, oral examination, and thesis. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: MUSI

School Description and Code
- Music: MUSI

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Music degree: BMus

Undergraduate Major Descriptions and Code
- Major in Music (BA degree): MUSI
- Major in Bassoon Performance (BMus degree): MBSN
- Major in Cello Performance (BMus degree): MCEL
- Major in Clarinet Performance (BMus degree): MCLR
- Major in Composition (BMus degree): MCMP
- Major in Double Bass Performance (BMus degree): MDBS
- Major in Flute Performance (BMus degree): MFLT
- Major in Harp Performance (BMus degree): MHRP
- Major in Horn Performance (BMus degree): MHRN
- Major in Music History (BMus degree): MHIS
- Major in Music Theory (BMus degree): MTHE
- Major in Oboe Performance (BMus degree): MOBO
- Major in Organ Performance (BMus degree): MORG
- Major in Percussion Performance (BMus degree): MPER
- Major in Piano Performance (BMus degree): MPIA
- Major in Trombone Performance (BMus degree): MTRB
- Major in Trumpet Performance (BMus degree): MTRP
- Major in Tuba Performance (BMus degree): MTUB
- Major in Viola Performance (BMus degree): MVLA
- Major in Violin Performance (BMus degree): MVLN
- Major in Vocal Performance (BMus degree): MVOC

Graduate Degree Descriptions and Codes
- Master of Music degree: MMus
- Artist Diploma: AD
- Doctor of Musical Arts degree: DMA

Graduate Degree Program Descriptions and Codes
- Degree Program in Bassoon Performance (MMus and AD degrees): MBSN
- Degree Program in Cello Performance (MMus, AD, and DMA degrees): MCEL
- Degree Program in Clarinet Performance (MMus, AD, and DMA degrees): MCLR
- Degree Program in Composition (MMus and DMA degrees): MCMP
- Degree Program in Double Bass Performance (MMus, AD, and DMA degrees): MDBS
- Degree Program in Flute Performance (MMus, AD, and DMA degrees): MFLT
- Degree Program in Harp Performance (MMus and AD degrees): MHRP
• Degree Program in Horn Performance (MMus and AD degrees): MHRN
• Degree Program in Musicology (MMus degree): MMUC
• Degree Program in Oboe Performance (MMus, AD, and DMA degrees): MOBO
• Degree Program in Opera Performance (AD degree): MOPR
• Degree Program in Orchestral Conducting (MMus and AD degrees): MOCO
• Degree Program in Organ Performance (MMus, AD, and DMA degrees): MORG
• Degree Program in Percussion Performance (MMus, AD, and DMA degrees): MPER
• Degree Program in Piano Performance (MMus, AD, and DMA degrees): MPIA
• Degree Program in Piano, Chamber Music, and Accompanying (MMus degree): MPCM
• Degree Program in String Quartet Performance (MMus degree): MSQT
• Degree Program in Trombone Performance (MMus and AD degrees): MTRB
• Degree Program in Trumpet Performance (MMus and AD degrees): MTRP
• Degree Program in Tuba Performance (MMus and AD degrees): MTUB
• Degree Program in Viola Performance (MMus, AD, and DMA degrees): MVLA
• Degree Program in Violin Performance (MMus, AD, and DMA degrees): MVLN
• Degree Program in Vocal Performance (MMus and DMA degrees): MVOC

CIP Code and Description

• MBSN Major/Program: CIP Code/Title: 50.0915 - Woodwind Instruments
• MCLR Major/Program: CIP Code/Title: 50.0911 - Stringed Instruments
• MCMC Major/Program: CIP Code/Title: 50.0915 - Woodwind Instruments
• MOPR Major/Program: CIP Code/Title: 50.0904 - Music Theory and Composition
• MDBS Major/Program: CIP Code/Title: 50.0911 - Stringed Instruments
• MFLT Major/Program: CIP Code/Title: 50.0915 - Woodwind Instruments
• MHIS Major/Program: CIP Code/Title: 50.0902 - Music History, Literature, and Theory
• MHRN Major/Program: CIP Code/Title: 50.0914 - Brass Instruments
• MMUC Major/Program: CIP Code/Title: 50.0905 - Musicology and Ethnomusicology
• MOBO Major/Program: CIP Code/Title: 50.0915 - Woodwind Instruments
• MOCO Major/Program: CIP Code/Title: 50.0906 - Conducting
• MOPR Major/Program: CIP Code/Title: 50.0908 - Voice and Opera
• MORG Major/Program: CIP Code/Title: 50.0907 - Keyboard Instruments
• MPCM Major/Program: CIP Code/Title: 50.0905 - Music Theory and Composition
• MPER Major/Program: CIP Code/Title: 50.0916 - Percussion Instruments
• MPIA Major/Program: CIP Code/Title: 50.0916 - Percussion Instruments
• MSQT Major/Program: CIP Code/Title: 50.0907 - Keyboard Instruments
• MTHE Major/Program: CIP Code/Title: 50.0902 - Music History, Literature, and Theory
• MTRB Major/Program: CIP Code/Title: 50.0914 - Brass Instruments
• MTRP Major/Program: CIP Code/Title: 50.0914 - Brass Instruments
• MTUB Major/Program: CIP Code/Title: 50.0914 - Brass Instruments
• MUSI Major/Program: CIP Code/Title: 50.0901 - Music, General
• MVLA Major/Program: CIP Code/Title: 50.0911 - Stringed Instruments
• MVLN Major/Program: CIP Code/Title: 50.0911 - Stringed Instruments
• MVOC Major/Program: CIP Code/Title: 50.0908 - Voice and Opera

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Artist Diploma (AD) in the field of Bassoon Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma

For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

• A minimum of 41 credit hours to satisfy diploma requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally,
these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
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<td></td>
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</table>

Diploma Requirements

<table>
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<tr>
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<td>Program Requirements</td>
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<tr>
<td>MUSI 760</td>
<td>INDIVIDUAL AND COMMITTEE INSTRUCTION FOR ARTIST DIPLOMA (minimum of 4 semesters)</td>
<td>4</td>
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<tr>
<td>MUSI 761</td>
<td>ARTIST DIPLOMA RECITAL ¹</td>
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<tr>
<td>MUSI 762</td>
<td>ARTIST DIPLOMA SEMINAR</td>
<td>3</td>
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<tr>
<td>MUSI 763</td>
<td>ARTIST DIPLOMA SPECIAL PROJECT (minimum of 2 semesters)</td>
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<tr>
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<td>ARTIST DIPLOMA PERFORMANCE (minimum of 4 semesters)</td>
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</tr>
<tr>
<td></td>
<td>Academic Coursework</td>
<td></td>
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<tr>
<td></td>
<td>Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)</td>
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<tr>
<td></td>
<td>Total Credit Hours</td>
<td>41</td>
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</table>

Footnotes and Additional Information

¹ Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

<table>
<thead>
<tr>
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<tr>
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<td>Select 2 courses from the following:</td>
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<td>LPCR 200</td>
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<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
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<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
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<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
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<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
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<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
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<td></td>
<td>Policies for the Artist Diploma</td>
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</table>

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.
Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Opportunities for the Artist Diploma

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Artist Diploma (AD) in the field of Cello Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.

2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.

3. Accumulate a significantly expanded and diverse list of repertoire.

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Requirements for the Artist Diploma

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- A minimum of 41 credit hours to satisfy diploma requirements.
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<td>SOCIAL ENTERPRISE</td>
<td>4</td>
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<tr>
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<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>4</td>
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<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
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<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
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<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
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<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
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<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
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<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
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</table>

Footnotes and Additional Information

1. Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.

Select 2 courses from the following:

- LPCR 200 ADVANCED MENTAL TRAINING
- MGMT 621 THE NEW ENTERPRISE
- MGMT 625 DESIGN THINKING
- MGMT 629 BUSINESS PLAN DEVELOPMENT
- MGMT 676 SOCIAL ENTERPRISE
- MUSI 413 INTRODUCTION TO DALCROZE EURHYTHMICS
- MUSI 500 IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES
- MUSI 501 ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING
- MUSI 502 CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS
- MUSI 503 MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION
- MUSI 507 TECHNOLOGY FOR MUSICIANS
- MUSI 508 FUNDAMENTALS OF PRIVATE TEACHING
- MUSI 510 PROFESSIONAL DEVELOPMENT FOR MUSICIANS
- MUSI 515 MUSIC ENTREPRENEURSHIP
- MUSI 518 THE ART AND BUSINESS OF STUDIO TEACHING
- MUSI 519 THEMATIC PROGRAMMING: THE ART OF THE RECITAL
- MUSI 532 THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY
- MUSI 538 THE ART OF PERFORMANCE: PRESENCE ON STAGE
- MUSI 540 APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM

Total Credit Hours 41

Policies for the Artist Diploma

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Opportunities for the Artist Diploma

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Artist Diploma (AD) in the field of Clarinet Performance

Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma

For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

• A minimum of 41 credit hours to satisfy diploma requirements.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Diploma Requirements

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<td>MUSI 761</td>
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<td>MUSI 764</td>
<td>ARTIST DIPLOMA PERFORMANCE (minimum of 4 semesters)</td>
<td>3</td>
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Academic Coursework

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4

Total Credit Hours 41

Footnotes and Additional Information

1. Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework
Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

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2021-2022 General Announcements PDF Generated 09/22/21
Policies for the Artist Diploma
Shepherd School of Music Graduate Program Handbook
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Admission
A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

Academic Standards
Curriculum and Degree Requirements
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Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Opportunities for the Artist Diploma
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu
Artist Diploma (AD) in the field of Double Bass Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma

For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

- A minimum of 41 credit hours to satisfy diploma requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Footnotes and Additional Information

1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.
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Opportunities for the Artist Diploma
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Additional Information
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Artist Diploma (AD) in the field of Flute Performance
Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.
Requirements for the Artist Diploma

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- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
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- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
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Diploma Requirements

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Academic Coursework

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<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN’S BODY</td>
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<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

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A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

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Grading Policy
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- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

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Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
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Additional Information
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Additional Information
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Artist Diploma (AD) in the field of Harp Performance
Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma
For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

- A minimum of 41 credit hours to satisfy diploma requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A minimum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may
be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Diploma Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 760</td>
<td>INDIVIDUAL AND COMMITTEE INSTRUCTION FOR ARTIST DIPLOMA (minimum of 4 semesters)</td>
<td>4</td>
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<tr>
<td>MUSI 761</td>
<td>ARTIST DIPLOMA RECITAL</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 762</td>
<td>ARTIST DIPLOMA SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 763</td>
<td>ARTIST DIPLOMA SPECIAL PROJECT (minimum of 2 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 764</td>
<td>ARTIST DIPLOMA PERFORMANCE (minimum of 4 semesters)</td>
<td>3</td>
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</tbody>
</table>

Academic Coursework

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) | 4 |

Total Credit Hours | 41 |

Footnotes and Additional Information

1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

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Policies for the Artist Diploma

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• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music student.
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Note: For music history and musicoled majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

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Artist Diploma (AD) in the field of Horn Performance
Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
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For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

• A minimum of 41 credit hours to satisfy diploma requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
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• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

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Artist Diploma (AD) in the field of Oboe Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

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- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
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- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degrowks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Diploma Requirements

Program Requirements

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<td>ARTIST DIPLOMA SPECIAL PROJECT (minimum of 2 semesters)</td>
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<td>ARTIST DIPLOMA PERFORMANCE (minimum of 4 semesters )</td>
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Academic Coursework

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)

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Admission

A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

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Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

1. No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

2. Requests for transfer credit will be considered by the program director on an individual case-by-case basis.
Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu (https://music.rice.edu/)

Opportunities for the Artist Diploma
Other Musical Opportunities

Lectures and Performances
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Additional Information
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Artist Diploma (AD) in the field of Opera Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma

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Footnotes and Additional Information

1. Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

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A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

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Artist Diploma (AD) in the field of Orchestral Conducting

Program Learning Outcomes for the Artist Diploma

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2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
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Additional Information
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Artist Diploma (AD) in the field of Organ Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
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- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

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Diploma Requirements

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<td></td>
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<tr>
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Total Credit Hours | 41 |

Footnotes and Additional Information

1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

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Curriculum and Degree Requirements
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• A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
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Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

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Additional Information
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Artist Diploma (AD) in the field of Percussion Performance
Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.

2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.

3. Accumulate a significantly expanded and diverse list of repertoire.

4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma
For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

• A minimum of 41 credit hours to satisfy diploma requirements.

• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).

• A minimum of 24 graduate semester credit hours must be taken at Rice University.

• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.

• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.

• A minimum overall GPA of 2.67 or higher in all Rice coursework.

• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may...
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#### Academic Coursework

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4

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A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

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- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music student.

---

*Footnotes and Additional Information*

1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.
performance major and merit scholarship from the Shepherd School will be discontinued.

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Additional Information
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Artist Diploma (AD) in the field of Piano Performance
Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
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4. Be equipped with multiple extra-musical career skills.

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Additional Information
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Artist Diploma (AD) in the field of Trombone Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

Requirements for the Artist Diploma
For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

- A minimum of 41 credit hours to satisfy diploma requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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Diploma Requirements

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Academic Coursework

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) | 4 |

Total Credit Hours | 41 |
Footnotes and Additional Information

1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings.

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Policies for the Artist Diploma

Shepherd School of Music Graduate Program Handbook

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Admission

A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

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Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
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Additional Information
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Opportunities for the Artist Diploma
Other Musical Opportunities

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Additional Information
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Artist Diploma (AD) in the field of Trumpet Performance

Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
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Course List to Satisfy Requirements

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Additional Information
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Artist Diploma (AD) in the field of Tuba Performance

Program Learning Outcomes for the Artist Diploma

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
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**Course List to Satisfy Requirements**

**Music Career and Skills Enhancement**

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<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
</tr>
</tbody>
</table>

**Policies for the Artist Diploma**

**Shepherd School of Music Graduate Program Handbook**

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**Admission**

A live audition is required for Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants.

**Academic Standards**

**Curriculum and Degree Requirements**

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

**Note:** For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

**Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.**

**Leaves of Absence and Voluntary Withdrawal**

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**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the Artist Diploma should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

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**Opportunities for the Artist Diploma**

**Other Musical Opportunities**

**Lectures and Performances**

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**Additional Information**

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**Artist Diploma (AD) in the field of Viola Performance**

**Program Learning Outcomes for the Artist Diploma**

Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.
Requirements for the Artist Diploma
For general university requirements, see Diploma Programs (p. 74). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the Artist Diploma in any field of music performance must complete:

• A minimum of 41 credit hours to satisfy diploma requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the diploma program.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Artist Diploma</td>
<td>41</td>
</tr>
</tbody>
</table>

**Diploma Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 760</td>
<td>INDIVIDUAL AND COMMITTEE INSTRUCTION FOR ARTIST DIPLOMA (minimum of 4 seminars)</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 761</td>
<td>ARTIST DIPLOMA RECITAL ¹</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 762</td>
<td>ARTIST DIPLOMA SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 763</td>
<td>ARTIST DIPLOMA SPECIAL PROJECT (minimum of 2 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 764</td>
<td>ARTIST DIPLOMA PERFORMANCE (minimum of 4 semesters )</td>
<td>3</td>
</tr>
</tbody>
</table>

**Course List to Satisfy Requirements**

**Academic Coursework**

Academic Coursework is comprised of a minimum of 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td></td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td></td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO Dalcroze Eurhythmic</td>
<td></td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
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<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
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<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
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<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
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<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td></td>
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<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
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<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td></td>
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<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
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<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td></td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td></td>
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</tbody>
</table>

**Footnotes and Additional Information**

¹ Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

**Policies for the Artist Diploma**

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Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed re-admission into the Shepherd School and may be asked to reapply/re audition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

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For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

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Opportunities for the Artist Diploma
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Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Artist Diploma (AD) in the field of Violin Performance
Program Learning Outcomes for the Artist Diploma
Upon completing the Artist Diploma, students will be able to:

1. Demonstrate the technical mastery and musical expertise requisite to having a significant professional career in their chosen area of performance.
2. Master intellectually the stylistic differences when performing music of the Baroque, Classical, Romantic, modern and contemporary eras and be able to apply them in performance.
3. Accumulate a significantly expanded and diverse list of repertoire.
4. Be equipped with multiple extra-musical career skills.

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- A minimum of 41 credit hours to satisfy diploma requirements.
- A minimum of 41 credit hours to satisfy diploma requirements.
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 41 credit hours to satisfy diploma requirements.
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</tr>
<tr>
<td>MUSI 761</td>
<td>ARTIST DIPLOMA RECITAL 1</td>
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<tr>
<td>MUSI 762</td>
<td>ARTIST DIPLOMA SEMINAR</td>
<td>3</td>
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<tr>
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<td>ARTIST DIPLOMA SPECIAL PROJECT (minimum of 2 semesters)</td>
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<td>ARTIST DIPLOMA PERFORMANCE (minimum of 4 semesters )</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Academic Coursework</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td>41</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1 Students pursuing the Artist Diploma in all fields of music performance must perform two (2) recitals with the exception of students in the field of Opera Performance, who are not required to perform recitals.

Course List to Satisfy Requirements

Academic Coursework

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<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td>Select 2 courses from the following:</td>
<td>4</td>
</tr>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music
Bachelor of Arts (BA) Degree with a Major in Music

Program Learning Outcomes for the BA Degree with a Major in Music

Upon completing the BA degree with a major in Music, students will be able to:

1. Demonstrate an intermediate level of technical and musical competence in performance.
2. Possess rudimentary skills in music theory and an understanding of how those skills are related to music performance.
3. Acquire a fundamental understanding and appreciation of the various historical periods of music literature.

Requirements for the BA Degree with a Major in Music

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Music must complete:

- A minimum of 19 courses (43-51 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (30 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<th>Code</th>
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<tr>
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<td>Total Credits Hours Required for the Major in Music</td>
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<tr>
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Degree Requirements

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MUSI 211</td>
<td>THEORY I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 212</td>
<td>THEORY II</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 311</td>
<td>THEORETICAL STUDIES III</td>
<td>3</td>
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<tr>
<td>MUSI 312</td>
<td>THEORETICAL STUDIES IV</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 1 course from the following:</td>
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<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td></td>
</tr>
</tbody>
</table>

Opportunities for the Artist Diploma

Other Musical Opportunities

Lectures and Performances

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Additional Information

For additional information, please see the Shepherd School of Music website at: https://music.rice.edu (https://music.rice.edu/)
MUSI 405  MUSIC BUSINESS AND LAW
MUSI 416  ORCHESTRATION
MUSI 417  MUSIC FOR MEDIA
MUSI 512  ANALYTICAL SYSTEMS
MUSI 513  MODAL COUNTERPOINT
MUSI 514  SCORE READING AND THEORY AT THE KEYBOARD
MUSI 517  EARLY MODERN MASTERS
MUSI 613  TONAL COUNTERPOINT
MUSI 617  MUSIC SINCE 1950

Aural Skills and Performance Techniques
MUSI 231  AURAL SKILLS AND PERFORMANCE TECHNIQUE I  2
MUSI 232  AURAL SKILLS AND PERFORMANCE TECHNIQUE II  2

Music History
MUSI 222 / MDEM 222  MEDIEVAL AND RENAISSANCE ERAS  3
MUSI 321  BAROQUE AND EARLY CLASSICAL ERAS  3
MUSI 322  CLASSICAL AND ROMANTIC ERAS  3
MUSI 421  THE MODERN ERA  3

Individual and Ensemble Study
Select a minimum of 4 semesters from the following:  
Any 300-level individual instrumental or vocal study course  (see course list below)  8-12
Any 400-level individual instrumental or vocal study course  (see course list below)  4-8

Select a minimum of 4 semesters from the following:  
MUSI 335  UNDERGRADUATE CHORUS  
MUSI 337  UNDERGRADUATE ORCHESTRA  

Total Credit Hours Required for the Major in Music  43-51
Additional Credit Hours to Complete Degree Requirements  38-46
University Graduation Requirements (p. 29)  31

Total Credit Hours  120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Students in the BA degree program who wish to continue taking private lessons beyond the required four (4) semesters of individual instrumental and/or vocal study must obtain permission from the dean of the Shepherd School of Music.

Course List to Satisfy Requirements
Individual Instrumental or Vocal Study

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 351</td>
<td>CONCENTRATION FLUTE 1</td>
<td></td>
</tr>
<tr>
<td>MUSI 353</td>
<td>CONCENTRATION OBOE</td>
<td></td>
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</table>
grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examination
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester.

Performance
Students are expected to perform frequently during their residence at Rice. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school's conducted ensembles as assigned.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BA degree with a major in Music should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the BA Degree with a Major in Music

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Bachelor of Music (BMus) Degree with a Major in Bassoon Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student's major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Bassoon Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Bassoon Performance must complete:

- A minimum of 19 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 14 courses (70 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Degree Requirements

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<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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Music History

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Individual and Ensemble Study

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<td>UNDERGRADUATE ORCHESTRA (minimum of 8 semesters)</td>
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<td>MUSI 338</td>
<td>UNDERGRADUATE CHAMBER MUSIC (minimum of 4 semesters)</td>
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<td>MUSI 339</td>
<td>UNDERGRADUATE ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
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Recitals

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<td>MUSI 441</td>
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Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam

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Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Recommended

It is recommended, though not required, for students to complete MUSI 723.

Policies for the BMus Degree

Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and
music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

**Academic Standards**

**Curriculum and Degree Requirements**
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

**Please Note:** For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

**Leaves of Absence and Voluntary Withdrawal**
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

**Examinations**
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

**Performance**
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

**Transfer Credit**
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu/](https://music.rice.edu/)

**Opportunities for the BMus Degree**

**Academic Honors**
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**BMus/MMus Honors Program**
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

**Other Musical Opportunities**

**Lectures and Performances**
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.
Additional Information
For additional information, please see the Shepherd School of Music
website: https://music.rice.edu/

Bachelor of Music (BMus) Degree
with a Major in Cello Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance,
   composition, or music-historical research appropriate to the
   standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an
   understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between
   music history and music performance.
4. Develop superior technical collaborative skills in the student’s major
   area through a combination of practice, coaching, and rehearsal in
   large and small ensembles.

Requirements for the BMus Degree with a
Major in Cello Performance

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BMus degree with a major in Cello Performance
must complete:

- A minimum of 19 courses (84 credit hours) to satisfy major
  requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (71 credit hours) taken at the 300-level or
  above.

All students pursuing the BMus degree in any major must participate in
core music, applied music, and other required music courses as well as in
chamber music and large ensembles, plus electives. These students are
entitled to one hour of private lessons each week of each semester they
are enrolled as a music major; private or group lessons beyond this may
result in additional fees.

The courses listed below satisfy the requirements for this major. In
some instances, courses not on this official list may be substituted
upon approval of the major’s academic advisor, or where applicable, the
department’s Director of Undergraduate Studies. (Course substitutions
must be formally applied and entered into Degree Works by the major’s
Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/
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and clearly document the courses to be taken.

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Degree Requirements

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Aural Skills and Performance Techniques

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Individual and Ensemble Study

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Recitals

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<td>MUSI 441</td>
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Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam
Policies for the BMus Degree

Admission
An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

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- If a student receives a second semester of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

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Performance
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Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree
Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
### BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student's fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program's coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor's degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

### Other Musical Opportunities
#### Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

### Additional Information
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu/](https://music.rice.edu/).

### Bachelor of Music (BMus) Degree with a Major in Clarinet Performance

#### Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student's major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

### Requirements for the BMus Degree with a Major in Clarinet Performance
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Clarinet Performance must complete:

- A minimum of 19 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (70 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's [Official Certifier](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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#### Degree Requirements

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<td>MULTI-MEDIA COMPOSITION</td>
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<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam

Total Credit Hours Required for the Major in Clarinet Performance 83

Additional Credit Hours to Complete Degree Requirements 6

University Graduation Requirements (p. 29) 31

Total Credit Hours 120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Policies for the BMus Degree

Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations

At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance

Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals;
composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

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Additional Information
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Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

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The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

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Other Musical Opportunities

Lectures and Performances
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Additional Information
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Bachelor of Music (BMus) Degree with a Major in Composition

Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Composition
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Composition must complete:

- A minimum of 20 courses (94-99 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (65 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.
Summary

<table>
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Degree Requirements

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<td>Aural Skills and Performance Techniques</td>
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<td>Music History</td>
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<td></td>
<td>Footnotes and Additional Information</td>
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Total Credit Hours Required for the Major in Composition: 94-99

Additional Credit Hours to Complete Degree Requirements: 31

University Graduation Requirements (p. 29): 31

Total Credit Hours: 120

Policies for the BMus Degree

Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

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Curriculum and Degree Requirements

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- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

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Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Double Bass Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.
Requirements for the BMus Degree with a Major in Double Bass Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Double Bass Performance must complete:

- A minimum of 19 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (70 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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### Degree Requirements

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<td>MUSI 212</td>
<td>THEORY II</td>
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<tr>
<td>MUSI 311</td>
<td>THEORETICAL STUDIES III</td>
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<td>MUSI 378 / MDEM 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<tr>
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<td>MUSIC FOR MEDIA</td>
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<td>MUSI 512</td>
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<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
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### Aural Skills and Performance Techniques

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<tr>
<td>MUSI 231</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUE I</td>
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<td>MUSI 232</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUE II</td>
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<td>MUSI 331</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUES III</td>
<td>2</td>
</tr>
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<td>MUSI 332</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUES IV</td>
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### Music History

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<td>MUSI 222 / MDEM 222</td>
<td>MEDIEVAL AND RENAISSANCE ERAS</td>
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<tr>
<td>MUSI 321</td>
<td>BAROQUE AND EARLY CLASSICAL ERAS</td>
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<td>MUSI 322</td>
<td>CLASSICAL AND ROMANTIC ERAS</td>
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<td>THE MODERN ERA</td>
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### Individual and Ensemble Study

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<tr>
<td>MUSI 497</td>
<td>DOUBLE BASS FOR MAJORS (minimum of 8 semesters)</td>
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<tr>
<td>MUSI 337</td>
<td>UNDERGRADUATE ORCHESTRA (minimum of 8 semesters)</td>
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<tr>
<td>MUSI 338</td>
<td>UNDERGRADUATE CHAMBER MUSIC (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 339</td>
<td>UNDERGRADUATE ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
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### Recitals

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<td>MUSI 341</td>
<td>JUNIOR RECITAL</td>
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<td>MUSI 441</td>
<td>SENIOR RECITAL</td>
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### Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam

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<tr>
<td></td>
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<td>University Graduation Requirements (p. 29)</td>
<td>31</td>
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<tr>
<td></td>
<td>Total Credit Hours</td>
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### Footnotes and Additional Information

Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

### Policies for the BMus Degree

#### Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd
School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

**Academic Standards**

**Curriculum and Degree Requirements**

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

**Please Note:** For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

**Leaves of Absence and Voluntary Withdrawal**

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

**Examinations**

At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

**Performance**

Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

**Opportunities for the BMus Degree**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**BMus/MMus Honors Program**

Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

**Other Musical Opportunities**

**Lectures and Performances**

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus,
Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

**Bachelor of Music (BMus) Degree with a Major in Flute Performance**

**Program Learning Outcomes for the BMus Degree**
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

**Requirements for the BMus Degree with a Major in Flute Performance**
For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BMus degree with a major in Flute Performance must complete:

- A minimum of 19 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (70 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

<table>
<thead>
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<th>Summary</th>
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<tr>
<td>Total Credit Hours Required for the Major in Flute Performance</td>
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<td>83</td>
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<tr>
<td>Total Credit Hours Required for the BMus Degree with a Major in Flute Performance</td>
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<td>120</td>
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<thead>
<tr>
<th>Degree Requirements</th>
<th>Code</th>
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<th>Credit Hours</th>
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**Music Theory**
- MUSI 211 THEORY I 3
- MUSI 212 THEORY II 3
- MUSI 311 THEORETICAL STUDIES III 3
- MUSI 312 THEORETICAL STUDIES IV 3

Select 1 course from the following:
- MUSI 315 MULTI-MEDIA COMPOSITION 3
- MUSI 378 / ASIA 378 CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC
- MUSI 403 BASIC ELECTRONIC MUSIC
- MUSI 404 ELECTRONIC MUSIC COMPOSITION
- MUSI 405 MUSIC BUSINESS AND LAW
- MUSI 416 ORCHESTRATION
- MUSI 417 MUSIC FOR MEDIA
- MUSI 512 ANALYTICAL SYSTEMS
- MUSI 513 MODAL COUNTERPOINT
- MUSI 514 SCORE READING AND THEORY AT THE KEYBOARD
- MUSI 517 EARLY MODERN MASTERS
- MUSI 613 TONAL COUNTERPOINT
- MUSI 617 MUSIC SINCE 1950

**Aural Skills and Performance Techniques**
- MUSI 231 AURAL SKILLS AND PERFORMANCE TECHNIQUE I 2
- MUSI 232 AURAL SKILLS AND PERFORMANCE TECHNIQUE II 2
- MUSI 331 AURAL SKILLS AND PERFORMANCE TECHNIQUES III 2
- MUSI 332 AURAL SKILLS AND PERFORMANCE TECHNIQUES IV 2

**Music History**
- MUSI 222 / MDEM 222 MEDIEVAL AND RENAISSANCE ERAS 3
- MUSI 321 BAROQUE AND EARLY CLASSICAL ERAS 3
- MUSI 322 CLASSICAL AND ROMANTIC ERAS 3
- MUSI 421 THE MODERN ERA 3

**Individual and Ensemble Study**
- MUSI 451 FLUTE FOR MAJORS (minimum of 8 semesters) 3
- MUSI 337 UNDERGRADUATE ORCHESTRA (minimum of 8 semesters) 2
- MUSI 338 UNDERGRADUATE CHAMBER MUSIC (minimum of 4 semesters) 1
Policies for the BMus Degree

Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards

Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations

At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance

Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu/
Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Harp Performance

Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Harp Performance
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Harp Performance must complete:

- A minimum of 17 courses (75 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 12 courses (62 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>MUSI 211</td>
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<td>MUSI 212</td>
<td>THEORY II</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 311</td>
<td>THEORETICAL STUDIES III</td>
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</tr>
<tr>
<td>MUSI 312</td>
<td>THEORETICAL STUDIES IV</td>
<td>3</td>
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Select 1 course from the following:

- MUSI 315 MULTI-MEDIA COMPOSITION
- MUSI 378 CLASSICAL, CONTEMPORARY, AND ASIA 378 CROSS-CULTURAL ASIAN MUSIC
- MUSI 403 BASIC ELECTRONIC MUSIC
- MUSI 404 ELECTRONIC MUSIC COMPOSITION
- MUSI 405 MUSIC BUSINESS AND LAW
- MUSI 416 ORCHESTRATION
- MUSI 417 MUSIC FOR MEDIA
- MUSI 512 ANALYTICAL SYSTEMS
Policies for the BMus Degree

Admission
An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

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Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level residency (hours taken at Rice), and/or any other additional academic program requirements.

Recommended
It is recommended, though not required, that music students complete FREN 141 in addition to the requirements listed above. MUSI 338 may be recommended at the discretion of the instructor in addition to the requirements listed above.
major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school's conducted ensembles as assigned.

Transfer Credit
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Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

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Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors
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The same general university requirements apply, but students seeking the program's coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

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Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Horn Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student's major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Horn Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Horn Performance must complete:

- A minimum of 18 courses (79 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (66 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's
Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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**Degree Requirements**

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<td>MUSI 212</td>
<td>THEORY II</td>
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<td>MUSI 311</td>
<td>THEORETICAL STUDIES III</td>
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<td>MUSI 312</td>
<td>THEORETICAL STUDIES IV</td>
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<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<td>MUSI 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>TONAL COUNTERPOINT</td>
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<td>MUSIC SINCE 1950</td>
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<td>Individual and Ensemble Study</td>
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<td>MUSI 461</td>
<td>HORN FOR MAJORS (minimum of 8 semesters)</td>
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*MUSI 336 UNDERGRADUATE ORCHESTRA (minimum of 8 semesters) 2
MUSI 338 UNDERGRADUATE CHAMBER MUSIC (minimum of 4 semesters) 1

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**Footnotes and Additional Information**

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

**Policies for the BMus Degree**

**Admission**

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

**Academic Standards**

**Curriculum and Degree Requirements**

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

* A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been insufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may
Departmental Transfer Credit Guidelines:

Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

1. If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations

At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance

Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program

Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Music History

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

**Requirements for the BMus Degree with a Major in Music History**

For general university requirements, see [Graduation Requirements](#) (p. 29).

Students pursuing the BMus degree with a major in Music History must complete:

- A minimum of 23 courses (76-87 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 16 courses (57 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

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<th>Code</th>
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<th>Credit Hours</th>
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<td>Total Credit Hours Required for the BMus Degree with a Major in Music History</td>
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### Degree Requirements

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<td>MUSI 212</td>
<td>THEORY II</td>
<td>3</td>
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<td>MUSI 311</td>
<td>THEORETICAL STUDIES III</td>
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</tr>
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<td>MUSI 312</td>
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<td>Select 1 course from the following:</td>
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<td>MUSI 315</td>
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<td>MUSI 378</td>
<td>CLASSICAL, CONTEMPORARY, AND ASIA 378</td>
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<td>MUSI 403</td>
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<td>MUSI 404</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td></td>
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<td>MUSI 514</td>
<td>SCORE COUNTERPOINT</td>
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<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<tr>
<td>MUSI 617</td>
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### Aural Skills and Performance Techniques

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<td>MUSI 331</td>
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<td>MUSI 332</td>
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### Music History

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<td>MUSI 421</td>
<td>THE MODERN ERA</td>
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### Individual and Ensemble Study

Select a minimum of 6 semesters from Concentration Instrument or Voice (see course list below)
Select a minimum of 5 semesters from the following:

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<td>UNDERGRADUATE CHORUS</td>
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<td>MUSI 337</td>
<td>UNDERGRADUATE ORCHESTRA</td>
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### Foreign Language

Select 1 year of a foreign language by completing course numbers 141 and 142 from language course offerings or equivalency as determined by university exam. German (GERM) is highly recommended

### Advanced Musicology Coursework

Select 3 courses from Advanced Musicology courses/seminars (see course list below)
Select 1 additional course from Advanced Musicology courses/seminars or 1 Advanced Theory Course (see course list below)

### Senior Thesis

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<td>MUSI 449</td>
<td>UNDERGRADUATE INDEPENDENT STUDY (2 semesters required, 2nd semester)</td>
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### Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam

### Total Credit Hours Required for the Major in Music History

76-87

### Additional Credit Hours to Complete Degree Requirements

* 2-13

### University Graduation Requirements

* 31

### Total Credit Hours

120

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Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Instrumental or Vocal Study

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<td>MUSI 353</td>
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<td>MUSI 355</td>
<td>CONCENTRATION CLARINET</td>
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<tr>
<td>MUSI 357</td>
<td>CONCENTRATION BASSOON</td>
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<tr>
<td>MUSI 361</td>
<td>CONCENTRATION HORN</td>
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<td>MUSI 363</td>
<td>CONCENTRATION TRUMPET</td>
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<td>CONCENTRATION TROMBONE</td>
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<td>MUSI 367</td>
<td>CONCENTRATION TUBA</td>
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<td>MUSI 371</td>
<td>CONCENTRATION PERCUSSION</td>
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<td>MUSI 373</td>
<td>CONCENTRATION VOICE</td>
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<td>CONCENTRATION PIANO</td>
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<td>CONCENTRATION ORGAN</td>
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<td>CONCENTRATION VIOLONCELLO</td>
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<td>MUSI 397</td>
<td>CONCENTRATION DOUBLE BASS</td>
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Advanced Musicology Courses

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<tr>
<td>MUSI 523</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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Advanced Theory Courses

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<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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Policies for the BMus Degree Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.
Academic Standards

Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

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Examinations
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school's conducted ensembles as assigned.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student's fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program's coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor's degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.
Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Music Theory

Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Music Theory
For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BMus degree with a major in Music Theory must complete:

- A minimum of 19 courses (63-68 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (50 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>THE MODERN ERA</td>
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<td>CONCENTRATION PIANO (minimum of 4 semesters)</td>
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<td>UNDERGRADUATE CHOIR</td>
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<td>UNDERGRADUATE ORCHESTRA</td>
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### Total Credit Hours Required for the Major in Music Theory

63-68

### Additional Credit Hours to Complete Degree Requirements *

21-26

### University Graduation Requirements (p. 29) *

31

### Total Credit Hours

120
Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Music Academic Elective

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Recommended

It is recommended, though not required, that music students complete MUSI 338, in addition to the requirements listed above.

Policies for the BMus Degree

Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

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Leaves of Absence and Voluntary Withdrawal

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Additional Information
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Bachelor of Music (BMus) Degree with a Major in Oboe Performance
Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student's major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Oboe Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Oboe Performance must complete:

- A minimum of 19 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14 courses (70 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they
are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degereeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<td>MUSI 337</td>
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<td>University Graduation Requirements (p. 29) *</td>
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### Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

### Policies for the BMus Degree

#### Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

#### Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

#### Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) is required for courses used to complete the BMus degree.
grade points) or lower in a course in the student’s major applied area is
considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or
  lower in a course in their major applied area will be placed on music
  probation. Music probation signifies that the student’s work has been
  sufficiently unsatisfactory to preclude graduation unless marked
  improvement is achieved promptly. A student on music probation
  may be absent from class only for extraordinary reasons and may
  not represent the school in any public function not directly a part of a
  degree program.

- If a student receives a second semester of C+ (2.33 grade points) or
  lower in a course in their major applied area, whether for consecutive
  semesters or not, the student will be discontinued as a BMus degree
  seeking student and merit scholarship from the Shepherd School will
  be discontinued.

Please Note: For music history and musicology majors, a grade of C+
(2.33 grade points) or lower in any music history course is considered
unsatisfactory and will be evaluated as noted above. For music theory
majors, a grade of C+ (2.33 grade points) or lower in any advanced music
theory course is considered unsatisfactory and will be evaluated as noted
above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of
the Shepherd School before requesting a leave of absence from the
university. Requests must be in the dean’s office before the first day of
classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not
guaranteed readmission into the Shepherd School and may be asked
to reapply/reaudition. Students should explain the reasons for their
withdrawal to the dean before leaving campus.

Examinations
At the end of each semester, a jury examination in applied music may
be given over the material studied during the semester. All BMus degree
candidates (all students except those pursuing the BA degree with a
major in music) must demonstrate keyboard proficiency by examination.
If students have little or no knowledge of the keyboard, they should enroll
in secondary piano at the beginning of their first semester and continue
study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence
at Rice. Performance majors must present at least two full recitals;
composition majors must present at least one full recital. Students are
expected to attend both faculty and student recitals. In addition, all
music majors must participate in the school’s conducted ensembles as
assigned.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer
Credit (p. 37). Some departments and programs have additional
restrictions on transfer credit. The Office of Academic Advising
maintains the university’s official list of transfer credit advisors on their
website: https://oaa.rice.edu. Students are encouraged to meet with their
academic program’s transfer credit advisor when considering transfer
credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following
departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program
director (and/or the program’s official transfer credit advisor) on an
individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music
website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an
undergraduate’s academic history at Rice. For information on university
honors, please see Latin Honors (p. 51) (summa cum laude, magna cum
laude, and cum laude) and Distinction in Research and Creative Work
(p. 51). Some departments have department-specific Honors awards or
designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical
and academic accomplishment may apply for the BMus/MMus five-year
coordinated program. This program, often referred to in the school as
the BMus/MMus Honors Program, allows for the completion and awarding
of both the BMus and MMus degrees concurrently. Application to this
program is made in the student’s fifth or sixth semester of undergraduate
studies.

The same general university requirements apply, but students seeking
the program’s coordinated BMus/MMus degrees must complete a total
of at least 150 semester hours by graduation. The number of required
hours varies according to major area. In order to earn the MMus degree,
the minimum of 30 credit hours of graduate-level study (coursework at the
500-level or above) must be completed.

The first five semesters of course work in this program parallel the core
curriculum of the bachelor’s degrees. The sixth semester is a transitional
semester during which students qualify for admission to the combined
program. For further information, including application procedures, see
the Shepherd School Student Handbook.

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous
distinguished visiting musicians contribute to the Shepherd School
environment. The Houston Symphony Orchestra, Symphony Chorus,
Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da
Camera, Context, and Chamber Music Houston, as well as the activities of
other institutions of higher learning in the area, also provide exceptional
opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music
website: https://music.rice.edu/
Bachelor of Music (BMus) Degree with a Major in Organ Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Organ Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Organ Performance must complete:

- A minimum of 23 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 17 courses (68 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/deweworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Degree Requirements

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Additional Credit Hours to Complete Degree Requirements ε 6

University Graduation Requirements (p. 29) ε 31

Total Credit Hours 120
Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Policies for the BMus Degree

Admission
An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

• A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school's conducted ensembles as assigned.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://music.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

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Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this
program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Percussion Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Percussion Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Percussion Performance must complete:

- A minimum of 18 courses (83 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.

- A minimum of 13 courses (70 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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Degree Requirements

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<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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Aural Skills and Performance Techniques

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<td>MUSI 231</td>
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<tr>
<td>MUSI 232</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUE II</td>
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Music History
- MUSI 222 / MDEM 222: MEDIEVAL AND RENAISSANCE ERAS (3 hours)
- MUSI 321: BAROQUE AND EARLY CLASSICAL ERAS (3 hours)
- MUSI 322: CLASSICAL AND ROMANTIC ERAS (3 hours)
- MUSI 421: THE MODERN ERA (3 hours)

Individual and Ensemble Study
- MUSI 471: PERCUSSION FOR MAJORS (minimum of 8 semesters) (3 hours)
- MUSI 337: UNDERGRADUATE ORCHESTRA (minimum of 8 semesters) (2 hours)
- MUSI 338: UNDERGRADUATE CHAMBER MUSIC (minimum of 8 semesters) (1 hour)

Recitals
- MUSI 341: JUNIOR RECITAL (0 hours)
- MUSI 441: SENIOR RECITAL (0 hours)

Piano Proficiency Exam
Students must complete and pass the Piano Proficiency Exam.

Total Credit Hours Required for the Major in Percussion Performance 83

Performance
Additional Credit Hours to Complete Degree Requirements * 6
University Graduation Requirements (p. 29) 31

Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Policies for the BMus Degree

Admission
An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.
Opportunities for the BMus Degree
Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Piano Performance
Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Piano Performance
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Piano Performance must complete:

- A minimum of 18 courses (69 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (56 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<td>Total Credit Hours Required for the BMus Degree with a Major in Piano Performance</td>
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2021-2022 General Announcements PDF Generated 09/22/21
## Degree Requirements

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<tr>
<th>Code</th>
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### Music Theory
- **MUSI 211** THEORY I                                    3
- **MUSI 212** THEORY II                                   3
- **MUSI 311** THEORETICAL STUDIES III                     3
- **MUSI 312** THEORETICAL STUDIES IV                      3

Select 1 course from the following:
- **MUSI 315** MULTI-MEDIA COMPOSITION                      3
- **MUSI 378 / ASIA 378** CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC  3
- **MUSI 403** BASIC ELECTRONIC MUSIC                       3
- **MUSI 404** ELECTRONIC MUSIC COMPOSITION                 3
- **MUSI 405** MUSIC BUSINESS AND LAW                       3
- **MUSI 416** ORCHESTRATION                               3
- **MUSI 417** MUSIC FOR MEDIA                              3
- **MUSI 512** ANALYTICAL SYSTEMS                           3
- **MUSI 513** MODAL COUNTERPOINT                          3
- **MUSI 514** SCORE READING AND THEORY AT THE KEYBOARD     3
- **MUSI 517** EARLY MODERN MASTERS                          3
- **MUSI 613** TONAL COUNTERPOINT                           3
- **MUSI 617** MUSIC SINCE 1950                             3

### Aural Skills and Performance Techniques
- **MUSI 231** AURAL SKILLS AND PERFORMANCE TECHNIQUE I      2
- **MUSI 232** AURAL SKILLS AND PERFORMANCE TECHNIQUE II     2
- **MUSI 331** AURAL SKILLS AND PERFORMANCE TECHNIQUES III   2
- **MUSI 332** AURAL SKILLS AND PERFORMANCE TECHNIQUES IV    2

### Music History
- **MUSI 222 / MDEM 222** MEDIEVAL AND RENAISSANCE ERAS     3
- **MUSI 321** BAROQUE AND EARLY CLASSICAL ERAS             3
- **MUSI 322** CLASSICAL AND ROMANTIC ERAS                  3
- **MUSI 421** THE MODERN ERA                              3

### Individual and Ensemble Study
- **MUSI 481** PIANO FOR MAJORS (minimum of 8 semesters)    3

Select a minimum of 8 semesters from the following:  
- **MUSI 335** UNDERGRADUATE CHORUS                          1
- **MUSI 389** COLLABORATIVE PIANO SKILLS                     1
- **MUSI 585** SONATA CLASS                                  1
- **MUSI 642** ACCOMPANYING                                  1
- **MUSI 338** UNDERGRADUATE CHAMBER MUSIC (minimum of 2 semesters)  1

### Recitals
- **MUSI 341** JUNIOR RECITAL                                 0
- **MUSI 441** SENIOR RECITAL                                 0

**Total Credit Hours Required for the Major in Piano Performance**  69

### Additional Credit Hours to Complete Degree Requirements
- **University Graduation Requirements (p. 29)**            20
- **Total Credit Hours**                                    120

### Footnotes and Additional Information

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## Policies for the BMus Degree

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**Curriculum and Degree Requirements**

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Opportunities for the BMus Degree

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Bachelor of Music (BMus)
Degree with a Major in Trombone Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Trombone Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Trombone Performance must complete:
A minimum of 18 courses (79 credit hours) to satisfy major requirements.

A minimum of 120 credit hours to satisfy degree requirements.

A minimum of 13 courses (66 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

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### Degree Requirements

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<td>MUSI 311</td>
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<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>UNDERGRADUATE ORCHESTRA (minimum of 8 semesters)</td>
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<td>MUSI 338</td>
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<td>MUSI 341</td>
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<td>Piano Proficiency Exam</td>
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Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
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Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

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Departmental Transfer Credit Guidelines
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Additional Information
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Opportunities for the BMus Degree

Academic Honors
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Bachelor of Music (BMus) Degree with a Major in Trumpet Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student's major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Trumpet Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Trumpet Performance must complete:

- A minimum of 18 courses (79 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (66 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

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Aural Skills and Performance Techniques

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<td>UNDERGRADUATE ORCHESTRA (minimum of 8 semesters)</td>
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Recitals

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Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam

Total Credit Hours Required for the Major in Trumpet Performance 79
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Bachelor of Music (BMus) Degree with a Major in Tuba Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
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4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Tuba Performance

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Tuba Performance must complete:

- A minimum of 18 courses (79 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (66 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

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Policies for the BMus Degree

Admission
An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university's Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

Academic Standards

Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

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Bachelor of Music (BMus) Degree with a Major in Viola Performance

Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

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2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Viola Performance
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Viola Performance must complete:

- A minimum of 18 courses (81 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 13 courses (68 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<td>MUSI 513</td>
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<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>EARLY MODERN MASTERS</td>
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<td>MUSI 617</td>
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### Aural Skills and Performance Techniques

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<td>MUSI 232</td>
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<td>MUSI 331</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUES III</td>
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<td>MUSI 332</td>
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<td>MUSI 222 / MDEM 222</td>
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<td>BAROQUE AND EARLY CLASSICAL ERAS</td>
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<td>MUSI 322</td>
<td>CLASSICAL AND ROMANTIC ERAS</td>
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### Individual and Ensemble Study

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<td>MUSI 337</td>
<td>UNDERGRADUATE ORCHESTRA (minimum of 8 semesters)</td>
<td>2</td>
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<td>MUSI 338</td>
<td>UNDERGRADUATE CHAMBER MUSIC (minimum of 6 semesters)</td>
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### Recitals

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</tr>
<tr>
<td>MUSI 441</td>
<td>SENIOR RECITAL</td>
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### Piano Proficiency Exam

Students must complete and pass the Piano Proficiency Exam

| Total Credit Hours Required for the Major in Viola Performance | 81 |

### Footnotes and Additional Information

*Footnote: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

### Policies for the BMus Degree

#### Admission

An audition, in person, is required for Instrumental Performance and Vocal Performance undergraduate applicants. A recorded audition may be considered in lieu of a live audition in extreme circumstances. Composition applicants must submit portfolios, and Music History applicants must provide samples of their written work. The Shepherd School faculty and the university’s Committee on Admission jointly determine admission, the latter basing its evaluation on successful academic achievement and other standards of college admission. Transfer applicants from other colleges, conservatories, and universities must audition, and take placement exams in both music history and music theory. Once admitted, their prior preparation in music is assessed, which may reduce the required period of study at Rice.

#### Academic Standards

##### Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

##### Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
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Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.
Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree
Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student’s fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program’s coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor’s degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Bachelor of Music (BMus) Degree with a Major in Violin Performance
Program Learning Outcomes for the BMus Degree
Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Violin Performance
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BMus degree with a major in Violin Performance must complete:

- A minimum of 18 courses (81 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 13 courses (68 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>MUSI 337</td>
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- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

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Opportunities for the BMus Degree

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Additional Information
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Bachelor of Music (BMus) Degree with a Major in Vocal Performance

Program Learning Outcomes for the BMus Degree

Upon completing the BMus degree, students will be able to:

1. Demonstrate technical and musical competence in solo performance, composition, or music-historical research appropriate to the standards of a four-year undergraduate program.
2. Possess intermediate analytical skills in music theory and an understanding of how those skills inform music performance.
3. Acquire a fundamental understanding of the relationship between music history and music performance.
4. Develop superior technical collaborative skills in the student’s major area through a combination of practice, coaching, and rehearsal in large and small ensembles.

Requirements for the BMus Degree with a Major in Vocal Performance

For general university requirements, see Graduation Requirements (p. 29).

Students pursuing the BMus degree with a major in Vocal Performance must complete:

- A minimum of 29 courses (93 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 20 courses (68 credit hours) taken at the 300-level or above.

All students pursuing the BMus degree in any major must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. These students are entitled to one hour of private lessons each week of each semester they are enrolled as a music major; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
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<td>Total Credit Hours Required for the BMus Degree with a Major in Vocal Performance</td>
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Degree Requirements

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<tr>
<td>MUSI 211</td>
<td>THEORY I</td>
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<tr>
<td>MUSI 212</td>
<td>THEORY II</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 311</td>
<td>THEORETICAL STUDIES III</td>
<td>3</td>
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<tr>
<td>MUSI 312</td>
<td>THEORETICAL STUDIES IV</td>
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<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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</tr>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
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Aural Skills and Performance Techniques

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<tr>
<td>MUSI 231</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUE I</td>
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<tr>
<td>MUSI 232</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUE II</td>
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<td>MUSI 331</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUES III</td>
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<tr>
<td>MUSI 332</td>
<td>AURAL SKILLS AND PERFORMANCE TECHNIQUES IV</td>
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Music History

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<td>MUSI 222 / MDEM 222</td>
<td>MEDIEVAL AND RENAISSANCE ERAS</td>
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<td>MUSI 321</td>
<td>BAROQUE AND EARLY CLASSICAL ERAS</td>
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<td>MUSI 322</td>
<td>CLASSICAL AND ROMANTIC ERAS</td>
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<td>MUSI 421</td>
<td>THE MODERN ERA</td>
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Individual and Ensemble Study

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<tr>
<td>MUSI 473</td>
<td>VOICE FOR MAJORS (minimum of 8 semesters)</td>
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<tr>
<td>MUSI 335</td>
<td>UNDERGRADUATE CHORUS (minimum of 8 semesters)</td>
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<td>MUSI 336</td>
<td>UNDERGRADUATE OPERA WORKSHOP (minimum of 4 semesters)</td>
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<td>MUSI 571</td>
<td>VOCAL COACHING (minimum of 2 semesters)</td>
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Diction

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<tr>
<td>MUSI 573</td>
<td>ITALIAN DICTION</td>
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<td>MUSI 574</td>
<td>GERMAN DICTION</td>
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<td>MUSI 577</td>
<td>ENGLISH DICTION</td>
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<tr>
<td>MUSI 578</td>
<td>FRENCH DICTION</td>
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</table>

Voice Repertoire
Academic Standards

Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Examinations
At the end of each semester, a jury examination in applied music may be given over the material studied during the semester. All BMus degree candidates (all students except those pursuing the BA degree with a major in music) must demonstrate keyboard proficiency by examination. If students have little or no knowledge of the keyboard, they should enroll in secondary piano at the beginning of their first semester and continue study until they can meet the examination requirements.

Performance
Students are expected to perform frequently during their residence at Rice. Performance majors must present at least two full recitals; composition majors must present at least one full recital. Students are expected to attend both faculty and student recitals. In addition, all music majors must participate in the school’s conducted ensembles as assigned.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a BMus degree seeking student and merit scholarship from the Shepherd School will be discontinued.

Please Note: For music history and musicology majors, a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as noted above. For music theory majors, a grade of C+ (2.33 grade points) or lower in any advanced music theory course is considered unsatisfactory and will be evaluated as noted above.

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Departmental Transfer Credit Guidelines
Students pursuing the BMus degree should be aware of the following departmental transfer credit guidelines:
• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the BMus Degree

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

BMus/MMus Honors Program
Shepherd School students who demonstrate truly exceptional musical and academic accomplishment may apply for the BMus/MMus five-year coordinated program. This program, often referred to in the school as the BMus/MMus Honors Program, allows for the completion and awarding of both the BMus and MMus degrees concurrently. Application to this program is made in the student's fifth or sixth semester of undergraduate studies.

The same general university requirements apply, but students seeking the program's coordinated BMus/MMus degrees must complete a total of at least 150 semester hours by graduation. The number of required hours varies according to major area. In order to earn the MMus degree, a minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) must be completed.

The first five semesters of course work in this program parallel the core curriculum of the bachelor's degrees. The sixth semester is a transitional semester during which students qualify for admission to the combined program. For further information, including application procedures, see the Shepherd School Student Handbook.

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Doctor of Musical Arts (DMA) Degree in the field of Cello Performance

Program Learning Outcomes for the DMA Degree
Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree
For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

• A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Cello Performance

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the DMA Degree in the field of Cello Performance</td>
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Degree Requirements

Performance Requirements

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<th>Credit Hours</th>
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<tr>
<td>MUSI 695</td>
<td>VIOLONCELLO FOR MAJORS-ADVANCED (minimum of 8 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 751</td>
<td>DOCTORAL SOLO RECITAL</td>
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Field of Study Specific Requirements

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<tr>
<td>MUSI 492</td>
<td>STRING TECHNOLOGY</td>
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DMA Core Requirements

<table>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 733</td>
<td>DOCTORAL SEMINAR I: CAREER SKILLS</td>
<td>3</td>
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<tr>
<td>MUSI 735</td>
<td>DOCTORAL SEMINAR II: REPERTORY</td>
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</table>
Doctor of Musical Arts (DMA) Degree in the field of Cello Performance

MUSI 736  SOLO REPERTORY FOR DOCTORAL STUDENTS  3
MUSI 738  DOCTORAL INDIVIDUAL PROJECT  3
MUSI 739  PEDAGOGY FOR DOCTORAL STUDENTS  3

Academic Coursework
Select 4 courses from the Music History course offerings (see course list below)  12
Select 2 courses from the Music Theory course offerings (see course list below)  6

Elective Requirements
Select 11 credit hours at the 300-level or above  11

Classroom Teaching
Students must complete the Classroom Teaching requirement
Examinations
Students must demonstrate the following proficiencies:
- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations

Doctoral Document
MUSI 750  DOCTORAL DOCUMENT (minimum of 2 semesters)  3

Total Credit Hours  90

Footnotes and Additional Information
1 At least six of the required eight semesters of MUSI 695 Violoncello for Majors-Advanced must be taken during residency as a DMA student.
2 Students pursuing the DMA degree on a string instrument must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. Within those four semesters are eight rotations which are generally fulfilled by two orchestra rotations each semester. The student in consultation with their major teacher may choose from Chamber Orchestra, Symphony Orchestra, Opera Orchestra or the Modular Ensemble Framework (MEF) for up to four of the eight rotations. They may also elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.
3 Five (5) doctoral recitals performed while in residency as a DMA student as follows:
   - Two (2) Solo recitals
   - One (1) Lecture recital
   - One (1) Chamber Music recital
   - One (1) Concerto with orchestra
4 Four (4) courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.
5 Two (2) courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.
6 Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree.
7 The doctoral document must be publicly defended.

Academic Coursework
Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

Music History Courses
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
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<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
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<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
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<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
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<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
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<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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Music Theory Courses
<table>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
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</table>
Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/ (https://music.rice.edu/)

Opportunities for the DMA Degree

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
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Doctor of Musical Arts (DMA) Degree in the field of Clarinet Performance

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.

4. Develop career development skills that complement their professional-level performance skills.

5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor's degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Clarinet Performance

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
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Degree Requirements

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<tbody>
<tr>
<td></td>
<td>Performance Requirements</td>
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<tr>
<td>MUSI 655</td>
<td>CLARINET FOR MAJORS-ADVANCED (minimum of 8 semesters)</td>
<td>3</td>
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<td></td>
<td>DMA Core Requirements</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 733</td>
<td>DOCTORAL SEMINAR I: CAREER SKILLS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 735</td>
<td>DOCTORAL SEMINAR II: REPERTORY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 736</td>
<td>SOLO REPERTORY FOR DOCTORAL STUDENTS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 738</td>
<td>DOCTORAL INDIVIDUAL PROJECT</td>
<td>3</td>
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<tr>
<td>MUSI 739</td>
<td>PEDAGOGY FOR DOCTORAL STUDENTS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Academic Coursework</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 4 courses from the Music History course offerings (see course list below)</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from the Music Theory course offerings (see course list below)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Elective Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 13 credit hours at the 300-level or above</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Classroom Teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students must complete the Classroom Teaching requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Examinations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Students must demonstrate the following proficiencies:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piano proficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aural skills proficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written and oral qualifying examinations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doctoral Document</td>
<td></td>
</tr>
<tr>
<td>MUSI 750</td>
<td>DOCTORAL DOCUMENT (minimum of 2 semesters)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. At least six of the required eight semesters of MUSI 655 Clarinet for Majors-Advanced must be taken during residency as a DMA student.

2. Students pursuing the DMA degree on a wind instrument or percussion must be enrolled in MUSI 635 Advanced Orchestral during four of their six semesters of residency. They may elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.

3. Doctoral recital requirements can be fulfilled in any of the following combinations for four (4) total performed while a DMA student:
   - three (3) solo recitals and one (1) lecture recital;
   - two (2) solo recitals, one (1) lecture recital, one (1) mock audition

4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.

5. 2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.

6. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

7. The doctoral document must be publicly defended.

Academic Coursework

Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
</tbody>
</table>
Admission
A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

### Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
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<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RADEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
</tbody>
</table>

### Policies for the DMA Degree

**Shepherd School of Music Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)
Doctor of Musical Arts (DMA) Degree in the field of Composition

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Composition

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the DMA Degree in the field of Composition</td>
<td>96</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. Two (2) doctoral recitals of original compositions.
2. Performance coursework may be satisfied by any combination of private instrumental and/or vocal study (such as MUSI 251:297 except MUSI 281 Secondary Piano, MUSI 351:373, MUSI 381:398), classes in conducting or score reading, or performance in large ensembles or sonata class (such as MUSI 334, MUSI 436, MUSI 444, MUSI 502, MUSI 514, MUSI 585, or MUSI 640). Piano lessons are strongly recommended.
3. 6 courses (3 credit hours each) comprise the 18 credit hours required of Music History coursework.
4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music Theory coursework.
Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree.

Students are required to write an original composition of substantial dimensions. The composition must be publicly defended and submitted, following the university’s regulations and procedures for candidacy, oral examination, and thesis (p. 72).

Academic Coursework
Academic Coursework is comprised of a minimum of 6 courses (18 credit hours) from Music History course offerings and a minimum of 4 courses (12 credit hours) from Music Theory course offerings.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
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<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
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<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<tr>
<td>MUSI 612</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
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<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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Music Theory Courses

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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<td>EARLY MODERN MASTERS</td>
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</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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</tr>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
</tbody>
</table>

Policies for the DMA Degree

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Admission

A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may...
not represent the school in any public function not directly a part of a degree program.
• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu (https://music.rice.edu/)

Oppportunities for the DMA Degree

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu (https://music.rice.edu/)

Doctor of Musical Arts (DMA) Degree in the field of Double Bass Performance

Program Learning Outcomes for the DMA Degree
Upon completing the DMA degree, students will be able to:
1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree
For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

• A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Double Bass Performance

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the DMA Degree in the field of Double Bass Performance</td>
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Degree Requirements

<table>
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<th>Credit Hours</th>
</tr>
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Performance Requirements

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MUSI 697</td>
<td>DOUBLE BASS FOR MAJORS-ADVANCED (minimum of 8 semesters)</td>
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</tr>
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<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
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<td>MUSI 751</td>
<td>DOCTORAL SOLO RECITAL</td>
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Field of Study Specific Requirements

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<td>MUSI 492</td>
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DMA Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
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<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 733</td>
<td>DOCTORAL SEMINAR I: CAREER SKILLS</td>
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</tr>
<tr>
<td>MUSI 735</td>
<td>DOCTORAL SEMINAR II: REPERTORY</td>
<td>3</td>
</tr>
</tbody>
</table>
Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations

**Academic Coursework**

Select 4 courses from the Music History course offerings (see course list below)  
Select 2 courses from the Music Theory course offerings (see course list below)

**Elective Requirements**

Select 11 credit hours at the 300-level or above

**Classroom Teaching**

Students must complete the Classroom Teaching requirement

**Examinations**

- Written and oral qualifying examinations
- Aural skills proficiency
- Piano proficiency

**Doctoral Document**

- MUSI 750: DOCTORAL DOCUMENT (minimum of 2 semesters)

**Total Credit Hours**

90

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**Footnotes and Additional Information**

1. At least six of the required eight semesters of MUSI 697 Double Bass for Majors-Advanced must be taken during residency as a DMA student.

2. Students pursuing the DMA degree on a string instrument must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. Within those four semesters are eight rotations which are generally fulfilled by two chamber orchestra rotations each semester. The student in consultation with their major teacher may choose from Chamber Orchestra, Symphony Orchestra, Opera Orchestra or the Modular Ensemble Framework (MEF) for up to four of the eight rotations. They may also elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.

3. Four (4) doctoral recitals performed while in residency as a DMA student as follows:
   - Two (2) Solo recitals
   - One (1) Lecture recital
   - One (1) Chamber Music recital

4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework, 2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.

5. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

6. Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree.

7. The doctoral document must be publicly defended.

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**Academic Coursework**

Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

**Music History Courses**

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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
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Policies for the DMA Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf.

Admission

A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu (https://music.rice.edu/)

Opportunities for the DMA Degree

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu (https://music.rice.edu/)

Doctor of Musical Arts (DMA) Degree in the field of Flute Performance

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.

4. Develop career development skills that complement their professional-level performance skills.

5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

**Requirements for the DMA Degree**

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

**Requirements for the DMA Degree in the field of Flute Performance**

**Summary**

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<tr>
<th>Code</th>
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<tr>
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<td>Total Credit Hours Required for the DMA Degree in the field of Flute Performance</td>
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**Degree Requirements**

**Performance Requirements**

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<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
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<td>DOCTORAL SOLO RECITAL</td>
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**DMA Core Requirements**

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<td>ANALYTICAL APPROACHES</td>
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</table>

**Academic Coursework**

Select 4 courses from the Music History course offerings (see course list below) 12

Select 2 courses from the Music Theory course offerings (see course list below) 6

**Elective Requirements**

Select 13 credit hours at the 300-level or above 13

**Classroom Teaching**

Students must complete the Classroom Teaching requirement

**Examinations**

Students must demonstrate the following proficiencies:

- Piano proficiency

**Footnotes and Additional Information**

1. At least six of the required eight semesters of MUSI 651 Flute for Majors-Advanced must be taken during residency as a DMA student.

2. Students pursuing the DMA degree on a wind instrument or percussion must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. They may elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.

3. Doctoral recital requirements can be fulfilled in any of the following combinations for four (4) total performed while a DMA student:
   - three (3) solo recitals and one (1) lecture recital; or
   - two (2) solo recitals, one (1) lecture recital, one (1) mock audition

4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework. 2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.

5. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

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Additional Information
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Doctor of Musical Arts (DMA) Degree in the field of Oboe Performance

Program Learning Outcomes for the DMA Degree
Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree
For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Oboe Performance

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Academic Coursework

Select 4 courses from the Music History course offerings (see course list below) 12
Select 2 courses from the Music Theory course offerings (see course list below) 6

Elective Requirements

Select 13 credit hours at the 300-level or above 13

Classroom Teaching

Students must complete the Classroom Teaching requirement

Examinations

Students must demonstrate the following proficiencies:
- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations

Doctoral Document

MUSI 750 | DOCTORAL DOCUMENT (minimum of 2 semesters) 3

Total Credit Hours 90

Footnotes and Additional Information

1 At least six of the required eight semesters of MUSI 653 Oboe for Majors-Advanced must be taken during residency as a DMA student.
2 Students pursuing the DMA degree on a wind instrument or percussion must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. They may elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.
3 Four (4) doctoral recitals performed while in residency as a DMA student as follows:
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2021-2022 General Announcements PDF Generated 09/22/21
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Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

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</table>

### Policies for the DMA Degree

#### Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

#### Admission

A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

#### Academic Standards

#### Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

#### Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may
Doctor of Musical Arts (DMA) Degree in the field of Organ Performance

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Organ Performance

Summary

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Degree Requirements

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<td>MUSI 711</td>
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Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu (https://music.rice.edu/)
Doctor of Musical Arts (DMA) Degree in the field of Organ Performance

- MUSI 733 DOCTORAL SEMINAR I: CAREER SKILLS 3
- MUSI 735 DOCTORAL SEMINAR II: REPERTORY 3
- MUSI 736 SOLO REPERTORY FOR DOCTORAL STUDENTS 3
- MUSI 738 DOCTORAL INDIVIDUAL PROJECT 3
- MUSI 739 PEDAGOGY FOR DOCTORAL STUDENTS 3

Academic Coursework 4
Select 4 courses from the Music History course offerings (see course list below) 12
Select 2 courses from the Music Theory course offerings (see course list below) 6

Elective Requirements
Select 11 credit hours at the 300-level or above 5 11

Classroom Teaching
Students must complete the Classroom Teaching requirement

Examinations 6
Students must demonstrate the following proficiencies:
- Aural skills proficiency
  - Written and oral qualifying examinations

Doctoral Document
MUSI 750 DOCTORAL DOCUMENT (minimum of 2 semesters) 7 3

Total Credit Hours 92

Footnotes and Additional Information
1 At least six of the required eight semesters of MUSI 683 Organ for Majors-Advanced must be taken during residency as a DMA student.
2 MUSI 736 Solo Repertory for Doctoral Students is required for a minimum of 2 semesters (1 semester as a Performance Requirement and 1 semester as a DMA Core Requirement).
3 Four (4) doctoral recitals performed while in residency as a DMA student as follows:
  - Two (2) Solo recitals
  - One (1) Lecture recital
  - One (1) Chamber recital
4 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.
12 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.
5 Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count toward degree requirements.
6 Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree. DMA students in the field of Organ Performance do not have to demonstrate piano proficiency.
7 The doctoral document must be publicly defended.

Academic Coursework
Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

Music History Courses

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<th>Credit Hours</th>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<td>THE CLASSICAL STYLE</td>
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<td>ROMANTIC SONGS AND PIANO PIECES</td>
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Music Theory Courses

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Policies for the DMA Degree
Shepherd School of Music Graduate Program Handbook

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Admission
A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

• A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the DMA Degree
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Doctor of Musical Arts (DMA) Degree in the field of Percussion Performance
Program Learning Outcomes for the DMA Degree
Upon completing the DMA degree, students will be able to:
1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

**Requirements for the DMA Degree**

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

**Requirements for the DMA Degree in the field of Percussion Performance**

**Summary**

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**Degree Requirements**

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<tr>
<td></td>
<td><strong>Performance Requirements</strong></td>
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- MUSI 671 PERCUSSION FOR MAJORS-ADVANCED (minimum of 8 semesters)  
- MUSI 635 ADVANCED ORCHESTRA (minimum of 4 semesters)  
- MUSI 751 DOCTORAL SOLO RECITAL  
- MUSI 611 CLASSROOM PEDAGOGY  
- MUSI 711 ANALYTICAL APPROACHES  
- MUSI 733 DOCTORAL SEMINAR I: CAREER SKILLS  
- MUSI 735 DOCTORAL SEMINAR II: REPERTORY  
- MUSI 736 SOLO REPERTORY FOR DOCTORAL STUDENTS  
- MUSI 738 DOCTORAL INDIVIDUAL PROJECT  
- MUSI 739 PEDAGOGY FOR DOCTORAL STUDENTS  
- Academic Coursework  
- Select 4 courses from the Music History course offerings (see course list below)  
- Select 2 courses from the Music Theory course offerings (see course list below)  
- Elective Requirements  
- Select 13 credit hours at the 300-level or above  

**Classroom Teaching**

Students must complete the Classroom Teaching requirement

**Examinations**

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations

**Doctoral Document**

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**Total Credit Hours**

90

**Footnotes and Additional Information**

1. At least 6 of the required 8 semesters of MUSI 671 Percussion for Majors-Advanced must be taken during residency as a DMA student.
2. Students pursuing the DMA degree on a wind instrument or percussion must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. They may elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.
3. Four (4) doctoral recitals performed while in residence as a DMA student as follows:
   - One (1) Lecture recital
   - Two (2) Solo recitals
   - One (1) Chamber Music recital
4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.
5. 2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.
6. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.
7. Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree.

**Academic Coursework**

Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.
### Music History Courses

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<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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</table>

### Policies for the DMA Degree

**Shepherd School of Music Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

**Admission**

A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

**Academic Standards**

**Curriculum and Degree Requirements**

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

**Note:** For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

**Graduate degree requirement:** A minimum overall grade point average of 2.67 is necessary for graduation.

**Leaves of Absence and Voluntary Withdrawal**

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions.
on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the DMA Degree
Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Doctor of Musical Arts (DMA) Degree in the field of Piano Performance

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor's degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Piano Performance

Summary

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the DMA Degree in the field of Piano Performance</td>
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Degree Requirements

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<tr>
<th>Code</th>
<th>Title</th>
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<td>Performance Requirements</td>
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<td>MUSI 681</td>
<td>PIANO FOR MAJORS-ADVANCED (minimum of 8 semesters)</td>
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<td>MUSI 736</td>
<td>SOLO REPERTORY FOR DOCTORAL STUDENTS (minimum of 2 semesters)</td>
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<td>DOCTORAL SOLO RECITAL</td>
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<td>DMA Core Requirements</td>
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<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 733</td>
<td>DOCTORAL SEMINAR I: CAREER SKILLS</td>
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<td>DOCTORAL SEMINAR II: REPERTORY</td>
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<td>PEDAGOGY FOR DOCTORAL STUDENTS</td>
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<tr>
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<td>Select 2 courses from the Music Theory course offerings (see course list below)</td>
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<td>Students must complete the Classroom Teaching requirement</td>
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<td>Examinations</td>
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<td>Students must demonstrate the following proficiencies:</td>
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<td>Aural skills proficiency</td>
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<td>Written and oral qualifying examinations</td>
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<tr>
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</table>

Total Credit Hours

90

Footnotes and Additional Information

1 At least six of the required eight semesters of MUSI 681 Piano for Majors-Advanced must be taken during residency as a DMA student.
2 MUSI 736 Solo Repertory for Doctoral Students is required for a total of 3 semesters (2 semesters for Performance Requirements and 1 semester for DMA Core Requirements).
Five (5) doctoral recitals performed while in residence as a DMA student as follows:
- Two (2) Solo recitals
- One (1) Lecture recital
- One (1) Chamber Music recital
- One (1) Concerto with Orchestra

4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.
2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.

Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree. DMA students in the field of Piano Performance do not have to demonstrate piano proficiency.

The doctoral document must be publicly defended.

Academic Coursework
Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

Music History Courses
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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
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<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<td>MUSI 528</td>
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<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
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<td>MUSIC OF RICHARD STRAUSS</td>
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<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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Music Theory Courses
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<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
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<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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Opportunities for the DMA Degree
Other Musical Opportunities
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Additional Information
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Doctor of Musical Arts (DMA) Degree in the field of Viola Performance
Program Learning Outcomes for the DMA Degree
Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree
For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Viola Performance
Summary

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Degree Requirements

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<td>VIOLA FOR MAJORS-ADVANCED (minimum of 8 semesters) 1</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters) 2</td>
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Field of Study Specific Requirements

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<tr>
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<tr>
<td>MUSI 492</td>
<td>STRING TECHNOLOGY</td>
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2021-2022 General Announcements PDF Generated 09/22/21
### DMA Core Requirements

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<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<td>DOCTORAL SEMINAR II: REPERTORY</td>
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<td>SOLO REPERTORY FOR DOCTORAL STUDENTS</td>
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<td>MUSI 739</td>
<td>PEDAGOGY FOR DOCTORAL STUDENTS</td>
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#### Academic Coursework

- **Select 4 courses from the Music History course offerings (see course list below)**: 12 credit hours
- **Select 2 courses from the Music Theory course offerings (see course list below)**: 6 credit hours

#### Elective Requirements

- **Select 11 credit hours at the 300-level or above**: 11 credit hours

### Classroom Teaching

**Students must complete the Classroom Teaching requirement**

### Examinations

- **Students must demonstrate the following proficiencies:**
  - Piano proficiency
  - Aural skills proficiency
  - Written and oral qualifying examinations

### Doctoral Document

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<td>MUSI 750</td>
<td>DOCTORAL DOCUMENT (minimum of 2 semesters)</td>
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</table>

### Total Credit Hours

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### Footnotes and Additional Information

1. At least 6 of the required 8 semesters of MUSI 693 Viola for Majors-Advanced must be taken during residency as a DMA student.

2. Students pursuing the DMA degree on a string instrument must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. Within those four semesters are eight rotations which are generally fulfilled by two chamber orchestra rotations each semester. The student in consultation with their major teacher may choose from Chamber Orchestra, Symphony Orchestra, Opera Orchestra or the Modular Ensemble Framework (MEF) for up to four of the eight rotations. They may also elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.

3. Doctoral recital requirements can be fulfilled in any of the following combinations for five (5) total performed while a DMA student:
   - two (2) solo recitals, one (1) lecture recital, one (1) chamber music recital, and one (1) concerto with orchestra; or
   - three (3) solo recitals, one (1) lecture recital, one (1) chamber music recital; or
   - two (2) solo recitals, one (1) lecture recital, two (2) chamber music recitals

4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.

5. 2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.

6. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

7. Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree.

The doctoral document must be publicly defended.

### Academic Coursework

Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

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<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>RENAISSANCE MUSIC</td>
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Policies for the DMA Degree

Shepherd School of Music Graduate Program Handbook

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Admission

A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the DMA Degree

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu
Doctor of Musical Arts (DMA) Degree in the field of Violin Performance

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor's degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Violin Performance

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 691</td>
<td>VIOLIN FOR MAJORS-ADVANCED (minimum of 8 semesters)</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 751</td>
<td>DOCTORAL SOLO RECITAL</td>
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Degree Requirements

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Field of Study Specific Requirements

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<td>MUSI 492</td>
<td>STRING TECHNOLOGY</td>
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DMA Core Requirements

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<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 733</td>
<td>DOCTORAL SEMINAR I: CAREER SKILLS</td>
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</tr>
<tr>
<td>MUSI 735</td>
<td>DOCTORAL SEMINAR II: REPERTORY</td>
<td>3</td>
</tr>
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</table>

Academic Coursework

Select 4 courses from the Music History course offerings (see course list below) 12
Select 2 courses from the Music Theory course offerings (see course list below) 6

Elective Requirements

Select 11 credit hours at the 300-level or above 5

Classroom Teaching

Students must complete the Classroom Teaching requirement

Examinations

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations

Doctoral Document

MUSI 750 | DOCTORAL DOCUMENT (minimum of 2 semesters) | 3 |

Total Credit Hours 90

Footnotes and Additional Information

1. At least 6 of the required 8 semesters of MUSI 691 Violin for Majors-Advanced must be taken during residency as a DMA student.
2. Students pursuing the DMA degree on a string instrument must be enrolled in MUSI 635 Advanced Orchestra during four of their six semesters of residency. Within those four semesters are eight rotations which are generally fulfilled by two chamber orchestra rotations each semester. The student in consultation with their major teacher may choose from Chamber Orchestra, Symphony Orchestra, Opera Orchestra or the Modular Ensemble Framework (MEF) for up to four of the eight rotations. They may also elect to enroll in one or two additional semesters or be required to do so by their major teacher. The student in consultation with their major teacher will choose the semesters for participation.
3. Five (5) doctoral recitals performed while in residency as a DMA student as follows:
   • Two (2) Solo recitals
   • One (1) Lecture recital
   • One (1) Chamber Music recital
   • One (1) Concerto with orchestra
4. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.
   2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.
5. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.
Academic Coursework

Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
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<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
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<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
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<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
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Music Theory Courses

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<td>MUSI 512</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<td>EARLY MODERN MASTERS</td>
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<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<td>CLASSROOM PEDAGOGY</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
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<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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Policies for the DMA Degree

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Curriculum and Degree Requirements

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A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

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Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
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Opportunities for the DMA Degree

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu (https://music.rice.edu)

Doctor of Musical Arts (DMA) Degree in the field of Vocal Performance

Program Learning Outcomes for the DMA Degree

Upon completing the DMA degree, students will be able to:

1. Demonstrate technical and musical competence in performance or composition at a professional level.
2. Develop highly developed analytical skills in advanced music theory and a profound understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance with greater familiarity of a wide variety of historical and contemporary performance practices.
4. Develop career development skills that complement their professional-level performance skills.
5. Develop working knowledge of and have experience with both classroom teaching and studio teaching methods at the conservatory and university levels.

Requirements for the DMA Degree

For general university requirements, see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the DMA degree in all fields of study must complete:

- A minimum of 90 credit hours beyond the bachelor’s degree to satisfy degree requirements.

Requirements for the DMA Degree in the field of Vocal Performance

Summary

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<tr>
<th>Code</th>
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<tr>
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<td>Total Credit Hours Required for the DMA Degree in the field of Vocal Performance</td>
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Degree Requirements

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<td>MUSI 570</td>
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<td>MUSI 572</td>
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DMA Core Requirements

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<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 733</td>
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<td>DOCTORAL SEMINAR II: REPETORY</td>
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<td>MUSI 739</td>
<td>PEDAGOGY FOR DOCTORAL STUDENTS</td>
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Academic Coursework

- Select 4 courses from the Music History course offerings (see course list below) | 12 |
- Select 2 courses from the Music Theory course offerings (see course list below) | 6 |

Elective Requirements

Select 15-17 credit hours at the 300-level or above | 15-17 |

Classroom Teaching

Students must complete the Classroom Teaching requirement
## Music History Courses

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<tr>
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<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
</tbody>
</table>

## Examinations

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency
- Written and oral qualifying examinations

## Doctoral Document

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 750</td>
<td>DOCTORAL DOCUMENT (minimum of 2 semesters)</td>
<td>3</td>
</tr>
</tbody>
</table>

## Footnotes and Additional Information

1. At least 6 of the required 8 semesters of MUSI 673 Voice for Majors-Advanced must be taken during residency as a DMA student.

2. Four (4) doctoral recitals performed while in residency as a DMA student as follows:
   - Two (2) Solo recitals
   - One (1) Lecture recital
   - One (1) Chamber recital

3. 4 courses (3 credit hours each) comprise the 12 credit hours required of Music History coursework.
   2 courses (3 credit hours each) comprise the 6 credit hours required of Music Theory coursework.

4. Graduate academic coursework taken elsewhere may be transferred with the approval of the relevant Department Chair. Additional hours of required performance coursework may not count toward the elective requirement. A maximum of three (3) credit hours of MUSI 649 Graduate Independent Study can count towards degree requirements.

5. Diagnostic examinations in music history and music theory are given prior to admission to The Shepherd School, and play an important role in the admissions decision. Weaknesses in these areas will be addressed by courses designated by the chairs of the respective departments. These will count within either the Academic Coursework or Elective category. Doctoral students must also pass proficiency exams in aural skills and piano. These exams are scheduled at the beginning of each academic year. If required, MUSI 432 Graduate Aural Skills Review and/or MUSI 281 Secondary Piano must be taken, but neither will count towards the total number of hours required for the degree.

6. The doctoral document must be publicly defended.

## Academic Coursework

Academic Coursework is comprised of a minimum of 4 courses (12 credit hours) from Music History course offerings and a minimum of 2 courses (6 credit hours) from Music Theory course offerings.

## Policies for the DMA Degree

### Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

### Admission

A live audition is required for Instrumental Performance and Vocal Performance applicants. Composition applicants must submit a portfolio.
of representative works and interview with faculty. All doctoral applicants must complete exams in Music History and Music Theory and provide a recent research or analytic paper.

**Academic Standards**

**Curriculum and Degree Requirements**

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

**Note:** For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

**Graduate degree requirement:** a minimum overall grade point average of 2.67 is necessary for graduation.

**Leaves of Absence and Voluntary Withdrawal**

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the DMA degree should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

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**Additional Information**

For additional information, please see the Shepherd School of Music website: [https://music.rice.edu/](https://music.rice.edu/)

**Opportunities for the DMA Degree**

**Other Musical Opportunities**

**Lectures and Performances**

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**

For additional information, please see the Shepherd School of Music website: [https://music.rice.edu/](https://music.rice.edu/)

**Master of Music (MMus) Degree in the field of Bassoon Performance**

**Program Learning Outcomes for the MMus Degree**

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

**Requirements for the MMus Degree**

The MMus degree in the field of Bassoon Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Bassoon Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1657) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Bassoon Performance</td>
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Degree Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>MUSI 656</td>
<td>BASSOON FOR MAJORS-ADVANCED</td>
<td>3</td>
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<tr>
<td>(minimum of 4 semesters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4</td>
<td>2</td>
</tr>
<tr>
<td>semesters)</td>
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<td></td>
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<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4</td>
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</tr>
<tr>
<td>semesters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4</td>
<td>1</td>
</tr>
<tr>
<td>semesters)</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
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<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
<td></td>
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</table>

Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below) 3
Select 1 additional course from Music Theory or Music History course offerings (see course lists below) 3
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4
Select 6 credit hours from the Elective Requirements (see course list below) 6

Proficiencies

Students must demonstrate the following proficiencies:
- Piano proficiency
- Aural skills proficiency

Footnotes and Additional Information

1. No more than three (3) credit hours of Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student's degree plan.

Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND</td>
<td>3</td>
</tr>
<tr>
<td>MUSIC THEORY COMPOSITION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
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</tbody>
</table>

Additional Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378</td>
<td>CLASSICAL, CONTEMPORARY, AND</td>
<td>3</td>
</tr>
<tr>
<td>ASIA 378</td>
<td>CROSS-CULTURAL ASIAN MUSIC</td>
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<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRAIAN</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td></td>
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<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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### Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
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<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
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<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
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<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
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<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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### Music Career and Skills Enhancement Courses

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<th>Code</th>
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<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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### Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
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<tbody>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

### Policies for the MMus Degree

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

### Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.
Academic Standards

Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMUs students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMUs students must participate in the school’s conducted ensembles as assigned.

Thesis
A thesis is required for MMUs students in the field of Musicology. In lieu of a thesis, MMUs students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Cello Performance
Program Learning Outcomes for the MMus Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Cello Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Cello Performance must complete:
• A minimum of 44 credit hours to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1660) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

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<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the MMus Degree in the field of Cello Performance</td>
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### Degree Requirements

#### Performance Requirements

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<tr>
<td>MUSI 695</td>
<td>VIOLONCELLO FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
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<td>MUSI 531</td>
<td>ORCHESTRAL REPETOIRE (minimum of 4 semesters)</td>
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<td>MUSI 641</td>
<td>MASTER’S RECITAL I</td>
<td>0</td>
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<td>MUSI 741</td>
<td>MASTER’S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
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#### Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below)
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below)
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)
Select 6 credit hours as Elective Requirements (see course list below)

<table>
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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRA</td>
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<td>MUSI 517</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
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<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
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<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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#### Additional Music Theory Courses

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<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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### Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2 Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

### Academic Coursework

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.
### Music History Courses

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<tr>
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<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
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<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
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<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
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<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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### Music Career and Skills Enhancement Courses

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<th>Credit Hours</th>
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<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
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<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
</tbody>
</table>

### Elective Requirements

Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
- MUSI 436 / MDEM 456 COLLEGIUM MUSICUM
- MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
- MUSI 585 SONATA CLASS
- MUSI 649 GRADUATE INDEPENDENT STUDY

### Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

### Policies for the MMus Degree

#### Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School...
MMus students must participate in the school’s conducted ensembles as assigned.

**Thesis**
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

**Transfer Credit**
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu](https://music.rice.edu)

### Opportunities for the MMus Degree

#### Other Musical Opportunities

**Lectures and Performances**
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu](https://music.rice.edu)

#### Master of Music (MMus) Degree in the field of Clarinet Performance

**Program Learning Outcomes for the MMus Degree**

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.

---

**Admission**
For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

**Academic Standards**

**Curriculum and Degree Requirements**
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

**Note:** For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

**Leaves of Absence and Voluntary Withdrawal**
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

**Performance**
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree

The MMus degree in the field of Clarinet Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Clarinet Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1664) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

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<tr>
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### Degree Requirements

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<td>MUSI 655</td>
<td>CLARINET FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
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### Approved Music Theory Courses

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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
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<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
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</tbody>
</table>

### Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below) 3
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below) 3
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4
Select 6 credit hours from the Elective Requirements (see course list below) 6

Proficiencies

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Total Credit Hours 44

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

Academic Coursework

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## Additional Music Theory Courses

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MUSI 315</td>
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<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
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<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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## Music Career and Skills Enhancement Courses

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<td>LPCR 200</td>
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<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
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<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
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<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
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<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
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<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
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## Music History Courses

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<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<td>MUSIC OF RICHARD STRAUSS</td>
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<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
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<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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## Elective Requirements

Select 6 credit hours from the following:  

- Any course at the 300-level or above  
- Any language course at the 100-level or above  
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course  
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)  
- MUSI 342 | RICE JAZZ ENSEMBLE  
- MUSI 345 | APPLIED STUDIES IN JAZZ  
- MUSI 381 | CONCENTRATION PIANO  
- MUSI 436 / MDEM 456 | COLLEGIUM MUSICUM  
- MUSI 444 | PRACTICUM IN CONTEMPORARY MUSIC  

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Rice University 1663  

2021-2022 General Announcements PDF Generated 09/22/21
Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree
Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

• A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis

A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu
Master of Music (MMus) Degree in the field of Composition

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree

The MMus degree in the field of Composition is a thesis master's degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Composition must complete:

- A minimum of 48-52 credit hours, depending on course selection, to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1667) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 601</td>
<td>COMPOSITION FOR MAJORS ADVANCED AND GRADUATES (minimum of 4 semesters)</td>
<td>3</td>
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<tr>
<td>MUSI 603</td>
<td>GRADUATE COMPOSITION SEMINAR (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td></td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC 1</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION 1</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
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<tr>
<td>MUSI 647</td>
<td>MASTER'S THESIS 2</td>
<td>3</td>
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</table>

Other Requirements

Select 6 credit hours from the Elective Requirements (see course lists below) 3

Select 2 courses from Performance Coursework (see course lists below) 4

Proficiencies 5

Students must demonstrate the following proficiencies:

- Piano proficiency 4
- Aural skills proficiency

Footnotes and Additional Information

1 Electronic Music courses are chosen following faculty advisement.
2 The master's thesis must be publicly defended.
3 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.
4 Piano lessons are strongly recommended as the Performance Coursework for MMus students in the field of Composition until piano proficiency is proven. Performance hours may be satisfied by any combination of private instrumental or vocal study, classes in conducting or score reading, or performance in sonata class or large ensembles. Please Note: Some of these courses may result in additional fees.
Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

**Other Requirements**
Students must complete 6 credit hours from the Elective Requirements, and 2 courses (2-6 credit hours, depending on course selection) from the Performance Coursework lists below.

### Elective Requirements

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<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<td></td>
<td>Any course at the 300-level or above</td>
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<td>MUSI 436 / MDEM 456</td>
<td>COLLEGIUM MUSICUM</td>
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<td>MUSI 444</td>
<td>PRACTICUM IN CONTEMPORARY MUSIC</td>
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<td>MUSI 585</td>
<td>SONATA CLASS</td>
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<tr>
<td>MUSI 649</td>
<td>GRADUATE INDEPENDENT STUDY</td>
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### Course Lists to Satisfy Requirements

#### Additional Music Theory Courses

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<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
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<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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Music Career and Skills Enhancement Courses

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<td>ADVANCED MENTAL TRAINING</td>
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<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
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<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
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<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
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<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
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<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
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<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
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<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
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<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
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<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

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- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/re-audition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school's conducted ensembles as assigned.

Thesis

A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.
**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
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**Additional Information**

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**Opportunities for the MMus Degree**

**Other Musical Opportunities**

**Lectures and Performances**

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

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---

**Master of Music (MMus) Degree in the field of Double Bass Performance**

**Program Learning Outcomes for the MMus Degree**

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

**Requirements for the MMus Degree**

The MMus degree in the field of Double Bass Performance is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All

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**Graduate Students** (p. 60). Students pursuing the MMus degree in the field of Double Bass Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1670) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Double Bass Performance</td>
<td>44</td>
</tr>
</tbody>
</table>

**Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 697</td>
<td>DOUBLE BASS FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 2 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 599</td>
<td>STRING PEDAGOGY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
</tbody>
</table>
or MUSI 631 MOCK AUDITION

**Academic Coursework**

Select 1 course from the Approved Music Theory course offerings (see course list below)  
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below)  
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)  
Select 6 credit hours from the Elective Requirements (see course list below)  

**Proficiencies**  
Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

**Total Credit Hours** 44

**Footnotes and Additional Information**

1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2 Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

**Academic Coursework**

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

**Approved Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
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</tbody>
</table>

**Music History Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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</table>

**Music Career and Skills Enhancement Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
</tbody>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
Policies for the MMus Degree

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Performance

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Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Select 6 credit hours from the following: 1

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
- MUSI 436 / MDEM 456 COLLEGIUM MUSICUM
- MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
- MUSI 585 SONATA CLASS
- MUSI 649 GRADUATE INDEPENDENT STUDY

Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.
present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school's conducted ensembles as assigned.

**Thesis**
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

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For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

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- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu](https://music.rice.edu)

**Opportunities for the MMus Degree**

**Other Musical Opportunities**

**Lectures and Performances**
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu](https://music.rice.edu)

**Master of Music (MMus) Degree in the field of Flute Performance**

**Program Learning Outcomes for the MMus Degree**
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

**Requirements for the MMus Degree**
The MMus degree in the field of Flute Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Flute Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one full or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1673) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier ([https://registrar.rice.edu/facstaff/degreeworks/officialcertifier](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier)). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Flute Performance</td>
<td>44</td>
</tr>
</tbody>
</table>
### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Performance Requirements</td>
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<tr>
<td>MUSI 651</td>
<td>FLUTE FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Academic Coursework</td>
<td></td>
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<tr>
<td></td>
<td>Select 1 course from the Approved Music Theory course offerings (see course list below)</td>
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</tr>
<tr>
<td></td>
<td>Select 1 additional course from the Music Theory or Music History course offerings (see course lists below)</td>
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</tr>
<tr>
<td></td>
<td>Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 6 credit hours from the Elective Requirements (see course list below) 1</td>
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<tr>
<td></td>
<td>Proficiencies 2</td>
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</tr>
<tr>
<td></td>
<td>Students must demonstrate the following proficiencies:</td>
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</tr>
<tr>
<td></td>
<td>Piano proficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aural skills proficiency</td>
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<tr>
<td></td>
<td>Total Credit Hours</td>
<td>44</td>
</tr>
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</table>

### Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

### Academic Coursework

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

### Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
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<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
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<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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</table>

### Additional Music Theory Courses

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
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<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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### Music History Courses

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<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
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<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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Music Career and Skills Enhancement Courses

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<th>Code</th>
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<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
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<td>MGMT 625</td>
<td>DESIGN THINKING</td>
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<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
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<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
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<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO D'ALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
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<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
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<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
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<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
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<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Elective Requirements

Select 6 credit hours from the following: 

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
- MUSI 436 / MDEM 456 COLLEGIUM MUSICUM
- MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
- MUSI 585 SONATA CLASS
- MUSI 649 GRADUATE INDEPENDENT STUDY

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.
Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school's conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Opportunities for the MMus Degree

Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu/

Master of Music (MMus) Degree in the field of Harp Performance

Program Learning Outcomes for the MMus Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Harp Performance is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Harp Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1676) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.
## Summary

Total Credit Hours Required for the MMus Degree in the field of Harp Performance: 44

## Degree Requirements

### Performance Requirements

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 687</td>
<td>HARPP FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
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<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
<td></td>
</tr>
</tbody>
</table>

### Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below) 3

Select 1 additional course from the Music Theory or Music History course offerings (see course list below) 3

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4

Select 6 credit hours from the Elective Requirements (see course list below) 6

### Proficiencies

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

## Total Credit Hours

44

## Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

## Academic Coursework

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

## Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
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<td>MUSI 723</td>
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## Additional Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
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<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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## Music History Courses

<table>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
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<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
</tr>
</tbody>
</table>
Elective Requirements

Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above

Master of Music (MMus) Degree in the field of Harp Performance

Music Career and Skills Enhancement Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
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<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
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<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
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<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
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<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
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<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
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<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
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</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
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<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
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<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
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</tr>
</tbody>
</table>

Any additional Music Theory, Music History, or Music Career and Skills Enhancement course

Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)

MUSI 342 RICE JAZZ ENSEMBLE
MUSI 345 APPLIED STUDIES IN JAZZ
MUSI 381 CONCENTRATION PIANO
MUSI 436 / MDEM 456 COLLEGIUM MUSICUM
MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
MUSI 585 SONATA CLASS
MUSI 649 GRADUATE INDEPENDENT STUDY

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music...
performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Horn Performance
Program Learning Outcomes for the MMus Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Horn Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Horn Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1679) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.
The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Horn Performance</td>
<td>44</td>
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**Degree Requirements**

**Performance Requirements**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 661</td>
<td>HORN FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
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<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER’S RECITAL I</td>
<td>0</td>
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<td>MUSI 741</td>
<td>MASTER’S RECITAL II</td>
<td>0</td>
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<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
<td></td>
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</tbody>
</table>

**Academic Coursework**

Select 1 course from the Approved Music Theory course offerings (see course list below)  3

Select 1 additional course from the Music Theory or Music History course offerings (see course lists below)  3

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)  4

Select 6 credit hours from the Elective Requirements (see course list below)  6

**Proficiencies**

- Piano proficiency
- Aural skills proficiency

**Footnotes and Additional Information**

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

---

**Academic Coursework**

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

**Approved Music Theory Courses**

<table>
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<tbody>
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<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRA</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
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<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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**Additional Music Theory Courses**

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<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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</tr>
<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
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<td>MUSI 543</td>
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<td>MUSIC OF RICHARD STRAUSS</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
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<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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**Music Career and Skills Enhancement Courses**

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<th>Credit Hours</th>
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<td>LPCR 200</td>
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<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
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</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
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</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
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<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
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<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
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<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
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<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
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<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN’S BODY</td>
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<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
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</table>

**Elective Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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<tr>
<td></td>
<td>Any course at the 300-level or above</td>
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<tr>
<td></td>
<td>Any language course at the 100-level or above</td>
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<td></td>
<td>Any additional Music Theory, Music History, or Music Career and Skills Enhancement course</td>
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</tr>
<tr>
<td></td>
<td>Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)</td>
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<tr>
<td>MUSI 342</td>
<td>RICE JAZZ ENSEMBLE</td>
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<td>MUSI 345</td>
<td>APPLIED STUDIES IN JAZZ</td>
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<tr>
<td>MUSI 381</td>
<td>CONCENTRATION PIANO</td>
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<td>MUSI 436</td>
<td>COLLEGIUM MUSICUM</td>
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</tr>
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<td>MUSI 444</td>
<td>PRACTICUM IN CONTEMPORARY MUSIC</td>
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</tr>
<tr>
<td>MUSI 585</td>
<td>SONATA CLASS</td>
<td></td>
</tr>
<tr>
<td>MUSI 649</td>
<td>GRADUATE INDEPENDENT STUDY</td>
<td></td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

**Policies for the MMus Degree**

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

**Admission**

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

**Academic Standards**

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner.
• A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student's work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

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Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Musicology

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.

2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.

3. Demonstrate a thorough understanding of the relationship between music history and music performance.

4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree

The MMus degree in the field of Musicology is a thesis master's degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Musicology must complete:

• A minimum of 50-54 credit hours, depending on course selection, to satisfy degree requirements.

• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).

• A minimum of 24 graduate semester credit hours must be taken at Rice University.

• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.

• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1682) tab.

• A minimum overall GPA of 2.67 or higher in all Rice coursework.

• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the thesis master's degree.
Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Musicology</td>
<td>50-54</td>
</tr>
</tbody>
</table>

Degree Requirements

Musicology and Music Theory Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 647</td>
<td>MASTER'S THESIS (minimum of 2 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES or MUSI 717</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RENAISSANCE MUSIC</td>
<td></td>
</tr>
</tbody>
</table>

Select 7 courses from Advanced Musicology course offerings (see course list below) 21

Other Requirements

Select 15 credit hours from Elective Requirements (see course list below) 15

Select 2 courses from Performance Coursework (see course list below) 2-6

Proficiencies 5

Students must demonstrate the following proficiencies:
- Piano
- Aural Skills
- German Language

Total Credit Hours 50-54

Footnotes and Additional Information

1 Graduate-level Music Theory coursework may replace MUSI 512 and/or some of the seven (7) required Advanced Musicology courses with faculty approval.

2 The master's thesis must be publicly defended.

3 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) will not fulfill this requirement.

4 Please Note: Some instrumental/vocal lessons may result in additional fees.

5 Deficiencies in these areas will result in remedial coursework being added to a student's degree plan. German language proficiency may be met by one of the following experiences:
  - 4 years of German language instruction at the high-school level;
  - 2 year of German language instruction at the college-level;
  - GERM 141 and GERM 142 at Rice (or an equivalent accelerated course);
  - Passage of a proficiency exam (300 words, 3 hours, with dictionary).

Advanced Musicology

Students must complete a minimum of 7 courses (21 credit hours) from Advanced Musicology course offerings. Additional Advanced Musicology course offerings may also be selected to fulfill Elective Requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td></td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td></td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td></td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td></td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td></td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td></td>
</tr>
<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td></td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td></td>
</tr>
<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td></td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td></td>
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<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td></td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td></td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
<td></td>
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</table>

Other Requirements

Students must complete 15 credit hours from the Elective Requirements, and 2 courses (2-6 credit hours, depending on course selection) from the Performance Coursework lists below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
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<td>Select 15 credit hours from the following:</td>
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<td>Any course at the 300-level or above</td>
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<tr>
<td></td>
<td>Any language course at the 100-level or above</td>
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</tr>
<tr>
<td></td>
<td>Any additional Advanced Musicology course (see course list above)</td>
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<tr>
<td></td>
<td>Any Music Theory or Music Career and Skills Enhancement course (see course lists below)</td>
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</tbody>
</table>
Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
MUSI 342 RICE JAZZ ENSEMBLE
MUSI 345 APPLIED STUDIES IN JAZZ
MUSI 381 CONCENTRATION PIANO
MUSI 436 COLLEGIUM MUSICUM
MUSI 502 CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS
MUSI 514 SCORE READING AND THEORY AT THE KEYBOARD
MUSI 649 GRADUATE INDEPENDENT STUDY

Performance Coursework

Select 2 courses from the following:
2-6
Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
Concentration Lessons (any course between MUSI 351 and MUSI 373)
Concentration Lessons (any course between MUSI 381 and MUSI 397)
MUSI 334 CAMPANILE ORCHESTRA
MUSI 436 COLLEGIUM MUSICUM
MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
MUSI 502 CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS
MUSI 514 SCORE READING AND THEORY AT THE KEYBOARD
MUSI 636 ADVANCED CHAMBER MUSIC
MUSI 640 RICE CHORALE - ADVANCED

Course Lists to Satisfy Requirements

Approved Music Theory Courses

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
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<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
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<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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Additional Music Theory Courses

<table>
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<tr>
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<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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Music Career and Skills Enhancement Courses

<table>
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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO Dalcroze EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

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- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu

Opportunities for the MMus Degree

Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website at: https://music.rice.edu (http://music.rice.edu/)

Master of Music (MMus) Degree in the field of Oboe Performance

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.
Requirements for the MMus Degree

The MMus degree in the field of Oboe Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Oboe Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1686) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
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### Additional Music Theory Courses

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<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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### Music History Courses

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<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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</tr>
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<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
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<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
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<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
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</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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### Music Career and Skills Enhancement Courses

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<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
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<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
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<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
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<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

### Elective Requirements

Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 | RICE JAZZ ENSEMBLE
- MUSI 345 | APPLIED STUDIES IN JAZZ
- MUSI 381 | CONCENTRATION PIANO
- MUSI 436 / MDEM 456 | COLLEGIUM MUSICUM
- MUSI 444 | PRACTICUM IN CONTEMPORARY MUSIC

**Note:** The table content has been formatted into markdown tables for better readability.
Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis

A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu
Master of Music (MMus) Degree in the field of Orchestral Conducting

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree

The MMus degree in the field of Orchestral Conducting is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Orchestral Conducting must complete:

- A minimum of 47 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1689) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Credit Hours</th>
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Degree Requirements

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<tr>
<td>MUSI 637</td>
<td>ADVANCED CONDUCTING FOR MAJORS (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 533</td>
<td>GRADUATE CONDUCTING SEMINAR (minimum of 4 semesters)</td>
<td>1</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 2 semesters)</td>
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Performance Technique Coursework

Select 4 courses from the following:

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<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MUSI 475</td>
<td>THEORY OF VOCAL PERFORMANCE TECHNIQUES</td>
<td>4</td>
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<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPETTOIRE (001 Orchestral Repertoire - Violin)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPETTOIRE (005 Orchestral Repertoire - Woodwind)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPETTOIRE (006 Orchestral Repertoire - Brass)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPETTOIRE (007 Orchestral Repertoire - Percussion)</td>
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Academic Coursework

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<tr>
<td>MUSI 512</td>
<td>ANALITICAL SYSTEMS</td>
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<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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</tbody>
</table>

Other Requirements

Select 6 credit hours from Elective Requirements (see course list below) 2

Select 8 credit hours (minimum of 4 semesters) from Concentration Lessons (see course list below)

Proficiencies 3

Students must demonstrate the following proficiencies:

- Orchestration
- Piano proficiency
- Aural skills proficiency

Total Credit Hours 47

Footnotes and Additional Information

1. Recitals for the MMus degree in the field of Orchestral Conducting are optional. Conducting experience with the orchestra replaces the recital requirements typically found in the MMus degree for other fields of study.
2. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2021-2022 General Announcements PDF Generated 09/22/21
3 Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan. Proficiency in Orchestration is defined as MUSI 416 or the equivalent.

Other Requirements
Students must complete 6 credit hours from the Elective Requirements, and 2 courses (8 credit hours) from the Concentration Lessons lists below.

Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<td></td>
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<tr>
<td></td>
<td>Any course at the 300-level or above</td>
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<tr>
<td></td>
<td>Any language course at the 100-level or above</td>
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<td>Any additional Music Theory, Music History, or Music Career and Skills Enhancement course</td>
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<tr>
<td></td>
<td>Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)</td>
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<tr>
<td>MUSI 342</td>
<td>RICE JAZZ ENSEMBLE</td>
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<td>MUSI 345</td>
<td>APPLIED STUDIES IN JAZZ</td>
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<td>MUSI 381</td>
<td>CONCENTRATION PIANO</td>
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<tr>
<td>MUSI 436 / MDEM 456</td>
<td>COLLEGIUM MUSICUM</td>
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<td>MUSI 444</td>
<td>PRACTICUM IN CONTEMPORARY MUSIC</td>
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<td>MUSI 585</td>
<td>SONATA CLASS</td>
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<td>MUSI 649</td>
<td>GRADUATE INDEPENDENT STUDY</td>
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Footnotes and Additional Information
1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Concentration Lessons (private vocal and/or instrumental study)

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<td>Select 8 credit hours from the following:</td>
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<tr>
<td></td>
<td>Any course between MUSI 351 and MUSI 373</td>
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<tr>
<td></td>
<td>Any course between MUSI 381 and MUSI 398</td>
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Course Lists to Satisfy Requirements

Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
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Additional Music Theory Courses

<table>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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Music History Courses

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<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
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<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTuries</td>
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<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
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<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
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<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
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<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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Music Career and Skills Enhancement Courses

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<th>Title</th>
<th>Credit Hours</th>
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<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>2</td>
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<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Policies for the MMus Degree
Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission
For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student's major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:
• No more than 2 courses (6 credit hours) of transfer credit from U.S.
or international universities of similar standing as Rice may apply
towards the degree.
• Requests for transfer credit will be considered by the program
director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music
website at: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous
distinguished visiting musicians contribute to the Shepherd School
environment. The Houston Symphony Orchestra, Symphony Chorus,
Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da
Camera, Context, and Chamber Music Houston, as well as the activities of
other institutions of higher learning in the area, also provide exceptional
opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music
website at: https://music.rice.edu

Master of Music (MMus) Degree in
the field of Organ Performance

Program Learning Outcomes for the MMus
Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance,
composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep
understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between
music history and music performance.
4. Develop career development skills that complement their
professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Organ Performance is a non-thesis
master’s degree. For general university requirements, please see Non-
Thesis Master’s Degrees (p. 75). For additional requirements, regulations,
and procedures for all graduate programs, please see All Graduate
Students (p. 60). Students pursuing the MMus degree in the field of Organ
Performance must complete:

• A minimum of 51 credit hours to satisfy degree requirements.
• A minimum of 24 graduate semester credit hours from transfer credit. For additional departmental guidelines regarding
   transfer credit, see the Policies (p. 1692) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that
   satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must
participate in core music, applied music, and other required music
courses as well as in chamber music and large ensembles, plus electives.
They are entitled to one hour of private lessons each week of each
semester they are enrolled as an MMus degree candidate; private or
group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may
be substituted upon approval of the program’s academic advisor, or
where applicable, the department or program’s Director of Graduate
Studies. Course substitutions must be formally applied and entered into
Degree Works by the department or program’s Official Certifier (https://
registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally,
these must be approved by the Office of Graduate and Postdoctoral
Studies. Students and their academic advisors should identify and clearly
document the courses to be taken.

Summary
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Organ Performance</td>
<td>51</td>
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Degree Requirements

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<tbody>
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<td></td>
<td>Performance Requirements</td>
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<tr>
<td>MUSI 683</td>
<td>ORGAN FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
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<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC</td>
<td>1</td>
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<td>MUSI 640</td>
<td>RICE CHORALE - ADVANCED (minimum of 2 semesters)</td>
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<tr>
<td>MUSI 285</td>
<td>SECONDARY HARPSC/CHORD</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER’S RECITAL I</td>
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<td>MUSI 741</td>
<td>MASTER’S RECITAL II</td>
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<td></td>
<td>Field of Study Specific Coursework</td>
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<tr>
<td>MUSI 545</td>
<td>LITURGICAL ORGAN PLAYING</td>
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<td>MUSI 547</td>
<td>CHURCH MUSIC SEMINAR I</td>
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<tr>
<td>MUSI 548</td>
<td>CHURCH MUSIC SEMINAR II</td>
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<td>MUSI 608</td>
<td>IMPROVISATION AT THE ORGAN (minimum of 2 semesters )</td>
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<td>MUSI 645</td>
<td>ORGAN LITERATURE BEFORE 1750</td>
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<td>MUSI 646</td>
<td>ORGAN LITERATURE SINCE 1750</td>
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<td>Academic Coursework</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 1 course from the Approved Music Theory course offerings
(see course list below)
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)  
Select 6 credit hours from the Elective Requirements (see course list below)  
Proficiencies  
Students must demonstrate the following proficiency:  
Aural skills proficiency  

Total Credit Hours 51  

Footnotes and Additional Information  
1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.  
2 Deficiencies in this area will result in remedial coursework being added to a student’s degree plan. MMus students in the field of Organ Performance do not have to demonstrate piano proficiency.  

Academic Coursework  
Academic Coursework is comprised of at least 2 courses (6 credit hours) from the Music Theory course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

Approved Music Theory Courses  

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</tr>
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<tr>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
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<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
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<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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Additional Music Theory Courses  

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<td>ORCHESTRATION</td>
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</tr>
<tr>
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<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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</table>

Music Career and Skills Enhancement Courses  

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<th>Code</th>
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<th>Credit Hours</th>
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<tr>
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<td>2</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
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<td>BUSINESS PLAN DEVELOPMENT</td>
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<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
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<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
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<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
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<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
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<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
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<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
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<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
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<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
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<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
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<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIANS BODY</td>
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<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
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Elective Requirements  

<table>
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</table>
| Select 6 credit hours from the following:  
Any course at the 300-level or above | 6 |
| Any language course at the 100-level or above | |
| Any additional Music Theory, Music History, or Music Career and Skills Enhancement course | |
| Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281) | |
| MUSI 342 | RICE JAZZ ENSEMBLE                   |              |
Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Music History Courses

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<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
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<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
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<td>MUSIC AND MODERNISM IN FRANCE</td>
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<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
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<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
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<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
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<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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</table>

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis

A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an
original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree

in the field of Percussion Performance

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree

The MMus degree in the field of Percussion Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Percussion Performance must complete:

• A minimum of 48 credit hours to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1695) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree</td>
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Degree Requirements

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<tr>
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<th>Title</th>
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<tr>
<td></td>
<td>Performance Requirements</td>
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<tr>
<td>MUSI 671</td>
<td>PERCUSSION FOR MAJORS-ADVANCED</td>
<td>3</td>
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<tr>
<td>(minimum of 4 semesters)</td>
<td></td>
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<tr>
<td>MUSI 472</td>
<td>GENERAL PERCUSSION STUDIES</td>
<td>1</td>
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<tr>
<td>(minimum of 4 semesters)</td>
<td></td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4</td>
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<tr>
<td>semesters)</td>
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<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4</td>
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</tr>
<tr>
<td>semesters)</td>
<td></td>
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</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPertoire (minimum of 4</td>
<td>1</td>
</tr>
<tr>
<td>semesters)</td>
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</table>
Master of Music (MMus) Degree in the field of Percussion Performance

MUSI 641  MASTER'S RECITAL I  0
MUSI 741  MASTER'S RECITAL II  0
or MUSI 631  MOCK AUDITION  0

Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below)  3
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below)  3
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)  4
Select 6 credit hours from the Elective Requirements (see course list below)  6

Proficiencies

Students must demonstrate the following proficiencies:
- Piano proficiency
- Aural skills proficiency

Total Credit Hours  48

Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2 Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

Academic Coursework

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
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<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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Additional Music Theory Courses

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<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
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<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
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<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
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<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
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<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
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<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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Music Career and Skills Enhancement Courses

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<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
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<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
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<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
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<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
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<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
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<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
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<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
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<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
- MUSI 436 / MDEM 456 COLLEGIUM MUSICUM
- MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
- MUSI 585 SONATA CLASS
- MUSI 649 GRADUATE INDEPENDENT STUDY

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

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Performance

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must...
present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMUs students must participate in the school’s conducted ensembles as assigned.

**Thesis**
A thesis is required for MMUs students in the field of Musicology. In lieu of a thesis, MMUs students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

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For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
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**Additional Information**
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

**Opportunities for the MMus Degree**

**Other Musical Opportunities**

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A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

**Master of Music (MMus) Degree in the field of Piano Chamber Music and Accompanying**

**Program Learning Outcomes for the MMus Degree**
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

**Requirements for the MMus Degree**
The MMus degree in the field of Piano, Chamber Music, and Accompanying is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Piano, Chamber Music, and Accompanying must complete:

- A minimum of 46-50 credit hours, depending on course selection, to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1698) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Piano, Chamber Music, and Accompanying</td>
<td>46-50</td>
</tr>
</tbody>
</table>
Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 689</td>
<td>PIANO FOR CHAMBER MUSIC AND ACCOMPANYING MAJORS, ADVANCED/GRADUATE (minimum of 4 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 1 from the following: 4-8

- MUSI 635 ADVANCED ORCHESTRA (minimum of 4 semesters)
- MUSI 640 RICE CHORALE - ADVANCED (minimum of 4 semesters)
- MUSI 642 ACCOMPANYING (minimum of 4 semesters)
- MUSI 641 MASTER'S RECITAL I
- MUSI 741 MASTER'S RECITAL II

Field of Study Specific Coursework

- MUSI 414 PIANO CHAMBER MUSIC LITERATURE 3
- MUSI 514 SCORE READING AND THEORY AT THE KEYBOARD 3
- MUSI 583 INSTRUMENTAL ACCOMPANYING TECHNIQUES 2
- MUSI 584 VOCAL ACCOMPANYING TECHNIQUES FOR PIANISTS 2

Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below) 3
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below) 3
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4
Select 6 credit hours from the Elective Requirements (see course list below) 6

Proficiencies 2
Students must demonstrate the following proficiency:

- Aural Skills
- MUSI 426 PIANO LITERATURE - SURVEY

Total Credit Hours 46-50

Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2 Deficiencies in this area will result in remedial coursework being added to a student's degree plan. MMus students in the field of Piano, Chamber Music, and Accompanying do not have to demonstrate piano proficiency. MUSI 426 Piano Literature is required if not completed at the undergraduate level. This course would be considered remedial and would not count towards the elective requirement.

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
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</table>

Additional Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CULTURAL ASIAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
</tbody>
</table>

Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
</tbody>
</table>
Master of Music (MMus) Degree in the field of Piano Chamber Music and Accompanying

**Music Career and Skills Enhancement Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
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- MUSI 585 SONATA CLASS
- MUSI 649 GRADUATE INDEPENDENT STUDY

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• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

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Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

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Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested. Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

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Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school's conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities

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A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

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Master of Music (MMus) Degree in the field of Piano Performance

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Piano Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Piano Performance must complete:

• A minimum of 43-47 credit hours, depending on course selection, to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1701) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

**Total Credit Hours Required for the MMus Degree in the field of Piano Performance**

**43-47**

### Degree Requirements

#### Performance Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 681</td>
<td>PIANO FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
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</tbody>
</table>

Select 1 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 2 semesters)</td>
<td>2-4</td>
</tr>
<tr>
<td>MUSI 640</td>
<td>RICE CHORALE - ADVANCED (minimum of 2 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 642</td>
<td>ACCOMPANYING (minimum of 2 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 641</td>
<td>MASTER’S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER’S RECITAL II</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Field of Study Specific Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 426</td>
<td>PIANO LITERATURE - SURVEY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 588</td>
<td>PIANO PEDAGOGY</td>
<td>2</td>
</tr>
</tbody>
</table>

Select 2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 414</td>
<td>PIANO CHAMBER MUSIC LITERATURE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 447</td>
<td>INTRODUCTION TO PIANO TECHNOLOGY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 619</td>
<td>HISTORY OF THE 20TH CENTURY PIANISM</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 620</td>
<td>HISTORICAL OVERVIEW OF PIANO TECHNIQUE</td>
<td>3</td>
</tr>
</tbody>
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#### Academic Coursework

**Approved Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
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</table>

#### Additional Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378</td>
<td>CLASSICAL, CONTEMPORARY, AND ASIA 378</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
</tbody>
</table>

### Proficiencies

Students must demonstrate the following proficiency:

- Aural Skills

**Total Credit Hours**

**43-47**

### Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2 Deficiencies in this area will result in remedial coursework being added to a student’s degree plan. MMus students in the field of Piano Performance do not have to demonstrate piano proficiency.

### Academic Coursework

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMEATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZIDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

### Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
<td>3</td>
</tr>
</tbody>
</table>

### Elective Requirements

Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
- MUSI 436 / MDEM 456 COLLEGIUM MUSICUM
- MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC
- MUSI 585 SONATA CLASS
- MUSI 649 GRADUATE INDEPENDENT STUDY

### Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

### Policies for the MMus Degree

**Shepherd School of Music Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School
Master of Music (MMus) Degree in the field of String Quartet Performance

1. Demonstrate technical and musical competence in performance, composition, or historical Scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.

Opportunities for the MMus Degree

Other Musical Opportunities

Lectures and Performances

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of String Quartet Performance

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.

Thesis

A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021-22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudit. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.
4. Develop career development skills that complement their professional-level performance skills.

## Requirements for the MMus Degree

The MMus degree in the field of String Quartet Performance is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of String Quartet Performance must complete:

- A minimum of 45 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1704) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
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- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1704) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Director of Graduate Studies. Students pursuing the MMus degree in the field of String Quartet Performance.

### Course Lists to Satisfy Requirements

#### Academic Coursework

Academic Coursework is comprised of MUSI 405, MUSI 407, and 1 course (3 credit hours) from the Music History, Music Theory, or Graduate Independent Study Coursework below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 407</td>
<td>CHAMBER MUSIC IN THE CLASSIC PERIOD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 407</td>
<td>CHAMBER MUSIC IN THE CLASSIC PERIOD</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Proficiencies

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

### Total Credit Hours

45

### Footnotes and Additional Information

1. Three (3) string quartet recitals (MUSI 742) and one (1) solo recital (MUSI 741) are required for the MMus degree in the field of String Quartet Performance.

2. Deficiencies in these areas will result in remedial coursework being added to a student's degree plan.

#### Summary

- Total Credit Hours Required for the MMus Degree in the field of String Quartet Performance: 45
Academic Standards

Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions...
on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Shepherd School of Music website at: [https://music.rice.edu](https://music.rice.edu)

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**Opportunities for the MMus Degree**

**Other Musical Opportunities**

**Lectures and Performances**

A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**

For additional information, please see the Shepherd School of Music website at: [https://music.rice.edu](https://music.rice.edu)

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**Master of Music (MMus) Degree in the field of Trombone Performance**

**Program Learning Outcomes for the MMus Degree**

Upon completing the MMus degree, students will be able to:

- Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
- Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
- Demonstrate a thorough understanding of the relationship between music history and music performance.
- Develop career development skills that complement their professional-level performance skills.

**Requirements for the MMus Degree**

The MMus degree in the field of Trombone Performance is a non-thesis master's degree. For general university requirements, please see [Non-Thesis Master's Degrees](#) (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students](#) (p. 60). Students pursuing the MMus degree in the field of Trombone Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 40 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1707) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier ([https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Trombone Performance</td>
<td>44</td>
</tr>
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**Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Performance Requirements</td>
<td></td>
</tr>
<tr>
<td>MUSI 665</td>
<td>TROMBONE FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
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<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
<td></td>
</tr>
</tbody>
</table>

**Academic Coursework**
Master of Music (MMus) Degree in the field of Trombone Performance

Select 1 course from the Approved Music Theory course offerings (see course list below) 3
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below) 3
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4
Select 6 credit hours from the Elective Requirements (see course list below) 6

Proficiencies
Students must demonstrate the following proficiencies:
- Piano proficiency
- Aural skills proficiency

Total Credit Hours 44

Footnotes and Additional Information
1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.
2. Deficiencies in these areas will result in remedial coursework being added to a student's degree plan.

Academic Coursework
Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RADEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
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<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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Approved Music Theory Courses (continued)

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<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
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<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
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<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
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<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
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<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
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<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
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<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
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<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
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<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
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<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
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<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
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<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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Music History Courses

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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
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<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
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<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
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<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
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<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
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<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
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<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
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<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
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<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
<td>3</td>
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Music Career and Skills Enhancement Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
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<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO Dalcroze Eurhythmics</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRAL TECHNIQUES</td>
<td>2</td>
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2021-2022 General Announcements PDF Generated 09/22/21
**Elective Requirements**

<table>
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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Select 6 credit hours from the following:  
Any course at the 300-level or above  
Any language course at the 100-level or above  
Any additional Music Theory, Music History, or Music Career and Skills Enhancement course  
Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)  
MUSI 342 RICE JAZZ ENSEMBLE  
MUSI 345 APPLIED STUDIES IN JAZZ  
MUSI 381 CONCENTRATION PIANO  
MUSI 436 / MDEM 456 COLLEGIUM MUSICUM  
MUSI 444 PRACTICUM IN CONTEMPORARY MUSIC  
MUSI 585 SONATA CLASS  
MUSI 649 GRADUATE INDEPENDENT STUDY  

---

**Footnotes and Additional Information**

1. No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

---

**Policies for the MMus Degree**

**Shepherd School of Music Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021-22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021-22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

**Admission**

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

**Academic Standards**

**Curriculum and Degree Requirements**

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

**Grading Policy**

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.

- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

**Graduate degree requirement:** a minimum overall grade point average of 2.67 is necessary for graduation.

**Leaves of Absence and Voluntary Withdrawal**

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

**Performance**

Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all
MMUs students must participate in the school's conducted ensembles as assigned.

**Thesis**
A thesis is required for MMUs students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

**Transfer Credit**
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

### Opportunities for the MMus Degree

**Other Musical Opportunities**

**Lectures and Performances**
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

**Additional Information**
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

### Master of Music (MMus) Degree in the field of Trumpet Performance

**Program Learning Outcomes for the MMus Degree**
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

### Requirements for the MMus Degree

The MMus degree in the field of Trumpet Performance is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Trumpet Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1710) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
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<td></td>
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**Total Credit Hours Required for the MMus Degree in the field of Trumpet Performance**

44

**Degree Requirements**

**Performance Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>
| MUSI 663 | TRUMPET FOR MAJORS-ADVANCED  
(minimum of 4 semesters) | 3            |
Rice University

MUSI 635 ADVANCED ORCHESTRA (minimum of 4 semesters) 2
MUSI 636 ADVANCED CHAMBER MUSIC (minimum of 4 semesters) 1
MUSI 531 ORCHESTRAL REPERTOIRE (minimum of 4 semesters) 1
MUSI 641 MASTER'S RECITAL I 0
MUSI 741 MASTER'S RECITAL II 0
or MUSI 631 MOCK AUDITION

ACADEMIC COURSEWORK

Select 1 course from the Approved Music Theory course offerings (see course list below) 3
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below) 3
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) 4
Select 6 credit hours from the Elective Requirements (see course list below) 6

PROFICIENCIES

Students must demonstrate the following proficiencies:

Piano proficiency
Aural skills proficiency

TOTAL CREDIT HOURS

44

FOOTNOTES AND ADDITIONAL INFORMATION

1 No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2 Deficiencies in these areas will result in remedial coursework being added to a student's degree plan.

ACADEMIC COURSEWORK

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

APPROVED MUSIC THEORY COURSES

<table>
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<tr>
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<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
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</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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ADDITIONAL MUSIC THEORY COURSES

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<tr>
<th>Code</th>
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<td>MULTI-MEDIA COMPOSITION</td>
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<td>MUSIC BUSINESS AND LAW</td>
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<td>CLASSROOM PEDAGOGY</td>
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<td>ANALYTICAL APPROACHES</td>
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<td>SEMINAR IN ADVANCED ANALYSIS</td>
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<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
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MUSIC HISTORY COURSES

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<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
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<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
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<td>PERFORMANCE PRACTICES SEMINAR</td>
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<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
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<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
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<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
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<td>MUSIC AND MODERNISM IN FRANCE</td>
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<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
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<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
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<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
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<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
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<td>MUSI 625</td>
<td>MOZART OPERAS</td>
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<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
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<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
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<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
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<td>RENAISSANCE MUSIC</td>
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<td>MUSI 721</td>
<td>MUSIC OF SCHOPENBERG</td>
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<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
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Music Career and Skills Enhancement Courses

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<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
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<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
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<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE</td>
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<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION:</td>
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<td>DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
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<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
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<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
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<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/</td>
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<td>BODY CONNECTION</td>
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<td>TECHNOLOGY FOR MUSICIANS</td>
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<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
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<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
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<td>MUSIC ENTREPRENEURSHIP</td>
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<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
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<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
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<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
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<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
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<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION:</td>
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<td>DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
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Elective Requirements

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<td>SONATA CLASS</td>
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<td>MUSI 649</td>
<td>GRADUATE INDEPENDENT STUDY</td>
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</table>

Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal

Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the
Opportunities for the MMus Degree

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Tuba Performance

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree

The MMus degree in the field of Tuba Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Tuba Performance must complete:

• A minimum of 44 credit hours to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1713) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.
Master of Music (MMus) Degree in the field of Tuba Performance

Summary

Total Credit Hours Required for the MMus Degree in the field of Tuba Performance

Degree Requirements

Performance Requirements

<table>
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<td>MUSI 667</td>
<td>TUBA FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
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<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
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<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
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<td>MUSI 531</td>
<td>ORCHESTRAL REPETTOIRE (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
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<td>MASTER'S RECITAL II</td>
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<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
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Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below)
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below)
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)
Select 6 credit hours from the Elective Requirements (see course list below)

Proficiencies

Students must demonstrate the following proficiencies:
- Piano proficiency
- Aural skills proficiency

Total Credit Hours

44

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student's degree plan.

Approved Music Theory Courses

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<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
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<td>ADVANCED ORCHESTRATION</td>
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<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
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<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
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<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
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<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
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<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
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<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
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Additional Music Theory Courses

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Music History Courses

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<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
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<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

Elective Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 6 credit hours from the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any course at the 300-level or above</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Any language course at the 100-level or above</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

Academic Standards

Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music
The Houston Symphony Orchestra, Symphony Chorus, distinguished visiting musicians contribute to the Shepherd School. A visiting lecturer series, a professional concert series, and numerous Lectures and Performances offer opportunities for students to enjoy a wide spectrum of music.

Other Musical Opportunities

Opportunities for the MMus Degree

Requirements for the MMus Degree

Additional Information

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Viola Performance

Program Learning Outcomes for the MMus Degree

Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Viola Performance must complete:

- A minimum of 44 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1716) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.
The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Viola Performance</td>
<td>44</td>
</tr>
</tbody>
</table>

Degree Requirements

Performance Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 693</td>
<td>VIOLA FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td>or MUSI 631</td>
<td>MOCK AUDITION</td>
<td></td>
</tr>
</tbody>
</table>

Academic Coursework

Select 1 course from the Approved Music Theory course offerings (see course list below) | 3            |
Select 1 additional course from the Music Theory or Music History course offerings (see course lists below) | 3            |
Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below) | 4            |
Select 6 credit hours from the Elective Requirements (see course list below) | 6            |

Proficiencies

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

Total Credit Hours | 44            |

Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

Approved Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Music Theory Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRAIATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
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</tbody>
</table>

Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
</tbody>
</table>
### Master of Music (MMus) Degree in the field of Viola Performance

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
<td>3</td>
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### Music Career and Skills Enhancement Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>THEATRICAL TECHNIQUES</td>
<td></td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN’S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
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</table>

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Select 6 credit hours from the following:

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any course at the 300-level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any language course at the 100-level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any additional Music Theory, Music History, or Music Career and Skills Enhancement course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)</td>
<td></td>
</tr>
<tr>
<td>MUSI 342</td>
<td>RICE JAZZ ENSEMBLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 345</td>
<td>APPLIED STUDIES IN JAZZ</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 381</td>
<td>CONCENTRATION PIANO</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 436</td>
<td>COLLEGIUM MUSICUM</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 444</td>
<td>PRACTICUM IN CONTEMPORARY MUSIC</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 585</td>
<td>SONATA CLASS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 649</td>
<td>GRADUATE INDEPENDENT STUDY</td>
<td>2</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

### Policies for the MMus Degree

#### Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf)

#### Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.

#### Academic Standards

##### Curriculum and Degree Requirements

Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

#### Grading Policy

A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner.
• A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
• If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Violin Performance
Program Learning Outcomes for the MMus Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Violin Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Violin Performance must complete:

• A minimum of 44 credit hours to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1719) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.

For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Violin Performance
Program Learning Outcomes for the MMus Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Violin Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Violin Performance must complete:

• A minimum of 44 credit hours to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1719) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMus Degree in the field of Violin Performance</td>
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**Degree Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Performance Requirements</td>
<td></td>
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<tr>
<td>MUSI 691</td>
<td>VIOLIN FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
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<tr>
<td>MUSI 635</td>
<td>ADVANCED ORCHESTRA (minimum of 4 semesters)</td>
<td>2</td>
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<tr>
<td>MUSI 636</td>
<td>ADVANCED CHAMBER MUSIC (minimum of 4 semesters)</td>
<td>1</td>
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<tr>
<td>MUSI 531</td>
<td>ORCHESTRAL REPERTOIRE (minimum of 4 semesters)</td>
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<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>or MUSI 631 MOCK AUDITION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Academic Coursework</td>
<td></td>
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<tr>
<td></td>
<td>Select 1 course from the Approved Music Theory course offerings (see course list below)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 1 additional course from the Music Theory or Music History course offerings (see course list below)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 6 credit hours from the Elective Requirements (see course list below)</td>
<td>6</td>
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**Additional Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Footnotes and Additional Information</td>
<td></td>
</tr>
</tbody>
</table>

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Deficiencies in these areas will result in remedial coursework being added to a student's degree plan.

**Approved Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 614</td>
<td>SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 615</td>
<td>MUSIC OF RAVEL: MUSIC THEORY AND COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 617</td>
<td>MUSIC SINCE 1950</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>AESTHETICS OF MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378</td>
<td>CLASSICAL, CONTEMPORARY, AND ASIA 378</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
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<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
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<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHEsis</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
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</table>

**Academic Coursework**

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

**Proficiencies**

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
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Music History Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
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<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHard STRAUSS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 717</td>
<td>RENAISSANCE MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 721</td>
<td>MUSIC OF SCHOENBERG</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>MUSIC OF STRAVINSKY</td>
<td>3</td>
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Music Career and Skills Enhancement Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
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<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO DALCROZE EURHYTHMICS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
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MUSI 515 | MUSIC ENTREPRENEURSHIP                        | 2             |
MUSI 518 | THE ART AND BUSINESS OF STUDIO TEACHING       | 2             |
MUSI 519 | THEMATIC PROGRAMMING: THE ART OF THE RECITAL  | 2             |
MUSI 532 | THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY | 2             |
MUSI 538 | THE ART OF PERFORMANCE: PRESENCE ON STAGE     | 2             |
MUSI 540 | APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM | 2 |

Elective Requirements

Select 6 credit hours from the following: 1

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any course at the 300-level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any language course at the 100-level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any additional Music Theory, Music History, or Music Career and Skills Enhancement course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)</td>
<td></td>
</tr>
<tr>
<td>MUSI 342</td>
<td>RICE JAZZ ENSEMBLE</td>
<td></td>
</tr>
<tr>
<td>MUSI 345</td>
<td>APPLIED STUDIES IN JAZZ</td>
<td></td>
</tr>
<tr>
<td>MUSI 381</td>
<td>CONCENTRATION PIANO</td>
<td></td>
</tr>
<tr>
<td>MUSI 436 / MDEM 456</td>
<td>COLLEGIUM MUSICUM</td>
<td></td>
</tr>
<tr>
<td>MUSI 444</td>
<td>PRACTICUM IN CONTEMPORARY MUSIC</td>
<td></td>
</tr>
<tr>
<td>MUSI 585</td>
<td>SONATA CLASS</td>
<td></td>
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<tr>
<td>MUSI 649</td>
<td>GRADUATE INDEPENDENT STUDY</td>
<td></td>
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</table>

Footnotes and Additional Information

1 No more than three (3) credit hours of MUSI 649 Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

Policies for the MMus Degree

Shepherd School of Music Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Shepherd School of Music publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Shepherd_School_of_Music_Graduate_Handbook.pdf

Admission

For Instrumental Performance, Vocal Performance, and Orchestral Conducting applicants, an audition is required. Composition applicants must submit portfolios, and Musicology applicants must provide samples of their written work. Musicology applicants must also complete advanced music tests as well as the Graduate Record Examination for admission consideration.
Academic Standards
Curriculum and Degree Requirements
Further information on curricular requirements for all majors and degree programs is available from the Shepherd School of Music.

Grading Policy
A minimum grade of B- (2.67 grade points) per course is expected of all music students in their major applied area. A grade of C+ (2.33 grade points) or lower in a course in the student’s major applied area is considered unsatisfactory and will be evaluated in the following manner:

- A music major who receives a grade of C+ (2.33 grade points) or lower in a course in their major applied area will be placed on music probation. Music probation signifies that the student’s work has been sufficiently unsatisfactory to preclude graduation unless marked improvement is achieved promptly. A student on music probation may be absent from class only for extraordinary reasons and may not represent the school in any public function not directly a part of a degree program.
- If a student receives a second semester of C+ (2.33 grade points) or lower in a course in their major applied area, whether for consecutive semesters or not, the student will be discontinued as a music performance major and merit scholarship from the Shepherd School will be discontinued.

Note: For music history and musicology majors a grade of C+ (2.33 grade points) or lower in any music history course is considered unsatisfactory and will be evaluated as above.

Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean’s office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school’s conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Opportunities for the MMus Degree
Other Musical Opportunities
Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.

Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Master of Music (MMus) Degree in the field of Vocal Performance
Program Learning Outcomes for the MMus Degree
Upon completing the MMus degree, students will be able to:

1. Demonstrate technical and musical competence in performance, composition, or historical scholarship at a professional level.
2. Develop advanced analytical skills in music theory and a deep understanding of how those skills inform music performance.
3. Demonstrate a thorough understanding of the relationship between music history and music performance.
4. Develop career development skills that complement their professional-level performance skills.

Requirements for the MMus Degree
The MMus degree in the field of Vocal Performance is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MMus degree in the field of Vocal Performance must complete:

- A minimum of 48-52 credit hours, depending on course selection, to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1723) tab.
• A minimum overall GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Students completing the MMus degree in all fields of study must participate in core music, applied music, and other required music courses as well as in chamber music and large ensembles, plus electives. They are entitled to one hour of private lessons each week of each semester they are enrolled as an MMus degree candidate; private or group lessons beyond this may result in additional fees.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MMUs Degree in the field of Vocal Performance</td>
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### Degree Requirements

**Performance Requirements**

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<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MUSI 673</td>
<td>VOICE FOR MAJORS-ADVANCED (minimum of 4 semesters)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 570</td>
<td>ADVANCED OPERA STUDIES (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 571</td>
<td>VOCAL COACHING (minimum of 4 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 572</td>
<td>GRADUATE OPERA PERFORMANCE (minimum of 4 semesters)</td>
<td>1-2</td>
</tr>
<tr>
<td>MUSI 587</td>
<td>GRADUATE DICTION FOR SINGERS (minimum of 2 semesters)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 549</td>
<td>VOCAL PHYSIOLOGY &amp; FUNCTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 575</td>
<td>VOICE REPERTOIRE I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 576</td>
<td>VOICE REPERTOIRE II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 641</td>
<td>MASTER'S RECITAL I</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 741</td>
<td>MASTER'S RECITAL II</td>
<td>0</td>
</tr>
</tbody>
</table>

**Academic Coursework**

Select 1 course from the Approved Music Theory course offerings (see course list below)

Select 1 additional course from Music Theory or Music History course offerings (see course lists below)

Select 2 courses from the Music Career and Skills Enhancement course offerings (see course list below)

Select 6 credit hours from the Elective Requirements (see course list below)

**Additional Coursework 2**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 141</td>
<td>FIRST YEAR FRENCH I</td>
<td>3</td>
</tr>
<tr>
<td>GERM 141</td>
<td>FIRST YEAR GERMAN I</td>
<td>3</td>
</tr>
<tr>
<td>ITAL 141</td>
<td>FIRST YEAR ITALIAN I</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 142</td>
<td>FIRST YEAR FRENCH II</td>
<td>3</td>
</tr>
<tr>
<td>GERM 142</td>
<td>FIRST YEAR GERMAN II</td>
<td>3</td>
</tr>
<tr>
<td>ITAL 142</td>
<td>FIRST YEAR ITALIAN II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Proficiencies 3**

Students must demonstrate the following proficiencies:

- Piano proficiency
- Aural skills proficiency

**Total Credit Hours**

### Footnotes and Additional Information

1. No more than three (3) credit hours of MUSI 649 - Independent Study may fulfill this requirement. Remedial courses (such as MUSI 281, MUSI 432, MUSI 511, MUSI 521, or MUSI 522) and extra hours of required Performance Coursework (such as extra private instrumental or vocal study, ensembles, chamber music, vocal coaching, or repertoire classes) will not fulfill this requirement.

2. Language coursework is only required for MMus students in the field of Vocal Performance if not completed at the undergraduate level. Language coursework may be taken for Elective credit by Vocal Performance students only if the required coursework (or equivalent) is completed at the undergraduate level, otherwise language coursework is considered remedial and will not count toward the elective requirement.

3. Deficiencies in these areas will result in remedial coursework being added to a student’s degree plan.

**Academic Coursework**

Academic Coursework is comprised of at least 1 course (3 credit hours) from the Approved Music Theory course offerings, 1 course (3 credit hours) from the Music Theory or Music History course offerings, 2 courses (4 credit hours) from the Music Career and Skills Enhancement course offerings, and 6 credit hours from the Elective Requirements.

**Approved Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 512</td>
<td>ANALYTICAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 513</td>
<td>MODAL COUNTERPOINT</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 516</td>
<td>ADVANCED ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 517</td>
<td>EARLY MODERN MASTERS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>TONAL COUNTERPOINT</td>
<td>3</td>
</tr>
</tbody>
</table>
## Master of Music (MMus) Degree in the field of Vocal Performance

**Additional Music Theory Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 315</td>
<td>MULTI-MEDIA COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 378 / ASIA 378</td>
<td>CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 403</td>
<td>BASIC ELECTRONIC MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 404</td>
<td>ELECTRONIC MUSIC COMPOSITION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 405</td>
<td>MUSIC BUSINESS AND LAW</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 416</td>
<td>ORCHESTRATION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 417</td>
<td>MUSIC FOR MEDIA</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 514</td>
<td>SCORE READING AND THEORY AT THE KEYBOARD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 605</td>
<td>ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 606</td>
<td>ADVANCED COMPUTER SOUND SYNTHESIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>CLASSROOM PEDAGOGY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 711</td>
<td>ANALYTICAL APPROACHES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 712</td>
<td>SEMINAR IN ADVANCED ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 713</td>
<td>SPECIAL TOPICS IN ADVANCED ANALYSIS</td>
<td>3</td>
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**Music History Courses**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MUSI 523</td>
<td>BIBLIOGRAPHY AND RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 524</td>
<td>AMERICAN MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 525</td>
<td>PERFORMANCE PRACTICES SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 527</td>
<td>TOPICS IN EARLY MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 528</td>
<td>TOPICS IN THE 17TH AND 18TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 529</td>
<td>TOPICS IN 19TH AND 20TH CENTURIES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 530</td>
<td>MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 534</td>
<td>PROGRAM MUSIC IN THE 19TH CENTURY</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 537</td>
<td>SATIE, COCTEAU, &amp; LES SIX: PARIS IN THE 1920s AND BEYOND</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 543</td>
<td>MUSIC AND MODERNISM IN FRANCE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 551</td>
<td>MUSIC OF RICHARD STRAUSS</td>
<td>3</td>
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<tr>
<td>MUSI 621</td>
<td>SELECTED STUDIES IN MUSIC HISTORY</td>
<td>3</td>
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<tr>
<td>MUSI 623</td>
<td>J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 624</td>
<td>SEMINAR ON A SELECTED COMPOSER</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 625</td>
<td>MOZART OPERAS</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 626</td>
<td>THE CLASSICAL STYLE</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 627</td>
<td>ROMANTIC SONGS AND PIANO PIECES</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 716</td>
<td>MUSIC OF THE MIDDLE AGES</td>
<td>3</td>
</tr>
</tbody>
</table>

**Music Career and Skills Enhancement Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>LPCR 200</td>
<td>ADVANCED MENTAL TRAINING</td>
<td>2</td>
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<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 625</td>
<td>DESIGN THINKING</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
<td>1.5</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
<td>1.5</td>
</tr>
<tr>
<td>MUSI 413</td>
<td>INTRODUCTION TO Dalcroze Eurhythmics</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 500</td>
<td>IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 503</td>
<td>MUSIC AND PERFORMANCE: THE MIND/ BODY CONNECTION</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 507</td>
<td>TECHNOLOGY FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 508</td>
<td>FUNDAMENTALS OF PRIVATE TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 509</td>
<td>THE ALEXANDER TECHNIQUE FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 510</td>
<td>PROFESSIONAL DEVELOPMENT FOR MUSICIANS</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>MUSIC ENTREPRENEURSHIP</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 518</td>
<td>THE ART AND BUSINESS OF STUDIO TEACHING</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 519</td>
<td>THEMATIC PROGRAMMING: THE ART OF THE RECITAL</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 532</td>
<td>THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 538</td>
<td>THE ART OF PERFORMANCE: PRESENCE ON STAGE</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM</td>
<td>2</td>
</tr>
</tbody>
</table>

**Elective Requirements**

Select 6 credit hours from the following:

- Any course at the 300-level or above
- Any language course at the 100-level or above
- Any additional Music Theory, Music History, or Music Career and Skills Enhancement course
- Secondary Lessons (any course between MUSI 251 and MUSI 297 with the exception of MUSI 281)
- MUSI 342 RICE JAZZ ENSEMBLE
- MUSI 345 APPLIED STUDIES IN JAZZ
- MUSI 381 CONCENTRATION PIANO
Graduate degree requirement: a minimum overall grade point average of 2.67 is necessary for graduation.

Leaves of Absence and Voluntary Withdrawal
Music majors must obtain permission in writing from the dean of the Shepherd School before requesting a leave of absence from the university. Requests must be in the dean's office before the first day of classes in the semester for which leave is requested.

Music majors taking voluntary withdrawal from the university are not guaranteed readmission into the Shepherd School and may be asked to reapply/reaudition. Students should explain the reasons for their withdrawal to the dean before leaving campus.

Performance
Students are expected to perform frequently during their residency at Rice. MMus students in any of the performance fields of study must present at least two full recitals. Composition and Conducting students should present recitals as specified by their degree programs. Students are expected to attend both faculty and student recitals. In addition, all MMus students must participate in the school's conducted ensembles as assigned.

Thesis
A thesis is required for MMus students in the field of Musicology. In lieu of a thesis, MMus students in the field of Composition must produce an original work of extended scope. Both thesis and original work must be publicly defended.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MMus degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Shepherd School of Music website: [https://music.rice.edu](https://music.rice.edu)

Opportunities for the MMus Degree

Other Musical Opportunities

Lectures and Performances
A visiting lecturer series, a professional concert series, and numerous distinguished visiting musicians contribute to the Shepherd School environment. The Houston Symphony Orchestra, Symphony Chorus, Houston Grand Opera, Houston Ballet, Houston Masterworks Chorus, Da Camera, Context, and Chamber Music Houston, as well as the activities of other institutions of higher learning in the area, also provide exceptional opportunities for students to enjoy a wide spectrum of music.
Additional Information
For additional information, please see the Shepherd School of Music website: https://music.rice.edu

Naval Science

Contact Information
Naval Science
https://nrotc.rice.edu/
6100 Main Street
713-348-3940
Ryan Tewell, USN
Program Chair

Students may enroll in the Naval Reserve Officers’ Training Corps (NROTC) program as scholarship or non-scholarship students.

An academic minor in Naval Science is also available to all Rice students in undergraduate degree-granting programs. The faculty and instructors in the program consist of active-duty military officers.

Minor
  * Minor in Naval Science (p. 1726)

Naval Science does not currently offer an academic program at the graduate level.

Program Chair
Ryan Tewell, USN

Advisors
Joseph E. Elseroad, USMC
Kyle Leonard, USN
Adam Winters, USN

Professor in the Practice
Ryan Tewell, USN

Adjunct Professors in the Practice
Joseph E. Elseroad, USMC
Raymond Fernandez Jr., USMC
Kyle Leonard, USN
Adam Winters, USN

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Naval Science (NAVA)

NAVA 100 - NAVAL SCIENCE LABORATORY
Short Title: NAVAL SCIENCE LABORATORY
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Practical applications of leadership principles as a Junior Naval Officer. Repeatable for Credit.

NAVA 101 - NAVAL ORIENTATION
Short Title: NAVAL ORIENTATION
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to naval traditions and customs, seamanship, naval organization and missions, and the fundamental concepts of sea power.

NAVA 103 - SEA POWER AND MARITIME AFFAIRS
Short Title: SEA POWER
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Readings, discussions, and research on selected topics related to the history, importance, and impact of sea power on modern civilization.

NAVA 203 - LEADERSHIP AND MANAGEMENT I
Short Title: LEADERSHIP AND MANAGEMENT I
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the principles and concepts of management, organization, leadership, information systems, and decision making.
NAVA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

NAVA 301 - NAVIGATION I
Short Title: NAVIGATION I
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Marine navigators and laws of vessel operations. Includes coastal piloting, navigational aids, nautical astronomy, satellite and inertial systems, and rules of the nautical road.

NAVA 302 - NAVAL OPERATIONS AND SEAMANSHIP
Short Title: NAVAL OPERATIONS & SEAMANSHIP
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An analysis of ship movements, formations, and fleet operations; includes Rules of the Road, maneuvering board, tactical publications and communications.

NAVA 303 - EVOLUTION OF WARFARE
Short Title: EVOLUTION OF WARFARE
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical survey of the evolution of the conduct of warfare. Strategy, tactics, weapons, organization, and military leaders/thinkers are studied. Course is taught in the NROTC Building.

NAVA 304 - NAVAL WEAPONS-NAVAL SHIP SYSTEMS II
Short Title: NAVAL WEAPONS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The theory and employment of weapons systems. The student explores the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. The physical aspects of radar and underwater sound are described in detail.

NAVA 402 - LEADERSHIP AND ETHICS
Short Title: LEADERSHIP AND ETHICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): NAVA 203
Description: Leadership principles, with particular emphasis on ethics, human resources management, military law and discipline, and administration. The Capstone course for NROTC seniors. Recommended prerequisite(s): Spring semester of senior year.

NAVA 403 - NAVAL ENGINEERING
Short Title: NAVAL ENGINEERING
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Ship propulsion systems, auxiliary systems, steering systems, electrical power distribution, ship design, ship stability and damage control measures.

NAVA 411 - FUNDAMENTALS OF MANEUVER WARFARE
Short Title: FUND OF MANEUVER WARFARE
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mutually Exclusive: Cannot register for NAVA 411 if student has credit for NAVA 410.
NAVA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: NAVA

Program Description and Code
• Naval Science: NAVA

Undergraduate Minor Description and Code
• Minor in Naval Science: NAVA

CIP Code and Description ¹
• NAVA Minor: CIP Code/Title: 28.0505 - Naval Science and Operational Studies

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Naval Science

Program Learning Outcomes for the Minor in Naval Science
Upon completing the minor in Naval Science, students will be able to:

1. Gain a broad understanding of the United States Navy and Marine Corps to include their current structure, organization, missions, and national security importance.
2. Become familiar with the significant events, attitudes, personalities, and circumstances that have shaped the naval service and understand their relative impact on American history.
3. Become familiar with organizational behavior and management, to include individual and group behaviors, performance incentives and degraders, and different leadership styles.
4. Gain an understanding of Western moral traditions and ethical philosophy as they relate to military leadership and the conduct of warfare, to include Aristotle, Bentham, Mill, Kant, and Aquinas.
5. Develop critical analysis, writing, verbal skills and demonstrate practical application through experiential learning, case study analysis and Socratic discussion.

Requirements for the Minor in Naval Science
Students pursuing the minor in Naval Science must complete:

• A minimum of 6 courses (18 credit hours) to satisfy the minor requirements.
• A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1726) tab.

The minor in Naval Science (NAVA) is available to all degree-seeking Rice students in undergraduate degree-granting programs.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Naval Science</td>
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Minor Requirements

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<tbody>
<tr>
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<td>Core Requirements</td>
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<tr>
<td>NAVA 101</td>
<td>NAVAL ORIENTATION</td>
<td>3</td>
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<tr>
<td>NAVA 103</td>
<td>SEA POWER AND MARITIME AFFAIRS</td>
<td>3</td>
</tr>
<tr>
<td>NAVA 203</td>
<td>LEADERSHIP AND MANAGEMENT I</td>
<td>3</td>
</tr>
<tr>
<td>NAVA 402</td>
<td>LEADERSHIP AND ETHICS</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elective Requirements</td>
<td></td>
</tr>
<tr>
<td>Select 2 courses from the following:</td>
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<td></td>
</tr>
<tr>
<td>NAVA 301</td>
<td>NAVIGATION I</td>
<td></td>
</tr>
<tr>
<td>NAVA 302</td>
<td>NAVAL OPERATIONS AND SEAMANSHIP</td>
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<td>NAVA 303</td>
<td>EVOLUTION OF WARFARE ¹</td>
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<td>NAVA 403</td>
<td>NAVAL ENGINEERING</td>
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<td>NAVA 411</td>
<td>FUNDAMENTALS OF MANEUVER WARFARE ¹</td>
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Total Credit Hours 18

Footnotes and Additional Information
¹ All Naval Science (NAVA) courses are offered once every academic year with the exception of NAVA 303 and NAVA 411. These two courses are offered every other academic year.

Policies for the Minor in Naval Science

Program Restrictions and Exclusions
Students pursuing the minor in Naval Science should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.
Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the minor in Naval Science should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) as transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Naval Science website: https://nrotc.rice.edu/

Opportunities for the Minor in Naval Science

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Naval Science website: https://nrotc.rice.edu/

Neuroscience

Contact Information
Neuroscience
http://neuroscience.rice.edu/
W100 George R. Brown Hall
713-348-4015

Edward P. Nikonowicz
Program Director
edn@rice.edu

The Neuroscience program, housed in the BioSciences Department, provides a strong interdisciplinary education covering the breadth of fundamental disciplines on which neuroscience is based and includes multiple opportunities for experiential learning. Neuroscience uses diverse methodologies to investigate the brain and its relationship to the mind, and includes the analysis of brain structures related to specific cognitive processes and representations, investigations of the biochemical processes that occur in brain functions, and the interactions and correlations among the brain, behavior, and biology that can be observed and modeled. The primary aim of the neuroscience program is to provide an understanding of how the cognition and behavior of organisms are encoded in neural processes. Such an understanding of the brain, bringing to bear many types of knowledge, is necessary as a basis for understanding and solving many practical problems including but not limited to: neurophysiology of disease; treatment for pathologies related to aging, stroke, autism, and hearing and other impairments; human behavior relating to risk, addiction, and social pathologies; memory, learning, and acquisition of literacy; neural basis of emotion and its relation to human perception and behavior.

The Neuroscience program offers a broad range of introductory and advanced courses that lead to either a Bachelor of Arts (BA) Degree with a Major in Neuroscience or a Minor in Neuroscience. The BA degree is designed with the intent that all majors will gain a robust foundation in science and engineering basics and additional experience in the multidisciplinary core areas that contribute to the breadth of modern neuroscience. Project-based laboratory courses are required, and students will have the opportunity to pursue independent research. This program is appropriate for students with interests in pursuing advanced degrees in the future. The minor is available for students who choose other majors but desire strong foundational knowledge of the diverse aspects of how the brain functions. Neuroscience students are encouraged to participate in undergraduate research, and numerous students have already availed themselves of the neuroscience research opportunities at Rice and within the Houston community.

Bachelor’s Program
• Bachelor of Arts (BA) Degree with a Major in Neuroscience (p. 1739)

Minor
• Minor in Neuroscience (p. 1741)

Neuroscience does not currently offer an academic program at the graduate level.

Advisors
Behnaam Aazhang
David R. Caprette
J. David Dickman
Simon J. Fischer-Baum
Jonathan Flynn
Caleb Kemere
Peter Y. Lwigale

Professors
Behnaam Aazhang
Richard G. Baraniuk
Kathleen M. Beckingham
Janet Braam
Anthony K. Brandt
Suzanne E. Kemmer
Randi C. Martin
James A. McNew
Marcia K. O’Malley
Timothy Schroeder
Charles Siewert
Michael Stern

2021-2022 General Announcements PDF Generated 09/22/21
Neuroscience (NEUR)

NEUR 111 - SCIENCE AND ART IN DIALOGUE: EXPERIMENT, IMAGINATION, AND THE INVENTION OF NEUROSCIENCE
Short Title: SCIENCE AND ART IN DIALOGUE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will take up the argument that "Proust was right about memory, Cezanne was uncannily accurate about the visual cortex, and Woolf pierced the mystery of consciousness," as we discuss aspects of the brain revealed by the texts, paintings, dishes and compositions of eight modern artists.

NEUR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

NEUR 304 - CELLULAR NEUROPHYSIOLOGY I&II
Short Title: CELLULAR NEUROPHYSIOLOGY I&II
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 125 and (MATH 101 or MATH 105)
Description: Properties of excitable nerve membranes and chemical synapses; theory of ions in solutions, ion conduction through membranes, ion transport, linear cable theory, nonlinear properties of neurons, + stochastic properties of single ion channels, synaptic transmission, the role of calcium and transmitter release, + postsynaptic mechanism. Taught at Baylor College of Medicine; check NEUR website. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 504. Mutually Exclusive: Cannot register for NEUR 304 if student has credit for NEUR 504. Repeatable for Credit.

NEUR 305 - OPTICAL IMAGING
Short Title: OPTICAL IMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes a theoretical portion which will introduce the fundamentals of optical imaging of neural activity, present the devices that are employed, and review applications and discuss their results. In addition, in a practical part, students will design, set up, and perform simple in vitro experiments to gain practical experience with this exciting and powerful technology. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 505. Mutually Exclusive: Cannot register for NEUR 305 if student has credit for NEUR 505.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)
NEUR 306 - CONCEPTS OF LEARNING AND MEMORY
Short Title: CONCEPT LEARNING&MEMORY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to introduce students to the field of learning and memory. This field has exploded in the last few years with the introduction of new techniques, new approaches, and new concepts. The course will introduce the student to classical and modern concepts of learning and memory across all levels at which learning and memory is studied, including behavioral, anatomical, cellular, molecular and genetic levels of analysis. The basic concepts of learning and memory will also be related to known diseases of learning and memory. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 506. Mutually Exclusive: Cannot register for NEUR 306 if student has credit for NEUR 506.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 308 - INTRODUCTION TO COGNITIVE NEUROSCIENCE
Short Title: INTRO COGNITIVE NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 508. Mutually Exclusive: Cannot register for NEUR 308 if student has credit for NEUR 508.

NEUR 310 - INDEPENDENT RESEARCH FOR NEUROSCIENCE UNDERGRADUATES
Short Title: IND RES FOR NEUR UNDERGRADS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Information on how to find a lab, apply to the course and what to expect can be found at www.neur310.rice.edu. This course gives credit for independent research in Rice Neuroscience faculty laboratories (or other Texas Medical Center laboratories.) Students spend at least 3 hours per week in the laboratory for each semester hour of credit. If taken for 3 or more hours, counts as one required 300+ level lab course within the neuroscience major. Can be repeated once for 3 hours or more to count towards an elective credit within the neuroscience major. Requires a proposal abstract, weekly reports, and a final project that summarizes your activities in the lab. Students wishing to perform their research in an off-campus lab must submit a completed application to the NEUR 310 instructor at least 2 weeks prior to the start of classes. Students are strongly advised to secure research advisors and register for the class well in advance of the start of classes. Repeatable for Credit. Suggested Pre-Reqs: CAAM 210 and BIOS 212; these are not required, but skills learned in these courses will help make you more valuable to labs when you apply. Instructor Permission Required. Repeatable for Credit.

NEUR 318 - INTRO TO NEUROSCIENCE METHODS
Short Title: INTRO TO NEUROSCIENCE METHODS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to the recording of signals from live neurons using microscopic and electrophysiologic methods. The course introduces the basics of instrumentation in the recording of real time biologic signals. The course is designed to run in parallel with a lab course. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 518. Mutually Exclusive: Cannot register for NEUR 318 if student has credit for NEUR 518.

NEUR 319 - INTRODUCTION TO NEUROSCIENCE METHODS LAB
Short Title: NEUROSCIENCE METHODS LAB
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the laboratory course that is designed to run in parallel with the Introductory Neuroscience Methods lecture course. The Lab is designed to give students hands-on experience applying the ideas for real time recording of microscopic and neurophysiologic signals. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 519. Mutually Exclusive: Cannot register for NEUR 319 if student has credit for NEUR 519.
NEUR 321 - ANALYSES OF NEURONAL FUNCTION
Short Title: ANALYSES OF NEURONAL FUNCTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will cover all basic aspects of the intrinsic electrophysiological properties of neurons and synaptic transmission. It will also introduce principles of synaptic integration and plasticity. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 521. Mutually Exclusive: Cannot register for NEUR 321 if student has credit for NEUR 521.

NEUR 322 - BRAIN CELL BIOLOGY AND DEVELOPMENT
Short Title: BRAIN CELL BIOL & DEVELOPMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Anatomy and development of the nervous system is designed to introduce the student to the basic structure and function of the nervous system, and describe its rough development. It is intended for first year students without any specific advanced knowledge of neuroscience. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 522. Mutually Exclusive: Cannot register for NEUR 322 if student has credit for NEUR 522. Repeatable for Credit.

NEUR 323 - GENETICS FOR NEUROSCIENCE
Short Title: GENETICS FOR NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course integrates genetics into neuroscience and is intended to teach neuroscience students how to tackle neurobiological problems using genetic strategies and tools. In the introduction, students will be exposed to the basic concepts in genetics. Strategies using model organisms from C. elegans to mice will be covered. Finally we will discuss genetic approaches in humans. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 523. Mutually Exclusive: Cannot register for NEUR 323 if student has credit for NEUR 523.

NEUR 335 - CELLULAR NEUROPHYSIOLOGY
Short Title: CELLULAR NEUROPHYSIOLOGY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an upper level graduate treatment on the physiology and biophysics of nerve cell signaling. Topics to be covered include measurement and analysis of single events from ion channels to synaptic vesicle fusion, synaptic transmission and the relationship between calcium signaling and synaptic vesicle dynamics, short-term synaptic plasticity, and postsynaptic integration. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 535. Mutually Exclusive: Cannot register for NEUR 335 if student has credit for NEUR 535.

NEUR 350 - MOLECULAR NEUROBIOLOGY
Short Title: MOLECULAR NEUROBIOLOGY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers the molecular, cellular, and biochemical events that underlie neuronal function. Emphasis is placed on the basic chemistry and biology of cells residing the nervous system. The course also covers the structure and function of receptors, channels and pumps necessary for neuronal function and the neurochemistry of specific transmitter systems. The unique demand of neurons as specialized secretory cells is also covered. This course is taught at UTHSC. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 550. Mutually Exclusive: Cannot register for NEUR 350 if student has credit for NEUR 550. Repeatable for Credit.

NEUR 362 - COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN
Short Title: COGNITIVE NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Survey of theory and research on how mental processes are carried out by the human brain, with an emphasis on relating measures of brain activity to cognitive functioning, methods surveyed included electro physiological recording techniques, functional imaging techniques and methods that involve lessoning or disrupting neural activity. Cross-list: PSYC 362.
NEUR 364 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 362 (may be taken concurrently) or NEUR 362 (may be taken concurrently)
Description: The objective is to equip the students of PSYC/NEUR 362 with tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. The prereq may be taken the same semester as this class. Instructor Permission Required. Cross-list: PSYC 364. Graduate/Undergraduate Equivalency: NEUR 564. Mutually Exclusive: Cannot register for NEUR 364 if student has credit for NEUR 564.

NEUR 376 - NEUROBIOLOGY OF DISEASE
Short Title: NEUROBIOLOGY OF DISEASE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers some of the most important disorders of nervous system function. Exposes students to incidence, clinical manifestations, pathophysiology, current scientific models of causes/mechanisms of disorders of the adult brain: stroke, Parkinson's disease, Alzheimer's disease, seizure disorders, brain tumors, multiple sclerosis, amyotrophic lateral sclerosis, brain/spinal cord injury, addiction, depression, and schizophrenia. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 576. Mutually Exclusive: Cannot register for NEUR 376 if student has credit for NEUR 576.

NEUR 377 - NEUROANATOMY: FUNCTIONAL ORGANIZATION OF THE CENTRAL NERVOUS SYSTEM
Short Title: FUNCTIONAL NEUROANATOMY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. This course is offered for Rice psychology graduate undergraduate students. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 577. Mutually Exclusive: Cannot register for NEUR 377 if student has credit for NEUR 577.

NEUR 379 - NEUROBIOLOGY OF SENSATION AND MOVEMENT
Short Title: NEUROBIO OF SENSATION/MOVEMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of basic systems neuroscience. The course covers sensory transductions, development, and motor programming. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 579. Mutually Exclusive: Cannot register for NEUR 379 if student has credit for NEUR 579.

NEUR 380 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. The course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Cross-list: PSYC 380. Recommended Prerequisite(s): PSYC 101.

NEUR 381 - PHYSIOLOGY OF VISUAL SYSTEM
Short Title: PHYSIOLOGY OF VISUAL SYSTEM
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course provides an advanced level and comprehensive coverage of the physiology of the retina and visual cortex. Useful for graduate students and postdocs in neuroscience, physiology, biochemistry, cell biology, and molecular genetics who are interested in visual information processing and brain function. Offered every years only. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 580. Mutually Exclusive: Cannot register for NEUR 381 if student has credit for NEUR 580.
NEUR 382 - INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE  
Short Title: INTRO COMPUTATIONAL NEURSCI  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to methods and theories used to describe and understand neural information processing in the brain. Models covered will range from single neuron to networks for sensory, motor and learning tasks. Programming exercises will be done using Matlab. Cross-list: ELEC 382. Graduate/Undergraduate Equivalency: NEUR 582. Recommended Prerequisite(s): CAAM 210. Mutually Exclusive: Cannot register for NEUR 382 if student has credit for NEUR 582.

NEUR 383 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY  
Short Title: INTRO TO NEUROENGINEERING  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)  
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Cross-list: BIOE 380, ELEC 380.

NEUR 401 - UNDERGRADUATE HONORS RESEARCH  
Short Title: UNDERGRADUATE HONORS RESEARCH  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 5  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): NEUR 310 or NEUR 485  
Description: The Neuroscience Honors Research Program is a suite of courses offering our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Neuroscience. Students having performed NEUR 310 research in an off-campus laboratory in the Texas Medical Center will also be eligible to apply to perform honors research in that laboratory. Registration for any of the courses requires a commitment to register for all three. Requires at least 15 hours of laboratory research per week, monthly reports, a thesis (substantial research paper) and a poster presentation at the Rice Undergraduate Research Symposium. Must register for corequisite: NEUR 412. Instructor Permission Required. Repeatable for Credit.

NEUR 402 - UNDERGRADUATE HONORS RESEARCH  
Short Title: UNDERGRADUATE HONORS RESEARCH  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 5  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (NEUR 310 or NEUR 485) and NEUR 401  
Corequisite: NEUR 412  
Description: The Neuroscience Honors Research Program is a suite of courses offering our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Neuroscience. Students having performed NEUR 310 research in an off-campus laboratory in the Texas Medical Center will also be eligible to apply to perform honors research in that laboratory. Registration for any of the courses requires a commitment to register for all three. Requires at least 15 hours of laboratory research per week, monthly reports, a thesis (substantial research paper) and a poster presentation at the Rice Undergraduate Research Symposium. Must register for corequisite: NEUR 412. Instructor Permission Required. Repeatable for Credit.

NEUR 411 - NEUROLINGUISTICS  
Short Title: NEUROLINGUISTICS  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of language and the brain. Includes localization of speech, language, and memory functions, hemispheric dominance, pathologies of speech and language associated with brain damage, and hypotheses of the representation and operation of linguistic information in the cortex. Cross-list: LING 411.

NEUR 412 - UNDERGRADUATE RESEARCH SEMINAR  
Short Title: UNDERGRADUATE RESEARCH SEMINAR  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (NEUR 310 or NEUR 485) and NEUR 401  
Corequisite: NEUR 402  
Description: This companion seminar requires attendance at course meetings and a formal scientific presentation of research performed while enrolled in the Honors Research Program. Must register for corequisite: NEUR 402. Instructor Permission Required. Repeatable for Credit.
NEUR 415 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS
Short Title: THEORETICAL NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. This course is independent, but complementary to NEUR 416. Cross-list: CAAM 415, ELEC 488. Graduate/Undergraduate Equivalency: NEUR 615. Recommended Prerequisite(s): CAAM 210 or MATH 211 or CAAM 335 or MATH 355. Mutually Exclusive: Cannot register for NEUR 415 if student has credit for NEUR 615.

NEUR 416 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including "what does a network compute?", "how does it compute?", and "why does it compute that way?" Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: CAAM 416, ELEC 489.

NEUR 450 - ELECTRICAL SIGNALING IN THE BRAIN
Short Title: ELECTRICAL SIGNALING IN BRAIN
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Electrical Signaling in the Brain covers the basics concepts of electrical signaling from the proteins involved, biophysical principles and computational methods required to understand measure and characterize electrical signaling in the brain. Instructor Permission Required. Repeatable for Credit.

NEUR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

NEUR 501 - ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION
Short Title: ATTENTION AND PERCEPTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods, and the historical and philosophical context of contemporary neuroscience. Cross-list: PSYC 575. Mutually Exclusive: Cannot register for NEUR 501 if student has credit for NEUR 301.
Course URL: www.ruf.rice.edu/~neurosci

NEUR 502 - ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS
Short Title: HIGHER MENTAL FUNCTIONS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and neuroimaging approaches to higher mental functions, including language, memory, executive functions, reasoning, and numerical processing. Cross-list: PSYC 576. Mutually Exclusive: Cannot register for NEUR 502 if student has credit for NEUR 302.
Course URL: www.ruf.rice.edu/~neurosci
NEUR 504 - CELLULAR NEUROPHYSIOLOGY I & II
Short Title: CELLULAR NEUROPHYSIOLOGY I&II
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PHYS 125 and (MATH 101 or MATH 105)
Description: Properties of excitable nerve membranes and chemical synapses; theory of ions in solutions, ion conduction through membranes, ion transport, linear cable theory, nonlinear properties of neurons, + stochastic properties of single ion channels, synaptic transmission, the role of calcium and transmitter release, + postsynaptic mechanism. Taught at Baylor College of Medicine; check NEUR website. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 304. Mutually Exclusive: Cannot register for NEUR 504 if student has credit for NEUR 304. Repeatable for Credit.

NEUR 505 - OPTICAL IMAGING
Short Title: OPTICAL IMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course includes a theoretical portion which will introduce the fundamentals of optical imaging of neural activity, present the devices that are employed, and review applications and discuss their results. In addition, in a practical part, students will design, set up, and perform simple in vitro experiments to gain practical experience with this exciting and powerful technology. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 305. Mutually Exclusive: Cannot register for NEUR 505 if student has credit for NEUR 305.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 506 - CONCEPTS OF LEARNING AND MEMORY
Short Title: CONCEPT LEARNING&MEMORY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to introduce graduate students to the field of learning and memory. This field has exploded in the last few years with the introduction of new techniques, new approaches, and new concepts. The course will introduce the student to classical and modern concepts of learning and memory across all levels at which learning and memory is studied, including behavioral, anatomical, cellular, molecular and genetic levels of analysis. The basic concepts of learning and memory will also be related to known diseases of learning and memory. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 306. Mutually Exclusive: Cannot register for NEUR 506 if student has credit for NEUR 306.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 508 - INTRODUCTION TO COGNITIVE NEUROSCIENCE
Short Title: INTRO COGNITIVE NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Cross-list: PSYC 574. Graduate/Undergraduate Equivalency: NEUR 308. Mutually Exclusive: Cannot register for NEUR 508 if student has credit for NEUR 308.

NEUR 510 - NEUROPHARMACOLOGY
Short Title: NEUROPHARMACOLOGY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objectives of this course are to examine how pharmacological agents have been used to elucidate the function of neurotransmitter systems in the central nervous system. In addition, the mechanism of some clinically effective drugs are reviewed in terms of the structure and function of the brain. Instructor Permission Required. Repeatable for Credit.

NEUR 515 - NEURAL DEVELOPMENT
Short Title: NEURAL DEVELOPMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced graduate course focusing on molecular genetic studies. Integrates molecular patterning of nervous system with developmental neuroscience using a cross-species approach, with an emphasis on the visual system. Topics include the biochemical and genetic basis for neural plasticity, neurotrophic factors in neural development, and the molecular mechanism of growth core guidance and synapse formation. Course taught at Baylor College of Medicine. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)
NEUR 516 - SENSORY SYSTEMS
Short Title: SENSORY SYSTEMS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A two-part course covering sensory transduction in audition, touch, and the chemical senses, and a detailed coverage of the visual system, including retinal structures and central pathways, phototransduction, receptive fields, and functional organization in the cortex. Course taught at Baylor College of Medicine. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 517 - MECHANISMS OF MEMORY
Short Title: MECHANISM OF MEMORY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Synthesizes our understanding of the mechanism of higher-order memory formation covering learning theory, cellular physiology and biochemistry and discussing memory disorders. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 518 - INTRODUCTION TO NEUROSCIENCE METHODS
Short Title: INTRO TO NEUROSCIENCE METHODS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to the recording of signals from live neurons using microscopic and electrophysiologic methods. The course introduces the basics of instrumentation in the recording of real time biologic signals. The course is designed to run in parallel with a lab course. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 318. Mutually Exclusive: Cannot register for NEUR 518 if student has credit for NEUR 318.

NEUR 519 - INTRODUCTION TO NEUROSCIENCE METHODS LAB
Short Title: NEUROSCIENCE METHODS LAB
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the laboratory course that is designed to run in parallel with the Introductory Neuroscience Methods lecture course. The Lab is designed to give students hands-on experience applying the ideas for real time recording of microscopic and neurophysiological signals. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 319. Mutually Exclusive: Cannot register for NEUR 519 if student has credit for NEUR 319.

NEUR 520 - TEN UNSOLVED QUESTIONS IN NEUROSCIENCE
Short Title: TEN UNSOLVED QUESTIONS IN NEUR
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Neuroscience has yet to establish its general principles. This course introduces the major topics including memory, sleep, consciousness, information in neural activity, emotions, plasticity, and intelligence. Each week's lecture introduces a new problem, addressing why the question is important, its history, current thinking, and what we have learned. Course taught at Baylor College of Medicine. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 521 - ANALYSES OF NEURONAL FUNCTION
Short Title: ANALYSES OF NEURONAL FUNCTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover all basic aspects of the intrinsic electrophysiological properties of neurons and of synaptic transmission. It will also introduce principles of synaptic integration and plasticity. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 321. Mutually Exclusive: Cannot register for NEUR 521 if student has credit for NEUR 321.
NEUR 522 - BRAIN CELL BIOLOGY AND DEVELOPMENT
Short Title: BRAIN CELL BIOL & DEVELOPMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and development of the nervous system is designed to introduce the graduate student to the basic structure and function of the nervous system, and describe its rough development. It is intended for first year graduate students without any specific advanced knowledge of neuroscience. Course taught at Baylor College of Medicine. Instructor Permission Required. Repeatable for Credit.

NEUR 523 - GENETICS FOR NEUROSCIENCE
Short Title: GENETICS FOR NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course integrates genetics into neuroscience and is intended to teach neuroscience students how to tackle neurobiological problems using genetic strategies and tools. In the introduction, students will be exposed to the basic concepts in genetics. Strategies using model organisms from C.elegans to mice will be covered. Finally we will discuss genetic approaches in humans. Course taught at Baylor College of Medicine. Instructor Permission Required. Repeatable for Credit.

NEUR 525 - NEUROSCIENCE AND LAW
Short Title: NEUROSCIENCE AND LAW
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses how the modern understanding of brain function will intersect with the making of law, the punishment of criminals, and the development of new rehabilitation strategies. The readings will bring together a unique conjunction of neurobiology, legal scholarship, and policy making. The goals of the course will be to facilitate an understanding of the neurobiological underpinnings of behaviors that are subject to legal consequences for individuals and groups, and using this emerging base of scientific information to design modern, evidence-based policy.

NEUR 530 - THEORY, CONTENT, AND EXECUTION IN COGNITIVE NEUROSCIENCE
Short Title: COGNITIVE NEUROSCIENCE THEORY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to provide students with the skills necessary to become successful cognitive neuroscientists. Students will receive instruction in designing experiments and analyzing data, selecting research topics, relating theory to their work and how to say up to date on current research. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Repeatable for Credit.

NEUR 535 - CELLULAR NEUROPHYSIOLOGY
Short Title: CELLULAR NEUROPHYSIOLOGY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an upper level graduate treatment on the physiology and biophysics of nerve cell signaling. Topics to be covered include measurement and analysis of single events from ion channels to synaptic vesicle fusion, synaptic transmission and the relationship between calcium signaling and synaptic vesicle dynamics, short-term synaptic plasticity, and postsynaptic integration. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Repeatable for Credit.

NEUR 540 - GRADUATE NEUROANATOMY
Short Title: GRADUATE NEUROANATOMY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers a broad overview of the structure and function of the central nervous system. The general architecture of the nervous system and its function systems are present in a series of online exercise. MRIs of brain anatomy, as commonly presented in the scientific literature, will be presented using a computerized learning system. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Repeatable for Credit.
NEUR 550 - MOLECULAR NEUROBIOLOGY
Short Title: MOLECULAR NEUROBIOLOGY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the molecular, cellular, and biochemical events that underlie neuronal function. Emphasis is placed on the basic chemistry and biology of cells residing the nervous system. The course also covers the structure and function of receptors, channels and pumps necessary for neuronal function and the neurochemistry of specific transmitter systems. The unique demand of neurons as specialized secretory cells is also covered. This course is taught at UTHSC. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 350. Mutually Exclusive: Cannot register for NEUR 550 if student has credit for NEUR 350. Repeatable for Credit.

NEUR 564 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective is to equip the students of PSYC/NEUR 362 the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. Cross-list: PSYC 564. Graduate/Undergraduate Equivalency: NEUR 364. Mutually Exclusive: Cannot register for NEUR 564 if student has credit for NEUR 364.

NEUR 576 - NEUROBIOLOGY OF DISEASE
Short Title: NEUROBIOLOGY OF DISEASE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers some of the most important disorders of nervous system function. Exposes students to incidence, clinical manifestations, pathophysiology, current scientific models of causes/mechanisms of disorders of the adult brain: stroke, Parkinson's disease, Alzheimer's disease, seizure disorders, brain tumors, multiple sclerosis, amyotrophic lateral sclerosis, brain/spinal cord injury, addiction, depression, and schizophrenia. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 376. Mutually Exclusive: Cannot register for NEUR 576 if student has credit for NEUR 376.

NEUR 577 - NEUROANATOMY: FUNCTIONAL ORGANIZATION OF THE CENTRAL NERVOUS SYSTEM
Short Title: FUNCTIONAL NEUROANATOMY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. This course is offered for Rice psychology graduate undergraduate students. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 377. Mutually Exclusive: Cannot register for NEUR 577 if student has credit for NEUR 377.

NEUR 578 - HIGHER BRAIN FUNCTION
Short Title: HIGHER BRAIN FUNCTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Aspects of systems' neuroscience related to higher brain function: (1) role of limbic system in higher brain functions, (2) role of the extended amygdala and the mesolimbic system in reward and addiction, (3) discussion of human brain processes including decision making, goal directed learning and representation of self and others. Course taught at Baylor College of Medicine. Instructor Permission Required. Mutually Exclusive: Cannot register for NEUR 578 if student has credit for NEUR 378.

Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 579 - NEUROBIOLOGY OF SENSATION AND MOVEMENT
Short Title: NEUROBIO OF SENSATION/MOVEMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of basic systems neuroscience. The course covers sensory transductions, development, and motor programming. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 379. Mutually Exclusive: Cannot register for NEUR 579 if student has credit for NEUR 379.
NEUR 580 - PHYSIOLOGY OF VISUAL SYSTEM
Short Title: PHYSIOLOGY OF VISUAL SYSTEM
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course provides an advanced level and comprehensive coverage of the physiology of the retina and visual cortex. Useful for graduate students and postdocs in neuroscience, physiology, biochemistry, cell biology, and molecular genetics who are interested in visual information processing and brain function. Offered even years only. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 381. Mutually Exclusive: Cannot register for NEUR 580 if student has credit for NEUR 381.

NEUR 582 - INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE
Short Title: INTRO COMPUTATIONAL NEURSCI
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to methods and theories used to describe and understand neural information processing in the brain. Models covered will range from single neuron to networks for sensory, motor and learning tasks. Programming exercises will be done using Matlab. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: NEUR 382. Mutually Exclusive: Cannot register for NEUR 582 if student has credit for ELEC 382/NEUR 382.

NEUR 584 - FUNDAMENTALS OF HUMAN NEUROIDAGING
Short Title: HUMAN NEUROIMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of methods and results for human brain imaging. Describes the physical and physiological mechanisms of image formation. Provides examples from clinical and basic research, particularly in visual cortex. Emphasis on magnetic resonance imaging, but surveys other imaging modalities including PET, optical, and EEG/MEG source localization. Course taught at Baylor College of Medicine. Cross-list: ELEC 584. Mutually Exclusive: Cannot register for NEUR 584 if student has credit for NEUR 430.

NEUR 615 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: CAAM 615, ELEC 588. Graduate/Undergraduate Equivalency: NEUR 415. Mutually Exclusive: Cannot register for NEUR 615 if student has credit for NEUR 415.

NEUR 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: NEUR

Program Description and Code
• Neuroscience: NEUR

Undergraduate Major Description and Code
• Major in Neuroscience: NEUX

Undergraduate Minor Description and Code
• Minor in Neuroscience: NEUR

CIP Code and Description
• NEUX Major/Program: CIP Code/Title: 26.1501 - Neuroscience
• NEUR Minor: CIP Code/Title: 26.1501 - Neuroscience

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Bachelor of Arts (BA) Degree with a Major in Neuroscience

Program Learning Outcomes for the BA Degree with a Major in Neuroscience

Upon completing the BA degree with a major in Neuroscience, students will be able to:

1. Demonstrate knowledge of the biological basis for brain and neuron function and experimental strategies that led to our current understanding of brain and neuron function.
2. Demonstrate knowledge of the key issues, questions, and perspectives that define systems neuroscience.
3. Demonstrate the ability to analyze and interpret neuro-scientific data.
4. Understand multiple experimental methods to measure and manipulate brain activity.
5. Demonstrate how to apply the modern scientific method, including designing and executing experiments, and collecting, analyzing, and interpreting meaningful data.

Requirements for the BA Degree with a Major in Neuroscience

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Neuroscience must complete:

- A minimum of 23 courses (62-69 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 10 courses (26-30 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit after matriculation at Rice may be applied towards specific major requirements. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1740) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/].) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
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Degree Requirements

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<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
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<tr>
<td>CAAM 210</td>
<td>INTRODUCTION TO ENGINEERING COMPUTATION</td>
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<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
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<td>or CHEM 111</td>
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<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I</td>
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<td>or CHEM 113</td>
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<td>CHEM 122</td>
<td>GENERAL CHEMISTRY II</td>
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<td>or CHEM 112</td>
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<td>GENERAL CHEMISTRY LABORATORY II</td>
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<td>or CHEM 114</td>
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<td>MATH 101</td>
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<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<td>MATH 102</td>
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<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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<td>PHYS 125</td>
<td>GENERAL PHYSICS (WITH LAB)</td>
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<td>PHYS 126</td>
<td>GENERAL PHYSICS II (WITH LAB)</td>
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<td>PSYC 203</td>
<td>INTRODUCTION TO COGNITIVE PSYCHOLOGY</td>
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Select 1 course from the following:

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<tr>
<td>STAT 305</td>
<td>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</td>
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<tr>
<td>STAT 310 / ECON 307</td>
<td>PROBABILITY AND STATISTICS</td>
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<tr>
<td>STAT 312</td>
<td>PROBABILITY &amp; STATISTICS FOR ENGINEERS</td>
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<tr>
<td>STAT 315 / DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
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Core Requirements

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<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td>3</td>
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<tr>
<td>NEUR 362 / PSYC 362</td>
<td>COGNITIVE NEUROSCIENCE: EXPLORING</td>
<td>3</td>
</tr>
<tr>
<td>THE LIVING BRAIN</td>
<td>3</td>
<td></td>
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<tr>
<td>NEUR 380 / PSYC 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
<td>3</td>
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<tr>
<td>NEUR 383 / BIOE 380 / ELEC 380</td>
<td>INTRODUCTION TO NEUROENGINEERING:</td>
<td>3</td>
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<tr>
<td>MEASURING AND MANIPULATING</td>
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<tr>
<td>NEURAL ACTIVITY</td>
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Project-Based Laboratory Courses

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<tr>
<td>BIOS 212</td>
<td>INTERMEDIATE EXPERIMENTAL CELLULAR AND MOLECULAR NEUROSCIENCE</td>
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Select a minimum of 2 courses (minimum of 2 credit hours) from the following:

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<th>Title</th>
<th>Credit Hours</th>
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<td>BIOS 415</td>
<td>EXPERIMENTAL PHYSIOLOGY</td>
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<tr>
<td>BIOS 417</td>
<td>EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE</td>
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<td>NEUR 310</td>
<td>INDEPENDENT RESEARCH FOR NEUROSCIENCE UNDERGRADUATES</td>
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<tr>
<td>PSYC 366</td>
<td>METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE</td>
<td>3</td>
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Elective Requirements

Select a minimum of 4 courses (minimum of 12 credit hours) from the following:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 128</td>
<td>BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
<td></td>
</tr>
<tr>
<td>BIOS 442</td>
<td>MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOS 443</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
<td></td>
</tr>
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<td>BIOS 449</td>
<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>BIOE 492</td>
<td>SENSORY NEUROENGINEERING</td>
<td></td>
</tr>
<tr>
<td>COMP 440 / ELEC 440</td>
<td>ARTIFICIAL INTELLIGENCE</td>
<td></td>
</tr>
<tr>
<td>ELEC 475</td>
<td>LEARNING FROM SENSOR DATA</td>
<td></td>
</tr>
<tr>
<td>HIST 353</td>
<td>HISTORY OF SENSATION</td>
<td></td>
</tr>
<tr>
<td>NEUR 310</td>
<td>INDEPENDENT RESEARCH FOR NEUROSCIENCE UNDERGRADUATES ²</td>
<td></td>
</tr>
<tr>
<td>NEUR 382 / ELEC 382</td>
<td>INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>NEUR 411 / LING 411</td>
<td>NEUROLINGUISTICS</td>
<td></td>
</tr>
<tr>
<td>NEUR 415 / CAAM 415 / ELEC 488</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>NEUR 416 / CAAM 416 / ELEC 489</td>
<td>NEURAL COMPUTATION</td>
<td></td>
</tr>
<tr>
<td>PHIL 130</td>
<td>THE SCIENCES OF THE MIND</td>
<td></td>
</tr>
<tr>
<td>PHIL 231</td>
<td>ANIMAL MINDS</td>
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<tr>
<td>PHIL 330</td>
<td>PHILOSOPHY OF MIND</td>
<td></td>
</tr>
<tr>
<td>PHIL 345</td>
<td>THEORY OF KNOWLEDGE</td>
<td></td>
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<tr>
<td>PHIL 431</td>
<td>ADVANCED TOPICS IN THE SCIENCES OF THE MIND</td>
<td></td>
</tr>
<tr>
<td>PSYC 310</td>
<td>PSYCHOLOGY OF AGING</td>
<td></td>
</tr>
<tr>
<td>PSYC 354</td>
<td>INTRODUCTION TO SOCIAL AND AFFECTIVE NEUROSCIENCE</td>
<td></td>
</tr>
<tr>
<td>PSYC 375</td>
<td>NEUROPSYCHOLOGY OF LANGUAGE AND MEMORY</td>
<td></td>
</tr>
<tr>
<td>PSYC 432</td>
<td>BRAIN AND BEHAVIOR</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credit Hours Required for the Major in Neuroscience**: 62-69

**Additional Credit Hours to Complete Degree Requirements**: 20-27

**University Graduation Requirements (p. 29)**: 31

**Total Credit Hours**: 120

---

**Footnotes and Additional Information**

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. **Permissible substitutions:** MATH 105 or MATH 111 and MATH 112 may be substituted for MATH 101; MATH 106 may be substituted for MATH 102; CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113; CHEM 152 may be substituted for CHEM 122 or CHEM 112, and CHEM 154 may be substituted for CHEM 124 or CHEM 114; PHYS 101 and PHYS 103 or PHYS 111 may be substituted for PHYS 125, PHYS 102 and PHYS 104 or PHYS 112 may be substituted for PHYS 126.

2. NEUR 310 can be repeated and counted as an elective if a student has chosen NEUR 310 to count as a Project-Based Laboratory Course. It can only be repeated as an elective once for credit towards the major. If taken as a Project-Based Laboratory or as an Elective, NEUR 310 must be taken for at least 3 credit hours.

3. Students must complete a minimum of three semesters (3 credit hours total) of BIOS 128 to use this course as an Elective Requirement.

---

**Policies for the BA Degree with a Major in Neuroscience**

**Program Restrictions and Exclusions**

Students pursuing the major in Neuroscience should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the major in Neuroscience should be aware of the following program transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards specific major requirements after matriculation at Rice.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Neuroscience website: http://neuroscience.rice.edu/.

**Opportunities for the BA Degree with a Major in Neuroscience**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work.
Research in Neuroscience
Research is highly encouraged for all neuroscience programs, and many opportunities are available for independent research at Rice and other institutions of the Texas Medical Center. Students can receive course credit for independent research through the course NEUR 310 with the option to repeat for credit once as an elective for the major.

Additional Information
For additional information, please see the Neuroscience website: http://neuroscience.rice.edu/.

Minor in Neuroscience

Program Learning Outcomes for the Minor in Neuroscience
Upon completing the minor in Neuroscience, students will be able to:
1. Demonstrate knowledge of the key issues, questions, and perspectives that define contemporary neuroscience.
2. Understand neuroscience as an interdisciplinary field and demonstrate the ability to draw on, and synthesize, key findings and concepts in the sciences, humanities and/or engineering in both the evaluation of existing theories and in the formulation and solution of new problems in neuroscience.

Requirements for the Minor in Neuroscience
Students pursuing the minor in Neuroscience must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1742) tab.
- A minimum of 2 of the Elective Requirements should be completed for the minor only (not shared or double-counted with another major).
- The requirements for one area of specialization (see below for areas of specialization). The Neuroscience minor offers two areas of specialization:
  - Humanities and Social Science (p. 1741): represents cognitive and behavioral approaches to neuroscience, or
  - Natural Sciences and Engineering (p. 1741): represents genetics, cellular/molecular, bioengineering, computation, and systems-level investigations.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

<table>
<thead>
<tr>
<th>Summary</th>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credit Hours Required for the Minor in Neuroscience</td>
<td></td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minor Requirements</th>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Requirement</td>
<td>NEUR 380 / PSYC 380</td>
<td>FUNDAMENTAL NEUROSCIENCE SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>Area of Specialization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select 1 from the following Areas of Specialization (see Areas of Specialization below):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities and Social Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Sciences and Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td></td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

| Areas of Specialization         |          |                                            |              |
| Area of Specialization: Humanities and Social Science |          |                                            |              |
| Students must complete a total of 5 courses (15 credit hours total) as listed below to satisfy the requirements for the Humanities and Social Sciences area of specialization. |          |                                            |              |
| Code                           | Title                      | Credit Hours |
| NEUR 362 / PSYC 362            | COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN | 3            |

Elective Requirements 1, 2
Select a minimum of 3 courses (9 credit hours) from the Humanities and Social Science area of specialization (see below for course lists)
Select at least 1 course (3 credit hours) from the Natural Science and Engineering area of specialization to provide breadth in the field of Neuroscience (see below for course lists) 3

Total Credit Hours 15

Footnotes and Additional Information
1 At least 2 of the electives should be completed for the minor only (not shared or double-counted with another major).
2 No more than 3 credit hours for research (NEUR 310) may be used to satisfy elective requirements for this specialization. NEUR 310 may be taken twice (one instance may count toward the Area of Specialization, one instance may count as breadth.)
3 BIOS 385 may be used to fulfill this requirement.

Area of Specialization: Natural Sciences and Engineering
Students must complete 5 courses (15 credit hours) as listed below to satisfy the requirements for the Natural Sciences and Engineering area of specialization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 385</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements 1, 2
### Course Lists to Satisfy Requirements

#### Humanities and Social Science

All students must complete at least 1 course (such that at least 3 credit hours are completed) from the Humanities and Social Science Electives. Students pursuing the Humanities and Social Sciences area of specialization must take 2 additional courses (6 credit hours) from the following list, for a minimum of 3 courses (9 credit hours must be reached with a combination of all courses).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 128</td>
<td>BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE</td>
<td>1</td>
</tr>
<tr>
<td>HIST 353</td>
<td>HISTORY OF SENSATION</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 411 / LING 411</td>
<td>NEUROLINGUISTICS</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 130</td>
<td>THE SCIENCES OF THE MIND</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 231</td>
<td>ANIMAL MINDS</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 330</td>
<td>PHILOSOPHY OF MIND</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 345</td>
<td>THEORY OF KNOWLEDGE</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 431</td>
<td>ADVANCED TOPICS IN THE SCIENCES OF THE MIND</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 308</td>
<td>MEMORY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 310</td>
<td>PSYCHOLOGY OF AGING</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 354</td>
<td>INTRODUCTION TO SOCIAL AND AFFECTIVE NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 366</td>
<td>METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 375</td>
<td>NEUROPSYCHOLOGY OF LANGUAGE AND MEMORY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 432</td>
<td>BRAIN AND BEHAVIOR</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Natural Sciences and Engineering

All students must complete at least 1 course (such that at least 3 credit hours are completed) from the Natural Sciences and Engineering Electives. Students pursuing the Natural Sciences and Engineering area of specialization must take 2 additional courses (6 credit hours) from the following list, for a minimum of 3 courses (9 credit hours must be reached with a combination of all courses).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 321</td>
<td>ANIMAL BEHAVIOR</td>
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</tr>
<tr>
<td>BIOS 415</td>
<td>EXPERIMENTAL PHYSIOLOGY</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 417</td>
<td>EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE</td>
<td>1</td>
</tr>
<tr>
<td>BIOS 443</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>BIOE 492</td>
<td>SENSORY NEUROENGINEERING</td>
<td>3</td>
</tr>
<tr>
<td>COMP 440 / ELEC 440</td>
<td>ARTIFICIAL INTELLIGENCE</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 475</td>
<td>LEARNING FROM SENSOR DATA</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 310</td>
<td>INDEPENDENT RESEARCH FOR NEUROSCIENCE UNDERGRADUATES</td>
<td>1-4</td>
</tr>
<tr>
<td>NEUR 382 / ELEC 382</td>
<td>INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 383 / BIOE 380 / ELEC 380</td>
<td>INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 415 / CAAM 415 / ELEC 488</td>
<td>THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 416 / CAAM 416 / ELEC 489</td>
<td>NEURAL COMPUTATION</td>
<td>3</td>
</tr>
</tbody>
</table>

### Policies for the Minor in Neuroscience

#### Program Restrictions and Exclusions

Students pursuing minor in Neuroscience should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i) students may declare their intent to pursue a minor only after they have first declared a major, and ii) students may not major and minor in the same subject.

#### Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their
academic program’s transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the minor in Neuroscience should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Neuroscience website: [http://neuroscience.rice.edu/](http://neuroscience.rice.edu/).

**Opportunities for the Minor in Neuroscience**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (*summa cum laude*, *magna cum laude*, and *cum laude*) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Research in Neuroscience**

Research in highly encouraged for all neuroscience minors, and may opportunities are available for independent research at Rice and other institutions of the Texas Medical Center. Students can receive course credit for independent research through the course NEUR 310. There is a 3 credit hour limit for applying research courses to the NEUR minor requirements.

**Additional Information**

For additional information, please see the Neuroscience website: [http://neuroscience.rice.edu/](http://neuroscience.rice.edu/).

**Operations Research**

**Contact Information**

Computational and Applied Mathematics  
[https://www.caam.rice.edu/](https://www.caam.rice.edu/)  
2117 Duncan Hall  
713-348-4805

Illya V. Hicks  
Department Chair  
vhicks@rice.edu

Operations Research (OPRE) is a major offered by the Computational and Applied Mathematics Department. The OPRE major offers undergraduate students an education that emphasizes models for decision-making in complex systems, and tools for making the best possible decisions. The Operations Research major will provide students with both a deep set of analytical skills and contextual knowledge of important problem domains, such as healthcare and energy. Program graduates will have the knowledge and tools to help companies and governments make the best possible decisions in changing and uncertain environments.

**Bachelor's Program**

- Bachelor of Arts (BA) Degree with a Major in Operations Research (p. 1755)

Operations Research does not currently offer an academic program at the graduate level.

**Chair**

Illya V. Hicks

**Professors**

Maarten V. de Hoop  
Matthias Heinckenschloss  
Illya V. Hicks  
Beatrice M. Riviè re  
Andrew J. Schaefer  
Richard A. Tapia

**Assistant Professor**

Jesse Chan

**Professors Emeriti**

Robert E. Bixby  
Steven J. Cox  
Sam H. Davis, Jr.  
John E. Dennis  
Henry H. Rachford, Jr.  
Danny C. Sorensen  
William W. Symes  
Chao-Cheng Wang  
Yin Zhang

**Lecturers**

Anastasiya Protasov  
Charles Puelz  
Mohammad Sarraf Joshaghani

**Pfeiffer Postdoctoral Instructors**

Mario Bencomo  
Tyler Perini

**Professor, Joint Appointment**

John Edward Akin

**Adjunct Professors**

Richard Carter  
Amr El-Bakry  
Roland Glowinski  
Detlef Hohl  
Hector Klie

**Adjunct Associate Professors**

Edward Castillo

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Adjunct Assistant Professors
Sebastian Acosta  
Randy Davila  
David T. Fuentes  
Paul Hand  
Taewoo Lee  
Craig Rusin

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Computational & Applied Mathematics (CAAM)

CAAM 210 - INTRODUCTION TO ENGINEERING COMPUTATION  
Short Title: INTRO TO ENG COMPUTATION  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Modeling, Simulation, and Visualization via MATLAB. Numerical methods: Newton’s method in one and several dimensions. Gaussian elimination and optimization. Application to problems in science and engineering. Lectures are held Monday and Wednesdays. In a laboratory component held on Fridays, students work in small groups on computational projects led by a Rice Learning Assistant. Recommended Prerequisite(s): MATH 101.

CAAM 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CAAM 334 - MATRIX ANALYSIS FOR DATA SCIENCE  
Short Title: MATRIX ANALYSIS DATA SCIENCE  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Solution of linear systems and linear least squares problems. Eigenvalue problem and singular value decomposition. Introduction to gradient based methods. Applications to data science. Recommended Prerequisite(s): (MATH 212 or MATH 222) and (CAAM 210 or COMP 140 or STAT 405) Mutually Exclusive: Cannot register for CAAM 334 if student has credit for CAAM 335.

CAAM 335 - MATRIX ANALYSIS  
Short Title: MATRIX ANALYSIS  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Equilibria and the solution of linear systems and linear least squares problems. Eigenvalue problem and its application to solve dynamical systems. Singular value decomposition and its application. Recommended Prerequisite(s): (MATH 212 or MATH 222) and (COMP 140 or CAAM 210) Mutually Exclusive: Cannot register for CAAM 335 if student has credit for CAAM 334.

CAAM 336 - DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING  
Short Title: DIFF EQUATIONS SCI & ENG  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Classical and numerical solution techniques for ordinary and partial differential equations. Fourier series and the finite element method for initial and boundary value problems arising in diffusion and wave propagation phenomena. Recommended Prerequisite(s): (MATH 212 or MATH 222) AND CAAM 210.
CAAM 378 - INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION  
Short Title: INTRO TO O.R. AND OPTIMIZATION  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Formulation of mathematical models of complex decisions arising in management, economics, and engineering. Models using linear, nonlinear, stochastic and integer programming, as well as networks. 
Linear programming duality and its modeling implications. Overview of basic solution methods for these optimization models. Recommended Prerequisite(s): MATH 212 and (CAAM 335 OR MATH 211 OR MATH 355).

CAAM 382 - STOCHASTIC MODELS  
Short Title: STOCHASTIC MODELS  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 102 or MATH 106  
Description: Fundamentals of stochastic modeling. Topics include discrete & continuous time Markov models, Poisson processes, renewal theory, queueing systems, reliability, Markov decision processes, optimal design and control. Recommended Prerequisite(s): (STAT 280 or 305 or 310 or 315) and MATH 212 and (CAAM 210 or COMP 140) and (CAAM 335 or MATH 355)  

CAAM 415 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS  
Short Title: THEORETICAL NEUROSCIENCE  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Cross-list: ELEC 488, NEUR 415. Graduate/Undergraduate Equivalency: CAAM 615. Recommended Prerequisite(s): CAAM 210 or MATH 211 or CAAM 335 or MATH 355. Mutually Exclusive: Cannot register for CAAM 415 if student has credit for CAAM 615.

CAAM 416 - NEURAL COMPUTATION  
Short Title: NEURAL COMPUTATION  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including “what does a network compute?”, “how does it compute?”, and “why does it compute that way?” Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: ELEC 489, NEUR 416.

CAAM 421 - LOGISTICS AND SUPPLY CHAIN MANAGEMENT  
Short Title: LOG & SUPPLY CHAIN MANAGEMENT  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): CAAM 378 and CAAM 382  

CAAM 423 - PARTIAL DIFFERENTIAL EQUATIONS I  
Short Title: PARTIAL DIFFERENTIAL EQNS I  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
CAAM 435 - DYNAMICAL SYSTEMS
Short Title: DYNAMICAL SYSTEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Existence and uniqueness for solutions of ordinary differential equations and difference equations, linear systems, nonlinear systems, stability, periodic solutions, bifurcation theory. Theory and theoretical examples are complemented by computational, model driven examples from biological and physical sciences. Cross-list: MATH 435. Recommended Prerequisite(s): (MATH 212 or MATH 221) and (CAAM 335 or MATH 355 or MATH 354) and (MATH 302 or MATH 321 or MATH 331)
Course URL: math.rice.edu (http://math.rice.edu)

CAAM 436 - MODELING MATHEMATICAL PHYSICS
Short Title: MODELING MATHEMATICAL PHYSICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Derivation and properties of solutions of the partial differential equations of continuum physics. Basic concepts of continuum mechanics, ideal fluids, Navier-Stokes equations, linear elasticity, acoustics, basic principles of thermodynamics, Newtonian heat flow, porous flow, Maxwell's equations, electrical circuits. Graduate/Undergraduate Equivalency: CAAM 535. Recommended Prerequisite(s): CAAM 336. Mutually Exclusive: Cannot register for CAAM 436 if student has credit for CAAM 535.

CAAM 440 - APPLIED MATRIX ANALYSIS
Short Title: APPLIED MATRIX ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A second course in matrix analysis that presents advanced theoretical results alongside motivating applications. Topics include: properties of Hermitian, positive definite, nonnegative and stochastic matrices; Perron-Frobenius Theorem; spectral perturbation theory; singular value inequalities; generalized eigenvalue problems; functions of matrices; Lyapunov, Sylvester, and Riccati matrix equations. Applications include dynamical systems, control theory, and Markov chains.

CAAM 452 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. Cross-list: CEVE 455. Graduate/Undergraduate Equivalency: CAAM 536. Recommended Prerequisite(s): CAAM 336
Mutually Exclusive: Cannot register for CAAM 452 if student has credit for CAAM 536.

CAAM 453 - NUMERICAL ANALYSIS I
Short Title: NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CAAM 334 or CAAM 335) and CAAM 336
Mutually Exclusive: Cannot register for CAAM 453 if student has credit for CAAM 550.

CAAM 454 - ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION
Short Title: SYST OF EQNS & UNCONST OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Iterative methods for linear systems of equations including Krylov subspace methods; Newton and Newton-like methods for nonlinear systems of equations; Gradient and Newton-like methods for unconstrained optimization and nonlinear least squares problems; techniques for improving the global convergence of these algorithms; linear programming duality and primal-dual interior-point methods. Graduate/Undergraduate Equivalency: CAAM 554. Recommended Prerequisite(s): CAAM 453. Mutually Exclusive: Cannot register for CAAM 454 if student has credit for CAAM 554.
CAAM 467 - OPTIMIZATION METHODS IN FINANCE
Short Title: OPT METHODS IN FINANCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 378
Description: Portfolio optimization and asset allocation models. Risk management and option pricing. Deterministic and stochastic optimization approaches, as well as linear and nonlinear approaches will be used to model decisions arising in finance. Graduate/Undergraduate Equivalency: INDE 567.

CAAM 471 - LINEAR AND INTEGER PROGRAMMING
Short Title: LINEAR AND INTEGER PROGRAMMING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Linear and integer programming involve formulating and solving fundamental optimization models widely used in practice. This course introduces the basic theory, algorithms, and software of linear and integer programming. Topics studied in the linear programming part include polyhedron concepts, simplex methods, duality, sensitivity analysis and decomposition techniques. Building on linear programming, the second part of this course introduces modeling with integer variables and solution methodologies in integer programming including branch-and-bound and cutting-plane techniques. This course will provide a basis for further studies in convex and combinatorial optimization. Graduate/Undergraduate Equivalency: CAAM 571. Recommended Prerequisite(s): CAAM 335 and CAAM 378 Mutually Exclusive: Cannot register for CAAM 471 if student has credit for CAAM 571.

CAAM 476 - LARGE-SCALE OPTIMIZATION
Short Title: LARGE-SCALE OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 378 and COMP 215
Description: Decomposition of large-scale linear, nonlinear and integer programs. Minkowski representation of polyhedral. Benders’ and Dantzig-Wolfe decomposition. Relaxations, including Lagrangian relaxation. Examples include multicommodity flow and stochastic linear programs. Design and testing of computational strategies for difficult optimization problems. Students will implement projects in Python and JMP.

CAAM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CAAM 480 - PEDAGOGY FOR CAAM 210 RICE LEARNING ASSISTANTS
Short Title: PEDAGOGY FOR RLA
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to support Rice Learning Assistants (RLAs) as they instruct their own lab sections of CAAM 210. Topics include analysis of computational science and engineering concepts, issues of problem-based learning (PBL), theories of learning, and fundamental teaching skills. Required for CAAM 210 RLAs. Instructor Permission Required. Repeatable for Credit.

CAAM 485 - DISCRETE-EVENT SIMULATION
Short Title: DISCRETE-EVENT SIMULATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to support Rice Learning Assistants (RLAs) as they instruct their own lab sections of CAAM 210. Topics include analysis of computational science and engineering concepts, issues of problem-based learning (PBL), theories of learning, and fundamental teaching skills. Required for CAAM 210 RLAs. Instructor Permission Required. Repeatable for Credit.

CAAM 487 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
CAAM 491 - UNDERGRADUATE RESEARCH PROJECTS
Short Title: UNDERGRAD RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Semester-long undergraduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.

CAAM 495 - SENIOR DESIGN PROJECT I
Short Title: SENIOR DESIGN PROJECT I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students engage in team-oriented year-long design projects that utilize modeling, analysis, and scientific computing skills to solve a problem motivated by an application in engineering or the physical, biological, or social sciences. Participants attend regular seminars addressing research techniques and effective written and verbal presentation of mathematics.

CAAM 496 - SENIOR DESIGN PROJECT II
Short Title: SENIOR DESIGN PROJECT II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 495
Description: Continuation of CAAM 495. Seminars focus on the presentation of results from design groups and provide guidance on the composition of a substantial project report.

CAAM 497 - LOSING THE PRECIOUS FEW
Short Title: LOSING THE PRECIOUS FEW
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The class will read from Tapia's text: Losing the Precious Few: How America Fails to Educate Minorities in Science and Engineering and then discuss in class issues associated with the underrepresentation of Blacks and Hispanics in academic and national science and engineering activities. Topics will include racism, immigration, student admissions, faculty hiring, faculty promotion, the role of minority serving institutions, mistaking foreign minorities for the Precious Few, support issues and leadership.
Course URL: None (http://None)

CAAM 498 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover a selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: MATH 498, STAT 498. Graduate/Undergraduate Equivalency: CAAM 698. Mutually Exclusive: Cannot register for CAAM 498 if student has credit for CAAM 698. Repeatable for Credit.

CAAM 499 - COMPUTATIONAL AND APPLIED MATHEMATICS SEMINAR
Short Title: COMP & APPLIED MATH SEMINAR
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include eigenvalues, model reduction, combinatorial optimization, optimization algorithms, scientific computing, and numerical analysis. The topics may vary each semester. Graduate/Undergraduate Equivalency: CAAM 699. Repeatable for Credit.

CAAM 501 - ANALYSIS I
Short Title: ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Real numbers, completeness, sequences and convergence, compactness, continuity, the derivative, the Riemann integral, fundamental theorem of calculus. Vector spaces, dimension, linear maps, inner products and norms, derivatives in R^n, inverse function theorem, implicit function theorem, multiple integration, change of variable theorem. Instructor Permission Required. Recommended Prerequisite(s): CAAM 501 Mutually Exclusive: Cannot register for CAAM 501 if student has credit for CAAM 401.
**CAAM 502 - ANALYSIS II**

Short Title: ANALYSIS II  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  

**CAAM 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL**

Short Title: NONLINEAR SYSTEMS  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Vector spaces of functions, sequences and series, convergence. Continuity and differentiability of functions of several variables, the derivative as a linear map, the contraction mapping principle, fundamental theorems on differential equations, multivariable integration, Stoke’s theorem and relatives. Instructor Permission Required. Recommended Prerequisite(s): CAAM 501. Mutually Exclusive: Cannot register for CAAM 502 if student has credit for CAAM 402.

**CAAM 519 - COMPUTATIONAL SCIENCE I**

Short Title: COMPUTATIONAL SCIENCE I  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Scientific programming using high level languages, including C, Fortran, and C++. Emphasis on use of numerical libraries. Basic techniques of project planning, source management, documentation, program construction, i/o, visualization. Object-oriented design for numerical computing. Recommended Prerequisite(s): (CAAM 210 and CAAM 335) or CAAM 453. Mutually Exclusive: Cannot register for CAAM 519 if student has credit for CAAM 420.

**CAAM 520 - COMPUTATIONAL SCIENCE II**

Short Title: COMPUTATIONAL SCIENCE II  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Theory and application of the message passing interface for programming scientific computing applications. Introduction to the architecture and programming of multicore and massively parallel processors, including general purpose graphics processing units, Insight for designing efficient numerical algorithms to improve parallelization of memory access and utilization of non-uniform memory architectures. Application interfaces include OpenMP, MPI, CUDA, OpenCL, and parallel numerical algorithm libraries. Instructor Permission Required. Recommended Prerequisite(s): CAAM 519

**CAAM 523 - PARTIAL DIFFERENTIAL EQUATIONS I**

Short Title: PARTIAL DIFFERENTIAL EQNS I  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: First order of partial differential equations. The method of characteristics. Analysis of the solutions of the wave equation, heat equation and Laplace’s equation. Integral relations and Green’s functions. Potential theory, Dirichlet and Neumann problems. Asymptotic methods: the method of stationary phase, geometrical optics, regular and singular perturbation methods. Additional course work is required beyond the undergraduate course requirements. Cross-list: MATH 513. Graduate/Undergraduate Equivalency: CAAM 423. Recommended Prerequisite(s): MATH 321 AND MATH 322 Mutually Exclusive: Cannot register for CAAM 523 if student has credit for CAAM 423.

**CAAM 535 - MODELING MATHEMATICAL PHYSICS**

Short Title: MODELING MATHEMATICAL PHYSICS  
Department: Computational & Applied Math  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course combines basic physical principles with vector calculus to derive many important partial differential equations governing motion of fluids and solids. Topics include stress, strain, idealized fluids, linear elasticity, acoustics, basics of thermodynamics, Navier-Stokes. Graduate/Undergraduate Equivalency: CAAM 436. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 535 if student has credit for CAAM 436.
CAAM 536 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. May receive credit for only one of the following courses: CAAM 452/CEVE 455/CAAM 536/CEVE 555.
Cross-list: CEVE 555. Graduate/Undergraduate Equivalency: CAAM 452.
Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 536 if student has credit for CAAM 452.

CAAM 540 - APPLIED FUNCTIONAL ANALYSIS
Short Title: APPLIED FUNCTIONAL ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 402 or CAAM 502
Description: Hilbert spaces, Banach spaces, spectral theory, and weak topologies with applications to signal processing, control, and partial differential equations. Biennial, Offered in Odd Years. Recommended Prerequisite(s): CAAM 402 and MATH 322.

CAAM 542 - DISCONTINUOUS GALERKIN METHODS FOR SOLVING ENGINEERING PROBLEMS
Short Title: DISCONTINUOUS GALERKIN METHODS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will present the theory and implementation of discontinuous Galerkin methods for partial differential equations common in engineering applications. Two main classes of problems are covered: steady-state and time-dependent elliptic/parabolic and hyperbolic equations. These include (but are not limited to) the Poisson and heat equations, linear wave equations, and nonlinear conservation laws. Recommended Prerequisite(s): CAAM 453 or CAAM 553

CAAM 550 - NUMERICAL ANALYSIS I
Short Title: NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Construction and application of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, linear least squares problems, and eigenvalue problems via matrix factorizations; Newton and Newton-like methods for nonlinear systems of equations. Computer programming in MATLAB is required. Graduate/Undergraduate Equivalency: CAAM 453. Mutually Exclusive: Cannot register for CAAM 550 if student has credit for CAAM 453.

CAAM 551 - NUMERICAL LINEAR ALGEBRA
Short Title: NUMERICAL LINEAR ALGEBRA
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Direct methods for large, sparse linear systems; regularization of ill-conditioned least squares problems; backward error analysis of basic algorithms for linear equations and least squares, sensitivity and conditioning of linear systems and least square problems; condition estimation. Preconditioned iterative methods for linear systems (CG, GMRES, BiCGStab, QMR); multigrid methods. Matrix theory including spectral decompositions, Schur form, eigenvalue perturbation theory, and the geometry of subspaces. Eigenvalue algorithms, Sylvestor and Lyapunov equations, the implicitly shifted QR algorithm, computation of the SVD, generalized eigenvalue problems. Introduction to large scale eigenvalue algorithms. Proficiency in MATLAB and acquaintance with one or more of C, F77, C++, F90 is required. Recommended Prerequisite(s): CAAM 453 or CAAM 553 or CAAM 550

CAAM 552 - FOUNDATIONS OF FINITE ELEMENT METHODS
Short Title: FINITE ELEMENT METHODS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses the theory and implementation of finite element methods. Topics include weak solutions of partial differential equations, Sobolev spaces, approximation theory, convergence and reliability of the numerical methods. Continuous and discontinuous finite element methods are considered.
CAAM 553 - ADVANCED NUMERICAL ANALYSIS I
Short Title: ADV NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 401 (may be taken concurrently) or CAAM 501 (may be taken concurrently)
Description: Construction and analysis of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, least squares problems, and eigenvalue problems via matrix factorizations; the singular value decomposition (SVD) and basic sensitivity analysis. Computer programming in MATLAB is required. This course covers fewer topics than CAAM 453 with greater theoretical depth. Prerequisite CAAM 501 may be taken concurrently with CAAM 553. Instructor Permission Required.

CAAM 554 - ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION
Short Title: SYST OF EQNS & UNCONST OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the same lecture material as CAAM 454, but fosters greater theoretical sophistication through more challenging problem sets and exams. Graduate/Undergraduate Equivalency: CAAM 454. Recommended Prerequisite(s): CAAM 550 or CAAM 553. Mutually Exclusive: Cannot register for CAAM 554 if student has credit for CAAM 454.

CAAM 555 - INTRO TO PARTIAL DIFFERENTIAL EQUATION BASED SIMULATION AND OPTIMIZATION
Short Title: PDE SIMULATION AND OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 501 and CAAM 553
Description: Introduction to the theory and numerical methods for the solution of elliptic partial differential equations (PDEs) and optimization problems governed by these PDEs. Topics include functional analysis, well-posedness of elliptic problems, optimality conditions for PDE constrained optimization problems and finite element discretizations. Recommended Prerequisite(s): CAAM 554

CAAM 556 - CONVEX OPTIMIZATION
Short Title: CONVEX OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Convex optimization problems arise in communication, system theory, VLSI, CAD, finance, inventory, network optimization, computer vision, learning, statistics, etc., even though oftentimes convexity may be hidden and unrecognized. Recent advances in interior-point methodology have made it much easier to solve these problems and various solvers are now available. This course will introduce the basic theory and algorithms for convex optimization, as well as its many applications to computer science, engineering, management science and statistics. Biennial; Offered in Odd Years. Recommended Prerequisite(s): CAAM 335 and MATH 321.

CAAM 557 - SIGNAL RECOVERY: THEORY AND SIMULATION
Short Title: SIGNAL RECOVERY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces the theory and numerical algorithms for several fundamental signal recovery tasks. Topics include L1 minimization, sparse regression, compressed sensing, orthogonal matching pursuit, proximal operators, ADMM algorithms, Iterative Reweighted Least Squares. Nuclear norm minimization, matrix completion, robust Principal Component Analysis. Recommended Prerequisite(s): CAAM 378 or MATH 302 or STAT 310.
CAAM 568 - INDUSTRIAL AND APPLIED DATA SCIENCE AND CONTROL THEORY
Short Title: DATA SCIENCE & CONTROL THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course presents a pragmatic introduction to the foundational theory of data science and optimal control along with multiple practical applications. It includes modern (post-1990) aspects of data science driven by massively more data and computer power such as deep neural networks. Dynamical systems and optimal control methods are deeply impacted by these developments, and the course includes relevant sections on nonlinear control and reinforcement learning. It is supplemented by practical programming exercises to be completed every week by all students. Several industrial-strength applications from the energy sector are discussed in appropriate detail. Recommended Prerequisite(s): Equivalent of advanced course work in computer programming (e.g. COMP 321), calculus (e.g. MATH 212), statistics or probability theory (e.g. STAT 331), linear algebra (e.g. CAAM 334 or 335). Proficiency in MATLAB (course programming language) or Python (alternative to MATLAB available to course participants).

CAAM 570 - GRAPH THEORY
Short Title: GRAPH THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the structure and properties of graphs, together with a variety of applications. Includes paths, cycles, trees, connectivity, matchings, colorings, planarity, directed graphs, and algorithms. Some knowledge of linear algebra is recommended. Mutually Exclusive: Cannot register for CAAM 570 if student has credit for CAAM 470.

CAAM 571 - LINEAR AND INTEGER PROGRAMMING
Short Title: LINEAR AND INTEGER PROGRAMMING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the same lecture material as CAAM 471, but fosters greater theoretical sophistication through more challenging problem sets and exams. Graduate/Undergraduate Equivalency: CAAM 471. Mutually Exclusive: Cannot register for CAAM 571 if student has credit for CAAM 471.

CAAM 574 - COMBINATORIAL OPTIMIZATION
Short Title: COMBINATORIAL OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: General theory and approaches for solving combinatorial optimization problems are studied. Specific topics include basic polyhedral theory, minimum spanning trees, shortest paths, network flow, matching and matroids. The course also covers the traveling salesman problem. A student may not receive credit for both CAAM 474 and CAAM 574. Mutually Exclusive: Cannot register for CAAM 574 if student has credit for CAAM 474.

CAAM 581 - MATHEMATICAL PROBABILITY I
Short Title: MATHEMATICAL PROBABILITY I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 583 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
Short Title: INTRO RANDOM PROCESSES & APPL
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: ELEC 533, STAT 583.

CAAM 585 - STOCHASTIC OPTIMIZATION
Short Title: STOCHASTIC OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Stochastic optimization models arise in many contexts. This course focuses on stochastic programs, including stochastic integer programs and multi-stage stochastic programs. It will emphasize the interplay between theory and computational approaches.
CAAM 590 - INDEPENDENT STUDY
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Semester-long graduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.

CAAM 591 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Semester-long graduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.

CAAM 600 - THESIS WRITING
Short Title: THESIS WRITING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assists the student in preparation of the CAAM MA/PhD thesis and in other writing projects. Structure of a scientific paper, effective approaches to technical writing, building literature review, results, and discussion sections, how to write a good abstract, oral presentation skills. Prerequisite: Advisor approval of topic and consent of the instructor(s). Instructor Permission Required. Repeatable for Credit.

CAAM 615 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 588, NEUR 615. Graduate/Undergraduate Equivalency: CAAM 415. Mutually Exclusive: Cannot register for CAAM 615 if student has credit for CAAM 415.

CAAM 620 - TOPICS IN COMPUTATIONAL SCIENCE
Short Title: TOPICS IN COMPUTATIONAL SCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 630 - OPTIMIZATION WITH SIMULATION CONSTRAINTS
Short Title: OPTIMIZATION W/SIM CONSTRAINTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.

CAAM 640 - OPTIMIZATION WITH SIMULATION CONSTRAINTS
Short Title: OPTIMIZATION W/SIM CONSTRAINTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Recommended Prerequisite(s): CAAM 564. Repeatable for Credit.

CAAM 641 - TOPICS IN INVERSE PROBLEMS
Prerequisite(s): CAAM 564. Repeatable for Credit.
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.

CAAM 642 - TOPICS IN SEISMIC IMAGING
Short Title: TOPICS IN SEISMIC IMAGING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 643 - TOPICS IN GEOMATHEMATICS
Short Title: TOPICS IN GEOMATHEMATICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Recommended Prerequisite(s): CAAM 335 and CAAM 336 Repeatable for Credit.
CAAM 651 - TOPICS IN NUMERICAL LINEAR ALGEBRA  
**Short Title:** TOPICS IN NUM LINEAR ALGEBRA  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Selected topics will vary depending on instructor and student interests. Derivation and analysis of Krylov and subspace iteration methods for large eigenvalue problems (Lanczos, Arnoldi, Jacobi-Davidson algorithms); preconditioning for linear systems and eigenvalue problems (incomplete LU, domain decomposition, multigrid); convergence analysis including potential theory and pseudospectra. Applications: regularization of discrete inverse problems; dimension reduction for large dynamical control systems; effects on non-normality on behavior of dynamical systems and iterative processes. Recommended Prerequisite(s): CAAM 551. Repeatable for Credit.

CAAM 652 - TOPICS IN NUMERICAL DIFFERENTIAL EQUATIONS  
**Short Title:** TOPICS IN NUM DIFF EQNS  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 654 - TOPICS IN OPTIMIZATION  
**Short Title:** TOPICS IN OPTIMIZATION  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 656 - TOPICS IN NONLINEAR PROGRAMMING  
**Short Title:** TOPICS NONLINEAR PROGRAMMING  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Content varies from year to year.

CAAM 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory, Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CAAM 698 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES  
**Short Title:** RESEARCH THEMES IN MATH. SCI.  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A seminar course that will cover a selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: MATH 698, STAT 698. Graduate/Undergraduate Equivalency: CAAM 498. Mutually Exclusive: Cannot register for CAAM 698 if student has credit for CAAM 498. Repeatable for Credit.

CAAM 699 - COMPUTATIONAL AND APPLIED MATHEMATICS SEMINAR  
**Short Title:** COMP & APPLIED MATH SEMINAR  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics, computational finance, simulation driven optimization, data simulation, and spectral optimization in rational mechanics. The topics may vary each semester. Instructor Permission Required. Graduate/Undergraduate Equivalency: CAAM 499. Repeatable for Credit.

CAAM 800 - RESEARCH AND THESIS  
**Short Title:** RESEARCH AND THESIS  
**Department:** Computational & Applied Math  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course is for CAAM MA or PhD students working on their thesis research. Repeatable for Credit.

**Description and Code Legend**  
**Note:** Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**  
- Course offerings/subject code: CAAM

**Department Description and Code**  
- Computational and Applied Mathematics: CAAM

**Undergraduate Degree Description and Code**  
- Bachelor of Arts degree: BA

**Undergraduate Major Descriptions and Codes**  
- Major in Operations Research: OPRE

**CIP Code and Description**  
- OPRE Major/Program: CIP Code/Title: 14.3701 - Operations Research
Bachelor of Arts (BA) Degree with a Major in Operations Research

Program Learning Outcomes for the BA Degree with a Major in Operations Research

Upon completing the BA degree with a major in Operations Research, students will be able to:

1. Formulate mathematical programs and stochastic processes that model real-world situations. (Critical Thinking)
2. Design and analyze exact and approximate approaches to solve operation research models. (Design)
3. Design, implement and debug software to solve operations research models. (Design)
4. Communicate the solutions and insights generated by operations research models to a non-technical audience. (Communication)

Requirements for the BA Degree with a Major in Operations Research

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Operations Research must complete:

• A minimum of 20-21 courses (64-69 credit hours), depending on course selection, to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 14 courses (43-45 credit hours, depending on course selection) taken at the 300-level or above.

The undergraduate program in operations research has been designed to accommodate a wide range of student interests. Students are strongly encouraged to take additional courses in pure and applied mathematics, computation, and modeling.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Operations Research</td>
<td>64-69</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Operations Research</td>
<td>120</td>
</tr>
</tbody>
</table>
Departmental Transfer Credit Guidelines

Students pursuing the major in Operations Research should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu.

Opportunities for the BA Degree with a Major in Operations Research

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
- should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
- more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Computational and Applied Mathematics (MCAAM) degree. For additional information, students should contact their undergraduate major advisor and the MCAAM program director.

Additional Information

For additional information, please see the Computational and Applied Mathematics website: https://www.caam.rice.edu.

Policies for the BA Degree with a Major in Operations Research

Program Restrictions and Exclusions

Students pursuing the BA degree with a major in Operations Research should be aware of the following program restriction:

- Students pursuing the major in Operations Research may not additionally declare the major in Computational and Applied Mathematics.
- Students pursuing the major in Operations Research may not additionally declare the minor in Computational and Applied Mathematics.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.
Philosophy

Contact Information

Philosophy
https://philosophy.rice.edu/
224 Humanities Building
713-348-4994

Timothy Schroeder
Department Chair
tas6@rice.edu

Philosophy is best described as the attempt to think clearly and deeply about the fundamental questions that arise for us as human beings. What is the nature of knowledge (epistemology)? How are we to distinguish between what really is and what only seems to be (metaphysics)? What is the right thing to do (ethics)? Is there any meaning to existence? To study the history of philosophy is to study the best, most enduring answers given to these questions in the past. Because every other field of study adopts some stance toward these questions, though often implicitly, philosophical issues arise in the natural and social sciences, history, linguistics, literature, art, and so on. Special courses in philosophy deal with each of these.

Characteristic of philosophy are commitments to the construction and evaluation of arguments, to expressing thoughts clearly and precisely, and to defending one’s ideas and evaluating the ideas of others. The study of philosophy thus provides resources for critical participation in all realms of human endeavor.

The graduate program trains students to teach and pursue research in the main areas of department concentration: ethics (especially bioethics) and social and political philosophy, core portions of analytic philosophy (especially philosophy of mind), history of philosophy, and continental philosophy.

Bachelor's Program
- Bachelor of Arts (BA) Degree with a Major in Philosophy

Master's Program
- Master of Arts (MA) Degree in the field of Philosophy

Doctoral Program
- Doctor of Philosophy (PhD) Degree in the field of Philosophy

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Director of Graduate Studies
Gwendolyn M. Bradford

Professors
Elizabeth Brake
Steven G. Crowell
Uriah Kriegel
Donald Ray Morrison
Timothy Schroeder
George Sher
Charles Siewert

Associate Professor
Gwendolyn M. Bradford

Assistant Professors
Alexander Morgan
Vida Yao

Visiting Lecturer
Brian Miller

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb!SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb!SWKSCAT.cat)

Philosophy (PHIL)
PHIL 100 - INTRODUCTION TO PHILOSOPHY
Short Title: INTRODUCTION TO PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to philosophy through a variety of philosophical topics (such as: morality, determinism, knowledge, consciousness), figures (such as: Plato, Aristotle, Descartes, Nietzsche), or some combination of these. Encounter some of the hardest, deepest thoughts developed over the last 2500 years!

Chair
Timothy Schroeder

Director of Undergraduate Studies
Charles Siewert

2021-2022 General Announcements PDF Generated 09/22/21
PHIL 125 - PHILOSOPHY THROUGH ARTWORKS
Short Title: PHILOSOPHY THROUGH ARTWORKS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to philosophically interesting artworks and, through them, the philosophical study of art. Artworks studied can include popular music, painting, sculpture, films, television, fiction, poetry, and more. Previously offered as PHIL 109. Mutually exclusive with PHIL 109, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 125 if student has credit for PHIL 109.

PHIL 130 - THE SCIENCES OF THE MIND
Short Title: THE SCIENCES OF THE MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the scientific investigation of the mind, with special attention to topics of particular philosophical interest. Topics are likely to include: representation and computation, perception, cognition, action, and the neural implementation of mental states and processes. Previously offered as PHIL 103. Mutually exclusive with PHIL 103, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 130 if student has credit for PHIL 103.

PHIL 160 - MORAL PROBLEMS
Short Title: MORAL PROBLEMS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to moral and political theorizing, ranging across levels of abstraction from the more concrete (such as: abortion, war, the duty to vote) to the more rarified (such as: justice, goodness, the origins of norms). Previously offered as PHIL 101. Mutually exclusive with PHIL 101, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 160 if student has credit for PHIL 101.

PHIL 166 - ETHICS IN PANDEMICS
Short Title: ETHICS IN PANDEMICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will grapple with a wide variety of questions raised by the coronavirus pandemic. What are our duties to others in a time of crisis? On what basis should scarce medical resources be deployed? What is the appropriate role for individuals, and for the government? How do we weigh the values of life and health against other values? And so on. Readings will include both works of professional philosophers and contemporary popular writings on the pandemic.

PHIL 210 - LOGIC
Short Title: LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the formal theory of reasoning, which will be used to assess the validity of arguments in natural languages. Study of general properties of logical implication and logical truth. Previously offered as PHIL 106. Mutually exclusive with PHIL 106, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 210 if student has credit for PHIL 106.

PHIL 220 - PHILOSOPHY OF RELIGION
Short Title: PHILOSOPHY OF RELIGION
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of God's existence, the problem of evil, the relation between faith and reason, the meaning of death, the relation between religion and morality, and tolerance/respect for differing religions. Previously offered as PHIL 311. Mutually exclusive with PHIL 311, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 220 if student has credit for PHIL 311.
PHIL 230 - HUMAN MINDS
Short Title: HUMAN MINDS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An investigation of how we should understand our own minds in the light of the recent discoveries (both exciting and alarming) generated by scientists. Topics are likely to include things such as: character, willpower, the influence of beliefs on perception, the relation of addiction to love, introspection, implicit bias, and more. Previously offered as PHIL 116. Mutually exclusive with PHIL 116, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 230 if student has credit for PHIL 116.

PHIL 231 - ANIMAL MINDS
Short Title: ANIMAL MINDS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine various philosophical questions raised by the science of animal cognition: What is it to have a mind? How can we learn about animal minds? Are animals conscious? Do they have beliefs or concepts? What does this tell us about the nature and value of animal minds? Previously offered as PHIL 359. Mutually exclusive with PHIL 359. Mutualy Exclusive: Cannot register for PHIL 231 if student has credit for PHIL 359.

PHIL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

PHIL 265 - DEATH AND DYING: METAPHYSICS AND ETHICS
Short Title: DEATH AND DYING
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How are we to respond to the fact of death? This course examines the moral, metaphysical and personal issues surrounding the death of persons. Readings from analytic philosophy and the bioethics literature. Previously offered as PHIL 339. Mutually exclusive with PHIL 339, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 265 if student has credit for PHIL 339.

PHIL 266 - MEDICAL ETHICS
Short Title: MEDICAL ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A philosophical examination of some of the fundamental issues in clinical ethics, including informed consent, competency, confidentiality, end of life decision making, the definition of death, allocating scarce medical resources, and the role of economic analysis in clinical decision making. Readings drawn from the clinical and philosophical literature. Effective May 15, 2019, this course does not carry D1 credit. Previously offered as PHIL 336. Mutually exclusive with PHIL 336, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 266 if student has credit for PHIL 336.

PHIL 267 - PHILOSOPHY OF SEX AND LOVE
Short Title: PHILOSOPHY OF SEX AND LOVE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine philosophical views of the nature and ethics of sex and love. The first half will focus on the historical development of the concept of love, from Plato to contemporary feminism. The second half will consider ethical debates over pornography, sex work, marriage, sexual consent, and more.
PHIL 275 - FEMINIST PHILOSOPHY
Short Title: FEMINIST PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Feminist philosophy both uses philosophical methods to investigate feminism, and critiques philosophy from a feminist perspective. This course introduces the student to feminist philosophy from historical and contemporary perspectives, investigating topics of both feminist and philosophical interest such as gender, sexuality, family, class, race, equality, justice, politics, science, and knowledge. Previously offered as PHIL 111. Mutually exclusive with PHIL 111, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 275 if student has credit for PHIL 111.

PHIL 281 - HISTORY OF PHILOSOPHY I
Short Title: HISTORY OF PHILOSOPHY I
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: A survey of the history of philosophy from the 17th- to the 20th century. Leading philosophers discussed are likely to include Descartes, Locke, Hume, Kant, Mill, and Nietzsche. Previously offered as PHIL 201. Mutually exclusive with PHIL 201, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 281 if student has credit for PHIL 201.

PHIL 283 - HISTORY OF PHILOSOPHY II
Short Title: HIST OF PHILOSOPHY II
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: A survey of the history of philosophy from the 17th- to the 20th century. Leading philosophers discussed are likely to include Descartes, Locke, Hume, Kant, Mill, and Nietzsche. Previously offered as PHIL 202. Mutually exclusive with PHIL 202, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 283 if student has credit for PHIL 202.

PHIL 285 - EXISTENTIALISM
Short Title: EXISTENTIALISM
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: A survey of existentialist philosophy and literature, focused on the search for meaning. Selected readings from figures such as Kierkegaard, Kafka, Heidegger, Beauvoir, Sartre, Camus, and Fanon. Previously offered as PHIL 317. Mutually exclusive with PHIL 317, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 285 if student has credit for PHIL 317.

PHIL 289 - HISTORY OF ASIAN PHILOSOPHY
Short Title: HISTORY OF ASIAN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: A first survey of the history of asian philosophy, with attention to philosophical developments born from major traditions. Different instructors will offer different emphases but prominent figures are likely to include Kongzi (Confucius), Laozi, and Zhuangzi from the Chinese tradition and selected representatives of the Theravada and Mahayana traditions in India. Topics are likely to include the nature of self, the nature of reality, our ability to know the nature of reality, and the personal moral demands and political imperatives we live with.

PHIL 310 - MATHEMATICAL LOGIC
Short Title: MATHEMATICAL LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: We study formal languages and methods for assessing correctness of arguments, including a brief look at modal and many-valued logics. We also consider their relations to natural languages and reflect on the techniques required to prove theorems about languages. A previous logic course is helpful, though the course is self-contained. Graduate/Undergraduate Equivalency: PHIL 505.
PHIL 318 - PHILOSOPHY OF LANGUAGE
Short Title: PHILOSOPHY OF LANGUAGE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Philosophical investigation of relations among language, thought, and reality with emphasis on what makes a string of symbols and sounds meaningful. Previously offered as PHIL 353, a number which has now been given to Philosophy of Biology (which was previously PHIL 310). Recommended Prerequisite(s): One course in philosophy or permission of instructor.

PHIL 320 - METAPHYSICS
Short Title: METAPHYSICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of metaphysical theories in the works of historical and contemporary thinkers. Topics may include: free will, the identity of persons over time, causation, possibility and necessity, design and chance, the nature of existence, the nature of time. Previously offered as PHIL 304. Mutually exclusive with PHIL 304, credit cannot be earned for both classes. Recommended Prerequisite(s): A previous course in philosophy. Mutually Exclusive: Cannot register for PHIL 304 if student has credit for PHIL 304.

PHIL 325 - PHILOSOPHY OF ART
Short Title: PHILOSOPHY OF ART
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduces students to the philosophical study of artistic creation and artworks. Readings can range across the history of philosophy up to the present day and are likely to touch on topics such as the nature of art, representation in art, artistic value, creativity, and the moral status of artistic works. Recommended Prerequisite(s): One previous course in Philosophy.

PHIL 330 - PHILOSOPHY OF MIND
Short Title: PHILOSOPHY OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Inquiry into the nature of mind. Questions include: how should we conceive of the relationship of mind and body? What is consciousness, and how might it be explained? How can mental states be causes? Can one’s mind and its contents lie outside one’s brain? Previously offered as PHIL 312. Mutually exclusive with PHIL 312, credit cannot be earned for both classes. Recommended Prerequisite(s): One course in philosophy. Mutually Exclusive: Cannot register for PHIL 330 if student has credit for PHIL 312.

PHIL 340 - PHENOMENOLOGY
Short Title: PHENOMENOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is devoted to selected historical and contemporary work in phenomenology, the approach to philosophy inaugurated by Edmund Husserl and developed further by thinkers such as Heidegger, Sartre, Merleau-Ponty, and Hannah Arendt. Readings will include classical and contemporary work in phenomenology on a specific philosophical topic such as meaning, truth, action, embodiment, ethics, art, and other minds. Repeatable for credit. Recommended Prerequisite(s): One previous course in Philosophy. Graduate/Undergraduate Equivalency: PHIL 540. Recommended Prerequisite(s): One previous course in Philosophy. Repeatable for Credit.

PHIL 345 - THEORY OF KNOWLEDGE
Short Title: THEORY OF KNOWLEDGE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the question: What is knowledge, and how is it possible that we have it? Topics include: analysis of knowledge, justification and evidence, skeptical challenges, and relativism. Previously offered as PHIL 303. Mutually exclusive with PHIL 303, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 345 if student has credit for PHIL 303.
PHIL 350 - PHILOSOPHY OF SCIENCE
Short Title: PHILOSOPHY OF SCIENCE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course treats topics of central importance to general philosophy of science. We ask what makes something a scientific explanation, what is required for observations to support (confirm) scientific theories, the nature of evidence, and how experiments relate to theories and models of the world. Topics covered include logical empiricism, the problem of induction, theory-laden observation, relativism, and the role of social values in science. Previously offered as PHIL 313. Mutually Exclusive: Cannot register for PHIL 350 if student has credit for PHIL 313. Repeatable for Credit.

PHIL 353 - PHILOSOPHY OF BIOLOGY
Short Title: PHILOSOPHY OF BIOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course examines philosophical issues that emerge in biological science, with emphasis on evolutionary theory, genetics and development, and systems biology. Recommended prerequisite(s): BIOS 201 and BIOS 202.

PHIL 354 - THE PHILOSOPHY OF MEDICINE
Short Title: THE PHILOSOPHY OF MEDICINE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The biomedical sciences, the practice of medicine, and health care policy employ concepts of health, disease, disability, and defect in explanatory accounts, intermixing factual claims with moral and other evaluations. This course explores the interplay of evaluation and explanation in medicine’s models of disease and health. Previously offered as PHIL 314. Mutually exclusive with PHIL 314, credit cannot be earned for both classes.

PHIL 357 - INCOMPLETENESS, UNDECIDABILITY, AND COMPUTABILITY
Short Title: INCOMPL, UNDECIDED&COMPUTBLTY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Proofs of Godel’s Incompleteness Theorems for number theory in several forms and by various methods, as well as development of several definitions of computability for number-theoretic functions, which are then shown to be equivalent. Includes proof of the unsolvability of the Halting Problem and analysis of Church’s thesis, as well as exploration of the extension of the concept of computability to real-valued functions. Frequent misunderstandings and misrepresentations of the theorems are analyzed.

PHIL 360 - ETHICS
Short Title: ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with fundamental questions of value and morality-questions such as: What sort of life is best? What kind of person is it best to be? What does morality require of us? It also deals with important second-order questions about these fundamental questions-for example: Can morality be justified? How can we know what’s right or good? Is there moral truth? What is the relation between morality and self-interest? Readings are drawn from both classical and contemporary sources. Previously offered as PHIL 306. Mutually exclusive with PHIL 306, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 360 if student has credit for PHIL 306.

PHIL 361 - METAETHICS
Short Title: METAETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Metaethics studies higher-order questions about morality. Its questions include: What reasons do we have to do the right thing? What do claims about rightness and goodness mean? Can those claims be true or false? Are there objective moral truths, and if so, how can we know them? Previously offered as PHIL 338. Mutually exclusive with PHIL 338, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 361 if student has credit for PHIL 338.
PHIL 362 - HISTORY OF ETHICS
Short Title: HISTORY OF ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the major issues of ethical theory through the reading and discussion of such classical figures as Plato, Aristotle, the Stoics, the Epicureans, St. Augustine, St. Thomas, Maimonides, Bishop Butler, David Hume, Adam Smith, J.S. Mill, and I. Kant. Previously offered as PHIL 326. Mutually exclusive with PHIL 326, credit cannot be earned for both classes. Graduate/Undergraduate Equivalency: PHIL 562. Recommended Prerequisite(s): One previous course in Philosophy. Mutually Exclusive: Cannot register for PHIL 362 if student has credit for PHIL 326.

PHIL 363 - MORAL PSYCHOLOGY
Short Title: MORAL PSYCHOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the role of intellect, emotion, and character as they contribute to the moral (and immoral) life, and as they pertain to rationality and moral responsibility. Previously offered as PHIL 331. Mutually exclusive with PHIL 331, credit cannot be earned for both classes. Graduate/Undergraduate Equivalency: PHIL 563. Mutually Exclusive: Cannot register for PHIL 363 if student has credit for PHIL 331.

PHIL 370 - SOCIAL AND POLITICAL PHILOSOPHY
Short Title: SOCIAL & POLITICAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines some philosophical problems raised by society and the state. Topics to be discussed include the sources of political authority, the justification of punishment, the significance of national boundaries, and the distribution of wealth. Previously offered as PHIL 307. Mutually exclusive with PHIL 307, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 370 if student has credit for PHIL 307.
PHIL 383 - MODERN PHILOSOPHY
Short Title: MODERN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of themes or authors in 17th- and 18th-century philosophy. Topics vary from year to year. Normally offered every year. Previously offered as PHIL 302. Graduate/Undergraduate Equivalency: PHIL 583. Recommended Prerequisite(s): Majors should take PHIL 283 before PHIL 383. For non-majors one previous course in philosophy is recommended. Mutually Exclusive: Cannot register for PHIL 383 if student has credit for PHIL 302. Repeatable for Credit.

PHIL 386 - CONTINENTAL PHILOSOPHY
Short Title: CONTINENTAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of some central philosophical movements in 20th-century European philosophy, including phenomenology, hermeneutics, critical theory, deconstruction, and postmodernism. Repeatable for credit with consent of instructor. Previously offered as PHIL 308. Graduate/Undergraduate Equivalency: PHIL 586. Mutually Exclusive: Cannot register for PHIL 386 if student has credit for PHIL 308. Repeatable for Credit.

PHIL 390 - TOPICS IN PHILOSOPHY
Short Title: TOPICS IN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with department for additional information. Repeatable for credit with consent of the instructor. Instructor Permission Required. Graduate/Undergraduate Equivalency: PHIL 590. Repeatable for Credit.

PHIL 400 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UG RESEARCH SEMINAR
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Emphasis is on the skills of critical reading, careful discussion, writing clear and well-argued essays, and making lucid and engaging oral presentations. The course is organized around a family of topics: students also, in consultation with the instructor, select issues for independent research, and produce a final essay and presentation. Previously offered as PHIL 407. Repeatable for Credit.

PHIL 410 - ADVANCED TOPICS IN LOGIC
Short Title: ADVANCED TOPICS IN LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHIL 305 or PHIL 505
Description: Intensive examination of a topic in logic or the philosophy of logic. Previously offered as PHIL 355. Repeatable for Credit.

PHIL 430 - ADVANCED TOPICS IN PHILOSOPHY OF MIND
Short Title: ADV TOPICS PHILOSOPHY OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A focused examination of a selected topic in the philosophy of mind. Topics can include the nature of consciousness, mental representation, rationality, and the various interconnections between perception, emotion, thought and action. Previously offered as PHIL 341. Graduate/Undergraduate Equivalency: PHIL 630. Repeatable for Credit.

PHIL 431 - ADVANCED TOPICS IN THE SCIENCES OF THE MIND
Short Title: ADV TOPICS IN SCI OF THE MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Philosophical, psychological, and neuroscientific sources are integrated in an interdisciplinary study of a major topic. Topics can include consciousness, language comprehension, concepts, and the will. Previously offered as PHIL 352 and PHIL 358. Graduate/Undergraduate Equivalency: PHIL 631. Repeatable for Credit.
PHIL 450 - ADVANCED TOPICS IN THE PHILOSOPHY OF SCIENCE
Short Title: ADV TOPICS IN PHIL SCIENCE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Intensive examination of a topic in the philosophy of science. Topics can include scientific revolutions, levels of explanation, the nature of explanation, and topics of philosophical interest within particular sciences. Recommended Prerequisite(s): One course in Philosophy. Repeatable for Credit.

PHIL 460 - ADVANCED TOPICS IN ETHICS
Short Title: ADVANCED TOPICS IN ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Intensive examination of a topic of contemporary or historical interest in ethics. Previously offered as PHIL 335, which is now split between this course and PHIL 470. Graduate/Undergraduate Equivalency. PHIL 560. Recommended Prerequisite(s): One course in Philosophy. Repeatable for Credit.

PHIL 470 - ADVANCED TOPICS IN SOCIAL AND POLITICAL PHILOSOPHY
Short Title: ADV TOPICS SOC AND POLI PHIL
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Intensive examination of a topic of contemporary or historical interest in political philosophy. Previously offered as PHIL 412. Mutually exclusive with PHIL 412, credit cannot be earned for both classes. Instructor Permission Required.

PHIL 490 - INDEPENDENT READING I
Short Title: INDEPENDENT READING I
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course for undergraduate students to pursue independent research projects under direction of a philosophy department faculty member. Previously offered as PHIL 401. Instructor Permission Required. Repeatable for Credit.

PHIL 491 - INDEPENDENT READING II
Short Title: INDEPENDENT READING II
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: See PHIL 490. This course previously offered as PHIL 402. Instructor Permission Required. Repeatable for Credit.

PHIL 497 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PHIL 498 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Philosophy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate philosophy majors who wish to write a senior thesis and become eligible for honors in the major. Students may enroll in PHIL 498 only with consent of a faculty advisor and the department, and only if they intend to enroll in PHIL 499 as well. Senior Thesis is a year-long research course. Previously offered as PHIL 411. Mutually exclusive with PHIL 411, credit cannot be earned for both classes. Instructor Permission Required.

PHIL 499 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate philosophy majors who wish to write a senior thesis and become eligible for honors in the major. Students may enroll in PHIL 499 only with consent of a faculty advisor and the department, and only if they intend to enroll in PHIL 498 as well. Senior Thesis is a year-long research course. Previously offered as PHIL 412. Mutually exclusive with PHIL 412, credit cannot be earned for both classes. Instructor Permission Required.
PHIL 500 - PROSEMINAR IN PHILOSOPHY
Short Title: PROSEMINAR IN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The proseminar in philosophy will cover some key philosophical readings and simultaneously work with students to develop their philosophical writing and presentation skills. Repeatable for Credit.

PHIL 505 - MATHEMATICAL LOGIC
Short Title: MATHEMATICAL LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A version of PHIL 305 for philosophy graduate students which includes further reading of material on philosophy of logic. Graduate/Undergraduate Equivalency: PHIL 310. Mutually Exclusive: Cannot register for PHIL 505 if student has credit for PHIL 305.

PHIL 515 - SEMINAR IN PHILOSOPHY OF LANGUAGE
Short Title: SEM PHILOSOPHY LANGUAGE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A first graduate course in the philosophy of language, covering course issues in meaning, sense, and reference. Repeatable for Credit.

PHIL 520 - SEMINAR IN METAPHYSICS
Short Title: SEMINAR IN METAPHYSICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course topics can include the nature of objects, universals, change and continuity, and other topics. Repeatable for Credit.

PHIL 530 - SEMINAR PHILOSOPHY OF MIND
Short Title: SEMINAR PHILOSOPHY OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A graduate level survey of selected topics in the philosophy of mind. Likely to include at least some of: the nature of consciousness, causal relations between mind and world, and intentionality. Repeatable for credit. Repeatable for Credit.

PHIL 540 - PHENOMENOLOGY
Short Title: PHENOMENOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is devoted to selected historical and contemporary work in phenomenology, the approach to philosophy inaugurated by Edmund Husserl and developed further by thinkers such as Heidegger, Sartre, Merleau-Ponty, and Hannah Arendt. Readings will include classical and contemporary work in phenomenology on a specific philosophical topic such as meaning, truth, action, embodiment, ethics, art, and other minds. Repeatable for credit. Recommended Prerequisite(s) One previous course in Philosophy. Graduate/Undergraduate Equivalency: PHIL 340. Repeatable for Credit.

PHIL 545 - SEMINAR IN EPISTEMOLOGY
Short Title: SEMINAR IN EPISTEMOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the theory of knowledge, justification of belief, and similar. Repeatable for Credit.

PHIL 550 - SEMINAR IN PHILOSOPHY OF SCIENCE
Short Title: SEM PHILOSOPHY OF SCIENCE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focused consideration of either core issues in general philosophy of science (e.g. explanation, experiment, confirmation, realism vs. anti-realism, values in science) or special topics of current interest in the field. Repeatable for Credit.

PHIL 560 - SEMINAR IN ETHICS
Short Title: SEMINAR IN ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course content might include theories in normative ethics, the nature of virtue, metaethics, or similar topics. Graduate/Undergraduate Equivalency: PHIL 460. Repeatable for Credit.
PHIL 562 - HISTORY OF ETHICS
Short Title: HISTORY OF ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate version of PHIL 362. An introduction to the major issues of ethical theory through the reading and discussion of such classical figures as Plato, Aristotle, the Stoics, the Epicureans, St. Augustine, St. Thomas, Maimonides, Bishop Butler, David Hume, Adam Smith, J.S. Mill, and I. Kant. Special graduate student requirements include additional readings and the writing of a term research paper. Graduate/Undergraduate Equivalency: PHIL 362. Repeatable for Credit.

PHIL 563 - SEMINAR IN MORAL PSYCHOLOGY
Short Title: MORAL PSYCHOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the philosophical issues raised by moral agency. Topics to be discussed may include reason and its relation to motivation and desire, character, responsibility, weakness of will, self-deception, and the nature of the self. Graduate/Undergraduate Equivalency: PHIL 363. Repeatable for Credit.

PHIL 566 - TOPICS IN MEDICAL ETHICS
Short Title: TOPICS IN MEDICAL ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the theoretical foundations of bioethics emphasizing principialism, utilitarianism, Kantianism, contractarianism, medicalism, post-modernism, and casuistry. Repeatable for Credit.

PHIL 568 - SEMINAR IN SOCIAL & POLITICAL PHILO
Short Title: SEM SOCIAL &POLITICAL PHILO
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course might cover topics such as the nature of justice, legitimacy and authority, or the organization of social systems. Repeatable for Credit.

PHIL 570 - SEMINAR IN PHILOSOPHY OF LAW
Short Title: SEMINAR IN PHILOSOPHY OF LAW
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrolment is limited to Graduate level students.

PHIL 573 - SEMINAR IN PHILOSOPHY OF LAW
Short Title: SEMINAR IN PHILOSOPHY OF LAW
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The seminar will concentrate on one or more of such central topics in the philosophy of law as the normative foundations of contracts, criminal responsibility, theories of corrective justice, and the right to property ownership. Repeatable for Credit.

PHIL 581 - ANCIENT AND MEDIEVAL PHILOSOPHY
Short Title: ANCIENT & MEDIEVAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the history of philosophy from the 4th century B.C. through the 14th century. Graduate/Undergraduate Equivalency: PHIL 381. Repeatable for Credit.

PHIL 583 - SEMINAR IN MODERN PHILOSOPHY
Short Title: SEMINAR IN MODERN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level examination of topics and figures of 17th and 18th century history of philosophy. Topics vary from year to year. Graduate/Undergraduate Equivalency: PHIL 383. Repeatable for Credit.

PHIL 586 - SEMINAR IN CONTINENTAL PHILOSOPHY
Short Title: SEM CONTINENTAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of selected topics and figures in 20th and 21st century European philosophy. Repeatable for credit with consent of the instructor. Graduate/Undergraduate Equivalency: PHIL 386. Repeatable for Credit.

PHIL 589 - TOPICS IN PHILOSOPHY
Short Title: TOPICS IN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics may vary. Please consult with the department for additional information. Graduate/Undergraduate Equivalency: PHIL 390. Repeatable for Credit.
PHIL 598 - ADVANCED INDEPENDENT READING  
**Short Title:** ADVANCED INDEPENDENT READING  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Directed reading and research. Repeatable for Credit.  

PHIL 599 - ADVANCED INDEPENDENT READING  
**Short Title:** ADVANCED INDEPENDENT READING  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Directed reading and research. Repeatable for Credit.  

PHIL 600 - ADVANCED TOPICS IN VALUE THEORY  
**Short Title:** ADV TOPICS IN VALUE THEORY  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Intensive examination of a topic of contemporary or historical interest in ethics or social and political philosophy. Repeatable for Credit.  

PHIL 630 - TOPICS IN PHILOSOPHY OF MIND  
**Short Title:** TOPICS IN PHILOSOPHY OF MIND  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An in-depth look at different topics in contemporary philosophy of mind. Some sample topics: consciousness, mental representation, innateness, modularity, and the role of language in thought. Repeatable for credit with consent of the instructor. Graduate/Undergraduate Equivalency: PHIL 430. Repeatable for Credit.  

PHIL 631 - ADVANCED TOPICS IN THE SCIENCES OF THE MIND  
**Short Title:** ADV TOPICS IN SCIENCES OF MIND  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Philosophical, psychological, and neuroscientific sources are integrated in an interdisciplinary study of a major topic. Topics can include consciousness, language comprehension, concepts, and the will. Graduate/Undergraduate Equivalency: PHIL 431. Repeatable for Credit.  

PHIL 632 - MASTERS THESIS RESEARCH  
**Short Title:** MASTERS THESIS RESEARCH  
**Department:** Philosophy  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Research course for graduate students preparing a Masters thesis. Repeatable for Credit.  

PHIL 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.  

PHIL 701 - READING AND RESEARCH FOR QUALIFYING EXAMINATION AND THESIS PROPOSAL  
**Short Title:** RESEARCH QUALIFYING & THESIS  
**Department:** Philosophy  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Reading course in preparation for the comprehensive examination and thesis proposal defense. Repeatable for Credit.  

PHIL 702 - READING AND RESEARCH FOR QUALIFYING EXAMINATION AND THESIS PROPOSAL  
**Short Title:** RESEARCH QUALIFYING & THESIS  
**Department:** Philosophy  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Reading course in preparation for the comprehensive examination and thesis proposal defense. Repeatable for Credit.
PHIL 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Philosophy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research and Thesis Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: PHIL

Department Description and Code
• Philosophy : PHIL

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Philosophy: PHIL

Graduate Degree Descriptions and Codes
• Master of Arts degree: MA
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Philosophy: PHIL

CIP Code and Description
• PHIL Major/Program: CIP Code/Title: 38.0101 - Philosophy

Bachelor of Arts (BA) Degree with a Major in Philosophy

Program Learning Outcomes for the BA Degree with a Major in Philosophy
Upon completing the BA degree with a major in Philosophy, students will be able to:

1. Demonstrate an understanding of the general historical development of philosophy and develop an in depth understanding of at least one historical period or movement.
2. Demonstrate the ability to read philosophical texts critically and with understanding of the problems and contexts.
3. Demonstrate the cognitive and formal abilities to evaluate critically philosophical arguments.
4. Demonstrate the ability to communicate clearly and logically their own views on a range of important philosophical problems.

Requirements for the BA Degree with a Major in Philosophy
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Philosophy must complete:

• A minimum of 10 courses (30 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degwerkworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Philosophy</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Philosophy</td>
<td>120</td>
</tr>
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Degree Requirements

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 210</td>
<td>LOGIC</td>
<td>3</td>
</tr>
<tr>
<td>or PHIL 310</td>
<td>MATHEMATICAL LOGIC</td>
<td></td>
</tr>
</tbody>
</table>

Areas of Study

History

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 381</td>
<td>ANCIENT PHILOSOPHY</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 383</td>
<td>MODERN PHILOSOPHY</td>
<td></td>
</tr>
<tr>
<td>PHIL 386</td>
<td>CONTINENTAL PHILOSOPHY</td>
<td></td>
</tr>
</tbody>
</table>

Core Analytic

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 318</td>
<td>PHILOSOPHY OF LANGUAGE</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 320</td>
<td>METAPHYSICS</td>
<td></td>
</tr>
<tr>
<td>PHIL 330</td>
<td>PHILOSOPHY OF MIND</td>
<td></td>
</tr>
<tr>
<td>PHIL 345</td>
<td>THEORY OF KNOWLEDGE</td>
<td></td>
</tr>
<tr>
<td>PHIL 350</td>
<td>PHILOSOPHY OF SCIENCE</td>
<td></td>
</tr>
</tbody>
</table>

Value Theory

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 360</td>
<td>ETHICS</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 362</td>
<td>HISTORY OF ETHICS</td>
<td></td>
</tr>
<tr>
<td>PHIL 370</td>
<td>SOCIAL AND POLITICAL PHILOSOPHY</td>
<td></td>
</tr>
</tbody>
</table>
PHIL 372  HISTORY OF SOCIAL AND POLITICAL PHILOSOPHY

PHIL 373  PHILOSOPHY OF LAW

Elective Requirements

Select 4 elective courses from departmental (PHIL) course offerings 1

Total Credit Hours Required for the Major in Philosophy 30

Additional Credit Hours to Complete Degree Requirements * 59

University Graduation Requirements (p. 29) * 31

Total Credit Hours 120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Students who pursue the senior thesis (departmental honors) option must take PHIL 498 and PHIL 499. These courses are required in addition to major requirements and will not fulfill Elective Requirements. For more information, see the Opportunities (p. 1770) tab.

Policies for the BA Degree with a Major in Philosophy

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Philosophy should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

• Transfer credit coursework from online-only courses cannot be applied or used to meet any of the major’s course requirements.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Philosophy (PHIL) study basic questions of knowledge, value, and reality. They show students the importance of critical examination and careful reasoning about fundamental issues that affect us as persons, as professionals, and as citizens. These courses tend to be broad based and address foundational concerns connected to studies in many other disciplines. Many bear importantly on basic ethical and political issues. Many involve the study of perspectives that have broadly and profoundly shaped history and culture.

Additional Information

For additional information, please see the Philosophy website: https://philosophy.rice.edu.

Opportunities for the BA Degree with a Major in Philosophy

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Distinction in Research in Philosophy

Students must submit an application to be considered for "Distinction in Research in Philosophy” by April 1. Minimum qualifications are a 3.50 GPA in philosophy courses and enrollment in Honors Thesis course PHIL 499 or the Research Seminar for majors, PHIL 400. The work to be considered must be submitted to a committee appointed by the Chair, which will include the Director of Undergraduate Studies, any Honors Thesis supervisors, and the instructor(s) of the Research Seminar.

Senior Thesis and Departmental Honors in Philosophy

Qualified majors may apply before their senior year for directed research leading to a senior thesis, carried out during both semesters of the senior year. Each semester will require 3 credit hours; these 6 hours (PHIL 498 and PHIL 499) are in addition to the course hours required for the major.

To qualify for the program, students must have an approved research proposal and the agreement of a faculty member to serve as advisor for that project. Applicants will normally be required to have a GPA of 3.75 in philosophy courses and to have completed at least two upper-level courses in the distribution area of the proposed research. (See the major requirements for the definition of the distribution areas.) Applications should be submitted to the departmental director of undergraduate studies and will be evaluated by the department.

Students who are considering applying to write a senior thesis should consult the departmental director of undergraduate studies and potential advisors as early as possible. Normally students will apply before preregistration in the second semester of their junior year and will spend time during the following summer reading from a list they have developed with their advisor. The thesis normally will be between 7,500 and 15,000 words (approximately 30–60 pages) in length. Students will enroll in PHIL 498 and PHIL 499. Students accepted into the Rice Undergraduate Scholars Program should enroll in HONS 470 and HONS 471 and will
be awarded departmental honors for their work in that program if they meet the requirements in this statement. Note that acceptance into the departmental honors program is a separate process from acceptance in RUP as is the evaluation for departmental honors.

To be considered for honors, the senior thesis must be completed by the beginning of April. The thesis will be read and evaluated by the advisor and a second reader chosen by the department, and the final decision on honors will be made by the entire faculty. Students will receive honors if they receive a grade of A+, A, or A in PHIL 499. Completion of the major with at least a 3.50 GPA in all philosophy courses is required for departmental honors. Students who miss the April deadline for thesis submission but meet the university deadline for the semester will receive a grade and credit for completed work but will not be considered for honors. Students whose thesis is not awarded honors will receive a grade and credit for completed work.

Additional Information
For additional information, please see the Philosophy website at: https://philosophy.rice.edu.

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Doctor of Philosophy (PhD) Degree in the field of Philosophy

Program Learning Outcomes for the MA and PhD Degrees in the field of Philosophy

Upon completing the MA and PhD degrees in the field of Philosophy, students will be able to:

1. Demonstrate advanced skills of reading philosophical texts critically and with understanding of the problems and contexts.
2. Demonstrate the ability to communicate clearly and logically their own views on a range of important philosophical problems at an advanced level.
3. Demonstrate an understanding in depth of the content and context of one of the main areas of philosophy.
4. Propose, evaluate, and defend original views in at least one of the main areas of philosophy.

Requirements for the MA and PhD Degrees in the field of Philosophy

MA Degree Program

The MA degree can be either a thesis or a non-thesis master’s degree depending on the option the student pursues. For general university requirements for thesis master’s degrees, please see Thesis Master’s Degrees (p. 75). For general university requirements for non-thesis master’s degrees, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Students pursuing the non-thesis MA degree in the field of Philosophy must:

- Complete at least two semesters in residence at Rice University.
- Complete 42 credit hours of courses approved for graduate credit in philosophy at Rice University with a grade of B- (2.67 grade points) or better in each course.
- Accumulate an overall GPA of at least 3.00.
- Complete at least 30 credit hours in philosophy at the 500-level or higher.
- Satisfy the departmental logic requirement. (Complete PHIL 505 with a minimum grade of B- or pass a departmental examination).
- Complete at least 5 courses in an area of concentration.
- Satisfactorily complete departmental duties.
- File a petition for certification of the non-thesis master’s degree. This petition can be obtained from the graduate administrator and must be approved and signed by the department chair and submitted to the Office of Graduate and Postdoctoral Studies according to the deadlines posted in the Academic Calendar (http://registrar.rice.edu/calendars/).

Students pursuing the thesis MA degree in the field of Philosophy must:

- Complete with high standing at least 30 credit hours in advanced courses approved by the department.
- Complete a written thesis on a subject approved by the department.
- Perform satisfactorily on a final oral examination (not limited to the student's special field of study).
- Satisfy the departmental logic requirement. (Complete PHIL 505 with a minimum grade of B- or pass a departmental examination).

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>PHIL 499</td>
<td>Total Credit Hours Required for the non-thesis MA Degree in the field of Philosophy</td>
<td>42</td>
</tr>
<tr>
<td>PHIL 505</td>
<td>Total Credit Hours Required for the thesis MA Degree in the field of Philosophy</td>
<td>30</td>
</tr>
</tbody>
</table>

Requirements for the PhD Degree in the field of Philosophy

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Philosophy must:

- Complete with high standing at least 30 credit hours in advanced courses approved by the department.
- Complete a written thesis on a subject approved by the department.
- Perform satisfactorily on an oral defense of their thesis proposal.
- Complete a written thesis on a subject approved by the department (at least one year of thesis research must be spent in residence).
- Perform satisfactorily on a final oral examination (not limited to the student’s special field of study).
The Department of Physics and Astronomy offers undergraduate and graduate programs for a wide range of interests. The bachelor of arts degree with majors in physics or astronomy is suitable for students who wish to obtain a broad liberal arts education with a concentration in a physical science. The bachelor of science degree with majors in physics, astrophysics, or chemical physics provides preparation for employment or further study in physics, astrophysics, and related technical fields. The minor in physics provides a solid foundation in physics with additional advanced physics topics of the student’s choosing.

Research facilities and thesis supervision are available for MS and PhD students in atomic, molecular, and optical physics; biophysics; condensed matter physics; galactic astronomy; high energy astrophysics, nuclear and particle physics; and space physics.

Bachelor’s Programs

- Bachelor of Arts (BA) Degree with a Major in Astronomy (p. 1788)
- Bachelor of Arts (BA) Degree with a Major in Physics (p. 1789)
- Bachelor of Science (BS) Degree with a Major in Astrophysics (p. 1791)
- Bachelor of Science (BS) Degree with a Major in Physics
  - and a Major Concentration in Applied Physics (p. 1792)
  - and a Major Concentration in Biological Physics (p. 1794)
  - and a Major Concentration in Computational Physics (p. 1796)
  - and a Major Concentration in General Physics (p. 1798)

Minor

- Minor in Physics (p. 1801)

Coordinated Program

- Bachelor of Science (BS) Degree with a Major in Chemical Physics (p. 580)
* This degree is jointly managed by the Department of Chemistry and the Department of Physics and Astronomy. For more information, see Chemical Physics. (p. 580)

Master’s Program

- Master of Science (MS) Degree in the field of Physics*

Doctoral Program

- Doctor of Philosophy (PhD) Degree in the field of Physics (p. 1800)
* Although students are not normally admitted to a Master of Science (MS) degree program, graduate students may earn the MS as they work towards the PhD.

Coordinated Program

- Master of Science Teaching (MST) Degree (p. 1927)

Chair

Douglas Natelson

Professors

Darin Acosta
David Alexander
Matthew G. Baring
Anthony A. Chan
Pengcheng Dai
F. Barry Dunning
Karl M. Ecklund
Franciscus Johannes Maria Geurts
Jason H. Hafner
Naomi J. Halas
Patrick M. Hartigan
Huey W. Huang
Randall G. Hulet
Christopher M. Johns-Krull
Thomas C. Killian
Anatoly B. Kolomeisky
Junichiro Kono
Eugene H. Levy
Edison P. Liang
Frederick C. MacKintosh
Emilia Morosan
Peter Nordlander
Jose Nelson Onuchic
B. Paul Padley
Han Pu
Patricia H. Reiff
Jabus B. Roberts Jr.
Gustavo E. Scuseria
Qimiao Si
Frank R. Toffoletto
Peter C. Wolynes

Associate Professors

Mustafa Amin
Stephen J. Bradshaw
Stanley A. Dodds
Matthew S. Foster
Kaden Hazzard
Ching-Hwa Kiang
Wei Li
Andriy Nevidomskyy

Assistant Professors

Andrea Isella
Andrew Long
Guido Pagano
Evelyn Tang
Christopher Tunnell
Ming Yi

Professors Emeriti

Paul A. Cloutier
Thomas W. Hill
Neal F. Lane
Carl Rau
Richard A. Wolf

Assistant Teaching Professors

Robert Beaird
Michael Cone
Jared Stenson
Lam Yu

Associate Research Professors

Petr Chaguine
Pablo P. Yepes

Adjunct Faculty

James L. Burch
Franklin R. Chang Diaz
Stefan Kirchner
Hui Li
Carolyn Sumners
Jon C. Weisheit
Jian-Xin Zhu

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s
Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat? p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s
Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Astronomy (ASTR)

ASTR 100 - EXPLORING THE COSMOS
Short Title: EXPLORING THE COSMOS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to concepts, methods and discoveries of astronomy and astrophysics, with a theme to be chosen from the frontier topics of modern astrophysics. Will emphasize student presentations. Designed for first year students interested in science or engineering, but other majors are welcome.

ASTR 101 - STARS, GALAXIES, AND THE UNIVERSE
Short Title: STARS, GALAXIES & THE UNIVERSE
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introductory course for students in academic programs. The formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe.
ASTR 102 - EXPLORATION OF THE SOLAR SYSTEM
Short Title: EXPLORATN OF THE SOLAR SYSTEM
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The physical processes governing the nature and behavior of the various Solar System bodies are discussed with a focus on the origins, evolution and fate of the Solar System and its parts. This broader context leads to a deeper understanding of the Earth as a life-supporting planet.

ASTR 230 - ASTRONOMY LAB
Short Title: ASTRONOMY LAB
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A hands-on introduction to modern techniques of observational astronomy. Students use telescopes, CCDs, and computers to obtain and analyze their own images and spectra of solar system, galactic, and extragalactic objects. The course employs the campus observatory, dark sky observing sites, and state of the art data analysis software. Instructor Permission Required.

ASTR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASTR 243 - LIVING WITH A STAR: THE PHYSICS OF THE SUN-EARTH CONNECTION
Short Title: LIVING WITH A STAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 102 or MATH 106) and (PHYS 102 or PHYS 126)
Description: Introduction to astrophysical processes, particularly the effect of the Sun on the Earth. Possible effects of solar variability will be considered, especially global warming. The observational and theoretical basis of our current understanding will be presented.

ASTR 350 - INTRODUCTION TO ASTROPHYSICS-STARS
Short Title: INTRO ASTROPHYSICS-STARS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and PHYS 202
Description: Introduction to celestial mechanics, radiative transfer, stellar structure, and stellar remnants (including black holes and neutron stars). Aspects of stellar atmospheres may also be explored. Together, ASTR 350 and ASTR 360 provide a comprehensive survey of modern astrophysics needed for senior research and graduate study in astronomy. Either ASTR 350 or 360 may be taken first. Recommended Prerequisite(s): MATH 212

ASTR 360 - INTRODUCTION TO ASTROPHYSICS-GALAXY AND COSMO
Short Title: INTRO ASTROPHYSIC-GALAXY&COSMO
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and PHYS 202 (may be taken concurrently)
Description: Morphology, kinematics, and dynamics of the Milky Way and external galaxies, including interstellar matter and evidence for dark matter. Peculiar and active galaxies, including interacting systems and evidence for super massive black holes in active galactic nuclei such as quasars. Large-scale structure and expansion of the universe, including various cosmologies ranging from the inflationary big bang theory to steady state and anthropic concepts. Either ASTR 350 or 360 may be taken first. PHYS 202 may be taken as a prereq or concurrently with ASTR 360.

ASTR 400 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on current research topics in astronomy, astrophysics, and space physics for juniors and seniors. Students will be expected to give one oral presentation each semester. Graduate/Undergraduate Equivalency: ASTR 500. Repeatable for Credit.
ASTR 408 - STATISTICAL METHODS IN PHYSICS AND ASTRONOMY
Short Title: STATISTICS IN PHYS AND ASTR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 101 or PHYS 111) and (PHYS 102 or PHYS 112) and MATH 212
Description: Statistical methods commonly used in the analysis of astronomical, laboratory, and survey data. Topics include curve fitting, parametric and non-parametric hypothesis testing, cluster analysis, principal component analysis, time-series data, and truncated data. Fundamentals of statistics, including probability distributions, means, variances, the Central Limit Theorem, hypothesis testing, error propagation, Bayesian analysis, jackknife, and bootstrap are covered. The class introduces students to the R programming language. Graduate/Undergraduate Equivalency: ASTR 508. Mutually Exclusive: Cannot register for ASTR 408 if student has credit for ASTR 508.

ASTR 451 - ASTROPHYSICS I: SUN AND STARS
Short Title: ASTROPHYSICS I: SUN AND STARS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ASTR 350 or ASTR 360) and (PHYS 301 and PHYS 302)
Description: Physics of stellar atmospheres, interiors and evolution. Polytopes, nucleosynthesis, radiative transfer, convection, oscillations, opacities, curves of growth, spectral line theory and observation.

ASTR 452 - ASTROPHYSICS II: GALAXIES AND COSMOLOGY
Short Title: ASTROPHYSII:GALAXY&COSMOLOGY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ASTR 350 or ASTR 360) and (PHYS 301 and PHYS 302)
Description: Study of physical cosmology models. Description of the evolution of the universe, including nucleosynthesis, cosmic background radiation, large-scale structure, galaxy formation and evolution, and high redshift phenomena.

ASTR 470 - SOLAR SYSTEM PHYSICS
Short Title: SOLAR SYSTEM PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 301 and PHYS 302
Description: The Sun, solar-terrestrial relationships, solar wind; planetary atmospheres, ionospheres and magnetospheres. Graduate/Undergraduate Equivalency: ASTR 570. Mutually Exclusive: Cannot register for ASTR 470 if student has credit for ASTR 570.

ASTR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASTR 500 - GRADUATE RESEARCH SEMINAR
Short Title: GRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A presentation of current research programs in the department. Graduate/Undergraduate Equivalency: ASTR 400. Repeatable for Credit.

ASTR 502 - TEACHING EARTH AND SPACE SCIENCE
Short Title: TEACHING EARTH & SPACE SCIENCE
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the Earth and the solar system: structure, evolution, and dynamics. Includes non-calculus mathematics: algebra, logarithms and simple trigonometry, including Kepler's laws. Observing sessions at campus observatory and George Observatory TBD. Designed for inservice and preservice science teachers (grades 4-12), but open to undergraduates considering a teaching career. Mutually Exclusive: Cannot register for ASTR 502 if student has credit for ASTR 402.
ASTR 503 - ASTRONOMY FOR TEACHERS
Short Title: ASTRONOMY FOR TEACHERS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the Sun, stars, galaxies, and the Universe at a non-calculus level. Methods to help students master content, including lab activities suitable for K-12. Observing sessions at Rice campus observatory and George Observatory TBD. Designed for in-service and preservice teachers (grades 5-12), but open to undergraduates considering a teaching career.

ASTR 505 - PROCESSES IN COSMIC PLASMAS
Short Title: PROCESSES IN COSMIC PLASMAS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 470 and PHYS 480
Description: Study of plasma phenomena that occur widely in nature. May include quasi-static equilibrium, magnetic equilibrium, magnetic reconnection, particle acceleration, plasma winds and jets, and interchange instabilities.

ASTR 508 - STATISTICAL METHODS IN PHYSICS AND ASTRONOMY
Short Title: STATISTICS IN PHYS AND ASTR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Statistical methods commonly used in the analysis of astronomical, laboratory, and survey data. Topics include curve fitting, parametric and non-parametric hypothesis testing, cluster analysis, principal component analysis, time-series data, and truncated data. Fundamentals of statistics, including probability distributions, means, variances, the Central Limit Theorem, hypothesis testing, error propagation, Bayesian analysis, jackknife, and bootstrap are covered. The class introduces students to the R programming language. Graduate/Undergraduate Equivalency: ASTR 408. Mutually Exclusive: Cannot register for ASTR 508 if student has credit for ASTR 408.

Course URL: www.sparky.rice.edu/~hartigan/astr600/astr600.html

ASTR 530 - TEACHING ASTRONOMY LABORATORY
Short Title: TEACHING ASTRONOMY LABORATORY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 230 or ASTR 350 or ASTR 360 or ASTR 402 or ASTR 403 or ASTR 502 or ASTR 503
Description: Methods of observational astronomy for public education: telescopes, astronomical binoculars, portable planetariums, digital cameras, and photography (still, 3D, and time lapse). Students will train beginners in the use of telescopes and carry out a modest observational program. The course requires one public presentation. Topics vary with each offering. Mutually Exclusive: Cannot register for ASTR 530 if student has credit for ASTR 430.

ASTR 542 - NEBULAR ASTROPHYSICS
Short Title: NEBULAR ASTROPHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 451
Description: Analysis of physical processes at work in the sun, such as helioseismology, solar variability, solar activity, magnetic reconnection, heliosphere interactions and modern observational techniques.

ASTR 544 - PHYSICS OF THE SUN
Short Title: PHYSICS OF THE SUN
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 451
Description: Analysis of physical processes at work in the sun, such as helioseismology, solar variability, solar activity, magnetic reconnection, heliosphere interactions and modern observational techniques.

ASTR 554 - ASTROPHYSICS OF THE SUN
Short Title: ASTROPHYSICS OF THE SUN
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 451
Description: Analysis of physical processes at work in the sun, such as helioseismology, solar variability, solar activity, magnetic reconnection, heliosphere interactions and modern observational techniques.

ASTR 555 - PROTOSTARS AND PLANETS
Short Title: PROTOSTARS AND PLANETS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 451
Description: Analysis of physical processes at work in the sun, such as helioseismology, solar variability, solar activity, magnetic reconnection, heliosphere interactions and modern observational techniques.
ASTR 565 - COMPACT OBJECTS
Short Title: COMPACT OBJECTS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Selected topics involving white dwarfs, neutron stars, black holes and their environments, e.g., pulsars, supernova remnants, and accretion disks.

ASTR 570 - SOLAR SYSTEM PHYSICS
Short Title: SOLAR SYSTEM PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Sun, solar-terrestrial relationships, solar wind; planetary atmospheres, ionospheres and magnetospheres. Includes a research paper and presentation on a physical process in the solar system. Graduate/Undergraduate Equivalency: ASTR 470. Mutually Exclusive: Cannot register for ASTR 570 if student has credit for ASTR 470.

ASTR 600 - ADVANCED TOPICS IN ASTROPHYSICS
Short Title: ADV TOPICS IN ASTROPHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lecture/seminars which treat topics of departmental interest. Not offered every year. Repeatable for Credit.

ASTR 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Physics (PHYS)

PHYS 100 - EXPLORING PHYSICS
Short Title: EXPLORING PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to concepts, methods, debates, and discoveries of physics, with a theme to be chosen from one of many fields of modern physics research. Designed for students interested in understanding science. This includes both science and non-science majors.

PHYS 101 - MECHANICS (WITH LAB)
Short Title: MECHANICS (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 103
Description: A calculus-based introduction to mechanics. Includes classes and lab exercises on kinematics, Newton's Laws, work and energy, conservation laws and rotational motion. Primarily for physical science and engineering students. May receive credit for only one of PHYS 101, 111, 125, AP Physics 1 (Phys 141) and AP Physics-C MECH. Students must register for PHYS 103.

PHYS 102 - ELECTRICITY & MAGNETISM (WITH LAB)
Short Title: ELECTRICITY&MAGNETISM W/LAB
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 104
Description: A calculus-based introduction to electricity and magnetism. Includes classes and lab exercises on electric and magnetic fields. Maxwell's equations in integral form, and AC and DC circuits. Primarily for physical science and engineering students. May receive credit for only one of PHYS 102, 112, 126, AP Physics 2 (PHYS 142) and AP Physics-C E&M. Students must also register for PHYS 104.
PHYS 103 - MECHANICS DISCUSSION
Short Title: MECHANICS DISCUSSION
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 101
Description: Small group discussion section to extend and reinforce concepts presented in PHYS 101. Students must also register for PHYS 101.

PHYS 104 - ELECTRICITY AND MAGNETISM DISCUSSION
Short Title: E & M DISCUSSION
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 102
Description: Small group discussion section to extend and reinforce concepts presented in PHYS 102. Students must also register for PHYS 102.

PHYS 111 - HONORS MECHANICS (WITH LAB)
Short Title: HONORS MECHANICS (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A more intensive treatment of topics covered in PHYS 101, intended for physical science and engineering students with strong high school backgrounds in physics and particularly calculus. May receive credit for only one of PHYS 101, 111, 125, AP Physics 1 (Phys 141) and AP Physics-C MECH.

PHYS 112 - HONORS ELECTRICITY & MAGNETISM (WITH LAB)
Short Title: HONORS E&M (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A more intensive treatment of topics covered in PHYS 102, intended for physical science and engineering students with strong high school backgrounds in physics and particularly calculus. May receive credit for only one of PHYS 102, 112, 126, AP Physics 2 (PHYS 142), and AP Physics-C, E&M.

PHYS 116 - SEMINAR IN PHYSICS AND ASTRONOMY AT RICE AND BEYOND
Short Title: SEMINAR IN PHYS & ASTRO @ RICE
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This half-semester seminar course will meet in the first half of the Spring semester to introduce prospective and current science and engineering majors to the exciting research in physics and astronomy at Rice and beyond. The course will provide students with the context to think about how the facts presented in physics and astronomy textbooks are applied to real-world research. Undergraduate students in a small group will meet weekly with a graduate student to explore a published research article by a local lab, learning about what was done and why it was important. Toward the end of the course, the group will tour the lab that produced the featured article. All students are eligible to enroll in PHYS 116 regardless of the intended area of study.

PHYS 125 - GENERAL PHYSICS (WITH LAB)
Short Title: GENERAL PHYSICS (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A calculus-based survey of mechanics primarily intended for bioscience and premedical students. Includes classes and lab exercises on kinematics, Newton's Laws, work and energy, rotational motion, fluids, oscillations and waves. May receive credit for only one of PHYS 101, 111, 125, AP Physics 1 (Phys 141), and AP Physics-C, MECH.

PHYS 126 - GENERAL PHYSICS II (WITH LAB)
Short Title: GENERAL PHYSICS II (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PHYS 125 or PHYS 101 or PHYS 111 or PHYS 141
Description: A calculus-based survey of E&M and optics primarily intended for bioscience and premedical students. Includes classes and lab exercises on wave and ray optics, electric field and potential, magnetic fields and induction, and DC circuits. May receive credit for only one of PHYS 102, 112, 126, AP Physics 2 (PHYS 142), and AP Physics-C, E&M.
PHYS 141 - CONCEPTS IN PHYSICS I
Short Title: CONCEPTS IN PHYSICS I
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For AP or pre-matriculation transfer credit only. May receive credit for only one of PHYS 101, PHYS 111, PHYS 125, AP Physics 1, and AP Physics-C (Mech).

PHYS 142 - CONCEPTS IN PHYSICS II
Short Title: CONCEPTS IN PHYSICS II
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For AP or pre-matriculation transfer credit only. May receive credit for only one of PHYS 102, PHYS 112, PHYS 126, AP Physics 2, and AP Physics-C (E&M).

PHYS 143 - PHYSICS FOR CITIZENSHIP
Short Title: PHYSICS FOR CITIZENSHIP
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Physics is critical to our understanding of nuclear weapons, radiation, electronics, energy and global warming. The most interesting and important topics in physics, with applications to current events will be presented. Topics covered may include energy and conservation, radioactivity, nuclear physics, the Theory of Relativity, lasers, explosions and quantum physics.

PHYS 144 - THE PHYSICS OF MUSIC AND SOUND
Short Title: THE PHYSICS OF MUSIC AND SOUND
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores our scientific understanding of sound and music by studying the properties of sound and its production by a variety of musical instruments. Additional topics include an analysis of musical scales, the physiology of hearing, and the technology of sound reproduction. For non-science and non-engineering majors.

PHYS 201 - WAVES, LIGHT, AND HEAT
Short Title: WAVES, LIGHT, AND HEAT
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Mathematical descriptions of fundamental topics of classical physics: oscillations, mechanical waves, electromagnetic waves, physical optics and thermodynamics.

PHYS 202 - MODERN PHYSICS
Short Title: MODERN PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)
Description: An introductory course in modern physics. Topics include special relativity, early quantum theory, quantum mechanics, atomic physics, statistical physics, nuclear and particle physics. The course is descriptive in nature with emphasis on phenomena rather than on calculations.

PHYS 231 - ELEMENTARY PHYSICS LAB
Short Title: ELEMENTARY PHYSICS LAB
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Laboratory on waves, optics and modern physics.

PHYS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory, Internship/Practicum, Independent Study, Laboratory, Lecture, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
| Course Code | Course Title                       | Short Title                          | Department | Grade Mode | Course Type | Credit Hours | Restrictions                                      | Course Level               | Prerequisite(s)                   | Description                                                                 |
|-------------|-----------------------------------|--------------------------------------|------------|------------|-------------|--------------|--------------|--------------------------------------------------|----------------------------|--------------------------------|--------------------------------------------------------------------------------|
| PHYS 301    | INTERMEDIATE MECHANICS            | INTERMEDIATE MECHANICS               | Physics and Astronomy | Standard Letter | Lecture     | 2            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 201                       | Classical mechanics and appropriate mathematical methods. Emphasis on problem solving. |
| PHYS 302    | INTERMEDIATE ELECTRODYNAMICS      | INTERMEDIATE ELECTRODYNAMICS         | Physics and Astronomy | Standard Letter | Lecture     | 4            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 201                       | Classical electrodynamics and appropriate mathematical methods. Emphasis on problem solving. |
| PHYS 311    | INTRODUCTION TO QUANTUM PHYSICS I | INTRO TO QUANTUM PHYSICS I           | Physics and Astronomy | Standard Letter | Lecture     | 3            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 201                       | Fundamentals of quantum mechanics and applications to atomic and molecular structure. |
| PHYS 312    | INTRODUCTION TO QUANTUM PHYSICS II| INTRO TO QUANTUM PHYSICS II          | Physics and Astronomy | Standard Letter | Lecture     | 3            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 311                       | Survey of history and current state of nuclear and particle physics. The emphasis is on experimental results and how they led to our current understanding of the strong and electroweak interactions. Some recent advances are discussed in detail. Graduate/Undergraduate Equivalency: PHYS 542. Mutually Exclusive: Cannot register for PHYS 411 if student has credit for PHYS 542. |
| PHYS 331    | JUNIOR PHYSICS LAB I              | JUNIOR PHYSICS LAB I                 | Physics and Astronomy | Standard Letter | Laboratory | 1            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | (PHYS 311 and PHYS 425) or ELEC 361 | Lab exercises in electronics, noise reduction, statistics and particle counting. |
| PHYS 332    | JUNIOR PHYSICS LAB II             | JUNIOR PHYSICS LAB II                | Physics and Astronomy | Standard Letter | Laboratory | 2            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 311                       | Lab exercises illustrating topics in the upper-division physics curriculum. |
| PHYS 355    | INTRODUCTION TO BIOLOGICAL PHYSICS| INTRO TO BIOLOGICAL PHYSICS          | Physics and Astronomy | Standard Letter | Lecture     | 3            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 311                       | Definition and basic concepts of biological physics. Proteins and nucleic acids. Diffusion and random walks and their application to biological systems. Biological motors and membranes. Folding of biomolecules. Gene regulation. Modern techniques and their applications to biomolecules. |
| PHYS 411    | INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS| INTRO NUCLEAR&PARTIC PHYSICS       | Physics and Astronomy | Standard Letter | Lecture     | 3            | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. | Undergraduate Upper-Level  | PHYS 311                       | Introduction to topics in solid state physics, including crystal structure, lattice vibrations, electronic band structure and transport. |

**Acknowledgment:**

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PHYS 465 - REU RESEARCH IN PHYSICS AND ASTRONOMY
Short Title: REU RESEARCH IN PHYS & ASTR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

PHYS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PHYS 480 - INTRODUCTION TO PLASMA PHYSICS
Short Title: INTRODUCTION TO PLASMA PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 302
Description: Fundamental processes in cosmic and laboratory plasmas. Basic plasma characteristics, charged particle motion, waves in plasmas, magnetohydrodynamics, kinetic theory. Graduate/Undergraduate Equivalency: PHYS 580. Mutually Exclusive: Cannot register for PHYS 480 if student has credit for PHYS 580.

PHYS 491 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 2
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 301 and PHYS 302 and PHYS 311
Description: Research projects conducted under supervision of departmentally approved faculty. Open to juniors and seniors majoring in physics and astronomy. May be repeated for credit. PHYS 493/494 must be taken concurrently with PHYS 491/492 when used in partial fulfillment of B.S. degree requirements. Repeatable for Credit.
PHYS 492 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 301 and PHYS 302 and PHYS 311
Description: Weekly seminar for juniors and seniors in which presentations on research topics and/or topics in the scientific literature will be given. Open to juniors and seniors majoring in physics and astronomy. Repeatable for Credit.

PHYS 493 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 491
Description: Research projects conducted under supervision of departmentally approved faculty culminating in a thesis. Open to juniors and seniors majoring in physics and astronomy. May be repeated for credit. PHYS 493/494 must be taken concurrently with PHYS 491/492 when used in partial fulfillment of B.S. degree requirements. Repeatable for Credit.

PHYS 494 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 493
Description: Weekly seminar for juniors and seniors in which presentations on research topics and/or topics in the scientific literature will be given. Open to juniors and seniors majoring in physics and astronomy. Repeatable for Credit.

PHYS 501 - PHYSICS OF HAM RADIO FOR TEACHERS
Short Title: PHYSICS OF HAM RADIO TEACHERS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of electromagnetic waves and propagation, the ionosphere and space weather. Basic electronics, antenna design and safety, magnetism. Provides information necessary to pass the "Technician" level of ham radio license. Non-calculus mathematics. Other topics include: use of GPS, geocaching. Mutually Exclusive: Cannot register for PHYS 501 if student has credit for PHYS 401.

PHYS 510 - MAGNETOSPHERIC PHYSICS
Short Title: MAGNETOSPHERIC PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Plasma physics of the earth's magnetosphere, including interactions of the magnetosphere with the solar wind and the ionosphere. The emphasis is on large-scale phenomena, but small scale (kinetic) physics is discussed in cases where it affects the large-scale phenomena.

PHYS 515 - CLASSICAL DYNAMICS
Short Title: CLASSICAL DYNAMICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lagrangian and Hamiltonian mechanics.

PHYS 516 - MATHEMATICAL METHODS
Short Title: MATHEMATICAL METHODS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of analytical methods used by research physicists and astronomers. Includes complex variables, ordinary differential equations, infinite series, evaluation of integrals, integral transforms, normal-mode analysis, special functions, partial differential equations, eigenfunctions, Green's functions, and variational calculus.
PHYS 517 - COMPUTATIONAL PHYSICS
Short Title: COMPUTATIONAL PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Use of computational techniques to solve selected physics problems. Examine benefits and pitfalls of doing physics by computation. Requires completion of project using a low-level programming language. Graduate/Undergraduate Equivalency: PHYS 416. Mutually Exclusive: Cannot register for PHYS 517 if student has credit for PHYS 416.

PHYS 519 - PLASMA KINETIC THEORY
Short Title: PLASMA KINETIC THEORY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Plasma kinetic equations (Klimontovich, Liouville, BBGKY, Balescu-Lenard, Fokker-Planck, Vlasov), Vlasov theory of waves and instabilities, connections to fluid plasma models.

PHYS 521 - QUANTUM MECHANICS I
Short Title: QUANTUM MECHANICS I
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level course on non-relativistic quantum mechanics. Topics include early quantum theory, one-dimensional systems, matrix formulation, quantum dynamics, symmetries and conservation laws, bound states, scattering, spin, and identical particles, perturbation theory.

PHYS 522 - QUANTUM MECHANICS II
Short Title: QUANTUM MECHANICS II
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of PHYS 521.

PHYS 526 - STATISTICAL PHYSICS
Short Title: STATISTICAL PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Selected topics in statistical mechanics, including phase transitions and transport phenomena.

PHYS 532 - CLASSICAL ELECTRODYNAMICS
Short Title: CLASSICAL ELECTRODYNAMICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Maxwell's equations, wave propagation, special relativity and covariant formulation, charged-particle dynamics, and radiation.

PHYS 533 - NANOSTRUCTURE AND NANOTECHNOLOGY I
Short Title: NANOSTRUCTURE/NANOTECHNOLOG
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Physics of structures and devices at the nanometer scale. After a review of solid state physics, topics include nanostructured materials, nanoelectronics, and nanomagnetism. Emphasis on relevance of nanophysics to current and future technologies.

PHYS 534 - NANOSTRUCTURE AND NANOTECHNOLOGY II
Short Title: NANOSTRUCTURE&NANOTECHNOLOGY II
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Physics of structures and devices at the nanometer scale. Topics include nanomechanics, bionanotechnology, advanced sensors and photonics. Continuation of PHYS 533.

PHYS 535 - CRYSTALLOGRAPHY AND DIFFRACTION
Short Title: CRYSTALLOGRAPHY & DIFFRACTION
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/group symmetry, experiment design (courses, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 435 (additional work for the graduate version). Cross-list: MSNE 535.
PHYS 541 - RADIATIVE PROCESSES
Short Title: RADIATIVE PROCESSES
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Radiation processes and their applications to astrophysical phenomena and space science. The course treats radiative transfer, radiation from moving charges, relativistic covariance and kinematics, bremsstrahlung, synchrotron radiation, Compton scattering, some plasma effects, and radiative transitions in atoms and molecules.

PHYS 542 - INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS
Short Title: INTRO NUCLEAR&PARTIC PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PHYS 311
Description: Survey of history and current state of nuclear and particle physics with the emphasis on experimental results and how they led to our current understanding of the strong and electroweak interactions. Some recent advances are discussed in detail. Requires completion of a Monte Carlo simulation project. Graduate/Undergraduate Equivalency: PHYS 411. Mutually Exclusive: Cannot register for PHYS 542 if student has credit for PHYS 411.

PHYS 543 - PHYSICS OF QUARKS AND LEPTONS
Short Title: PHYSICS OF QUARKS AND LEPTONS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A continuation of PHYS 542. Requires credit for PHYS 411, PHYS 541 and PHYS 542.

PHYS 551 - BIOLOGICAL PHYSICS
Short Title: BIOLOGICAL PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

PHYS 552 - TOPICS IN BIOLOGICAL PHYSICS
Short Title: TOPICS IN BIOLOGICAL PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will be selected based on special or current research interests.

PHYS 556 - GENERAL RELATIVITY
Short Title: GENERAL RELATIVITY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PHYS 532
Description: Study of Einstein's theory of gravitation, including cosmological models.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>PHYS 563</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS I</td>
<td>INTRO SOLID STATE PHYSICS I</td>
<td>Physics and Astronomy</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students</td>
<td>Fundamental concepts of crystalline solids, including crystal structure, band theory of electrons, and lattice vibration theory. Cross-list: ELEC 563.</td>
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<tr>
<td>PHYS 564</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS II</td>
<td>INTRO SOLID STATE PHYSICS II</td>
<td>Physics and Astronomy</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students</td>
<td>Continuation of PHYS 563, including scattering of waves by crystals, transport theory, and magnetic phenomena. Cross-list: ELEC 564.</td>
</tr>
<tr>
<td>PHYS 566</td>
<td>SURFACE PHYSICS</td>
<td>SURFACE PHYSICS</td>
<td>Physics and Astronomy</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students</td>
<td>An introduction to surface- and low-dimensional physics covering experimental surface physics and ultra-high vacuum technology, crystal structure, chemical analysis, epitaxy, nanoscale electronic and magnetic structures and devices, elementary excitations, optical properties and nanoscale sensitive magnetic and non-magnetic spectroscopies.</td>
</tr>
<tr>
<td>PHYS 567</td>
<td>QUANTUM MATERIALS</td>
<td>QUANTUM MATERIALS</td>
<td>Physics and Astronomy</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students</td>
<td>Introductory course for graduate students. Topics include: atomic structure, principles of lasers, fundamental interactions of atoms with electro-magnetic radiation, including coherent effects, laser spectroscopy, quantum optics, and laser cooling and trapping of atoms, and Bose-Einstein condensation.</td>
</tr>
<tr>
<td>PHYS 568</td>
<td>QUANTUM PHASE TRANSITIONS</td>
<td>QUANTUM PHASE TRANSITIONS</td>
<td>Physics and Astronomy</td>
<td>Graduate</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students</td>
<td>This course uses real data on archetypal materials to illustrate the thermodynamic and transport properties of solids, and principles of materials synthesis. The goal is building a phenomenological understanding of topics including the origin of magnetism; interactions and long range order; phase transitions (magnetism; superconductivity); quantum oscillations and Landau levels. Topics to be discussed include: atomic structure, principles of lasers, fundamental interactions of atoms with electro-magnetic radiation, including coherent effects, laser spectroscopy, quantum optics, and laser cooling and trapping of atoms, and Bose-Einstein condensation.</td>
</tr>
</tbody>
</table>
PHYS 580 - INTRODUCTION TO PLASMA PHYSICS
Short Title: INTRODUCTION TO PLASMA PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamental processes in cosmic and laboratory plasmas. Basic plasma characteristics, charged particle motion, waves in plasmas, magnetohydrodynamics, kinetic theory. Includes a substantial computational project related to plasma physics. Graduate/Undergraduate Equivalency: PHYS 480. Mutually Exclusive: Cannot register for PHYS 580 if student has credit for PHYS 480.

PHYS 600 - ADVANCED TOPICS IN PHYSICS
Short Title: ADVANCED TOPICS IN PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lecture/seminars which treat topics of departmental interest. Repeatable for Credit.

PHYS 601 - FRONTIERS IN CONDENSED MATTER PHYSICS
Short Title: FRONTIERS IN CONDENSED MATTER
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will serve as an introduction to current research topics in modern condensed matter physics. Lectures will be given by experts in condensed matter physics at Rice, Columbia University, and other international locations. Repeatable for Credit.

PHYS 605 - COMPUTATIONAL ELECTRODYNAMICS AND NANOPHOTONICS
Short Title: ELECTRODYNAMICS & NANOPHOTONIC
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers computational and numerical methods for calculating electromagnetic fields and propagation in complex geometries on the nano and microscale. Methods include the finite difference time domain method, boundary element methods, Greens functions methods, finite element methods, the discrete dipole approximation and relaxation methods. Cross-list: ELEC 605. Repeatable for Credit.

PHYS 610 - BIOLOGICAL AND MOLECULAR SIMULATION
Short Title: METHODS OF MOLECULAR SIMUL
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHBE 611 or BIOC 589 or BIOE 589 or BIOS 589 or CHEM 520 or PHYS 526
Description: Modern simulation techniques for classical atomistic systems. Review of statistical mechanical systems. Monte Carlo and molecular dynamics simulation techniques. Extensions of the basic methods to various ensembles. Applications to simulations of large molecules such as proteins. Advanced techniques for simulation of complex systems, including constraint satisfaction, cluster moves, biased sampling, and random energy models. Cross-list: BIOE 610.

PHYS 622 - QUANTUM FIELD THEORY
Short Title: QUANTUM FIELD THEORY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to relativistic quantum field theory. Topics include: quantization of scalar, spinor, and vector fields; Feynman diagrams; gauge theories, including QED and QCD; renormalization; and functional-integral methods.

PHYS 643 - CELL MECHANICS, MECHANOTRANSDUCTION AND THE CELL MICROENVIRONMENT
Short Title: MECHANOTRANSDUCTION
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mechanotransduction is a fundamental process essential for living systems and plays a fundamental role in cell signaling, cancer metastasis and stem cell differentiation. Additionally, fundamental biological processes such as endocytosis cell fusion and cell migration are driven by a coordinated interplay of molecular interactions that drive membrane deformation. This course will survey the current understanding of mechanotransduction and the mechanical properties of cells and their microenvironment, including membrane and cytoskeletal mechanics. Experimental approaches for measuring and manipulating the material properties of cells and their environment; including optical, electrical and magnetic techniques will be covered. A variety of application will be covered, including manipulation in engineering of mechanotransduction pathways to drive cell migration and stem cell differentiation. Instructor Permission Required. Cross-list: BIOE 643.
PHYS 663 - CONDENSED MATTER THEORY: APPLICATIONS
Short Title: COND MATTER THRY:APLICATN
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applications of techniques developed in PHYS 664.

PHYS 664 - CONDENSED MATTER THEORY: MANY-BODY FORMALISM
Short Title: COND MATT THRY:MANY BODY FORM
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal structure of many-body theory as used in condensed matter physics.

PHYS 665 - TOPOLOGY IN MODERN QUANTUM PHYSICS AND FIELD THEORY
Short Title: TOPOLOGY IN QUANTUM PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PHYS 521
Description: Topology plays an increasingly important role in modern quantum physics, and its applications to a variety of topics range from the theory of liquid crystals to topological defects in quantum field theory. This course will introduce some key notions from topology, such as homotopy and homology, and differential geometry and discuss their applications in quantum physics, from the theory of vortices in superconductors, to monopoles in non-Abelian gauge theories, to instantons in Yang–Mills theory. The course also covers the concepts of topological insulators and superconductors that have become an important part of the vocabulary of modern condensed matter physics. The course may be useful for students pursuing research in condensed matter and AMO physics, as well as high-energy physicists interested in topological defects in quantum field theory.

PHYS 667 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

PHYS 700 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised teaching for graduate students. Repeatable for Credit.

PHYS 710 - GRADUATE SEMINAR IN PHYSICS AND ASTRONOMY
Short Title: GRAD SEMINAR IN PHYS & ASTR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Participation in department colloquia and additional sessions on topics of interest to entering graduate students. Required of all Physics and Astronomy graduate students during their first Fall semester at Rice.

PHYS 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis research under the supervision of department faculty. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule:
- Course offerings/subject code for Astronomy: ASTR
- Course offerings/subject code for Physics: PHYS

Department Description and Code
- Physics and Astronomy: PHYS

Undergraduate Degree Descriptions and Codes
- Bachelor of Arts degree: BA
- Bachelor of Science degree: BS

Undergraduate Major Descriptions and Codes
- Major in Physics (attached to the BA and BS degrees): PHYS
- Major in Astronomy (attached to the BA degree): ASBA
- Major in Astrophysics (attached to the BS degree): ASTR
- Major in Chemical Physics (attached to the BS degree): CPHY

Undergraduate Major Concentration Descriptions and Codes
- Major Concentration in Applied Physics (BS degree-PHYS majors): APPS
Bachelor of Arts (BA) Degree with a Major in Astronomy

Program Learning Outcomes for the BA Degree with a Major in Astronomy

Upon completing the BA degree with a major in Astronomy, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.
4. Be knowledgeable in fundamental topics in Astronomy.

Requirements for the BA Degree with a Major in Astronomy

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Astronomy must complete:

- A minimum of 53 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 19 credit hours taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the department's undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the Major in Astronomy</td>
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<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Astronomy</td>
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Degree Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>COMP 130</td>
<td>ELEMENTS OF ALGORITHMS AND COMPUTATION</td>
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<tr>
<td>or COMP 140</td>
<td>COMPUTATIONAL THINKING</td>
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<td>MATH 101</td>
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<td>or MATH 105</td>
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<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<tr>
<td>or MATH 106</td>
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</tr>
<tr>
<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
<td>3</td>
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<tr>
<td>or MATH 220</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
<tr>
<td>or MATH 221</td>
<td>HONORS CALCULUS III</td>
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<td>MATH 212</td>
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<tr>
<td>or MATH 222</td>
<td>HONORS CALCULUS IV</td>
<td></td>
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</table>

Select 1 from the following:

| PHYS 101 | MECHANICS (WITH LAB) and MECHANICS DISCUSSION | 4            |
| PHYS 111 | HONORS MECHANICS (WITH LAB) | |

Select 1 from the following:

| PHYS 102 | ELECTRICITY & MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION | 4            |
| PHYS 112 | HONORS ELECTRICITY & MAGNETISM (WITH LAB) | |
| PHYS 201 | WAVES, LIGHT, AND HEAT | 3           |
| PHYS 202 | MODERN PHYSICS | 3           |
| PHYS 231 | ELEMENTARY PHYSICS LAB | 1           |
| PHYS 301 | INTERMEDIATE MECHANICS | 4           |
Following departmental transfer credit guidelines:

Students pursuing the major in Astronomy should be aware of the Departmental Transfer Credit Guidelines and restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. For additional information, please see the Physics and Astronomy Department’s website and click on the Research link at: https://physics.rice.edu/

Opportunities for the BA Degree with a Major in Astronomy

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Research in the Department of Physics and Astronomy

The Physics and Astronomy Department encourages undergraduate participation in research, both within the department and through extramural programs. For current opportunities, please visit the Department’s website and click on the Research link at: https://physics.rice.edu/

Bachelor of Arts (BA) Degree with a Major in Physics

Program Learning Outcomes for the BA Degree with a Major in Physics

Upon completing the BA degree with a major in Physics, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.
4. Demonstrate an understanding of a variety of physics topics taken from: statistical and thermal physics, biological physics, nuclear and particle physics, solid state physics, computational physics, and/or plasma physics.

Requirements for the BA Degree with a Major in Physics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Physics must complete:

- A minimum of 45-47 credit hours, depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 14-16 credit hours, depending on course selection, taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted.
upon approval of the department’s undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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**Degree Requirements**

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<td>Core Requirements</td>
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<td>MATH 101</td>
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<tr>
<td>or MATH 221</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS</td>
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<tr>
<td>or MATH 222</td>
<td>HONORS CALCULUS IV</td>
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<tr>
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<td>&amp; PHYS 103</td>
<td>and MECHANICS DISCUSSION</td>
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<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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<tr>
<td>&amp; PHYS 104</td>
<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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**Select 2 courses from the following:**

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<td>PHYS 202</td>
<td>MODERN PHYSICS</td>
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<td>PHYS 231</td>
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**Select 2 courses from the following:**

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<tr>
<td>PHYS 302</td>
<td>INTERMEDIATE ELECTRODYNAMICS</td>
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<tr>
<td>PHYS 312</td>
<td>INTRODUCTION TO QUANTUM PHYSICS II</td>
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<td>PHYS 355</td>
<td>INTRODUCTION TO BIOLOGICAL PHYSICS</td>
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<td>PHYS 411</td>
<td>INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS</td>
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<td>PHYS 416</td>
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<td>PHYS 425</td>
<td>STATISTICAL &amp; THERMAL PHYSICS</td>
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<tr>
<td>PHYS 480</td>
<td>INTRODUCTION TO PLASMA PHYSICS</td>
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</table>

**Select 6 additional credit hours of departmental (PHYS) or (ASTR) courses at the 300-level or above.**

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<thead>
<tr>
<th>Code</th>
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<td>Additional Credit Hours to Complete Degree Requirements</td>
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<td></td>
<td>University Graduation Requirements (p. 29) *</td>
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**Footnotes and Additional Information**

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Includes PHYS 332, PHYS 461, and PHYS 462, but does not include PHYS 491, PHYS 492, PHYS 493, or PHYS 494.

**Policies for the BA Degree with a Major in Physics**

**Program Restrictions and Exclusions**

Students pursuing the BA Degree with a Major in Physics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Physics may not additionally pursue the BS Degree with a Major in Physics.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Physics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/
Opportunities for the BA Degree with a Major in Physics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Research in the Department of Physics and Astronomy

The Physics and Astronomy Department encourages undergraduate participation in research, both within the department and through extramural programs. For current opportunities, please visit the Department's website and click on the Research link, at: https://physics.rice.edu/.

Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/.

Bachelor of Science (BS) Degree with a Major in Astrophysics

Program Learning Outcomes for the BS Degree with a Major in Astrophysics

Upon completing the BS degree with a major in Astrophysics, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.
4. Be knowledgeable in fundamental topics in Astrophysics.
5. Demonstrate proficiency in research techniques and methodology under guidance of a faculty member.
6. Communicate scientific results both in writing and oral presentations.

Requirements for the BS Degree with a Major in Astrophysics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Astrophysics must complete:

- A minimum of 71 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 37 credit hours taken at the 300-level or above.

Students may obtain credit for some courses by advanced placement, and the department's undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the department's undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/dregeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

## Summary

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## Degree Requirements

### Core Requirements

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<td>ELEMENTS OF ALGORITHMS AND COMPUTATION</td>
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<td>COMPUTATIONAL THINKING</td>
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<td>MATH 101</td>
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<td>or MATH 105</td>
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<td>or MATH 106</td>
<td>AP/OTH CREDIT IN CALCULUS II</td>
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<td>MATH 211</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</td>
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<td>or MATH 220</td>
<td>HONORS ORDINARY DIFFERENTIAL EQUATIONS</td>
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<td>or MATH 221</td>
<td>HONORS CALCULUS III</td>
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<td>MATH 212</td>
<td>MULTIVARIABLE CALCULUS</td>
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<td>or MATH 222</td>
<td>HONORS CALCULUS IV</td>
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<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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<td>PHYS 202</td>
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<td>ELEMENTARY PHYSICS LAB</td>
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<td>PHYS 301</td>
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<td>PHYS 302</td>
<td>INTERMEDIATE ELECTRODYNAMICS</td>
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<td>PHYS 311</td>
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<td>PHYS 425</td>
<td>STATISTICAL &amp; THERMAL PHYSICS</td>
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</tr>
<tr>
<td>PHYS 491 &amp; PHYS 493</td>
<td>UNDERGRADUATE RESEARCH and UNDERGRADUATE RESEARCH SEMINAR</td>
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Students must be formalized into Degree Works by the major’s official certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).

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<td>ASTR 230</td>
<td>ASTRONOMY LAB</td>
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<tr>
<td>ASTR 350</td>
<td>INTRODUCTION TO ASTROPHYSICS-STARS</td>
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</table>
### Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Applied Physics

#### Program Learning Outcomes for the BS Degree with a Major in Physics and a Major Concentration in Applied Physics

Upon completing the BS Degree with a major in Physics, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.

Additionally, upon completing the BS degree with a major in Physics and a major concentration in Applied Physics, students will be able to:

1. Be knowledgable in the applications of physics concepts to real world devices and applications.
2. Demonstrate proficiency in research techniques and methodology under guidance of a faculty member.
3. Communicate scientific results both in writing and oral presentations.

### Policies for the BS Degree with a Major in Astrophysics

#### Program Restrictions and Exclusions

Students pursuing the major in Astrophysics should be aware of the following program restrictions:

- Students pursuing the major in Astrophysics may not additionally declare the major in Astronomy.
- Students pursuing the major in Astrophysics may not additionally declare the minor in Physics.

#### Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the major in Astrophysics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

### Additional Information

For additional information, please see the Physics and Astronomy website: [https://physics.rice.edu/](https://physics.rice.edu/)

### Opportunities for the BS Degree with a Major in Astrophysics

#### Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

#### Research in the Department of Physics and Astronomy

The Physics and Astronomy Department encourages undergraduate participation in research, both within the department and through extramural programs. For current opportunities, please visit the Department’s website and click on the Research link, at: [https://physics.rice.edu/](https://physics.rice.edu/).

### Additional Information

For additional information, please see the Physics and Astronomy website: [https://physics.rice.edu/](https://physics.rice.edu/)

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### Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Applied Physics

**Total Credit Hours Required for the Major in Astrophysics:** 71

**Additional Credit Hours to Complete Degree Requirements:** 18

**University Graduation Requirements (p. 29)**: 31

**Total Credit Hours:** 120

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<tr>
<th>Course Code</th>
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<tr>
<td>ASTR 360</td>
<td>INTRODUCTION TO ASTROPHYSICS-GALAXY AND COSMO</td>
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<td>ASTR 400</td>
<td>UNDERGRADUATE RESEARCH SEMINAR (2 semesters required, 1st semester)</td>
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<td>ASTR 400</td>
<td>UNDERGRADUATE RESEARCH SEMINAR (2 semesters required, 2nd semester)</td>
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<td>ASTR 451</td>
<td>ASTROPHYSICS I: SUN AND STARS</td>
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<td>ASTR 452</td>
<td>ASTROPHYSICS II: GALAXIES AND COSMOLOGY</td>
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<td>ASTR 470</td>
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<td>PHYS 480</td>
<td>INTRODUCTION TO PLASMA PHYSICS</td>
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**Footnotes and Additional Information**

- **Note:** University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

  Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. PHYS 491 and PHYS 493 must be taken concurrently.
2. PHYS 492 and PHYS 494 must be taken concurrently.
### Requirements for the BS Degree with a Major in Physics and a Major Concentration in Applied Physics

For general university requirements, see [Graduation Requirements](#) (p. 29). Students pursuing the BS degree with a major in Physics and a major concentration in Applied Physics must complete:

- A minimum of 68 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 37 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Applied Physics. When students declare the major (p. 17) in Physics, students must additionally identify and declare one of four major concentrations, either in:
  - [Applied Physics](#) (p. 1793), or
  - [Biological Physics](#) (p. 1794), or
  - [Computational Physics](#) (p. 1797), or
  - [General Physics](#) (p. 1799).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar ([registrar@rice.edu](mailto:registrar@rice.edu)).

Students may obtain credit for some courses by advanced placement, and the department’s undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the department’s undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier ([https://registrar.rice.edu/facstaff/deegreeworks/officialcertifier/](https://registrar.rice.edu/facstaff/deegreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

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<tbody>
<tr>
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<td>Total Credit Hours Required for the Major in Physics and a Major Concentration in Applied Physics</td>
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<tr>
<td></td>
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### Degree Requirements

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<tr>
<td>or MATH 222</td>
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<tr>
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<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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<td>and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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<td>SOLID STATE PHYSICS</td>
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<td>PHYS 425</td>
<td>STATISTICAL &amp; THERMAL PHYSICS</td>
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<td>ELEC 242</td>
<td>SIGNALS, SYSTEMS, AND TRANSFORMS and ANALOG CIRCUITS LABORATORY</td>
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<td>&amp; ELEC 244</td>
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<td>or ELEC 243</td>
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<td>ELEC 305</td>
<td>INTRODUCTION TO PHYSICAL ELECTRONICS II</td>
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<td>or CAAM 336</td>
<td>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</td>
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Total Credit Hours for the Major in Physics and a Major Concentration in Applied Physics: 68

Additional Credit Hours to Complete Degree Requirements: 21

University Graduation Requirements (p. 29): 31

Total Credit Hours: 120
Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

**Additional Credit Hours to Complete Degree Requirements** include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. PHYS 491 and PHYS 493 must be taken concurrently.
2. PHYS 492 and PHYS 494 must be taken concurrently.
3. Because of common core requirements, it is possible to change major concentrations even after declaring the major. See the Undergraduate tab of the Physics and Astronomy department listing for the requirements for each major concentration for the BS degree in Physics.
4. Or approved substitute in applied physics.

Opportunities for the BS Degree with a Major in Physics and a Major Concentration in Applied Physics

**Academic Honors**
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Research in the Department of Physics and Astronomy**
The Physics and Astronomy Department encourages undergraduate participation in research, both within the department and through extramural programs. For current opportunities, please visit the Department’s website and click on the Research link, at: https://physics.rice.edu/.

**Additional Information**
For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/.

Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Biological Physics

**Program Learning Outcomes for the BS Degree with a Major in Physics and a Major Concentration in Biological Physics**
Upon completing the BS degree with a major in Physics, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.

**Additional Information**
For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/.

Requirements for the BS Degree with a Major in Physics and a Major Concentration in Biological Physics
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Physics and a major concentration in Biological Physics must complete:
• A minimum of 75 credit hours to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 32 credit hours taken at the 300-level or above.
• Core courses common to all major concentrations.
• The requirements for the major concentration in Biological Physics. When students declare the major (p. 17) in Physics, students must additionally identify and declare one of four major concentrations, either in:

  * Applied Physics (p. 1793), or
  * Biological Physics (p. 1794), or
  * Computational Physics (p. 1797), or
  * General Physics (p. 1799).

Because of the common core requirements, it is possible for students to change their major concentration, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Students may obtain credit for some courses by advanced placement, and the department’s undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the department’s undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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### Major Concentration in Biological Physics

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<td>PHYS 355</td>
<td>INTRODUCTION TO BIOLOGICAL PHYSICS</td>
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<td>&amp; CHEM 213</td>
<td>and ORGANIC CHEMISTRY DISCUSSION</td>
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<tr>
<td>MATH 381</td>
<td>INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS</td>
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Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. PHYS 491 and PHYS 493 must be taken concurrently.
2. PHYS 492 and PHYS 494 must be taken concurrently.
3. Because of common core requirements, it is possible to change major concentrations even after declaring the major. See the Undergraduate tab of the Physics and Astronomy department listing for the requirements for each major concentration for the BS degree in Physics.
4. CHEM 121 or CHEM 111 can be satisfied by completing CHEM 151; CHEM 123 or CHEM 113 can be satisfied by completing CHEM 153. CHEM 122 or CHEM 112 can be satisfied by completing CHEM 152; CHEM 124 or CHEM 114 can be satisfied by completing CHEM 154.

Policies for the BS Degree with a Major in Physics and a Major Concentration in Biological Physics

Program Restrictions and Exclusions
Students pursuing the BS Degree with a Major in Physics and a Major Concentration in Biological Physics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Physics and a Major Concentration in Biological Physics may not additionally pursue the BA Degree with a Major in Physics.
- Students pursuing the major in Physics may pursue only one major concentration within the major.
- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Physics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Opportunities for the BS Degree with a Major in Physics and a Major Concentration in Biological Physics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Research in the Department of Physics and Astronomy
The Physics and Astronomy Department encourages undergraduate participation in research, both within the department and through extramural programs. For current opportunities, please visit the Department’s website and click on the Research link at: https://physics.rice.edu/.

Additional Information
For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Computational Physics

Program Learning Outcomes for the BS Degree with a Major in Physics and a Major Concentration in Computational Physics

Upon completing the BS degree with a major in Physics, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.

Additionally, upon completing the BS degree with a major in Physics and a major concentration in Computational Physics, students will be able to:

1. Be knowledgeable of the use of numerical analysis to apply the laws of physics to real-world problems.
2. Demonstrate proficiency in research techniques and methodology under guidance of a faculty member.
3. Communicate scientific results both in writing and oral presentations.
Requirements for the BS Degree with a Major in Physics and a Major Concentration in Computational Physics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Physics and a major concentration in Computational Physics must complete:

- A minimum of 72 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 38 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in Computational Physics. When students declare the major (p. 17) in Physics, students must additionally identify and declare one of four major concentrations, either in:
  - Applied Physics (p. 1793), or
  - Biological Physics (p. 1794), or
  - Computational Physics (p. 1797), or
  - General Physics (p. 1799).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Students may obtain credit for some courses by advanced placement, and the department’s undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the department’s undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Total Credit Hours Required for the Major in Physics and a Major Concentration in Computational Physics

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Total Credit Hours Required for the BS Degree with a Major in Physics and Major Concentration in Computational Physics

Degree Requirements

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Additional Credit Hours to Complete Degree Requirements
Department Transfer Credit Guidelines

Students pursuing the major in Physics should be aware of the following department transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Opportunities for the BS Degree with a Major in Physics and a Major Concentration in Computational Physics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

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Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in General Physics

Program Learning Outcomes for the BS Degree with a Major in Physics and a Major Concentration in General Physics

Upon completing the BS degree with a major in Physics, students will be able to:

1. Demonstrate an understanding of fundamental concepts in Mechanics.
2. Demonstrate an understanding of fundamental concepts in Electromagnetism.
3. Demonstrate an understanding of fundamental concepts in Quantum Mechanics.

Additionally, upon completing the BS degree with a major in Physics and a major concentration in General Physics, students will be able to:

1. Demonstrate an understanding of a variety of fundamental physics topics taken from: statistical and thermal physics, biological physics, nuclear and particle physics, solid state physics, computational physics, and/or plasma physics.
2. Demonstrate proficiency in research techniques and methodology under guidance of a faculty member.
3. Communicate scientific results both in writing and oral presentations.
### Requirements for the BS Degree with a Major in Physics and a Major Concentration in General Physics

For general university requirements, see [Graduation Requirements](https://registrar.rice.edu/facstaff/1793) (p. 29). Students pursuing the BS degree with a major in Physics and a major concentration in General Physics must complete:

- A minimum of 64 credit hours to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 37 credit hours taken at the 300-level or above.
- Core courses common to all major concentrations.
- The requirements for the major concentration in General Physics. When students declare the major (p. 17) in Physics, students must additionally identify and declare one of four major concentrations, either in:
  - Applied Physics (p. 1793), or
  - Biological Physics (p. 1794), or
  - Computational Physics (p. 1797), or
  - General Physics (p. 1799).

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the [Office of the Registrar](mailto:registrar@rice.edu) (p. 1793).

Students may obtain credit for some courses by advanced placement, and the department’s undergraduate committee can modify requirements to meet the needs of students with special backgrounds.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the department’s undergraduate committee. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier [https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/](https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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Additional Credit Hours to Complete Degree Requirements

University Graduation Requirements (p. 29)

Total Credit Hours
Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 PHYS 491 and PHYS 493 must be taken concurrently.
2 PHYS 492 and PHYS 494 must be taken concurrently.
3 Because of common core requirements, it is possible to change major concentrations even after declaring the major. See the Undergraduate tab of the Physics and Astronomy department listing for the requirements for each major concentration for the BS degree in Physics.

Policies for the BS Degree with a Major in Physics and a Major Concentration in General Physics

Program Restrictions and Exclusions

Students pursuing the BS Degree with a Major in Physics and a Major Concentration in General Physics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Physics and a Major Concentration in General Physics may not additionally pursue the BA Degree with a Major in Physics.
- Students pursuing the major in Physics may pursue only one major concentration within the major.
- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Physics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Opportunities for the BS Degree with a Major in Physics and a Major Concentration in General Physics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Research in the Department of Physics and Astronomy

The Physics and Astronomy Department encourages undergraduate participation in research, both within the department and through extramural programs. For current opportunities, please visit the Department’s website and click on the Research link at: https://physics.rice.edu/

Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Doctor of Philosophy (PhD) Degree in the Field of Physics

Program Learning Outcomes for the PhD Degree in the Field of Physics

Upon completing the PhD degree in the field of Physics, students will be able to:

1. Demonstrate advanced knowledge in foundational areas of physics and astronomy, and a mastery of their selected subfield.
2. Have the skills necessary to conduct independent research in physics and astronomy and become leaders in their chosen careers.
3. Have the ability to identify, formulate, and solve challenging scientific and technical problems as encountered in physics and astronomy.
4. Be proficient in reading the scientific literature and in oral and written communication of scientific results.
5. Make an original and significant contribution to knowledge in their discipline.

Requirements for the PhD Degree in the Field of Physics

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). To be eligible for the PhD degree, graduate students must demonstrate to the department their knowledge in the discipline and the ability to engage in advanced research.

The formal requirements for the PhD are:

- The student must complete all coursework specified for their matriculating class and any additional courses required by the thesis adviser.
The transcript must show at least 90 semester hours credit, including research and teaching, beyond the Bachelor’s Degree. A total of at least four full semesters, not including summer terms, must be spent in full-time study at Rice.

The student must successfully complete a research project involving independent and original work. The work must be reported in an approved thesis, and defended in a public oral examination.

Complete information about research opportunities, courses and other requirements can be found under the Department’s website, on the Graduate Program link at https://physics.rice.edu/.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Physics</td>
<td>90</td>
</tr>
</tbody>
</table>

Coursework

All degree programs in Physics and Astronomy require students to complete certain courses with satisfactory grades.

- Completion of PHYS 710, Graduate Seminar in Physics and Astronomy, during the first Fall semester in residence.
- At least eight full (3-credit hour) graduate courses, other than teaching or research, in the Physics and Astronomy Department.

Research

The PhD in physics is awarded for original research in physics. The candidate must write a doctoral thesis and publicly defend it in the final oral examination, which is conducted by the PhD Examination Committee.

Teaching

The department considers teaching experience an essential part of graduate training. Thus, full-time graduate students should expect to assume some teaching duties (e.g., teaching labs, grading papers, grading exams, etc.) in addition to research. The department accounts for the labor effort in units of nominal 5 hour/week semester blocks. Assignments typically begin in the second semester at Rice, with one such unit that semester. A student is expected to complete a total of four of such units.

Advancement to Candidacy for the PhD

By the end of the fifth week of the student’s fifth semester, the student must complete (1) a Research Progress and Proposal (RPP) report and an oral research presentation of that report; and (2) an oral candidacy exam to the satisfaction of a faculty examining committee. If needed, a second attempt at the candidacy exam must be completed by the end of the student’s fifth semester. The examining committee will certify the student as an acceptable candidate for the PhD in the research area covered by the RPP.

Policies for the PhD Degree in the field of Physics

Department of Physics and Astronomy Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Physics and Astronomy publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Physics_Astronomy_Graduate_Handbook.pdf

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Physics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Opportunities for the PhD Degree in the field of Physics

Additional Information

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Minor in Physics

Program Learning Outcomes for the Minor in Physics

Upon completing the minor in Physics, students will be able to:

1. Acquire and demonstrate a solid foundation of knowledge in physics. This includes: basic mechanics, basic electromagnetism, Maxwell’s equations in differential form, waves, interference and diffraction, special relativity, the Schroedinger equation, and the wave formulation of quantum mechanics.
2. Acquire and demonstrate knowledge in a number of advanced physics topics of their choosing.

Requirements for the Minor in Physics

Students pursuing the minor in Physics must complete:

- A minimum of 35 credit hours to satisfy minor requirements.
- A minimum of 26 credit hours to satisfy the Core Requirements.
- A minimum of 9 additional credit hours from departmental (PHYS) course offerings at the 300-level or above.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.
Summary

Total Credit Hours Required for the Minor in Physics 35

Minor Requirements

Core Requirements

Select 1 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>PHYS 101 &amp; PHYS 103</td>
<td>MECHANICS (WITH LAB) and MECHANICS DISCUSSION</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 111</td>
<td>HONORS MECHANICS (WITH LAB)</td>
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</tr>
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Select 1 from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>PHYS 102 &amp; PHYS 104</td>
<td>ELECTRICITY &amp; MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION</td>
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</tr>
<tr>
<td>PHYS 112</td>
<td>HONORS ELECTRICITY &amp; MAGNETISM (WITH LAB)</td>
<td></td>
</tr>
<tr>
<td>MATH 101 or MATH 105</td>
<td>SINGLE VARIABLE CALCULUS I or AP/OTH CREDIT IN CALCULUS I</td>
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<tr>
<td>MATH 102 or MATH 106</td>
<td>SINGLE VARIABLE CALCULUS II or AP/OTH CREDIT IN CALCULUS II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 211 or MATH 221</td>
<td>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA or HONORS CALCULUS III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 212 or MATH 222</td>
<td>MULTIVARIABLE CALCULUS or HONORS CALCULUS IV</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>WAVES, LIGHT, AND HEAT</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 202</td>
<td>MODERN PHYSICS</td>
<td></td>
</tr>
</tbody>
</table>

Elective Requirements

Select a minimum of 3 courses from departmental (PHYS) course offerings at the 300-level or above.

Total Credit Hours 35

Policies for the Minor in Physics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Opportunities for the Minor in Physics

Transfer Credit

For additional information, please see the Physics and Astronomy website: https://physics.rice.edu/

Contact Information

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Department Chair
leeds@rice.edu

Richard J. Stoll
Director of Undergraduate Studies
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Randolph T. Stevenson
Director of Graduate Studies
randystevenson@rice.edu

The mission of the department of political science at Rice University is to contribute to the university and discipline through excellence in research, graduate training and undergraduate teaching. We train graduate students in modern techniques of social science research in three substantive areas of political science—American Politics, Comparative Politics, and International Relations—to prepare them for successful careers in academic research. We contribute to the liberal arts education of our undergraduate students with courses aimed at developing their skills in critical and analytical thinking and writing, increasing their understanding of political processes, and encouraging responsible and active citizenship. In addition, we train our political science majors to conduct independent political science research. We
aim to prepare all of our students for successful careers in academia, government, business, law, education, non-governmental organizations, and many other professional paths.

Bachelor's Program

- Bachelor of Arts (BA) Degree with a Major in Political Science
  (p. 1823)

Master's Program

- Master of Arts (MA) Degree in the field of Political Science*

Doctoral Program

- Doctor of Philosophy (PhD) Degree in the field of Political Science
  (p. 1824)

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair
Brett Ashley Leeds

Interim Director of Undergraduate Studies
Richard J. Stoll

Director of Graduate Studies
Randolph T. Stevenson

Professors
John R. Alford
Paul Brace
Keith Edward Hamm
William P. Hobby
Mark P. Jones
David W. Leebron
Brett Ashley Leeds
Melissa J. Marschall
T. Clifton Morgan
Leslie A. Schwindt-Bayer
Robert M. Stein
Randolph T. Stevenson
Richard J. Stoll
Rick K. Wilson

Associate Professors
Songying Fang
Diana O'Brien

Assistant Professors
Matthew Hayes
Jonathan Homola
Connor Huff
Jaclyn Kaslovsky
Michelle Torres

Professors Emeriti
John S. Ambler
Earl Black
Jerrold G. Rusk

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/SWKSCAT.cat)

Political Science (POLI)

POLI 102 - QUANTITATIVE ANALYSIS FOR SOCIAL SCIENCES: POLITICAL SCIENCE LAB
Short Title: POLI SCI STATISTICS LAB
Department: Political Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: This lab companion course to SOSC 302: Quantitative Analysis for the Social Sciences involves political science-specific applications of statistical analysis. The lab focuses on the use of software to analyze data from research in political science. Students who enroll in this lab section must also enroll in SOSC 302 during the same semester.

POLI 110 - AP/OTH CREDIT IN AMERICAN GOVERNMENT
Short Title: AP/OTH CREDIT AMER GOVERNMENT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

POLI 111 - IB/OTH CREDIT INTERNATIONAL RELATIONS
Short Title: IB/OTH CREDIT INTERNATL REL
Department: Political Science
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as the International Baccalaureate exam for Global Politics. This credit counts toward the total credit hours required for graduation only. This course is for transfer credit only.
POLI 112 - AP/OTH CREDIT IN COMPARATIVE GOVERNMENT
Short Title: AP/OTH CREDIT COMPAR GOVERNMENT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

POLI 209 - INTRODUCTION TO CONSTITUTIONALISM AND MODERN POLITICAL THOUGHT
Short Title: INTRO TO CONST & POLI THOUGHT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine constitutionalism and authoritarianism, including Plato, Machiavelli, and Marx, and introduce students to classical and contemporary political theories.

POLI 210 - INTRODUCTION TO AMERICAN POLITICS
Short Title: INTRO TO AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to major topics in the subfield of American Politics, including public opinion, group politics, political parties, elections, congressional-presidential-bureaucratic politics, and judicial politics. This course helps students navigate upper division courses in American Politics and understand American government and politics.

POLI 212 - INTRODUCTION TO COMPARATIVE POLITICS
Short Title: INTRO TO COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to major topics in the subfield of Comparative Politics, including emergence and survival of democracy, authoritarian government, democratic institutions, and mass and elite political behavior in countries around the world. This course helps students navigate upper division courses in Comparative Politics and explore the political world.

POLI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture, Independent Study, Internship/Practicum, Laboratory, Lecture/Laboratory, Seminar, Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

POLI 250 - SEX, MONEY, AND POWER AROUND THE WORLD
Short Title: SEX, MONEY, AND POWER
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An interdisciplinary course exploring lives and well-being in the context of gendered international and domestic politics and economic processes. Emphasis on the implications of power relations at levels from the household to the global for women and men around the world (with particular attention to Asia). Cross-list: ASIA 251, SWGS 250.

POLI 260 - ADVOCATING FOR IDEAS TO CHANGE THE WORLD
Short Title: ADVOCATING FOR CHANGE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Advocating for change is an experiential learning course that teaches students how to engage in issue advocacy as a method of social change. Students work in teams with faculty mentors to develop and implement an advocacy plan for a particular cause or policy of interest. Cross-list: LEAD 260.
POLI 301 - STATE POLITICS
Short Title: STATE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course comparatively examines state governments and political institutions in the U.S. states. We will also focus on how state political institutions and organizations influence the creation, adoption, and implementation of public policy.

POLI 305 - DIRECTED READING I
Short Title: DIRECTED READING I
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent reading under the supervision of a full-time member of the department. Instructor Permission Required.

POLI 306 - DIRECTED READING II
Short Title: DIRECTED READING II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent reading under the supervision of a full-time member of the department. Instructor Permission Required.

POLI 307 - POLITICAL SCIENCE INTERNSHIP
Short Title: POLITICAL SCIENCE INTERNSHIP
Department: Political Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides credit for a student doing an internship related to political science. Instructor Permission Required. Repeatable for Credit.

POLI 310 - THE BIOLOGY OF POLITICS
Short Title: THE BIOLOGY OF POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an interdisciplinary survey of the role that human biology plays in our political behavior. The biology covered ranges from genes to neural structures to neuro-chemistry, while the political behavior covered ranges from levels of participation to political beliefs to left/right ideology.

POLI 315 - ELECTIONS AND VOTING BEHAVIOR
Short Title: ELECTIONS AND VOTING BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of voting behavior and elections. Includes consideration of both individual level behavior and aggregate level patterns of election results.

POLI 317 - THE CONGRESS
Short Title: THE CONGRESS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the role of Congress in the American political system. Attention is given to the historical development of Congress, the current status of the Congress, and the functions of Congress in the American political system.

POLI 318 - THE PRESIDENCY
Short Title: THE PRESIDENCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analysis of presidential powers and behavior in the context of legal, electoral, personal, and other forces that shape and limit the actions of the President.
POLI 321 - AMERICAN CONSTITUTIONAL LAW
Short Title: AMER CONSTITUTIONAL LAW
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Interpretation of the Constitution by the Supreme Court. (Juniors and Seniors preferred).

POLI 322 - POLITICS OF INFLUENCE IN THE UNITED STATES
Short Title: POLITICS OF INFLUENCE IN US
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The aim of this course is to acquaint students with the major influences upon who gets what, when and how from American government. Major issues (e.g., health care, immigration, agriculture) covered will vary by semester. One component of the course will be devoted to assessing the impact of money on elections and the policy process.

POLI 324 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONI TO GLOBALIZATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: FREN 324, RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for POLI 324 if student has credit for RELI 604.

POLI 325 - AFRICAN AMERICAN POLITICS
Short Title: AFRICAN AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of race in U.S. politics. Includes a discussion of the construction of black identity, historical and contemporary black political leaders and thinkers, and the influence of race in political attitudes and behaviors.

POLI 328 - LATINO POLITICS IN THE UNITED STATES
Short Title: LATINO POLITICS IN THE US
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Latinos and public policies affecting Latinos have become a major part of the discourse taking place in American politics as a result of current and projected demographic trends. After reviewing the demographic, historic, and social factors distinctive to the Latino population in the United States, this course examines how Latinos have interacted with political institutions to shape politics and public policy.

POLI 329 - HEALTH POLICY
Short Title: HEALTH POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Applies an interdisciplinary approach to the study of health policy. Objectives are to provide students with a broad introduction to the healthcare system, identify stresses on the current system, and explore possible public policy decisions that may transform the healthcare system.

POLI 330 - MINORITY POLITICS
Short Title: MINORITY POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the political and social position of minority groups (African Americans, Asian Americans, Native Americans, Latinos, and women) in the U.S. This course explores the political power and behavior of these groups. The key concepts include racism, discrimination, resources, political power, culture, leadership, class, and inequality.

POLI 332 - URBAN POLITICS
Short Title: URBAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of issues of political behavior and public policy in urban and metropolitan areas. Includes urban decline, regional governance, revitalization, and issues of ethnic and racial conflict.
POLI 333 - LEGISLATURES AROUND THE WORLD
Short Title: LEGISLATURES AROUND THE WORLD
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine legislatures and parliaments in countries around the world, exploring their similarities and differences as well as the causes and consequences of these similarities and differences.

POLI 334 - AMERICAN POLITICAL PARTIES
Short Title: AMERICAN POLITICAL PARTIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the American political party system both historically and contemporarily, with important emphasis on the nomination, campaign, and election functions of political parties. Party organization in government will also be explored.

POLI 335 - POLITICAL ENVIRONMENT OF BUSINESS
Short Title: POLITICAL ENVIRONMENT OF BUSINESS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the foundation of government involvement in public policy and the institutional process guiding executive, legislative, and bureaucratic officials. Includes theories of collective action and their application in the political world.

POLI 336 - POLITICS OF REGULATION
Short Title: POLITICS OF REGULATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus principally on government regulation of business and the political factors that shape its content.

POLI 337 - PUBLIC POLICY
Short Title: PUBLIC POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the role that public bureaucracy plays in national policy making. Includes an examination of sources of agency power, which are linked to different policy outcomes.

POLI 338 - POLICY ANALYSIS
Short Title: POLICY ANALYSIS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOSC 302 or STAT 310 or STAT 315 or DSCI 301 or ECON 307
Description: Familiarizes students with the analytical tools necessary for evaluating and analyzing public policies. Cross-list: SOSC 301. Mutually Exclusive: Cannot register for POLI 338 if student has credit for POST 338.

POLI 339 - GENDER AND POLITICS
Short Title: GENDER AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of central topics in gender and politics, including issues such as women's and men's representation in government, women as voters and candidates in political elections, gender and political participation in political parties and social movements, and gender and policy representation.

POLI 342 - POLITICS OF THE JUDICIARY
Short Title: POLITICS OF THE JUDICIARY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the role of courts and judges in American politics. Will illustrate major characteristics of judicial institutions in the U.S. and provide understanding of forces influencing judicial decisions. Will cover federal and state organization of trial and appellate courts, judicial selection methods, and the politics of judicial decision-making.
POLI 343 - MEDIA AND POLITICS
Short Title: MEDIA AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the role of media in politics. Attention is given to the media as a quasi-political institution. It elaborates the role the media plays in elections and the policy process.

POLI 348 - URBAN POLITICS LAB
Short Title: URBAN POLITICS LAB
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The lab course examines urban politics and policy by combining urban theory and methods with an intensive focus on one or more case studies. In addition to social, political and economic issues, the course focuses on history, culture, language, and architecture. The lab features a field research trip to one or more cities (e.g. Istanbul), typically during spring break. Instructor Permission Required. Repeatable for Credit.

POLI 349 - URBAN LAB ISTANBUL
Short Title: URBAN LAB ISTANBUL
Department: Political Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 355 (may be taken concurrently) or POLI 362 (may be taken concurrently) or POLI 464 (may be taken concurrently) or POLI 562 (may be taken concurrently)
Description: This course examines the dynamics of urban politics and policy in an emerging global city - Istanbul. In addition to social, political and economic issues, we will also focus on history, culture, language, and architecture. The lab also features an 8-day field research trip to Istanbul. Prerequisites may be taken the same semester as POLI 349/ASIA 349. Instructor Permission Required. Cross-list: ASIA 349.

POLI 350 - URBAN LAB HOUSTON
Short Title: URBAN LAB HOUSTON
Department: Political Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 332 (may be taken concurrently)
Description: This course examines the dynamics of urban politics and policy in an emerging global city - Houston. The lab is project-based and allows students to engage in hands-on, policy-focused research under the guidance of the faculty instructor. Weekly sessions will include lectures, case studies, guest lecturers, site visits, and work on research projects.

POLI 351 - ISLAM AND POLITICS
Short Title: ISLAM AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will venture to explore the "rich and diverse particularity" of Muslim political life at a time when Islam has become virtually synonymous with violence and hostility toward modernity. The topics include Islamic principles of government, relationship between political and religious authority, Islamism, Islam and democracy, jihad, and shariah.

POLI 352 - THE POLITICS AND CULTURE OF MEXICO
Short Title: POLITICS & CULTURE OF MEXICO
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mexico entered the 21st Century as one of the most dynamic societies in Latin America. But Mexico’s fast-paced and chaotic transformation cannot be understood without a look at its past and its diverse cultural makeup. This course explores the weight of Mexico’s history and culture as it seeks to forge ahead economically, socially, and politically.
POLI 353 - EAST ASIAN DEMOCRACIES
Short Title: EAST ASIAN DEMOCRACIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the functioning of the political system in the three principal East Asian democracies: Japan, South Korea, and Taiwan. Particular focus is paid to each country’s democratic institutions, electoral politics, and political party system. Cross-list: ASIA 353.

POLI 354 - LATIN AMERICAN POLITICS
Short Title: LATIN AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the political process in contemporary Latin America, with emphasis on selected major countries.

POLI 355 - GOVERNMENT AND POLITICS OF THE MIDDLE EAST
Short Title: GOVERNMENT&POLITICS MID EAST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides an introduction to politics in the Middle East. Brief historical overview is combined with detailed description of political systems in the area. The region is then used to examine empirically, critique, and revise theories of comparative politics. Emphasis on whether the region would be considered unique or exceptional.

POLI 356 - REPRESENTATION AND POLICY MAKING
Short Title: REPRESENTATION & POLICY MAKING
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course seeks to understand the relationship between political institutions and the representation of social interests in the policy-making process across a variety of national contexts. The course focuses on the politics behind policy choices and how policy-makers are held accountable in democratic contexts. Case studies will draw upon examples in the United States, Latin America, Europe and Asia.

POLI 357 - DEMOCRACY AND DEMOCRATIZATION
Short Title: DEMOCRACY AND DEMOCRATIZATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the theory of democracy and the functioning of democratic institutions around the world. Themes covered in the course will include: What is democracy? How does democracy arise? Can institutions influence the survival and consolidation of democracy?

POLI 360 - WESTERN EUROPEAN DEMOCRACIES
Short Title: WESTERN EUROPEAN DEMOCRACIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of government and politics in Western European democracies, with primary emphasis on Great Britain, France, and Germany.

POLI 362 - COMPARATIVE URBAN POLITICS AND POLICY
Short Title: COMPARATIVE URBAN POL & PLCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers a broad overview of urban politics and policies in cities around the world. We will examine how national, regional and local forces shape the processes and outcomes governance within and across cities and metropolitan areas, paying particular attention to critical problems and policies that affect urban centers: growth, immigration, class conflict, public order, service management, education, housing transportation, environmental protection, sustainability, land-use planning and spatial competition.

POLI 365 - BRITISH POLITICS
Short Title: BRITISH POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of British politics and government, with emphasis on both the contemporary and historical setting. This course also emphasizes a comparison of the British political system with the American political system.
POLI 371 - CIVIL WARS
Short Title: CIVIL WARS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to examine the origins and dynamics of civil war, including civil war onset, duration, outcome, termination, why people join rebellions, the effectiveness of various forms of civil war management and resolution, and more. It aims to impart to students a solid understanding of theories and empirical evidence regarding the causes, conduct, and termination of civil wars in general.

POLI 372 - AMERICAN FOREIGN POLICY
Short Title: AMERICAN FOREIGN POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of internal and external aspects of foreign policy leadership, presidential initiative, congressional control, press, public opinion, and crisis management. Not a Managerial Studies elective.

POLI 373 - WAR AND POLITICS
Short Title: WAR AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the range of theories and empirical evidence for, a number of explanations for interstate war. Includes contemporary theories dealing with dispute escalation, arms races, deterrence, crisis management, and low-intensity conflict.

POLI 374 - STRATEGIC INTERACTIONS IN INTERNATIONAL RELATIONS
Short Title: STRATEGIC INTERACT INTERN'L REL
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the uses of game theory in the study of international relations.

POLI 375 - INTERNATIONAL ORGANIZATION
Short Title: INTERNATIONAL ORGANIZATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the development and role of international organizations in world politics. Topics include the history and evolution of international organizations, the effects of international law on behavior, and the extent to which international cooperation has been effective at resolving global problems.

POLI 376 - INTERNATIONAL HUMAN RIGHTS
Short Title: INTERNATIONAL HUMAN RIGHTS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores patterns of and explanations for human rights violations over time, as well as international and domestic solutions to protect human rights.

POLI 377 - CHINESE POLITICS IN COMPARATIVE PERSPECTIVE
Short Title: CHINESE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the range of theories and empirical research methodologies from comparative political science, political-economy, and Asian studies commonly applied to understanding Chinese politics: political participation, political organizations, collective action and popular protest, political culture, and political institutional change. This course will be a seminar requiring weekly presentations, extensive readings at the graduate level in social science, and an original research paper. There is no prerequisite for this course, but participants are assumed to already possess extensive knowledge of Chinese history, culture, and society. Cross-list: ASIA 377. Mutually Exclusive: Cannot register for POLI 377 if student has credit for ASIA 489/POLI 489.
POLI 378 - POLITICS OF AMERICAN NATIONAL SECURITY
Short Title: POLITICS OF AMER NATL SECURITY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The primary focus on this course is the use of military force in pursuit of the national security of the US. A wide variety of topics are covered including the people in the military, weapons of mass destruction, and various types of conflict that have involved (or might involve) the United States.

POLI 380 - POLITICAL BEHAVIOR
Short Title: POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines basic concepts in political behavior including political socialization, models of voting behavior, public opinion, and political participation.

POLI 381 - GOVERNMENT, POLITICS AND SOCIETY IN TEXAS: FROM 1835 TO THE PRESENT
Short Title: GOVT & POLITICS IN TEXAS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course examines Texas government, politics and society from the formation of the Texas Republic to the present. In addition to historical overviews, students will consult primary sources and utilize data from the Texas Legislative History Project to better understand key events, trends and dynamics in the Lone Star State.

POLI 395 - APPLIED RESEARCH METHODS IN POLITICAL SCIENCE
Short Title: APPLIED RESEARCH METHODS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOSC 302
Description: This course uses a lecture/lab combination to introduce students to research design, applied research methods, and statistical software in political science. Students will learn key skills and tools to conduct research in political science and have an opportunity to apply those in an individual or group project.

POLI 401 - STATE POLITICS RESEARCH SEMINAR
Short Title: STATE POLITICS RESEARCH SEM
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: A research seminar in state politics and policy with an emphasis on state institutions.

POLI 405 - THESIS I
Short Title: THESIS I
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the first course in the Political Science Honors Program. Students will conduct independent research and prepare a formal research proposal for their planned thesis by the end of the semester. Students must complete both POLI 405 and 406 to get Honors in Political Science. Instructor Permission Required.

POLI 406 - SENIOR THESIS
Short Title: THESIS II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the second course in the Political Science Honors Program. Students will conduct independent research and write a thesis paper by the end of the semester. Students must complete both POLI 405 and 406 to get Honors in Political Science. Instructor Permission Required.

POLI 416 - SURVEY RESEARCH IN AMERICAN POLITICS
Short Title: SURVEY RSRCH AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The major objectives of this course are to introduce students to the skills and resources needed to design and conduct a survey. The principle substantive focus of the course will be public opinion surveys on topics of politics, public policy and individual political behavior.
POLI 418 - MODERN AMERICAN PRESIDENCY
Short Title: MODERN AMERICAN PRESIDENCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The course examines the modern presidency since World War II with a focus on the extent to which the Trump presidency has influenced the office and been influenced by it. It specifically studies the ways in which a single president can change the office and the government. The examination considers the expansion of presidential power especially during war and its relation to the Constitution. It assesses the public presidency through television, the internet and social media. It investigates the organization of the White House and the nature of presidential decision-making. The central question is how much of a difference do individual presidents make to the office they hold.

POLI 419 - POLITICAL PARTIES AND INTEREST GROUPS IN AMERICAN POLITICS
Short Title: PARTIES AND INTEREST GROUPS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The goal of this seminar is to provide the student with knowledge of the formation, organization, activity, and impact of political parties and interest groups in the United States. Special attention will be given to changes in the operation of these two types of organizations over the last 20 years.

POLI 420 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION
Short Title: ELECTION SYSTEMS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This multidisciplinary course will consider how elections are conducted to enhance participation, to accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be accurate and secure, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election. Cross-list: COMP 435, PSYC 420.

POLI 421 - CONTEMPORARY ISSUES IN AMERICAN POLITICS
Short Title: CONTMPRY ISSUES AMER POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This seminar will focus on major issues (e.g., immigration, voting rights, budget deficits, healthcare) in American society. After examining the history of national and state policies, seminar participant will discuss social science contributions to the ongoing policy discussions. Specific topics covered will vary by semester.

POLI 429 - BIOLOGICAL FOUNDATIONS OF POLITICS
Short Title: BIOLOGICAL FOUNDATIONS OF POLITI
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course is an introduction to the biological underpinnings of political behavior. The influence of genes and evolution are covered, as well as the relevance of neural structures, brain organization, and neuro-chemistry for both universal political traits and individual variation in political orientations. NOTE: This seminar is in the theory and methods field. It is not an American politics seminar.

POLI 430 - SEMINAR IN TEXAS POLITICS
Short Title: SEMINAR IN TEXAS POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Research seminar in the history of Texas politics.

POLI 431 - ELECTORAL CAMPAIGNS
Short Title: ELECTORAL CAMPAIGNS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Examines the role of campaigns in determining the outcome of political races.
and on the legislative process. Money in campaigns, we will examine the impact of money on elections and local service provision. A description is...
POLI 441 - GOVERNING THE ENVIRONMENTAL COMMONS
Short Title: GOVERNING ENVIRONMENTAL COMMONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Common Property Resources (CPRs), such as fisheries, aquifers, and the Internet, appear in many guises and pose a fundamental problem for governing. Exploration of theoretical underpinnings for CPRs, their growing literature, and the political and economic institutions mediating CPR dilemmas. Included is an original research project in conjunction with the instructor. Cross-list: ENST 441.

POLI 445 - SEMINAR IN JUDICIAL PROCESS AND BEHAVIOR
Short Title: SEMINAR IN JUDICIAL PROCESS & BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Thinking about law school? This seminar explores social scientific literature in judicial process and behavior and examines selected controversies in the study of judicial processes. Learning is based on active participation in seminars covering assigned readings and a research project on a related topic selected by the student.

POLI 450 - ELECTIONS IN THE AMERICAS
Short Title: ELECTIONS IN THE AMERICAS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The course examines the electoral process in Latin America. Students will follow, discuss, and analyze campaigns and elections in a selected group of countries while developing an expertise in the general functioning of the respective countries’ political systems.

POLI 457 - CONDITIONS OF DEMOCRACY
Short Title: CONDITIONS OF DEMOCRACY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course starts with definitions and theories/preconditions of democracy and then looks at specific cases of democratic transition throughout the world, democratic consolidation, reaction, and the prospects for the future.

POLI 459 - SEX, GENDER, AND POLITICAL REPRESENTATION IN LATIN AMERICA
Short Title: GENDER & REPRESENTATION IN LATIN AMERICA
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Latin American countries have elected surprisingly large numbers of women to presidencies, cabinets, and legislatures in recent years. This seminar explores how this happened in a region long known for its culture of cachismo and weak democracy and what the consequences of gender diversity are for politics.

POLI 461 - WOMEN AND POLITICAL LEADERSHIP
Short Title: WOMEN AND POLITICAL LEADERSHIP
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: A research seminar focusing on women as political leaders worldwide. Topics include: leadership as a gendered concept; conditions that promote women's inclusion/exclusion from leadership posts; whether, when, and why women leaders behave differently than men; and citizens' reactions to men and women in leadership roles.

POLI 462 - COMPARATIVE PUBLIC POLICY
Short Title: COMPARATIVE PUBLIC POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Seminar examining the process and substance of public policy across nations, with emphasis on social policy in industrialized democracies.

POLI 465 - MAKING AND BREAKING GOVERNMENTS: THE POLITICS OF COALITION IN EUROPE
Short Title: MAKING & BREAKING GOVERNMENTS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Seminar examining the politics of coalition formation, coalition governance, and coalition breakup in the European multi-party democracies in which coalition governments are the norm.
POLI 466 - POLITICAL PARTIES AND VOTING BEHAVIOR IN WESTERN DEMOCRACIES
Short Title: PARTIES & VOTING BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Seminar on the determinants of party systems, the structure and functions of parties, and theories of voting behavior in Western democracies.

POLI 468 - THE GLOBAL SPREAD OF POLICY AND IDEAS
Short Title: GLOBAL SPREAD POLICY & IDEAS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course explores the spatial nature of politics. It examines how policies, ideas and behaviors spread globally among political actors. Topics covered include: government and parties' policy diffusion. The contagion of civil war and terrorism, the spread of protests and social movements, and the dynamics of economic globalization.

POLI 469 - CIVIL WAR AND TERRORISM
Short Title: CIVIL WAR AND TERRORISM
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course examines how policies, ideas and behaviors spread globally among political actors. Topics covered include: government and parties' policy diffusion. The contagion of civil war and terrorism, the spread of protests and social movements, and the dynamics of economic globalization.

POLI 470 - INTERNATIONAL RELATIONS
Short Title: INTERNATIONAL RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Topic varies from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 472 - AMERICAN FOREIGN POLICY
Short Title: AMERICAN FOREIGN POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The content of American foreign policy, its sources, and the process of policy formulation.

POLI 473 - THE CRAFT OF INTELLIGENCE ANALYSIS: PREDICTION AND CONNECTING THE DOTS
Short Title: THE CRAFT OF INTELLIGENCE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course will introduce students to the problems faced by intelligence analysts. Students will study historical examples of intelligence analysis. Placed in teams, they will monitor streams of actual events and provide assessments of these events.

POLI 474 - INTERNATIONAL ORGANIZATIONS: THEORIES AND PRACTICE
Short Title: INTERNATIONAL ORGANIZATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course has two goals: First to introduce students to the current theoretical debates in the field of international organizations and to assess the value and limitations of these theories; second, to understand the working of important world organizations, including (but not limited to) the UN, the WTO, and IMF. The course assumes some basic knowledge of IR theory and previous debates about the origin and impact of international organizations on world politics. It is designed for students at an advanced stage in the study of political science and International Relations.
POLI 475 - INTERNATIONAL COOPERATION
Short Title: INTERNATIONAL COOPERATION  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: Research seminar on theories and evidence of international cooperation. The course will explore conditions conducive to establishing and maintaining cooperation in international politics, the design of international agreements and institutions, and the influence of international agreements and institutions on international relations.

POLI 476 - INTERNATIONAL RESEARCH EXPERIENCE
Short Title: INTRNTL RESEARCH EXPERIENCE  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: In this research seminar, students explore key concepts and debates in political science such as power, authority, democratization, globalization, national security, and representation, as they emerge in a specific part of the world. The course includes a faculty-led site visit to another country in which students conduct their research first hand. Students learn how to conduct research in an international setting. Instructor Permission Required. Repeatable for Credit.

POLI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

POLI 478 - US - CHINA: CONFLICT AND COOPERATION
Short Title: US-CHINA: CONFLICT & COOPRTN  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: This is a research seminar for advanced undergraduate students to read and discuss international relations theories in the context of US-China relations. Students are expected to read cutting edge IR research, follow current events, think critically of the applicability of the existing IR theories on the issues surrounding the bilateral relationship.

POLI 480 - SEMINAR IN POLITICAL BEHAVIOR
Short Title: SEM IN POLITICAL BEHAVIOR  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: Undergraduate research seminar covering the field of political behavior with special emphasis on the application of social and cognitive psychology to the study of mass political behavior. Topics include political socialization, models of voting behavior, and political participation.

POLI 481 - UNDERSTANDING WAR AND PEACE
Short Title: UNDERSTANDING WAR AND PEACE  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: Understanding War and Peace: Why do countries resort to the use of military force, and how can such conflicts be resolved? This course will introduce students to current research on the causes and consequences of international conflict. In addition to reading and discussing current scholarship, students will have the opportunity to engage in their own research.

POLI 490 - POLITICS AND THE ARTS
Short Title: POLITICS AND THE ARTS  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): POLI 395  
Description: Study of the development of modern political theory and its relevance to contemporary problems. NOTE: This seminar is in the theory and methods field. It is not an American politics seminar.

POLI 500 - SOCIAL SCIENTIFIC THINKING I
Short Title: SOCIAL SCIENTIFIC THINKING I  
Department: Political Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course introduces students to the practice of social science research including empirical description, theoretical development, and hypothesis generation and testing. It includes projects on the design and implementation of surveys, controlled experiments, archival data collection, fieldwork, case studies, and qualitative analysis.
POLI 501 - SOCIAL SCIENTIFIC THINKING II
Short Title: SOCIAL SCIENTIFIC THINKING II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 500
Description: This course is a continuation of POLI 500. Students will plan and execute an original research project and write a paper reporting the results.

POLI 502 - INTRODUCTION TO STATISTICS
Short Title: INTRODUCTION TO STATISTICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course aims at providing students with a working knowledge of statistics in political science. It involves the study of descriptive and inferential statistics, as well as hands-on experience with computer statistical packages.

POLI 503 - TOPICS IN METHODS AND DATA ANALYSIS
Short Title: TOPICS METHODS&DATA ANALYSIS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applications of least squares and general linear mode.
Cross-list: STAT 503.

POLI 504 - INTRODUCTION TO MAXIMUM LIKELIHOOD ESTIMATION
Short Title: INTRO MAX LIKELIHOOD EST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of applications of maximum likelihood estimation.

POLI 505 - ADVANCED MAXIMUM LIKELIHOOD ESTIMATION
Short Title: ADV MAXIMUM LIKELIHOOD EST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 504
Description: Special topics in political methodology. Instructor Permission Required. Repeatable for Credit.

POLI 506 - ADVANCED TOPICS IN POLITICAL METHODOLOGY I
Short Title: ADV TOPICS POL METHODS I
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 505
Description: This course provides an analytic and quantitative framework to design and implement causal analysis, especially in observational studies. It focuses on understanding the logic, mathematical foundations and implications of causal reasoning using diverse frameworks, and covers tools for its implementation such as randomization, weighting, difference-in-difference, matching, and others.

POLI 507 - ADVANCED TOPICS IN POLITICAL METHODOLOGY II
Short Title: ADV TOPICS POL METHODS II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 505
Description: This course explains how machine learning methods can be used to facilitate discovery, measurement, and predictions of variables relevant to the social sciences. It introduces and illustrates the implementation of several methods and tools such as Bayesian models, classifiers, latent dimension discovery methods, text and image analysis, and others.

POLI 511 - MEASUREMENT AND RESEARCH DESIGN
Short Title: MEASUREMENT & RESEARCH DESIGN
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of advanced topics in research design and measurement theory.

POLI 512 - EXPERIMENTAL DESIGN AND SOCIAL BEHAVIOR
Short Title: EXPERIMENTAL DESIGN SOCIAL BHVR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar develops tools for the design and conduct of experiments in the social sciences. At the conclusion of the course each student will have developed and implemented an experiment testing some aspect of human social behavior.
POLI 513 - SURVEY RESEARCH
Short Title: SURVEY RESEARCH
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: The major objectives of this course are to introduce graduate students to the skills and resources needed to design and conduct a survey.

POLI 520 - APPROACHES TO COMPARATIVE GOVERNMENT
Short Title: APPROACHES TO COMPARATIVE GOVT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Core graduate course analyzing basic approaches to the study of comparative government.

POLI 527 - INSTITUTIONAL ANALYSIS
Short Title: INSTITUTIONAL ANALYSIS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theories of institutional analysis and design.

POLI 528 - AMERICAN POLITICAL INSTITUTIONS
Short Title: AMERICAN POLITCL INSTITUTIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the theoretical and empirical study of institutions in political science. Its specific focus is on the study of American politics, with attention to the Congress, presidency, courts, and the media as institutions.

POLI 530 - APPROACHES TO AMERICAN GOVERNMENT
Short Title: APPROACHES TO AMERICAN GOVT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Core graduate course. Includes an analysis of basic approaches to the study of American politics.

POLI 531 - STATE POLITICS
Short Title: STATE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines similarities and differences in the organization of state politics. Major issues include state legislative organization, state elite behavior, and policy implementation.

POLI 532 - COMPARATIVE LEGISLATURES
Short Title: COMPARATIVE LEGISLATURES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides the student with the basic concepts and theories necessary to understand the functions and organization of legislatures/parliaments/assemblies in democratic societies. This course takes a broad-based perspective, including research that focuses on national parliaments and U. S. state legislatures.

POLI 533 - ADVANCED TOPICS IN POLITICAL BEHAVIOR
Short Title: ADV TOPIC POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar in the subfield of political behavior. Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 534 - INTEREST GROUPS AND POLITICAL PARTIES
Short Title: INTEREST GROUP&POLITICAL PARTY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar in the subfield of political behavior. Content varies from year to year. Instructor Permission Required. Repeatable for Credit.
POLI 536 - WOMEN AND REPRESENTATION
Short Title: WOMEN AND REPRESENTATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the causes and consequences of women's underrepresentation in politics in countries around the world. It considers common theoretical frameworks for the study of women's representation and the empirical bases of what we know about gender and political representation.

POLI 537 - PUBLIC POLICY AND BUREAUCRACY
Short Title: PUBLIC POLICY AND BUREAUCRACY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the administration and implementation of public policies across federal, state, and substate governments.

POLI 538 - POLITICAL ECONOMY OF POLICY CHANGE
Short Title: POL ECONOMY OF POLICY CHANGE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore policy and political change primarily, but not exclusively, in the United States. Using a political economy approach, we will explore different models of change and identify the actors, institutions, and conditions that facilitate stability in change in state, local and national policymaking.

POLI 539 - POLITICAL PSYCHOLOGY
Short Title: POLITICAL PSYCHOLOGY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Broad survey of the theoretical and methodological approaches used in political psychology. Topics include political information processing, knowledge, attitudes, political trust, emotions, and personality.

POLI 540 - INTERNATIONAL RELATIONS
Short Title: INTERNATIONAL RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Core graduate course. Includes an analysis of basic approaches to the study of international relations.

POLI 541 - INTERNATIONAL COOPERATION
Short Title: INTERNATIONAL COOPERATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar on theories and evidence of international cooperation. Discussion of the difficulties in establishing cooperation under anarchy and the conditions under which international cooperation is most likely to occur.

POLI 542 - SUBNATIONAL POLITICS
Short Title: SUBNATIONAL POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the role of subnational political institutions in the development and implementation of policy. It compares the myriad of subnational institutions. Mutually Exclusive: Cannot register for POLI 542 if student has credit for POLI 442.

POLI 544 - PRACTICUM IN LEGISLATIVE RESEARCH
Short Title: LEGISLATIVE RESEARCH
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will teach graduate students how to design and conduct original empirical research on US, state, or world legislatures. Students will conduct original quantitative research and produce a publishable research paper. Instructor Permission Required.

POLI 562 - RESEARCH SEMINAR ON COMPARATIVE URBAN POLITICS AND POLICY
Short Title: SEM COMP URBAN POL & PLCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers a broad overview of urban politics and policies in cities around the world. We will examine how national, regional and local forces shape the processes and outcomes governance within and across cities and metropolitan areas, paying particular attention to critical problems and politics that affect urban centers: growth, immigration, class conflict, public order, service management, education, housing transportation, environmental protection, sustainability, land-use planning and spatial competition. Mutually Exclusive: Cannot register for POLI 562 if student has credit for POLI 464.
POLI 563 - COALITION POLITICS AND PARLIAMENTARY GOVERNMENT
Short Title: COALITION POLI & PRLMTY GOVT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the extensive scholarship on coalition politics in parliamentary democracies. Topics include coalition formation, the allocation of government ministries, coalition termination, coalition policymaking, and the interaction between coalition governance, party competition, and mass voting behavior.

POLI 564 - POLITICAL ECONOMY OF DEVELOPMENT
Short Title: POLI ECONOMY OF DEVELOPMENT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A central priority developing nations face today concerns establishing economic growth; how best to achieve strong economic performance has both an economic and political dimension. This course seeks a rudimentary understanding of economic growth, concentrating on its political determinants.

POLI 565 - POLITICAL PROTEST
Short Title: POLITICAL PROTEST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course looks at various theories of collective action and social movements. It will examine theoretical debates about why individuals and groups occasionally redress their grievances through protest and more often endure hardships passively. It will evaluate the relative merit of these theories in explaining cases of protest and passivity worldwide.

POLI 566 - POLITICAL PARTIES
Short Title: POLITICAL PARTIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar that examines the theoretical and empirical literature on party development, organization, and change.

POLI 567 - COMPARATIVE POLITICAL BEHAVIOR
Short Title: COMPARATIVE POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course we will explore the nature and sources of cross-national differences in mass political behavior. Mutually Exclusive: Cannot register for POLI 567 if student has credit for POLI 358.

POLI 568 - COMPARATIVE POLITICAL INSTITUTIONS
Short Title: COMP POLITICAL INSTITUTIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the design of political institutions in democracies, and their effect on elections, governance, and representation. Explores topics such as the presidential-parliamentary debate, electoral laws and party systems, political parties, electoral institutions and the election of women and minorities, institutional engineering, and U.S. experiences with alternative electoral systems.

POLI 569 - REPRESENTATION IN CONTEMPORARY DEMOCRACIES
Short Title: REP. CONTEMPORARY DEMOCRACIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, we explore the conceptual meanings of democracy and representation, and then examine the theoretical and empirical linkages between citizen preferences, electoral systems, executive and legislative institutions, policymaking and advance industrial democracies. The aim of the course is to understand how citizen preferences ultimately get translated into policy outcomes and how political institutions shape this relationship.

POLI 570 - SEMINAR IN INTERNATIONAL CONFLICT
Short Title: SEM IN INTERNATIONAL CONFLICT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar in international conflict. Emphasis on formal theories and quantitative analysis of the causes of war.
POLI 571 - CIVIL WAR AND TERRORISM
Short Title: CIVIL WAR AND TERRORISM
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on causes, consequences and dynamics of civil wars. Will analyze why they break out, how sustained, how ended, thinking conceptually, theoretically, empirically about conflict dynamics and processes. Explores transnational dynamics, terrorism, roles of groups, organizations, insurgency-counterinsurgency dynamics and how these affect the evolution of civil conflicts. More work will be required of the Graduate level. Mutually Exclusive: Cannot register for POLI 571 if student has credit for POLI 469.

POLI 572 - FOREIGN POLICY DECISION MAKING
Short Title: FOREIGN POLICY DECISION MAKING
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of foreign policy, its sources, and the process of policy formulation.

POLI 574 - COLLECTIVE SOCIAL CHOICE
Short Title: COLLECTIVE SOCIAL CHOICE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to a growing body of literature on how and why individual preferences dominate those of others. Includes the relationship between decision-making structures and the nature of decisional outcomes.

POLI 575 - GAME THEORY
Short Title: GAME THEORY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examination of current developments in game theory with application to political science.

POLI 576 - INTERNATIONAL POLITICAL ECONOMY
Short Title: INTERNAT'L POLITICAL ECONOMY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar surveying some of the primary theoretical perspectives and analytical approaches for studying international political economy. Includes a survey of contemporary literature, with special emphasis on theory and research, as well as instructions in how to critically evaluate research and set up a research project.

POLI 577 - DOMESTIC POLITICS AND INTERNATIONAL RELATIONS
Short Title: DOMESTIC POLITICS & INT'L RELA
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar on the influence of domestic politics on international relations. The course will explore when, why, and how the political structures and conditions within countries affect foreign policy and international relations.

POLI 580 - SEMINAR IN AMERICAN POLITICS
Short Title: SEM IN AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics vary from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 581 - SEMINAR IN COMPARATIVE POLITICS
Short Title: SEMINAR IN COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics vary from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 591 - DIRECTED READING-METHODOLOGY
Short Title: DIRECTED READING-METHODOLOGY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
POLI 592 - DIRECTED READING METHODOLOGY
Short Title: DIRECTED READING METHODOLOGY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of Methodology for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 593 - DIRECTED READING-AMERICAN POLITICS
Short Title: DIRECTED READING-AMER POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of American Politics for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 594 - DIRECTED READING-AMERICAN POLITICS
Short Title: DIR READ AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of American Politics for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 595 - DIRECTED READING-INTERNATIONAL RELATIONS
Short Title: DIR READ-INTERNAT'L RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of International Relations for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 596 - DIRECTED READING-INTERNATIONAL RELATIONS
Short Title: DIR READ-INTERNAT'L RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of International Relations for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 597 - DIRECTED READING-COMPARATIVE POLITICS
Short Title: DIR READ-COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

POLI 598 - DIRECTED READING-COMPARATIVE POLITICS
Short Title: DIR READ-COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of Comparative Politics for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 599 - TEACHING POLITICAL SCIENCE
Short Title: TEACHING POLITICAL SCIENCE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course prepares graduate students to design and teach classes at the college level. Repeatable for Credit.

POLI 600 - MA RESEARCH AND THESIS
Short Title: MA RESEARCH AND THESIS
Department: Political Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research and thesis for resident students. Repeatable for Credit.

POLI 607 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

POLI 800 - PH.D. RESEARCH AND THESIS
Short Title: PH.D. RESEARCH AND THESIS
Department: Political Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students enrolled in this course are engaged in Ph.D. level research. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:
Course Catalog/Schedule
• Course offerings/subject code: POLI

Department Description and Code
• Political Science: POLI

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Political Science: POLI

Graduate Degree Descriptions and Codes
• Master of Arts degree: MA
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Political Science: POLI

CIP Code and Description ¹
• POLI Major/Program: CIP Code/Title: 45.1001 - Political Science and Government, General

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Political Science

Program Learning Outcomes for the BA Degree with a Major in Political Science
Upon completing the BA degree with a major in Political Science, students will have:

1. Developed a broad understanding of political science and more specific knowledge in one or more subfields (Substantive knowledge).
2. Developed critical thinking skills and the ability to apply political science theories to understand the political world (Critical thinking).
3. Learned how to interpret, conduct, and evaluate political science research, including data collection and data analysis techniques and statistical software (Empirical analysis).
4. Developed and strengthen written, oral and visual communication skills and the ability to present political science research to an audience (Communication).
5. Become informed citizens able to participate effectively and meaningfully in the political process (Citizenship).

Requirements for the BA Degree with a Major in Political Science
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Political Science must complete:

• A minimum of 13 courses (41 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 8 courses (26 credit hours) taken at the 300-level or above.
• A minimum of 4 courses (14 credit hours) from the Core Requirements.
• A minimum of 2 courses (6 credit hours) from the Seminar Requirements.
• A minimum of 7 courses (21 credit hours) from the Elective Requirements.
• A maximum of 4 courses (12 credit hours) from study abroad or transfer credits. For additional program guidelines regarding transfer credit, see the Policies (p. 1824) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Political Science</td>
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<td></td>
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Degree Requirements

<table>
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<tr>
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<tr>
<td></td>
<td>Core Requirements</td>
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<tr>
<td></td>
<td>Introductory Courses</td>
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<td>Select 2 courses from the following:</td>
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<tr>
<td></td>
<td>POLI 210 INTRODUCTION TO AMERICAN POLITICS</td>
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</tr>
<tr>
<td></td>
<td>POLI 211 INTRODUCTION TO INTERNATIONAL RELATIONS</td>
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<tr>
<td></td>
<td>POLI 212 INTRODUCTION TO COMPARATIVE POLITICS</td>
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<tr>
<td></td>
<td>Research Methods Courses ¹</td>
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<tr>
<td></td>
<td>SOSC 302 QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES</td>
<td>4</td>
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<tr>
<td></td>
<td>POLI 395 APPLIED RESEARCH METHODS IN POLITICAL SCIENCE</td>
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<td>Seminar Requirements</td>
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<td>Select at least 2 seminar courses from departmental (POLI) course offerings at the 400-level ²</td>
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<td>Elective Requirements</td>
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</tr>
<tr>
<td></td>
<td>Select 4 additional courses from departmental (POLI) course offerings at the 300-level (between course numbers POLI 300 and POLI 399) ³</td>
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<tr>
<td></td>
<td>Select 3 additional courses from departmental (POLI) course offerings at any level ⁴</td>
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</tr>
<tr>
<td></td>
<td>Additional Credit Hours to Complete Degree Requirements *</td>
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</table>
Opportunities for the BA Degree with a Major in Political Science

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Political Science website at: https://politicalscience.rice.edu/.

Doctor of Philosophy (PhD) Degree in the field of Political Science

Program Learning Outcomes for the MA and PhD Degrees in the field of Political Science

Upon completing the MA and PhD degrees in the field of Political Science, students will be able to:

1. Demonstrate advanced knowledge of theoretical and empirical research in two of the following three sub-fields of Political Science: American politics, comparative politics, and international relations.
2. Apply social science research design and methodologies, including advanced statistical techniques.
3. Demonstrate the ability to communicate their research effectively through multiple mediums including scholarly writing, oral presentation, and poster sessions.
4. Demonstrate their competence as political scientists through research, teaching, and professional development activities.

Requirements for the MA and PhD Degrees in the field of Political Science

MA Degree Program

The MA degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The Master of Arts degree requires 30 semester hours of coursework, all of which must be taken at the graduate level (500-level or above except with permission of the Director of Graduate Studies), and the completion of two research papers in seminars taken over the course of study. A minimum GPA of 3.00 is required for awarding the MA degree.

The Political Science Department requires that not more than 3 years elapse between the time the student is admitted to the graduate program and the completion of the MA degree, unless an extension is approved by the Graduate Studies Committee.
be aware of the following departmental transfer credit guidelines:

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Political Science should be aware of the following departmental transfer credit guidelines:

Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Political Science website: https://politicalscience.rice.edu/

Opportunities for the PhD Degree in the field of Political Science

Requirements for the Coordinated PhD/MA Degree Program in Political Science and Statistics

The coordinated PhD/MA requires that a student fulfill all requirements for the PhD program in Political Science and satisfy the general university requirements for residency and total hours to receive a second non-thesis MA degree. The Statistics MA degree shall not be conferred prior to conferral of the PhD in Political Science. No course may count for credit for both MA degrees; however, POLI 504, POLI 505, POLI 506, and POLI 507 will continue to count toward the hours required for a PhD degree in Political Science when used to fulfill the requirements for an MA in Statistics.

To earn a non-thesis MA in Statistics, students in the PhD program in Political Science must additionally:

- Obtain written approval from the head of the Methods field and the Director of Graduate Studies in the Political Science department.
- Have their plan of study for the MA in Statistics pre-approved by the Director of Graduate Studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). Note: A maximum of ten Political Science PhD students will be allowed to enroll in the MA in Statistics program at one time.
- Earn a grade of ‘B’ or better in each of six courses from the Department of Statistics. Four of these courses must be STAT 605, STAT 518, STAT 519, and STAT 615. Other acceptable courses are STAT 616 and courses at the 500-level and above, subject to the approval by the Director of Graduate studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). Courses that are jointly listed between two departments (cross-listed) are counted as a course in the home department. Note: completion of POLI 504 and POLI 505 will be considered as meeting the prerequisite requirements for STAT 519.
- Earn a grade of ‘B’ or better in each of six courses from the Department of Statistics. Four of these courses must be STAT 605, STAT 518, STAT 519, and STAT 615. Other acceptable courses are STAT 616 and courses at the 500-level and above, subject to the approval by the Director of Graduate studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). Courses that are jointly listed between two departments (cross-listed) are counted as a course in the home department. Note: completion of POLI 504 and POLI 505 will be considered as meeting the prerequisite requirements for STAT 519.
- Complete a major project that has strong statistical content. The project may be directed by faculty in Political Science, but must be pre-approved by the Director of Graduate Studies in the Department of Statistics (or another person designated by the chairperson of the Statistics department). The doctoral proposal in Political Science may satisfy this requirement, but must be successfully defended.

Additional Information

For additional information, please see the Political Science website: https://politicalscience.rice.edu/
Politics, Law and Social Thought

Contact Information
Politics, Law and Social Thought
https://politics.rice.edu/
116 Humanities Building
713-348-4548
Peter C. Caldwell
Program Director
caldwell@rice.edu

Politics, Law and Social Thought (PLST) is an interdisciplinary minor open to all undergraduate students at Rice from all backgrounds. Its task is the study of political ideas in their philosophical and historical contexts as well as with regard to their effects on constitutional law and social and political practices.

The central focus of the minor is political theory, taken in a wide sense to mean the theory and philosophy of how polities form, function, and fail. The minor has a strong orientation toward works of political, legal, and social philosophy, understood in their historical context. Politics, Law and Social Thought is a program of study that enables Rice students to engage successfully with the “big” political questions relevant to contemporary society in a global setting: Why democracy? What are the foundations of law? What is political liberty? What is political citizenship? Are states necessary? How do normative political and social orders come into existence? Is there a philosophical justification for human rights?

The Politics, Law and Social Thought interdisciplinary minor is an initiative of the Schools of Humanities and Social Sciences, administered by the School of Humanities.

Minor
- Minor in Politics, Law and Social Thought (p. 1828)

Politics, Law and Social Thought does currently not offer an academic program at the graduate level.

Director
Peter C. Caldwell

Humanities Faculty Director, Law, Justice and Society Scholars
Shannon LaBove

Professors
Dominic C. Boyer
Peter C. Caldwell
Steven G. Crowell
Luis Duno-Gottberg
Christian J. Emden
David W. Leebron
Melissa J. Marshall
Donald Ray Morrison
George Sher
Lora Wildenthal

Harvey E. Yunis

Associate Professors
Andrea Ballester
Gwendolyn M. Bradford
Sophie Esch
Julie Fette
Aysha Pollnitz
William Suarez-Potts

Assistant Professor
Vida Yao

Professor in the Practice
Steven W. Lewis

Lecturers
Shannon LaBove
Rudy Ramirez
Robert Werth

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Politics, Law and Social Thought (PLST)

PLST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PLST 301 - MODERN POLITICAL THOUGHT: MACHIAVELLI TO RAWLS
Short Title: MODERN POLITICAL THOUGHT
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to political theory and political philosophy from the Renaissance to the present: Machiavelli, Hobbes, Pufendorf, Montesquieu, Kant, Hegel, Constant, Mill Marx, Nietzsche, Weber, Habermas, and Rawls. Topics include human rights, political power, citizenship, democracy, the modern state. Required core course for minor in Politics, Law, and Social Thought.
### PLST 305 - INTRODUCTION TO LAW

**Short Title:** INTRODUCTION TO LAW  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Course introduces students to the U.S. legal system and provides them with a preview of the first year of law school, including the basic principles of Tort, Contract, Criminal, and Criminal Procedure Law. Additionally, the class will teach students how to conduct appellate argument and to write briefs. Mutually Exclusive: Cannot register for PLST 305 if student has credit for COLL 201.

### PLST 302 - CONTEMPORARY POLITICAL THEORY

**Short Title:** CONTEMPORARY POLITICAL THEORY  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Introduction to contemporary political theory. Topics include freedom, democracy, empire, citizenship, human rights, radical democracy, protest and civil disobedience, multiculturalism, cosmopolitanism, postcolonial political thought, transnational and global governance.

### PLST 303 - HOW DEMOCRACY FAILS

**Short Title:** HOW DEMOCRACY FAILS  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Course examines the conditions under which democracies and republics can fail. Draws on political theory, constitutional debates, and historical examples. Topics include: constitutional crises, states of emergency, popular sovereignty, populism, nationalism, revolution, political violence, civil disobedience, post-democracy, illiberal democracy, and neoliberalism.

### PLST 304 - HOW LAWS AND INSTITUTIONS HAVE PERPETUATED RACISM AND SUPPORTED PROGRESS

**Short Title:** RACE AND THE LAW  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 2  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Course introduces students to legal frameworks of analysis and sources of law pertaining to issues of racial equality. We will focus on questions such as: How has law been used to perpetuate inequality? How has law made it more difficult to achieve reforms to advance equality? How have law and legal institutions helped advance racial equality and justice? Some of the areas of focus include land use policy and segregation, criminal justice, education, environmental disparities and voting. Readings will include both secondary sources (books, scholarly pieces and popular media) and legal materials (primarily Supreme Court decisions).

### PLST 315 - AUTHORITARIAN CONSTITUTIONALISM AND DEMOCRATIC DICTATORSHIPS SINCE 1848

**Short Title:** AUTHORITARIAN CONSTITUTIONS  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This communication intensive course examines the notion of the "authoritarian constitutionalism" of states that are authoritarian in practice despite having constitutions that assert principles of liberal democracy. The course will examine the concept both analytically and historically. In the second phase of the class, students will divide into groups to analyze specific examples of authoritarian constitutionalism from the past two centuries, based on primary and secondary sources, which will be presented in visual, oral, and written form.

### PLST 316 - DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE

**Short Title:** DEMOCRACY & POLITICAL THEORY  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: CLAS 316.

### PLST 330 - RACE AND THE LAW: HOW LAWS AND INSTITUTIONS HAVE PERPETUATED RACISM AND SUPPORTED PROGRESS

**Short Title:** RACE AND THE LAW  
**Department:** Politics Law Social Thought  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 2  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course is intended to introduce students to legal frameworks of analysis and sources of law pertaining to issues of racial equality. We will focus on questions such as: How has law been used to perpetuate inequality? How has law made it more difficult to achieve reforms to advance equality? How have law and legal institutions helped advance racial equality and justice? Some of the areas of focus include land use policy and segregation, criminal justice, education, environmental disparities and voting. Readings will include both secondary sources (books, scholarly pieces and popular media) and legal materials (primarily Supreme Court decisions).
PLST 401 - LEGAL PRACTICUM
Short Title: LEGAL PRACTICUM
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the public and private practice sectors of the legal profession through a work experience coupled with classroom instruction at Rice. The goal is to expose undergraduates to the field of law through structured on-site experiences, relevant coursework, and professional development opportunities. Students must have completed at least 9 credit hours in a humanities or social sciences discipline for course eligibility. Instructor Permission Required. Mutually Exclusive: Cannot register for PLST 402 if student has credit for HUMA 404/SOSC 405.

PLST 402 - JUDICIAL PRACTICUM
Short Title: JUDICIAL PRACTICUM
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will participate in a semester-long practicum with a sitting judge (federal, or Texas appellate) in Houston. This program is designed to give select Rice undergraduates a broad and practical introduction to what lawyers do in court and how judges and the law clerks who work with them think about the questions they are asked to resolve. Students must have completed at least 9 credit hours in a humanities or social sciences discipline for course eligibility. Instructor Permission Required. Mutually Exclusive: Cannot register for PLST 401 if student has credit for HUMA 404/SOSC 405.

PLST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule

• Course offerings/subject code: PLST

Program Description and Code

• Politics, Law and Social Thought: PLST

Undergraduate Minor Description and Code

• Minor in Politics, Law and Social Thought: PLST

CIP Code and Description

1. Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Minor in Politics, Law and Social Thought

Program Learning Outcomes for the Minor in Politics, Law and Social Thought

Upon completing the minor in Politics, Law and Social Thought, students will be able to:

1. Understand the main lines of political, legal, and social thought in their historical context through original sources.
2. Analyze and evaluate complex texts in political, legal, and social thought through a close reading and critical interpretation of arguments, metaphors, images, and the emotions that drive political arguments.
3. Compare different authors and texts and formulate complex arguments across different traditions in the history of political thought.
4. Develop and communicate their own arguments about politics, law, and society in research papers, class presentations, and discussions.

Requirements for the Minor in Politics, Law and Social Thought

Students pursuing the minor in Politics, Law and Social Thought must complete:

• A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
• A minimum of 4 courses (12 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credits. For additional program guidelines regarding transfer credit, see the Policies (p. 1830) tab.
• A maximum of 2 courses (6 credit hours) from the same subject code (i.e., GERM, HIST, etc.) may be used to meet the Elective Requirements.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Requirements:

1. A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
2. A minimum of 4 courses (12 credit hours) taken at the 300-level or above.
3. A maximum of 2 courses (6 credit hours) from study abroad or transfer credits. For additional program guidelines regarding transfer credit, see the Policies (p. 1830) tab.
4. A maximum of 2 courses (6 credit hours) from the same subject code (i.e., GERM, HIST, etc.) may be used to meet the Elective Requirements.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.
## Summary

Total Credit Hours Required for the Minor in Politics, Law and Social Thought: 18

## Minor Requirements

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<th>Code</th>
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<tr>
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<td><strong>Core Requirement</strong></td>
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<td>Select 1 course from the following:</td>
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<tr>
<td>HIST 373</td>
<td>SOCIAL AND POLITICAL THOUGHT IN 19TH CENTURY EUROPE</td>
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<td>HIST 392</td>
<td>PRE-MODERN POLITICAL THOUGHT FROM CICERO TO LOCKE</td>
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<tr>
<td>PLST 301</td>
<td>MODERN POLITICAL THOUGHT: MACHIAVELLI TO RAWLS</td>
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<td>PLST 302</td>
<td>CONTEMPORARY POLITICAL THEORY</td>
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<tr>
<td>PLST 303</td>
<td>HOW DEMOCRACY FAILS</td>
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<tr>
<td>PLST 316</td>
<td>DEMOCRACY AND POLITICAL THEORY IN ANTIQUITY</td>
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<tr>
<td>SOCI 325</td>
<td>SOCIOLOGY OF LAW</td>
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<td></td>
<td><strong>Elective Requirements</strong></td>
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<td>Select 5 courses from the Elective Requirements (see course list below)</td>
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<tr>
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<td><strong>Total Credit Hours</strong></td>
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</table>

## Footnotes and Additional Information

1. Students may use a maximum of 3 credit hours of independent study coursework to fulfill Elective Requirements. See the minor advisor for more information.

## Elective Requirements

To complete the Politics, Law and Social Thought minor, students must complete a total of 5 elective courses (15 credit hours) from the following Rice departmental course offerings. A student must take more than one course from the Core Requirement list, that extra course may be used toward the Elective Requirements. Ultimately no more than 2 courses (6 credit hours) from the same subject code (i.e., GERM, HIST, etc.) may be used to meet the Elective Requirements for the minor.

### Anthropology

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<tr>
<td>ANTH 309</td>
<td>GLOBAL CULTURES</td>
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<td>ANTH 317</td>
<td>REVOLUTIONS AND UTOPIAS</td>
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<td>ANTH 319</td>
<td>SYMBOLISM AND POWER</td>
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<tr>
<td>ANTH 322</td>
<td>GLOBAL IM/MOBILITIES: BORDERS, MIGRATION, AND CITIZENSHIP</td>
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<tr>
<td>ANTH 326</td>
<td>LAW, POWER AND CULTURE</td>
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<tr>
<td>ANTH 340</td>
<td>NEOLIBERALISM AND GLOBALIZATION</td>
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<tr>
<td>ANTH 372</td>
<td>CULTURES OF CAPITALISM</td>
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<tr>
<td>ANTH 396</td>
<td>LAW AND RESISTANCE IN THE EVERYDAY</td>
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</tr>
<tr>
<td>ANTH 424</td>
<td>MAJOR FIGURES IN CULTURAL AND SOCIAL THOUGHT</td>
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### Asian Studies

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<tr>
<td>ASIA 377 / POLI 377</td>
<td>CHINESE POLITICS IN COMPARATIVE PERSPECTIVE</td>
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### Modern and Classical Literatures and Cultures

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<tr>
<td>CLAS 316 / PLST 316</td>
<td>DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE</td>
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<td>FREN 324 / POLI 324 / RELI 476</td>
<td>FROM DECOLONIZATION TO GLOBALIZATION</td>
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<td>FREN 453</td>
<td>IMMIGRATION AND CITIZENSHIP IN CONTEMPORARY FRANCE</td>
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<td>GERM 333</td>
<td>NIETZSCHE: PHILOSOPHY, POLITICS, HISTORY</td>
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<td>GERM 334</td>
<td>NATIONALISM AND CITIZENSHIP</td>
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<td>GERM 349</td>
<td>GERMAN POLITICAL THOUGHT</td>
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<tr>
<td>LASC 378</td>
<td>LATIN AMERICAN POLITICAL THOUGHT: IDENTITY, LIBERATION, MODERNITY</td>
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### History

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<tbody>
<tr>
<td>HIST 305</td>
<td>READING HISTORIES OF WORK</td>
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<tr>
<td>HIST 332</td>
<td>AMERICAN LEGAL HISTORY, 1863 TO THE PRESENT</td>
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<tr>
<td>HIST 340 / SWGS 345</td>
<td>HISTORY OF FEMINISM</td>
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</tr>
<tr>
<td>HIST 359</td>
<td>THE UNITED STATES IN THE TWENTIETH CENTURY WORLD</td>
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<tr>
<td>HIST 373</td>
<td>SOCIAL AND POLITICAL THOUGHT IN 19TH CENTURY EUROPE</td>
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<tr>
<td>HIST 387</td>
<td>THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION</td>
<td></td>
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<tr>
<td>HIST 392</td>
<td>PRE-MODERN POLITICAL THOUGHT FROM CICERO TO LOCKE</td>
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<tr>
<td>HIST 405</td>
<td>DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP</td>
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</tr>
<tr>
<td>HIST 412</td>
<td>EMPIRE AND INTERNATIONAL LAW</td>
<td></td>
</tr>
<tr>
<td>HIST 423</td>
<td>AMERICAN RADICALS AND REFORMERS</td>
<td></td>
</tr>
<tr>
<td>HIST 426</td>
<td>DISABILITY AND U.S. LAW</td>
<td></td>
</tr>
<tr>
<td>HIST 427</td>
<td>HISTORY OF THE CIVIL RIGHTS MOVEMENT, 1954 TO THE PRESENT</td>
<td></td>
</tr>
<tr>
<td>HIST 448</td>
<td>WESTERN EUROPEAN WELFARE STATE, 1880-1980: ORIGINS, CONSOLIDATIONS, CRISIS</td>
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<tr>
<td>HIST 449</td>
<td>LAW IN THE DIGITAL WORLD</td>
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<tr>
<td>HIST 455</td>
<td>THE HISTORY OF HUMAN RIGHTS</td>
<td></td>
</tr>
<tr>
<td>HIST 457</td>
<td>FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989</td>
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### Humanities

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<tr>
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<th>Title</th>
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<tr>
<td>HUMA 122</td>
<td>WHO SHOULD VOTE? A BIG QUESTIONS COURSE</td>
<td></td>
</tr>
<tr>
<td>HUMA 315</td>
<td>COMMUNICATION LAW</td>
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### Philosophy

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<td>HUMAN MINDS</td>
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</tr>
<tr>
<td>PHIL 275</td>
<td>FEMINIST PHILOSOPHY</td>
<td></td>
</tr>
<tr>
<td>PHIL 281</td>
<td>HISTORY OF PHILOSOPHY I</td>
<td></td>
</tr>
</tbody>
</table>
Students may count one practicum with 3 credit hours toward the minor. Practica must adhere to the requirements and policies governing practica as they have been established by the School of Humanities and/or the School of Social Sciences.

Policies for the Minor in Politics, Law and Social Thought

Program Restrictions and Exclusions

Students pursuing the minor in Politics, Law and Social Thought should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the minor in Politics, Law and Social Thought should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- Transfer credit coursework received via the articulation of AP, IB or A-level credit will not be considered towards minor requirements.
- Transfer credit from online-only courses may not be used to count towards the minor.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Politics, Law and Social Thought (PLST) are designed to provide students with the tools for thinking critically about the determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Politics, Law and Social Thought (PLST) are designed to provide students with the tools for thinking critically about
politics, law, and society, and for using those tools to participate in the life of our society and polity.

**Additional Information**

For additional information, please see the Politics, Law and Social Thought website: [https://politics.rice.edu/](https://politics.rice.edu/)

**Opportunities for the Minor in Politics, Law and Social Thought**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see **Latin Honors** (p. 51) ([summa cum laude](https://politics.rice.edu/), [magna cum laude](https://politics.rice.edu/), and [cum laude](https://politics.rice.edu/)) and **Distinction in Research and Creative Work** (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**

For additional information, please see the Politics, Law and Social Thought website: [https://politics.rice.edu/](https://politics.rice.edu/).

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

**Poverty, Justice and Human Capabilities**

**Contact Information**

Poverty, Justice and Human Capabilities

[https://pjhc.rice.edu/](https://pjhc.rice.edu/)

322 Rayzor Hall

713-348-5784

Diana Strassmann

Program Director

dls@rice.edu

The Program in Poverty, Justice and Human Capabilities (PJHC) provides students with a multifaceted understanding of human well-being. A key goal of the minor is to enrich students’ understanding of poverty and inequality so that, regardless of their choice of occupation, PJHC alumni will maintain a longstanding commitment to enhancing the well-being of all people. More generally, the program trains Rice students to be future leaders in solving local and global problems.

This interdisciplinary minor emphasizes a “capabilities approach,” which considers what people are able to do and to be — for example, live to old age and engage in social, economic, and political activities — rather than strictly what material goods they possess. The program also acknowledges the central importance of a variety of additional influences on well-being beyond income, such as: racial and ethnic disparities, gender, health status, education, human rights, political freedoms, and material necessities, including food and shelter.

Although impediments to human well-being take many forms, barriers to the capabilities of women and girls persist across societies; women and girls are therefore disproportionately represented among the poor and those unable to attain their full capabilities. The academic component of the program, including the content of core and required coursework, acknowledges gender inequality, systemic racism, and the legacy of colonialism and postcolonial disparities as powerful influences on human well-being both in the US and around the world.

The PJHC minor combines high-caliber undergraduate courses with service learning experiences that help disadvantaged communities and people. Students are placed with organizations where they work directly with clients and gain experiential knowledge that broadens their perspectives on human lives and capabilities. Through these academic and experiential learning opportunities, students explore deeper understandings of the structural factors underlying poverty and human well-being, as well as potential policy solutions. The program further aims to promote dialogue among all disciplines about how to address issues of poverty alleviation and human well-being with a sophisticated understanding of the challenges and sound strategies for moving forward.

**Minor**

- **Minor in Poverty, Justice and Human Capabilities** (p. 1833)

Poverty, Justice and Human Capabilities does not currently offer an academic program at the graduate level.

**Director**

Diana Strassmann

**Advisors**

Moramay López-Alonso

Diana Strassmann

Kerry Ward

**Steering Committee**

Elias K. Bongmba

Elaine Howard Ecklund

Vivian Ho

Moramay López-Alonso

Anthony B. Pinn

Elora Shehabuddin

Diana Strassmann

Kerry Ward

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice’s [Course Catalog](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)

To view the most recent semester’s course schedule, please see Rice’s [Course Schedule](https://courses.rice.edu/admweb/ISWKSCAT.cat)
Poverty, Justice and Human Capabilities (PJHC)

PJHC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PJHC 298 - PRE-SEMINAR SUMMER INTERNSHIP
Short Title: PRE-SEM SUMMER INTERNSHIP
Department: Poverty Justice & Human Capab
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PJHC 371 and PJHC 394
Description: This course is designed to coach PJHC summer service interns on how to identify and utilize various media to best convey their internship experience. In addition to applying the critical lenses and the capabilities framework acquired in prerequisite PJHC courses, interns will also gain media proficiency in preparation for the fall course, PJHC 300: Digital Stories. Students must be a declared PJHC minor and must have completed PJHC 371 and PJHC 394. Department Permission Required.

PJHC 299 - SUMMER INTERNSHIP
Short Title: SUMMER INTERNSHIP
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PJHC 298 and PJHC 371 and PJHC 394
Description: This course is designed to support student interns in the PJHC summer service learning experience. In addition to applying the critical lenses and the capabilities framework acquired in prerequisite PJHC courses, PJHC summer interns will learn how to work with and assist various populations and institutions. Students must be a declared PJHC minor and must have completed PJHC 298, PJHC 371 and PJHC 394. Department Permission Required. Repeatable for Credit.

PJHC 300 - PJHC SUMMER SERVICE INTERNSHIP REFLECTION
Short Title: PJHC SERVICE REFLECTION
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Returning PJHC McAshan Summer Service Interns reflect on their experiences in an academic context, producing short digital stories. This course is required for all returning interns who received financial support from the Program in Poverty, Justice, and Human Capabilities for service learning, and the course is suggested for PJHC minors who completed other summer service internships. Instructor Permission Required. Mutually Exclusive: Cannot register for PJHC 300 if student has credit for HUMA 300.

PJHC 371 - POVERTY, JUSTICE, AND HUMAN CAPABILITIES
Short Title: POVERTY, JUSTICE, CAPABILITIES
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of the study of poverty, justice, and human capabilities. The course considers theory and economic policy oriented towards improving human well-being in the US, Asia, Africa, and other regions. Readings address not just material deprivations but also gender, racial and ethnic disparities, health status, education, human rights, and political freedoms. To be considered for the course, please complete the brief questionnaire at pjhc.rice.edu/enrollmentquestionnaire. Preference is given to those who have declared the PJHC minor. Formerly HUMA/SOCI 371. Mutually Exclusive: Cannot register for PJHC 371 if student has credit for HUMA 371/SOCI 371.

PJHC 394 - HUMAN DEVELOPMENT IN GLOBAL AND LOCAL COMMUNITIES
Short Title: HUMAN DEVELOPMENT
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PJHC 371 or HUMA 371 or SOCI 371 or HUMA 280 or SOCI 280
Description: This course explores poverty and gender in local and global communities. Readings consider human deprivations and well-being in the context of social norms, gender relations, and governmental structures. Also examined are policies meant to improve human capabilities, including both the overall effects of such policies and their differential consequences for children, women and men. Formerly SOCI/SWGS 394. Mutually Exclusive: Cannot register for PJHC 394 if student has credit for SOCI 394/SWGS 394.
Minor in Poverty, Justice and Human Capabilities

Program Learning Outcomes for the Minor in Poverty, Justice and Human Capabilities

Upon completing the minor in Poverty, Justice and Human Capabilities, students will be able to:

1. Understand theoretical approaches to poverty and justice that draw from the capabilities framework, economics, history, sociology, philosophy, and other fields. Students will have in-depth knowledge of approaches to enhancing human flourishing and will understand the social, institutional, and political contexts that underlie deprivations and inequities.

2. Demonstrate a sophisticated understanding of the multiple influences on well-being beyond income and material wealth, including gender, racial, and ethnic disparities, and the impact of colonialism on the Global South. Students will be able to provide examples from different geographic regions, not exclusively from one country or region, and be able to apply the capabilities approach when evaluating these disparities.

3. Gain, through direct service, experiential knowledge of the challenges faced in disadvantaged communities.

4. Achieve an interdisciplinary knowledge of approaches to enhancing human well-being and mitigating human deprivations. Students will be able to apply this knowledge in evaluating potential policy solutions.

5. Demonstrate the oral, written, and visual communication skills essential for sophisticated and successful advocacy.

6. Become a global citizen by understanding the role that advocacy and service play in addressing poverty, strengthening justice, and improving well-being.

Requirements for the Minor in Poverty, Justice and Human Capabilities

Students pursuing the minor in Poverty, Justice and Human Capabilities must complete:

- A minimum of 6-8 courses (18-22 credit hours), depending on course selection, to satisfy minor requirements.
- A minimum of 3 PJHC Service Credits from the direct service learning experiences.

The courses used to meet the PJHC minor are open to all Rice students, including those not pursuing the minor; however, in some courses with limited space, preference will be given to declared minors.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

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PJHC 470 - ADVANCED SEMINAR IN POVERTY, JUSTICE, AND CAPABILITIES
Short Title: ADVANCED SEMINAR PJHC
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PJHC 371 or HUMA 371 or SOCI 371 or HUMA 280 or SOCI 280) and (PJHC 394 (may be taken concurrently) or ASIA 329 or SOCI 372 or SWGS 322 or SOCI 394 or SWGS 394)
Description: Through interdisciplinary readings, this seminar explores how global, national, and domestic structures and institutions influence the day-to-day lives and capabilities of different groups and individuals. We will study historical and contemporary efforts by activists and policymakers to confront social inequities. Formerly SWGS 470. Mutually Exclusive: Cannot register for PJHC 470 if student has credit for SWGS 470.

PJHC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Poverty Justice & Human Capab
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: PJHC

Program Description and Code
- Poverty, Justice and Human Capabilities: PJHC

Undergraduate Minor Description and Code
- Minor in Poverty, Justice and Human Capabilities: PJHC

CIP Code and Description
1. PJHC Minor: CIP Code/Title: 42.2808 - Environmental Psychology

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Summary

Total Credit Hours Required for the Minor in Poverty, Justice and Human Capabilities 18-22

Minor Requirements

Core Requirements

PJHC 371 POVERTY, JUSTICE, AND HUMAN CAPABILITIES 3
PJHC 394 HUMAN DEVELOPMENT IN GLOBAL AND LOCAL COMMUNITIES 3

Elective Requirements

Select 3 courses as Electives from the following categories (see below for course lists): 9

Global South
Race and Ethnicity

Capstone Requirement

Select 1 of the following options: 3-7

Capstone Course Option

PJHC 470 ADVANCED SEMINAR IN POVERTY, JUSTICE, AND CAPABILITIES
or HIST 499 BLACK AT RICE: HISTORIES OF THE UNIVERSITY

Capstone Course Sequences Option

Select 1 of the following:

SOCI 469 COMMUNITY BRIDGES TRAINING & SOC 470 and INEQUALITY AND URBAN LIFE
& SWGS 494 PRE-SEMINAR IN ENGAGED RESEARCH & SWGS 496 and ENGAGED RESEARCH PRACTICUM & SWGS 497 and ENGAGED RESEARCH SEMINAR

Direct Service Learning Experience

Students must complete a total of three PJHC Service Credits. See below for more information.

Total Credit Hours 18-22

Footnotes and Additional Information

Students can use additional capstone courses to fulfill the General Elective requirement (SWGS 496, SWGS 497, or PJHC 470) or the Race and Ethnicity requirement (PJHC 470 or HIST 499). PJHC 470 and HIST 499 do not fulfill the Race and Ethnicity requirement unless a second capstone course is completed. Students who complete the entire Engaged Research course sequence (SWGS 494, SWGS 496, and SWGS 497) may use SWGS 497 to fulfill the General Elective requirement.

Course Lists to Satisfy Requirements

Elective Requirements

Students must complete a total of 3 courses (minimum of 9 credit hours) from the Global South, Race and Ethnicity, and General Electives Categories as listed below to satisfy the Poverty, Justice and Human Capabilities minor’s Elective Requirements. An additional course from the Global South or Race and Ethnicity list can be used to fulfill the General Elective requirement. Students must select separate courses to fulfill the Global South and Race and Ethnicity requirements. As course offerings may vary from year to year, students are urged to consult with the undergraduate advisors (see https://pjhc.rice.edu/) at the beginning of each semester. Please note that not all courses listed below will be offered every academic year.

Global South Courses

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<tr>
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<th>Title</th>
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<tr>
<td>ANTH 212 / ASIA 212</td>
<td>PERSPECTIVES ON MODERN ASIA</td>
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<tr>
<td>ANTH 290</td>
<td>HISTORY AND ETHNOGRAPHY</td>
<td>3</td>
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<tr>
<td>ANTH 340</td>
<td>NEOLIBERALISM AND GLOBALIZATION</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 343 / RELI 342</td>
<td>NEW RELIGIOUS MOVEMENTS IN AFRICA</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 358</td>
<td>THE FOURTH WORLD: ISSUES OF INDIGENOUS PEOPLE</td>
<td>3</td>
</tr>
<tr>
<td>ASIA 222 / ENGL 222</td>
<td>THE WORLD AND SOUTH ASIA</td>
<td>3</td>
</tr>
<tr>
<td>ASIA 232 / RELI 232</td>
<td>RELIGIONS FROM INDIA</td>
<td>3</td>
</tr>
<tr>
<td>ASIA 251 / POLI 250 / SWGS 250</td>
<td>SEX, MONEY, AND POWER AROUND THE WORLD</td>
<td>3</td>
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<tr>
<td>ASIA 304</td>
<td>HUMAN MOBILITY IN THE ASIA-PACIFIC</td>
<td>3</td>
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<tr>
<td>ASIA 328 / HIST 384 / SWGS 384</td>
<td>MODERN GIRL AND ASIA IN THE WORLD</td>
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<td>ASIA 349 / POLI 349</td>
<td>URBAN LAB ISTANBUL</td>
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<td>ECON 450</td>
<td>ECONOMIC DEVELOPMENT</td>
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<tr>
<td>ECON 460</td>
<td>ADVANCED TOPICS IN ECONOMIC DEVELOPMENT</td>
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<tr>
<td>ENGL 379</td>
<td>THIRD WORLD LITERATURE</td>
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<td>ENGL 380</td>
<td>CONTEMPORARY ANGLOPHONE LITERATURES</td>
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<td>ENGL 383</td>
<td>GLOBAL FICTIONS</td>
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</tr>
<tr>
<td>ENGL 387</td>
<td>TOPICS IN CULTURAL STUDIES</td>
<td>3</td>
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<td>ENGL 397</td>
<td>TOPICS IN LITERATURE AND CULTURE</td>
<td>3</td>
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<td>FREN 324 / POLI 324 / RELI 476</td>
<td>FROM DECOLONIZATION TO GLOBALIZATION</td>
<td>3</td>
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<td>FREN 340</td>
<td>GENDER AROUND THE WORLD</td>
<td>3</td>
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<tr>
<td>GLHT 314 / CEVE 314 / BIOE 365</td>
<td>SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD</td>
<td>3</td>
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<td>HIST 188</td>
<td>THE ATLANTIC WORLD: ORIGINS TO THE AGE OF REVOLUTION</td>
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<tr>
<td>HIST 220</td>
<td>MEXICO: 1910 TO PRESENT</td>
<td>3</td>
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<tr>
<td>HIST 228</td>
<td>MODERN LATIN AMERICA</td>
<td>3</td>
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<tr>
<td>HIST 268</td>
<td>MODERN SLAVERY AND HUMAN TRAFFICKING</td>
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<tr>
<td>HIST 271</td>
<td>HISTORY OF SOUTH ASIA</td>
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<td>HIST 278</td>
<td>MODERN ARAB HISTORY</td>
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<td>HIST 281 / MDEM 281</td>
<td>GOLDEN AGE OF ISLAM</td>
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### Race and Ethnicity Courses

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>HIST 312</td>
<td>ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA</td>
</tr>
<tr>
<td>HIST 328</td>
<td>POVERTY AND SOCIAL JUSTICE IN LATIN AMERICA</td>
</tr>
<tr>
<td>HIST 389 / ASIA 389</td>
<td>INDIAN OCEAN WORLD HISTORY</td>
</tr>
<tr>
<td>HIST 406</td>
<td>WORKERS’ REVOLUTIONS, SUBALTERN SOLIDARITIES, AND THE MAKING OF EMANCIPATORY POLITICS</td>
</tr>
<tr>
<td>HIST 407</td>
<td>THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888</td>
</tr>
<tr>
<td>HIST 428</td>
<td>MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL</td>
</tr>
<tr>
<td>POLI 238</td>
<td>SPECIAL TOPICS (minimum of 3 credit hours.) *</td>
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<tr>
<td>POLI 362</td>
<td>COMPARATIVE URBAN POLITICS AND POLICY</td>
</tr>
<tr>
<td>RELI 111</td>
<td>INTRODUCTION TO AFRICAN RELIGIONS</td>
</tr>
<tr>
<td>RELI 315 / ASIA 315 / SWGS 315</td>
<td>GENDER AND ISLAM</td>
</tr>
<tr>
<td>RELI 328</td>
<td>RELIGION AND GLOBAL POVERTY</td>
</tr>
<tr>
<td>RELI 340</td>
<td>THEOLOGY IN AFRICA</td>
</tr>
<tr>
<td>RELI 348</td>
<td>CHRISTIANITY AND ISLAM IN AFRICA</td>
</tr>
<tr>
<td>RELI 356</td>
<td>MAJOR ISSUES IN CONTEMPORARY ISLAM</td>
</tr>
<tr>
<td>RELI 371</td>
<td>CHRISTIANITY IN THE GLOBAL SOUTH</td>
</tr>
<tr>
<td>RELI 424</td>
<td>RELIGION AND POLITICS IN AFRICA</td>
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<tr>
<td>RELI 426</td>
<td>RELIGION AND LITERATURE IN AFRICA</td>
</tr>
<tr>
<td>SOCI 342</td>
<td>SOCIOLOGY OF GLOBALIZATION</td>
</tr>
<tr>
<td>SOCI 485</td>
<td>IDENTITIES IN A DIVERSE WORLD</td>
</tr>
<tr>
<td>SWGS 303</td>
<td>GENDER AND SCIENCE</td>
</tr>
<tr>
<td>SWGS 374 / LASR 374</td>
<td>FEMINIST AND QUEER THEORY IN THE AFRICAN DIASPORA</td>
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</table>

### Race and Ethnicity Courses

#### Select 1-2 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>ANTH 322</td>
<td>GLOBAL IM/MOBILITIES: BORDERS, MIGRATION, AND CITIZENSHIP</td>
</tr>
<tr>
<td>ANTH 387 / ASIA 387</td>
<td>ASIAN AMERICAN CONTEMPORARY COMMUNITIES</td>
</tr>
<tr>
<td>ANTH 443</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
</tr>
<tr>
<td>ASIA 202</td>
<td>RACE, NATION, AND EMPIRE IN MODERN ASIA</td>
</tr>
<tr>
<td>ASIA 399 / MDEM 379 / SWGS 399</td>
<td>WOMEN IN CHINESE LITERATURE</td>
</tr>
<tr>
<td>EDUC 304</td>
<td>RACE, CLASS, GENDER IN EDUCATION</td>
</tr>
<tr>
<td>EDUC 335</td>
<td>URBAN EDUCATION: ISSUES, POLICY, AND PRACTICE</td>
</tr>
<tr>
<td>ENGL 267</td>
<td>INTRODUCTION TO AFRICAN AMERICAN LITERATURE</td>
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<tr>
<td>ENGL 268</td>
<td>INTRODUCTION TO NATIVE AMERICAN LITERATURE</td>
</tr>
<tr>
<td>ENGL 369 / SWGS 329</td>
<td>THE AMERICAN WEST AND ITS OTHERS</td>
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<tr>
<td>ENGL 371 / SPO 354 / SWGS 354</td>
<td>CHICANO/A LITERATURE</td>
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<tr>
<td>ENGL 389 / SWGS 389</td>
<td>YOUTH STUDIES</td>
</tr>
<tr>
<td>ENGL 393</td>
<td>BLACK MANHATTAN: 1915-1940</td>
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<tr>
<td>ENGL 399</td>
<td>THE BLACK IMAGINARY: 1775-PRESENT</td>
</tr>
<tr>
<td>HIST 111</td>
<td>RED, WHITE AND BLACK IN EARLY AMERICA CREATING Racial IDENTITIES IN THE ERA OF THE AMERICAN REVOLUTION</td>
</tr>
<tr>
<td>HIST 186</td>
<td>HISTORICAL SURVEY OF JEWISH CIVILIZATION FROM ITS ORIGINS TO THE PRESENT</td>
</tr>
<tr>
<td>HIST 202</td>
<td>IMMIGRATION IN 20TH AND 21ST CENTURY UNITED STATES SOCIETY</td>
</tr>
<tr>
<td>HIST 208</td>
<td>RACE AND MEDICINE IN AMERICAN HISTORY</td>
</tr>
<tr>
<td>HIST 212</td>
<td>CONTEMPORARY CHINA</td>
</tr>
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<td>HIST 215</td>
<td>BLACKS IN THE AMERICAS</td>
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<td>HIST 216</td>
<td>BLACK LIFE IN THE NINETEENTH-CENTURY UNITED STATES</td>
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<tr>
<td>HIST 220</td>
<td>MEXICO: 1910 TO PRESENT</td>
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<tr>
<td>HIST 226</td>
<td>COLONIAL SPANISH AMERICA</td>
</tr>
<tr>
<td>HIST 227</td>
<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
</tr>
<tr>
<td>HIST 228</td>
<td>MODERN LATIN AMERICA</td>
</tr>
<tr>
<td>HIST 241 / SWGS 234</td>
<td>U.S. WOMEN'S HISTORY I: COLONIAL</td>
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<tr>
<td>HIST 242 / SWGS 235</td>
<td>U.S. WOMEN'S HISTORY II: CIVIL WAR TO THE PRESENT</td>
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<td>HIST 245 / LASR 251</td>
<td>CONTINUITIES AND CHANGES IN THE URBAN SOUTH</td>
</tr>
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<td>HIST 266</td>
<td>SLAVERY AND THE FOUNDING FATHERS</td>
</tr>
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<td>HIST 268</td>
<td>MODERN SLAVERY AND HUMAN TRAFFICKING</td>
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<tr>
<td>HIST 295</td>
<td>THE AMERICAN SOUTH</td>
</tr>
<tr>
<td>HIST 312</td>
<td>ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA</td>
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<td>HIST 328</td>
<td>POVERTY AND SOCIAL JUSTICE IN LATIN AMERICA</td>
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<tr>
<td>HIST 330</td>
<td>ATLANTIC SLAVE TRADE AND THE ORIGINS OF AFRO AMERICA</td>
</tr>
<tr>
<td>HIST 338 / SWGS 338</td>
<td>19TH CENTURY WOMEN'S NARRATIVES</td>
</tr>
<tr>
<td>HIST 342</td>
<td>MODERN CHINA</td>
</tr>
<tr>
<td>HIST 347</td>
<td>BLACK AMERICA: FROM NADIR THROUGH THE GREAT DEPRESSION</td>
</tr>
<tr>
<td>HIST 374</td>
<td>JEWISH HISTORY, 1500-1948</td>
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<tr>
<td>HIST 402</td>
<td>CHINESE WOMEN THROUGH TIME</td>
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<td>HIST 407</td>
<td>THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888</td>
</tr>
<tr>
<td>HIST 421</td>
<td>RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH</td>
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2021-2022 General Announcements PDF Generated 09/22/21
### General Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ANTH 342</td>
<td>ETHNOGRAPHIES OF CARE</td>
</tr>
<tr>
<td>ANTH 380</td>
<td>GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
</tr>
<tr>
<td>ANTH 477</td>
<td>SPECIAL TOPICS (minimum of 3 credit hours.)</td>
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<td>BIOS 122</td>
<td>BIOLOGY FOR VOTERS</td>
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<tr>
<td>BIOE 360</td>
<td>APPROPRIATE DESIGN FOR GLOBAL HEALTH</td>
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<td>GLHT 360</td>
<td>HEALTH</td>
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<td>ECON 462</td>
<td>ECONOMICS OF HUMAN CAPITAL</td>
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<tr>
<td>ECON 481</td>
<td>HEALTH ECONOMICS</td>
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<td>ENGL 354</td>
<td>QUEER LITERARY CULTURES</td>
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<td>SWGS 364</td>
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<tr>
<td>ENGL 382</td>
<td>FEMINIST THEORY</td>
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<td>SWGS 380</td>
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<tr>
<td>GLHT 201</td>
<td>INTRODUCTION TO GLOBAL HEALTH</td>
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<tr>
<td>GLHT 411</td>
<td>INTEGRATED APPROACHES TO SUSTAINABLE DEVELOPMENT</td>
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<td>HEAL 222</td>
<td>PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH</td>
</tr>
<tr>
<td>HEAL 360</td>
<td>VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE</td>
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<tr>
<td>HEAL 380</td>
<td>DISPARITIES IN HEALTH AMERICA</td>
</tr>
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<td>HEAL 498</td>
<td>SPECIAL TOPICS IN HEALTH SCIENCES</td>
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<tr>
<td>HIST 209</td>
<td>AMERICAN URBAN HISTORY, 1609 TO TODAY</td>
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<tr>
<td>HIST 311</td>
<td>SEX, GENDER, AND FAMILY IN EUROPE, 1300-1700</td>
</tr>
<tr>
<td>HIST 329</td>
<td>STREETS AND URBAN LIFE: PARIS TO ISTANBUL</td>
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<td>HIST 340</td>
<td>HISTORY OF FEMINISM</td>
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<td>SWGS 345</td>
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<td>HIST 421</td>
<td>RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH</td>
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<tr>
<td>HIST 423</td>
<td>AMERICAN RADICALS AND REFORMERS</td>
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<tr>
<td>HIST 448</td>
<td>WESTERN EUROPEAN WELFARE STATE, 1880-1980: ORIGINS, CONSOLIDATIONS,</td>
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<td></td>
<td>CRISIS</td>
</tr>
<tr>
<td>HIST 455</td>
<td>THE HISTORY OF HUMAN RIGHTS</td>
</tr>
</tbody>
</table>
**Policies for the Minor in Poverty, Justice and Human Capabilities**

**Program Restrictions and Exclusions**

Students pursuing the minor in Poverty, Justice and Human Capabilities should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: [https://oaa.rice.edu](https://oaa.rice.edu). Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the minor in Poverty, Justice and Human Capabilities should be aware of the following program-specific transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process ([https://registrar.rice.edu/facstaff/coursedesign/](https://registrar.rice.edu/facstaff/coursedesign/)). Additionally, as part of an annual roll call ([https://registrar.rice.edu/facstaff/distribution_credits](https://registrar.rice.edu/facstaff/distribution_credits)) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

**Additional Information**

For additional information, please see the Poverty, Justice and Human Capabilities website: [https://pjhc.rice.edu/](https://pjhc.rice.edu/).

**Opportunities for the Minor in Poverty, Justice and Human Capabilities**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) ([summa cum laude, magna cum laude, and cum laude](https://registrar.rice.edu/facstaff/distribution_credits)) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

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### Direct Service Learning Experience

As part of the Poverty, Justice and Human Capabilities (PJHC) requirements, students must participate in an approved PJHC direct service learning experience. Students must complete 3 PJHC service credits. Students can choose from an array of options, including internships, service trips, and coursework to complete this requirement. Direct service learning experiences carry 1, 2, or 3 service credits. These options are described in detail at [https://pjhc.rice.edu/service-learning-requirement/](https://pjhc.rice.edu/service-learning-requirement/).
Susan McAshan Summer Service Internship
Declared Poverty, Justice and Human Capabilities minors are eligible to apply for funding to support a summer service internship. Students must have completed PJHC 371, PJHC 394, and at least one approved elective by the end of the spring semester before their internships. Funding supports student interns’ direct service work with international or US-based community service organizations. Students receive 3 service credits upon the completion of their Susan McAshan Summer Service Internship. Additional details may be found at the PJHC website: https://pjhc.rice.edu/summer-service-internship-funding/.

Additional Information
For additional information, please see the Poverty, Justice and Human Capabilities website: https://pjhc.rice.edu/
See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

Program in Writing and Communication
Contact Information
Program in Writing and Communication
https://pwc.rice.edu/
129 Herring Hall
713-348-3994

Jennifer S. Wilson
Program Director
jsw@rice.edu

The mission of the Program in Writing and Communication (PWC) is to integrate the practice of analytical writing and the techniques of both oral and visual communication into the Rice curriculum, with two goals in mind: To enable our students to articulate their ideas as we prepare them for academic and professional life; and to affirm the necessity of this ability and its fundamental value to every aspect of their education and across every University department and discipline.

The PWC provides oversight for the First-Year Writing-Intensive Seminars (FWIS). FWIS are content-based, 3-credit hour seminars in which writing and communication pedagogy plays a significant role in assignments and grading. The courses reflect a range of disciplines from across the university. In addition, PWC faculty teach undergraduate communication courses and courses for international graduate students under the COMM designation and subject code.

The PWC also includes the Center for Academic and Professional Communication. Housed in Fondren Library, the Center supports teaching and learning through workshops, consulting, and coaching for undergraduate and graduate students and faculty. Headed by a team of communication professionals, the Center also includes a large staff of writing and communication consultants, both graduate and undergraduate, who are available for individual tutoring appointments. The Center includes facilities for one-on-one consultations and group work on written, oral, and visual projects. Physically accessible whenever Fondren Library is open, the Center is virtually accessible around the clock through the Center’s website (https://pwc.rice.edu/center-academic-and-professional-communication/).

For additional information regarding the Program in Writing and Communication, please see the program’s website at: https://pwc.rice.edu/.

To satisfy the writing and communication graduation requirement, all undergraduate students must complete the following during their first year at Rice:

1. Placement Requirement: Students must either receive a FWIS (Fall or Spring) placement based on the Composition Exam, or complete a FWIS 100 Introduction to Academic Writing course;
2. First Year Writing Intensive Seminar: Students must complete a FWIS course numbered 101-199.

For courses that satisfy the First-Year Writing Intensive Seminar University Graduation Requirement (p. 29), please see Rice’s Course Catalog (https://courses.rice.edu).

The Program in Writing and Communication does not currently offer an academic program at the graduate level.

Program Director
Jennifer S. Wilson

Lecturers
Katerina Belik
Vasudha Bharadwaj
Elizabeth Cummins-Muñoz
Lina Dib
Andrew Klein
David Messmer
Burke Nixon
Laura Richardson

Teaching Fellows
Baird Campbell
Evan Choate
Layla Seale

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)
COMMUNICATION (COMM)

COMM 237 - ORAL COMMUNICATION IN PRACTICE AND THEORY
Short Title: THEORIES OF ORAL COMMUNICATION
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will aim to provide students with both a practical and theoretical framework for improving their oral presentation skills while fostering a level of self-awareness regarding the social constructions governing traditional "best practices."

COMM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

COMM 239 - A QUESTION OF STYLE, RHETORIC AND POPULAR WRITING
Short Title: RHETORIC AND POPULAR WRITING
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the rhetoric of popular writing in outlets such as National Geographic and Sports Illustrated. Through critical reading and writing workshops, students will acquire a nuanced understanding of available stylistic choices as they build the skills they need to develop their own voice with clarity, confidence, and style.

COMM 300 - COMMUNICATION IN THE DIGITAL AGE
Short Title: COMMUNICATION IN DIGITAL AGE
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will develop writing skills by maintaining a blog, generating Webpage content, and using social media. We will also produce video and audio content while remaining aware of how the form of the work impacts its content.

COMM 415 - MEDICAL COMMUNICATION
Short Title: MEDICAL COMMUNICATION
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to key issues, theories, and debates related to medical communication, while also helping students develop and reflect on their own communication strategies, and skills as future health care professionals. Sophomores and Freshmen who have fulfilled Rice's First-year Writing-Intensive Seminar requirement for graduation may register by a Special Registration Form. Recommended Prerequisite(s): Successfully completed one course, FWIS 101 to 199, to fulfill the Rice's First-year Writing-Intensive Seminar requirement for graduation.

COMM 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ACADEMIC READING AND WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how scholars construct arguments and use evidence to support claims, and they will practice writing texts that are relevant to their own courses and careers.

COMM 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ORAL COMMUNICATION SKILLS
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to key issues, theories, and debates related to medical communication, while also helping students develop and reflect on their own communication strategies, and skills as future health care professionals. Sophomores and Freshmen who have fulfilled Rice's First-year Writing-Intensive Seminar requirement for graduation may register by a Special Registration Form. Recommended Prerequisite(s): Successfully completed one course, FWIS 101 to 199, to fulfill the Rice's First-year Writing-Intensive Seminar requirement for graduation.
<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Description</th>
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<tr>
<td>COMM 602</td>
<td>ADVANCED ACADEMIC WRITING FOR INTERNATIONAL</td>
<td>ADVANCED ACADEMIC WRITING</td>
<td>Program Writing Communication</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Seminar</td>
<td>2</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>This course addresses writing at both the macro- and micro-level, engaging students in such academic writing tasks as critiquing, reporting, and interpreting research findings, illustrating and justifying the significance of research, while also attending to mechanical topics. Writing assignments in the course will be linked to students’ studies, courses, or research. One-on-one conferences with instructors will be required.</td>
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<tr>
<td>COMM 605</td>
<td>ADVANCED ENGLISH COMMUNICATION SKILLS FOR</td>
<td>ADVANCED ENGLISH COMMUNICATION</td>
<td>Program Writing Communication</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Independent Study</td>
<td>1</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>This independent study course may be taken on its own or in conjunction with one of the other credit-bearing English communication courses. Students will work on a particular communication skill (reading, writing, speaking, listening) or combination of skills under the guidance of an ESL expert. Instructor Permission Required. Repeatable for Credit.</td>
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<td>INTERNATIONAL GRADUATE STUDENTS</td>
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<td>COMM 677</td>
<td>SPECIAL TOPICS</td>
<td>SPECIAL TOPICS</td>
<td>Program Writing Communication</td>
<td>Standard Letter</td>
<td>Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory</td>
<td>1-4</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.</td>
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<td>FWIS 100</td>
<td>INTRODUCTION TO ACADEMIC WRITING</td>
<td>INTRO TO ACADEMIC WRITING</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course prepares students who need more time and practice in reading and writing to meet the more advanced communication demands of a FWIS. Through the study of one of several academic topics, this course will provide an introduction to the expectations of academic readers as well as practice with the rhetorical and linguistic structures common to academic writing. Students will also review grammatical points relevant to coursework and learn to self-edit their own work. This course does not fulfill the Composition Requirement.</td>
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<tr>
<td>FWIS 101</td>
<td>THE BIBLE IN POPULAR CULTURE</td>
<td>THE BIBLE IN POPULAR CULTURE</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>We will introduce various ways in which the Bible plays a significant role in contemporary popular culture. By analyzing biblical references found in music, film, art, and the medial, students will discover that even in today’s seemingly secular culture, the Bible continues to influence our artistic, social, and political landscapes.</td>
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<tr>
<td>FWIS 102</td>
<td>BLIND SPOTS: CRITICAL APPROACHES TO VISUAL CULTURE</td>
<td>BLIND SPOTS</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>The blind spot of &quot;the act of seeing&quot; is its social construction, its ideological nature. This seminar unveils the various historical, political, economic, and social &quot;filters&quot; that condition our decoding of visual information. This writing seminar aims at developing skills to denaturalize the &quot;act of seeing.&quot;</td>
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</tbody>
</table>
FWIS 103 - WOMEN ARTISTS: VON BINGEN TO BEYONCÉ
Short Title: WOMEN ARTISTS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines female-identifying painters, sculptors, performance artists and musicians from the Middle Ages through modern-day United States. Each week we will read and write about the work of a different artist and discuss their ongoing cultural impact. We will ask: How do we define a female artist? What is the role of gender, sexuality, race, or class in their artistic production?

FWIS 104 - SCIENCE, TECHNOLOGY, AND SOCIETY
Short Title: SCIENCE, TECHNOLOGY, & SOCIETY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This FWIS course will explore the complex relationship between science, technology, and society. Students will become familiar with the core questions and debates within science and technology studies (STS), investigate the production of historical and modern scientific knowledge and technological entities, and acquire competency in broader forms of critical analysis.

FWIS 105 - GREEK MYTH IN WORDS: HESIOD AND THE HOMERIC HYMNS
Short Title: GREEK MYTH IN WORDS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Presents texts fundamental to understanding Greek myth through the regular practice of reading, writing, and oral communication. Emphasizing textual interpretation and writing as process and practice, this course clarifies the purpose and conventions of the academic argumentative essay. Frequent brief writing assignments. Peer review plays an integral role. No exams.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 106 - WRITING THE SENSES
Short Title: WRITING THE SENSES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course investigates the ways different disciplines develop theories of and tools for touching, tasting, smelling, hearing, and seeing. We experiment with the distinctions we draw between our senses as well as other ways we process information including our sense of balance, sense of pain, sense of time, and synaesthesia.

FWIS 107 - IN THE MATRIX: ON HUMAN BONDAGE AND LIBERATION
Short Title: IN THE MATRIX
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Using the film "The Matrix" as the point of reference, this course presents celebrated explorations of servitude and emancipation - from religious mysticism to Marxism and artistic modernism. Texts by Lao Tzu, Farid ud-Din Attar, Plato, Freud, Marx, Baudelaire, J. S. Mill, Proust, de Beauvoir, Malcolm X, Marcuse, Baudrillard.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 108 - POISONS: A CULTURAL HISTORY OF DEADLY THINGS
Short Title: POISONS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Poisons aren't what they seem. Sometimes they look like food. Sometimes they look like drugs. From cinnabar to cinnamon; from dragon blood to goat bezoars, poisons are the result of careful human construction, collection, and creation. They are objects of early chemistry. Far from killing us, poisons have been central to the history of medicine. Physicians in the past and present monitor dosage, drug combination, and drug preparation to mitigate poison toxicity while still maintaining therapeutic potencies of drugs. Knowledge about poisons, in other words, quietly undergirds most of human civilization. Poisons are what keep us alive. Or not.
FWIS 109 - CONTEMPORARY ART AND ENVIRONMENT
Short Title: ART AND ENVIRONMENT
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course focuses on the relationship of marginalized groups to national and regional histories.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 110 - READING INNUENDO: REPRESENTING SEXUALITY IN GOLDEN AGE HOLLYWOOD
Short Title: READING INNUENDO
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course focuses on depictions of sexuality in Hollywood films produced under the Hays Code, from its origins to its eventual demise. We will explore not only the place of sexuality in the American cultural imagination, but also what it can teach us about communication and interpretation in general.

FWIS 111 - COLLEGE CAMPUS CULTURE
Short Title: COLLEGE CAMPUS CULTURE
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course continues to operate according to traditions passed from generation to generation. It is an intense four years, but most U.S. college graduates still remember their undergraduate years as a uniquely transformative period in their lives, and continue to identify with their alma mater decades after their last day of attendance. Together, we will read texts that explore the wonderfully strange experience of university life in America, use our writing to tease out the significance of the university to us, and ultimately, take stock of how our time at the university has transformed us, on and off the page.

FWIS 112 - FICTION, HISTORY, TEJAS: TEXIANS AND TEJANOS IN LITERATURE AND FILM
Short Title: FICTION, HISTORY, TEJAS
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines conceptual and historical features of the genre of historical fiction, and the relationship of marginalized groups to national and regional histories.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 113 - RACE, PUBLIC POLICY, AND RACIAL CHANGE IN AMERICA
Short Title: RACE, POLICY, & RACIAL CHANGE
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines conceptual and historical features of the genre of historical fiction, and the relationship of marginalized groups to national and regional histories.

FWIS 114 - WASTE, TRASH, POLLUTION
Short Title: WASTE, TRASH, POLLUTION
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How do we as a society know that something is waste? How does something valuable later become trash, or vice versa? This course looks at waste, trash, and pollution from the perspective of culture and sociality. Through reading ethnographies, we’ll analyze how waste draws social boundaries and enacts cultural meanings.

FWIS 115 - EXPLORING BIOLOGICAL RESEARCH CHALLENGES
Short Title: EXPLORING BIOLOGICAL RESEARCH
Department: Program in Writing and Communication
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive course introduces students to the practices of professional writing and scientific communication. Student teams work on investigative projects with opportunities to design experiments and share their findings. Recommended for students interested in the Biosciences major who have limited laboratory experience. Students cannot receive credit for both FWIS 115 and NSCI 120.
FWIS 116 - AMERICAN JOURNEYS
Short Title: AMERICAN JOURNEYS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The narratives of travelers in the US are a window into history. Drawing on authors like Crevecoeur, Tocqueville, Trollope, and Kerouac, the class will discuss and write about themes such as Indian life and territorial expansion, democracy, slavery, civil war, western settlement, and 20th-cent. social movements. This course is eligible for credit toward the major in History.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 117 - ART IN PLACE AND PLACES FOR ART
Short Title: ART IN PLACE & PLACES FOR ART
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will look closely at a curated selection of influential, Houston-based works of art, installations, and architecture from the past century to understand the context and ideas behind the emergence of modern and contemporary art and design. They will observe, analyze, and describe these primary sources using both words and images.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 118 - ISLAM AND POLITICS
Short Title: ISLAM AND POLITICS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course examines developments in religion and politics in the Islamic societies of the Middle East, from the time of the Prophet Muhammad's reign in Medina to the fall of the Ottoman Empire early in the 20th century.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 119 - BEYOND THE BURQINI: MUSLIM WOMEN, FEMINISM, AND GLOBAL POLITICS
Short Title: MUSLIM WOMEN & GLOBAL POLITICS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Traces history of Western interest in Muslim women, paying particular attention to how the figure of the Muslim women has been used by western feminist to make their own case for gender equality. Readings include writings by different English and American feminists and by Muslim authors from around the world.
Course URL: pwc.rice.edu (http://pwc.rice.edu)

FWIS 120 - FICTION AND EMPATHY
Short Title: FICTION AND EMPATHY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive course explores the possible link between reading literary fiction and empathizing with others. We'll read short stories, novel excerpts, and literary criticism in an effort to scrutinize and more deeply understand the specific elements of fiction that might provoke empathy.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 121 - TIME TRAVEL NARRATIVES: FICTION, FILM, SCIENCE
Short Title: TIME TRAVEL NARRATIVES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: From an aesthetic perspective, time travel has existed as long as there have been stories. Narrative introduces alien temporalities, transporting listeners and readers into different temporal landscapes. This writing-intensive course investigates the historical, aesthetic, and scientific connections between the authorial and scientific co-creation of time travel.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
<th>Course URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWIS 122</td>
<td>LEADERS AND LEADERSHIP: WHAT WE KNOW, WHAT WE BELIEVE</td>
<td>LEADERS AND LEADERSHIP</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>For over a hundred years social scientists have studied leaders and leadership. The popular press and media pundits continue to expound on the topic with conflicting views. Students will explore what they believe and what science informs us about leaders and leadership and share their analyses through discussions, writing, and oral presentations.</td>
<td><a href="http://pwc.rice.edu/">pwc.rice.edu/</a></td>
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<td>FWIS 123</td>
<td>STAR WARS AND THE WRITING OF POPULAR CULTURE</td>
<td>STAR WARS &amp; WRITING CULTURE</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course will unpack the cultural legacy of the Star Wars films through traditional literary analysis and close reading, by situating the films historically, and by considering the ways that the films reflect attitudes towards a variety of social issues, such as spirituality/religion, philosophy, race, gender, class, nationality, and imperialism.</td>
<td><a href="http://pwc.rice.edu/">pwc.rice.edu/</a></td>
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<tr>
<td>FWIS 124</td>
<td>WITNESSING THE HOLOCAUST</td>
<td>WITNESSING THE HOLOCAUST</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course will examine selected testimony given by Holocaust survivors. Their testimony varies according to time and the circumstance in which it was given and also according to the genre (film, memoir, drama) in which it is presented.</td>
<td><a href="http://pwc.rice.edu/">pwc.rice.edu/</a></td>
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<td>FWIS 125</td>
<td>YOUR ARABIAN NIGHTS</td>
<td>YOUR ARABIAN NIGHTS</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>The Arabian Nights is one of the best known yet poorly understood literary masterpieces. It has been passed down orally in wiring, in performance and film; in multiple languages, and with different collections of stories. What is your Arabian Nights? We will consider stories of the Nights through both a literary and historical lens, and we will consider stories, films, and works of art that were inspired by the Nights in different cultures.</td>
<td><a href="http://pwc.rice.edu/">pwc.rice.edu/</a></td>
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<tr>
<td>FWIS 127</td>
<td>KING ARTHUR IN POPULAR CULTURE: TIME TRAVEL, SPACE ALIENS, AND HOLY HAND GRENADES</td>
<td>KING ARTHUR IN POPULAR CULTURE</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This writing-intensive seminar examines how medieval Arthurian literature has been re-imagined within 19th, 20th, and 21st century contexts. Beginning with foundational readings from Malory's Le Morte Darthur, we will examine and discuss how the Arthurian tradition has been translated into various mediums, including the novel, comic books, art, and film.</td>
<td><a href="http://pwc.rice.edu/">pwc.rice.edu/</a></td>
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<tr>
<td>FWIS 128</td>
<td>PERSONALITY TRAITS AND TYPES OF INTELLIGENCE THROUGH THEIR LINGUISTIC MANIFESTATION</td>
<td>INNER DIMENSIONS</td>
<td>First-Year Writing Intensive</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Exploring theories on personality traits and types of intelligence, students will learn more about themselves and others. We will discuss how our verbal behavior reflects our personality.</td>
<td><a href="http://pwc.rice.edu/">pwc.rice.edu/</a></td>
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FWIS 129 - CHINGIS KHAN AND THE EMPIRE OF THE MONGOLS
Short Title: THE EMPIRE OF THE MONGOLS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In the thirteenth century, the Mongols conquered China, Eastern Europe and Middle East. This class explores empire building, warfare, government and steppe culture, through reading the letters and memoirs of Mongols, merchants, travelers and adventurers. The students will work closely with primary sources to develop analytical writing skills.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 130 - WRITING EVERYDAY LIFE
Short Title: WRITING EVERYDAY LIFE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is dedicated to the poetics of everyday life. It draws from the forms and colors of what surrounds us day-to-day, from landscapes, to bodies and objects. Students develop research and writing skills through creative fieldwork assignments and workshops. This course is eligible for credit toward the major in Anthropology.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 131 - THE WAR ON DRUGS
Short Title: THE WAR ON DRUGS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar examines the filmic representation of childhood across diverse historical periods and places. Of concern will be issues including children's relations to nature, language and sexuality; modern systems of education; children's perception of race; and childhood as a cinematic metaphor. Meetings will be based in discussion of films and critical texts.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 132 - SLAVERY ON FILM
Short Title: SLAVERY ON FILM
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will look at the ways major Hollywood (or equivalent) films have dealt with chattel slavery in the United States. We will explore the general question of how feature films deal with controversial historical issues by analyzing more specifically how Hollywood has dealt with American slavery.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 133 - WOMEN AND THE HOLOCAUST: VICTIMS AND PERPETRATORS
Short Title: WOMEN AND THE HOLOCAUST
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine the Third Reich and the Holocaust from the perspective of women as perpetrators and as victims.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 134 - GLOBAL CRISES AND POLITICS
Short Title: GLOBAL CRISES AND POLITICS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the role of political actors and institutions in managing and resolving global crises. Students will learn about the nature of international politics, identify how global actors can coordinate actions to respond to different global crises such as pandemics, armed conflict, and climate change, and analyze the consequences of different policy responses.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 135 - CHILDHOOD ON FILM
Short Title: CHILDHOOD ON FILM
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar examines the filmic representation of childhood across diverse historical periods and places. Of concern will be issues including children's relations to nature, language and sexuality; modern systems of education; children's perception of race; and childhood as a cinematic metaphor. Meetings will be based in discussion of films and critical texts.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 136 - TECHNOLOGY AND CULTURE IN AMERICAN HISTORY
Short Title: TECH AND CULTURE IN US HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the relationship between technology and society throughout the history of the United States. We will analyze the roles and impacts of major technological innovations within their cultural and historical contexts, while seeking to understand how these contexts shaped and were shaped by the technologies.
FWIS 137 - POP MUSIC AND AMERICAN CULTURE
Short Title: POP MUSIC & AMERICAN CULTURE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Recent cultural movements encourage a more serious exploration of popular music. This course will participate by taking a critical look at what songs mean, what songs/albums/genres express, what our interest in music expresses, and how writing about music can lead us to great insights.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 138 - A SEAT AT THE TABLE: THE CULTURE, HISTORY, AND RHETORIC OF FOOD
Short Title: THE RHETORIC OF FOOD
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This FWIS course will examine the way food and food rhetorics shape our perceptions of the self and our connections to larger civic issues surrounding food. Core topics include: food as an identity marker, the appropriation and sanitization of global cuisines, and the rise of foodie culture and food tourism.

FWIS 139 - PHOTOGRAPHY AND FILM IN MEDICINE
Short Title: PHOTOGRAPHY & FILM IN MEDICINE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Medical photographs and films are not only visual pieces of scientific documentation but also pieces of historical, social, and aesthetic significance and interpretation. The crucial tension between science and aesthetics is the focus of this writing-intensive course that explores medical images used in clinical settings and popular culture.

FWIS 140 - IMAGINING THE PAST: FILM, FICTION, AND HISTORY
Short Title: FILM, FICTION, AND HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In the twentieth century and beyond, movies and television serve as an important source of mythologized national narratives (or somewhat “faked news”) from war movies, to westerns, to “biopics” of figures such as Kenneth Turing. Are their patterns of distortion at work, we can identify? How do we correct them?
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 141 - LITERATURE AND ENVIRONMENT
Short Title: LITERATURE AND ENVIRONMENT
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides an introduction to the increasingly relevant field of environmental literature and ecocriticism. We will examine literature, criticism, and film from the late eighteenth century to the present with an eye to determining how these texts represent the relationship between humans and their physical environments.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 142 - WATER AND CITIES
Short Title: WATER AND CITIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Investigates ancient, historical, and modern cities and how their residents received water. Questions include: how cities developed water resources, how water shaped city life, and how the environment was engineered to produce water. Students will be able to choose a city and a water topic for their final seminar project.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 143 - BRAZIL MODERN: ART AND ARCHITECTURE BETWEEN THE NATION AND THE METROPOLE
Short Title: BRAZIL MODERN
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This FWIS course introduces students to the artistic and architectural theories and practices of modernism in Brazil. This interdisciplinary course offers an exploration of the complex political, social and cultural histories that shaped the built environment of modern Brazil. This is a seminar on Brazilian modernism and its discontents.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
**FWIS 144 - WRITING ABOUT GREEK DRAMA**  
**Short Title:** WRITING ABOUT GREEK DRAMA  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course introduces texts that are integral to ancient Greek culture, and core texts in the Western literary tradition. Students receive frequent regular practice at close reading, writing, and oral communication. The assigned primary texts are Aristotle’s Poetics and tragedies by Aeschylus, Sophocles, and Euripides (all read in English translation).  
**Course URL:** [pwc.rice.edu](http://pwc.rice.edu/)  

**FWIS 145 - FOOD, HEALTH, AND ENVIRONMENTAL JUSTICE**  
**Short Title:** FOOD AND ENVIRONMENTAL JUSTICE  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course examines the intersections of food production and consumption, public health, and climate change through the lenses of environmental and food justice. Students will explore issues such as sustainability, food security and access, race, and class through reading and writing about a diverse range of literary and scholarly texts.  

**FWIS 146 - YOUTH ACTIVISM AND SOCIAL CHANGE**  
**Short Title:** YOUTH ACTIVISM & SOCIAL CHANGE  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Young people are leading their communities, influencing policy, and shaping discourse on some of the most pressing social issues of our time. This course explores how youth become mobilized to take political action and what kind of personal and public narratives inform their efforts to bring about social change.  

**FWIS 147 - AMERICA THROUGH FOREIGN EYES**  
**Short Title:** AMERICA THROUGH FOREIGN EYES  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** The United States has always been a source of fascination – both attraction and repulsion – for many people around the world. The course covers the perceptions and interactions of five regions – Africa, China, France, Mexico, and Russia – with America. It offers ways to approach cross-cultural study and concludes with a segment that “reverses the gaze” by analyzing American opinions of other cultures. “America through Foreign Eyes” addresses four overarching themes: 1) democracy and modernity; 2) globalization and capitalism; 3) racism and immigration; and 4) intellectual and cultural life.  
**Course URL:** [pwc.rice.edu](http://pwc.rice.edu/)  

**FWIS 148 - THE DIRTY THIRTIES: LITERATURE, CULTURE, AND TOPOGRAPHY IN THE AMERICAN 1930S**  
**Short Title:** THE DIRTY THIRTIES  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Despite prevailing perceptions, the 1930s weren’t all dust and depression. The decade saw the advent of big band swing, both in music and dancing styles, the proliferation of films with sound, and exciting new styles of visual art and writing. American culture flourished both because and in spite of the Great Depression. In this course, we’ll study the history, literature, music, art, and film of the vibrant but complex 1930s with an eye for how this decade helped define contemporary American culture.  
**Course URL:** [pwc.rice.edu](http://pwc.rice.edu/)  

**FWIS 149 - GRAPHIC MEDICINE**  
**Short Title:** GRAPHIC MEDICINE  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Do graphic novels reflect perceptions of medicine? Can comics orient our notion of care? Formally dependent on interruption, graphic novels demonstrate the complexity of reading—reading texts, reading bodies, reading trauma. Thus, our class will grapple with disruption and healing in comics and will consider these implications for medical practice. Mutually Exclusive: Cannot register for FWIS 149 if student has credit for CLAS 303.
FWIS 150 - THE WORLD OF MEDIEVAL MEDICINE
Short Title: THE WORLD OF MEDIEVAL MEDICINE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How did medieval Christians understand and treat mental and bodily illness? How did their experiences of pain, sex, childbirth, and death interact with larger concepts of God, nature, and the heavens? What role did angels and demons play? This seminar will explore these issues through close reading of medieval texts. Mutually Exclusive: Cannot register for FWIS 150 if student has credit for FSEM 171/MDEM 171/RELI 171.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 151 - MAKING SENSE OF OURSELVES: THE ART OF THE PERSONAL ESSAY
Short Title: MAKING SENSE OF OURSELVES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores and examines the personal essay as a vehicle for discovery, critical thinking, and self-scrutiny. Students will read great essays from the past and present, write a variety of essays themselves, and analyze the form to draw larger conclusions about thoughtful and engaging writing in any genre.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 152 - NUTRITIONAL SUPPLEMENTS: REAL REMEDIES OR SHADY SCIENCE?
Short Title: THE SCIENCE OF SUPPLEMENTS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive seminar examines evidence for the use of nutritional supplements in promoting health. Topics include the role of vitamins, herbs and food-based supplements in medicine; the biology of illnesses such as cancer and depression; and the molecular mechanisms of supplements in disease prevention and management.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 153 - THE POWERS OF HORROR
Short Title: THE POWERS OF HORROR
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive seminar focuses on how narratives of horror call attention to broad forms of injustice. It examines literary, graphic, and filmic examples of horror from its radical queer beginnings in Horace Walpole's The Castle of Otranto, all the way to Jordan Peele's unflinching examination of racism in Get Out.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 154 - THE GOOD, THE BAD AND THE BORDER
Short Title: THE GOOD, THE BAD & THE BORDER
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore portrayals of morality in film, literature and music produced in the US-Mexico borderlands. As we examine conflicting and converging moral codes in these cultural texts, students will use writing as a tool for exploring ideas and refining understanding.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 155 - GROWING PAINS: COMING-OF-AGE IN LITERATURE AND FILM
Short Title: GROWING PAINS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore portrayals of morality in film, literature and music produced in the US-Mexico borderlands. As we examine conflicting and converging moral codes in these cultural texts, students will use writing as a tool for exploring ideas and refining understanding.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 156 - SPEECH AND COMMUNICATION IN HOMER
Short Title: SPEECH AND COMM IN HOMER
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduces students to oral tradition, oral performance, oral poetics, and the Homeric poems. We will read the Iliad and Odyssey closely, focusing on the speeches, songs, and stories performed by characters, and considering what those performances suggest about the constructive and destructive use of speech in human relationships and societies.
Critical thinking runs counter to inherent tendencies toward confirmation bias in decision making. In the political realm, this conflict is often exploited by governmental leaders and media to control specific outcomes. Students in this class will learn to develop their critical thinking and analytical skills in the context of a democratic society.

**FWIS 163 - INVENTING THE BARD: A CULTURAL HISTORY OF SHAKESPEARE**  
**Short Title:** INVENTING THE BARD  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course confronts the political and cultural legacies of Shakespeare's plays and poems through the history of his evolution from a working actor and playwright in the London theater to the "Bard of Avon," a mythologized author at the center of the English literary canon.

**FWIS 164 - WAYS OF WALKING IN LITERATURE AND CULTURE**  
**Short Title:** WAYS OF WALKING  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course explores the act of walking, in theory and in practice. Through readings, discussions, writing assignments, and group and individual walks, it examines questions about the body and its movements; the construction and navigation of space; the tradition of travel writing; and the relationship between walking and thinking.

**FWIS 161 - DETECTIVES & DETECTIONS**  
**Short Title:** DETECTIVES & DETECTIONS  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course explores representations of struggle between detectives and those evading detection. Throughout, we will continually ask: What can "detection" teach us about the boundaries of national belonging? And how can we appropriate the lens of detection to improve our skills as academic readers and writers?

**FWIS 159 - VOICING DISSENT: MUSIC AND SOCIAL MOVEMENTS**  
**Short Title:** VOICING DISSENT  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This seminar offers an introduction, through a musical lens, into key popular grassroots social movements that have taken place around the world in the last century. Music serves as a stepping stone to discuss both the broader histories of the movements and the aftermath of the "Final Solution." We will also analyze documents, testimonies, memoirs, trial records, and various forms of representations and commemoration of the Shoah.

**FWIS 158 - THE HOLOCAUST IN HISTORICAL PERSPECTIVE**  
**Short Title:** THE HOLOCAUST IN HISTORY  
**Department:** First-Year Writing Intensive  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course will examine the history of the Holocaust from early accounts to recent reconstructions of the origins, implementation, and aftermath of the "Final Solution." We will also analyze documents, testimonies, memoirs, trial records, and various forms of representations and commemoration of the Shoah.
FWIS 165 - SCIENCE FICTION AND WILLIAM SHAKESPEARE
Short Title: SCIENCE FICTION & SHAKESPEARE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the intersection between William Shakespeare's works and science fiction. By reading graphic novels and short stories and watching film and television adaptations, this course will examine what this fascination reveals about Shakespeare's plays and the pursuits of science fiction.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 166 - ANOTHER TIME AND PLACE: WRITING ABOUT SPECULATIVE FICTION
Short Title: SPECULATIVE FICTION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Speculative fiction are stories of possibility, of what our world might look like in another time and place. These authors use their literature to not only entertain—after all, androids and resurrected dinosaurs are fascinating—but also to speak to the developments and challenges of the present moment.

FWIS 167 - BOOKS YOU CAN'T PUT DOWN: AN EXPLORATION OF THE READING EXPERIENCE
Short Title: BOOKS YOU CAN'T PUT DOWN
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What is it about certain books that draws us in and keeps us turning the page? To answer this question, this class examines selected works of fiction and creative nonfiction with a focus on literary form, the psycho-social functions of narrative, and the physical and emotional experience of reading.

FWIS 168 - CASE STUDIES OF BUILDING DESIGN PROBLEMS
Short Title: BUILDING DESIGN PROBLEMS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will analyze buildings that ended up in legal battles. Problems include structural failures, design blunders and near disasters. You will write about what went wrong and why, who saved that day and who should have acted differently. You will learn to write critically and present a convincing argument.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 169 - WHAT ARE HUMAN RIGHTS?
Short Title: WHAT ARE HUMAN RIGHTS?
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We hear and talk about "human rights" frequently, but few of us have an easy time defining ideas so inherently contested and pitted against one another. This class will read, discuss, and write about the history and future of human rights in the United States and elsewhere in the world.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 170 - "WHAT IS CITIZENSHIP?"
Short Title: "WHAT IS CITIZENSHIP?"
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Paying special attention to the experiences of immigrant, indigenous, and (formerly) enslaved peoples of the United States, this seminar takes a broad approach to the examination of "citizenship," its global contexts, and its material domains, including education, identity, labor, language, sovereignty, and suffrage.

FWIS 171 - WORD MAGIC
Short Title: WORD MAGIC
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: People use language to create inner models of the world to represent their experience and guide their behavior. Students will be introduced to a sensitive interdependence of language, thought, emotion, and behavior in personal and social contexts.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 172 - SITES, SOUNDS, & STORIES: THE RHETORIC OF PUBLIC MEMORY
Short Title: RHETORIC OF PUBLIC MEMORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course invites students to consider whose stories we remember, and how/when/where. How does the framing of historical events bolster or disrupt dominant narratives of public memory? Students will examine scholarship on public memory and conduct analyses of the sites, sounds, and stories of national and local histories.
FWIS 173 - DESCRIBING THE ABSTRACT: COMMUNICATING THE MYSTERIES OF MATHEMATICS
Short Title: DESCRIBING THE ABSTRACT
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Mathematics is beautiful, and this course will help us see how. Students will develop the skills to describe mathematics, ancient to cutting-edge, with accurate, exciting, and compelling prose. Along the way, they will learn about mysteries and solutions from pockets of the diverse and flourishing world of mathematics. Mutually Exclusive: Cannot register for FWIS 173 if student has credit for FSEM 159/HIST 159.

FWIS 174 - SOUNDING THE CITY
Short Title: SOUNDING THE CITY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Sound surrounds us. And yet we often put little thought into what role it plays in our lives and the lives of our public spaces. This course aims to correct this oversight by offering an introduction to the field of sound studies focused on Houston's audio environment, past and present.

FWIS 175 - SEEING SURVEILLANCE: WRITING WITH AND ABOUT SECURITY AND SOCIETY
Short Title: SEEING SURVEILLANCE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course requires students to read, write, and explore the nature of surveillance, security, and society by asking: What is surveillance? Why does it happen and who does it happen to? We will analyze how examples of surveillance shape and reshape cultures across the world.

FWIS 176 - WRITING WITH AND ABOUT SOCIAL MEDIA
Short Title: WRITING SOCIAL MEDIA
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will explore social media from a number of perspectives: we will learn its history; explore its technicalities; think critically about its contact; and ultimately seek to understand why and how social media has quickly become a mainstream tool for written and audiovisual communication.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 177 - BIZARRE BIBLICAL STORIES
Short Title: BIZARRE BIBLICAL STORIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine some of the more bizarre stories of the Hebrew Bible, which deal with such ideas as fratricide, incest, seduction and magic. We will see how such stories have been interpreted, and been afforded meaning, throughout the ages. All texts will be read in English translation. Mutually Exclusive: Cannot register for FWIS 177 if student has credit for FSEM 109.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 178 - GLOBALIZING MUSEUM HISTORY
Short Title: GLOBALIZING MUSEUM HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course traces a number of themes in world history through museums and collections from 1800s to the present. More specifically, the course examines how museums are shaped by local and global influences and participate in historical processes related to identity formation, colonialism, and resistance.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 179 - TRACKING DRAGONS THROUGH THE PAGES OF SHORT FICTION: THE ART OF READING CLOSELY
Short Title: SHORT FICTION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This will be a course on expressive writing and the art of reading; on great short fiction from Kafka to O'Conner; and on those obstacles—dragons that breathe fire across our paths—that stand in the way of our content in just those ways they derail the characters we read.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
FWIS 180 - BEING THE CHANGE: WRITING FOR ACTIVISM, ADVOCACY, AND SOCIAL JUSTICE
Short Title: WRITING FOR SOCIAL JUSTICE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we’ll take a deep dive into social movements from across time and space, thinking critically about the communicational tactics of each one. Using this knowledge, students will choose an issue important to them, develop a communicational strategy and—if they want—put it out into the world!

FWIS 181 - GRAPHIC BLACKNESS: THE AFRICAN AMERICAN COMIC BOOK TRADITION
Short Title: AFRICAN AMERICAN GRAPHIC NOVEL
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the struggle for black representation in comics and graphic novels. We will discuss the unique opportunities that sequential narratives present to creators as they represent race on the page and we will examine the history of black artists working in the comic book industry.

FWIS 183 - VIRTUAL VICTORIANS AND STEAMPUNK CULTURE
Short Title: VIRTUAL VICTORIANS & STEAMPUNK
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Replete with gears and gadgets, Steampunk comments as much on the past as on our contemporary technological moment and asks us to critically consider the human-machine relationship. This FWIS will grapple with the rise of the techno-human as we engage with 19th century and Steampunk texts and various digital projects.

FWIS 184 - BASEBALL AND AMERICAN IDENTITY
Short Title: BASEBALL AND AMERICAN IDENTITY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Like America itself, baseball has long been the subject of eulogies and postmortems. At a time of renewed policing regarding who or what “counts” as American, baseball provides an opportunity to reflect on not only the game of baseball, but also what baseball teaches us about the subject of writing.

FWIS 185 - CONTEMPORARY AMERICAN POETRY
Short Title: CONTEMPORARY AMERICAN POETRY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will delve into contemporary American poetry by exploring outstanding poetry books of the previous year. Students will study American poetry in literary and historical contexts, develop ability to analyze how poems “work,” develop ability to create clear, effective prose, and build framework for exploring other types of poetry.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 186 - CARIBBEAN ECOLOGIES
Short Title: CARIBBEAN ECOLOGIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Colonization, slavery, and climate change have violently disrupted the relationship between humans and nature in the Caribbean. We will examine colonial diaries, memoirs of the Haiti earthquake and Haitian ‘salvage art’, reef restoration art, and stories about food and history (and more!) to explore creative responses to this ecological vulnerability.

FWIS 187 - CROSSING BORDERS
Short Title: CROSSING BORDERS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: "Humans are in a constant state of transformation and face numerous extrinsic as well as intrinsic barriers over the course of their lives. We will read about crossing real and imaginary borders, about uprooting and losing identity, the traumatic loss of homeland, as well as about the walls in our psyche."
FWIS 190 - ROBIN HOOD: NOT YOUR AVERAGE OUTLAW
Short Title: ROBIN HOOD
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course traces the development of the Robin Hood legend from 13th-century England to its global presence today. By examining different literary genres and visual mediums, this course explores what the legend teaches—beyond being wildly entertaining!—about issues of race, gender, religion, social justice, economics, and even environmentalism.

FWIS 191 - THE ART OF THE SHORT STORY
Short Title: THE ART OF THE SHORT STORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How exactly does the length of a piece of writing connect to its expression as a work of art and our interpretation of it? In this course, we'll consider "shortness" as a challenge authors undertake, investigating the ways they weave complex tales into brief, often pithy, masterpieces.

FWIS 192 - THE ROARING TWENTIES
Short Title: THE ROARING TWENTIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The 1920s were about new possibilities, aesthetic experimentation, and frenzied expression. We'll examine iconic '20s literature by Hemingway, Fitzgerald, Woolf, and others, as well as the lynchpins of '20s culture: jazz, Prohibition, the Harlem Renaissance, and modern art. Highlights include lessons on the Charleston and a Roaring Twenties soiree.

FWIS 193 - EMPIRES
Short Title: EMPIRES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Is the United States of America an empire? This course will examine civilizations from Ancient Rome and Han Dynasty China to the superpowers of the twentieth century in order to identify the nature and mechanisms of imperial power. It will investigate imperial literature, architecture art, dress, rituals and technology.

FWIS 195 - LAW AND ITS TRANSGRESSIONS
Short Title: LAW AND ITS TRANSGRESSION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The rule of law is a fragile and frequently threatened "belief" system that is constantly challenged, negotiated and re-negotiated. We will analyze the rule of law and its transgressions, its relationship to the concepts of rights, justice, guilt and innocence in texts and films from varying historical and political contexts.
FWIS 196 - ASTRONOMICAL AMBITION: EXPLORING SCIENCE, SPACE, AND THE STARS THROUGH LITERATURE
Short Title: ASTRONOMICAL AMBITION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course asks students to consider how the humanities and scientific disciplines approach truth, knowledge, and new dimensions of space, time, and thought. Students can expect to read material spanning from the J. J. Abrams’ Star Trek, to Isaac Asimov’s short stories, to works of scientific fiction that span millennia.

FWIS 197 - SCIENCE, PSEUDOSCIENCE AND SKEPTICISM: HOW TO TELL GOOD SCIENCE FROM JUNK SCIENCE
Short Title: SCIENCE OR PSEUDOSCIENCE?
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class focuses on scientific skepticism and critical thinking, and how they can be utilized to distinguish science from pseudoscience. Core topics include the fallibility of perception; mechanisms of self-deception; as well as metacognition, cognitive biases and logical fallacies. These topics will be illustrated through examples of good and bad science.

FWIS 198 - DEVILS IN THE DETAILS: VISUALIZING DEMONS AND THE DEMONIZED
Short Title: VISUALIZING DEMONS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines beliefs about demons and devils and analyzes their influence in different visual mediums, such as: medieval manuscripts, Renaissance frescos, nineteenth-century gargoyles, and recent TV programs and films. In examining the demonic body, students will also unpack how and why different categories humans are demonized.

University Courses (UNIV)

UNIV 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ACADEMIC READING AND WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how scholars construct arguments and use evidence to support claims, and they will practice writing texts that are relevant to their own courses and careers.

UNIV 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ORAL COMMUNICATION SKILLS
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to pronunciation clarity, small group interactions, and formal presentations. Final projects will be related to students’ studies or research.

UNIV 602 - ADVANCED ACADEMIC WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ADVANCED ACADEMIC WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address writing at both the macro- and micro-level, engaging students in such academic writing tasks as critiquing, reporting, and interpreting research findings, illustrating and justifying the significance of research, while also attending to mechanical topics. Writing assignments in the course will be linked to students’ studies, courses, or research. One-on-one conferences with instructors and CAPC staff will be required.

Department and Code Legend
Note: Internally the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: COMM, FWIS, UNIV

Psychological Sciences
Contact Information
Psychological Sciences
https://psychology.rice.edu/
The Department of Psychological Science’s undergraduate program offers the core preparation found across the nation’s leading graduate schools of psychology, combined with advanced courses and research opportunities offered by the nation’s leading scholars and teachers in psychological science. Programs of study may be tailored to graduate school and future careers in several major fields of psychology, as well as in medicine, law, business, technology, or education.

An important feature of our doctoral program is its strong research orientation. Graduate students are expected to spend most of their time actively engaged in research and are expected to acquire a high level of research and statistical competence. Faculty research interests and PhD major concentrations for graduate students include:

- **Cognitive and Affective Neuroscience**: understanding the psychology and neuroscience behind basic mental activities (e.g., perceiving, attending, remembering) and higher forms of behavior (e.g., memory, language, social cognition, emotion, health);
- **Health Psychology and Behavioral Medicine Research**: understanding how behaviors, cognitions, and emotions impact mental and physical health; designing and testing evidence based interventions to reduce health risk and improve quality of life; examining biological factors underlying risk, resilience, and mechanisms of change;
- **Human-Computer Interaction and Human Factors**: understanding interactions between humans and other elements of a physical system, and the application of theories, principles, data, and other methods of design that optimize human well-being and overall system performance and usability;
- **Industrial-Organizational Psychology**: understanding human behavior in organizational and work situations, addressing research problems such as motivation at work, the aging workforce, discrimination in the workplace, job performance, and team training;
- **Psychometrics and Quantitative Psychology**: understanding specialized skills related to appropriate and innovative study design; statistical modeling and analysis; and interpretation of psychological measures, experiments, and interventions

The Master of Industrial-Organizational Psychology (MIOP) is a full-time, 2-year professional master’s program that offers students graduate-level training in an applied area of psychology for which there is a very high demand. Students are provided with scientific and practical knowledge about the nature of the psychology of work and the workplace, the future of work, and a deep set of methodological and statistical skills. Graduates of the program will be well positioned to lead human factors and human computer interaction efforts across a broad range of industries, including IT/telecommunications, health care, defense, e-commerce, and energy.

The Master of Human-Computer Interaction and Human Factors is a full-time, 2-year professional master’s program that will expand students’ knowledge of critical concepts and methods in psychology and how to apply those concepts to real-world problems. In this program, students will learn about findings and theories in critical areas of human-computer interaction and human factors, learn how to apply those concepts to solve real-world problems, learn how to design empirical studies to complement theoretical approaches, and develop quantitative skills that support these efforts. Graduates of the program will be well positioned to lead human factors and human computer interaction efforts across a variety of corporate, nonprofit, and government settings, on projects ranging from medical safety to the promotion of inclusive cultures (and prevention of harassing ones). I-O psychologists are presently in extremely high demand according to the Bureau of Labor Statistics and US News and World Report (No. 2 in USNWR Best Science Jobs, 2020); Rice’s existing I-O psychology doctoral program receives routine requests from employers seeking students with Master’s-level training.

**Bachelor’s Program**
- Bachelor of Arts (BA) Degree with a Major in Psychology (p. 1876)

**Master’s Programs**
- Master of Arts (MA) Degree in the field of Psychology*
- Master of Human-Computer Interaction and Human Factors (MHCIIHF) Degree (p. 1190)
- Master of Industrial-Organizational Psychology (MIOP) Degree (p. 1219)

**Doctoral Program**
- Doctor of Philosophy (PhD) Degree in the field of Psychology
  - and a Major Concentration in Cognitive and Affective Neuroscience (p. 1878)
  - and a Major Concentration in Health Psychology and Behavioral Medicine Research (p. 1881)
  - and a Major Concentration in Human-Computer Interaction and Human Factors (p. 1881)
  - and a Major Concentration in Industrial-Organizational Psychology (p. 1883)
  - and a Major Concentration in Psychometrics and Quantitative Psychology (p. 1884)
* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair
Eduardo Salas

Professors
Margaret E. Beier
Michael D. Byrne
Patricia DeLucia
Michelle "Mikki" R. Hebl
Eden King
Randi C. Martin
Frederick L. Oswald
Eduardo Salas

Associate Professors
Christopher P. Fagundes
Simon J. Fischer-Baum
Philip T. Kortum

Assistant Professors
Bryan T. Denny
Danielle King
Stephanie Leal

Professors Emeriti
Sarah A. Burnett
James L. Dannemiller
David M. Lane
Stephan J. Motowidlo
James R. Pomerantz
David J. Schneider

Lecturers
Özge Gürcanlı
Chase L. Lesane-Brown
D. Colette Nicolaou
Sandra V. Parsons
Carissa A. Zimmerman

Professors, Joint Appointments
Rick K. Wilson
Jing Zhou

Associate Professor, Joint Appointment
D. Brent Smith

Adjunct Professors
S. Richard "Dick" Jeanneret
Harvey S. Levin
Katherine A. Loveland
Lynn M. Maher
Deborah A. Pearson
Kevin C. Wooten
Anthony A. Wright

Adjunct Associate Professors
S. Morton McPhail
S. Camille Peres

Adjunct Assistant Professors
Claudia Ziegler Acemyan
Ryan Brown
Roberta M. Diddel
Luz M. Garcini
Heidi Ham
Cary R. Jensen
Lauren Landon
Mary R. Newsome
Mary Portillo
Peter Roma
Jason Schneiderman
Tatiana Schnur
Eleanor "Lennie" Waite
Mihriban Whitmore
Rachel T. Winer

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Psychology (PSYC)
PSYC 101 - INTRODUCTION TO PSYCHOLOGY
Short Title: INTRODUCTION TO PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of topics, problems, and approaches in contemporary psychology. Includes the biological basis of behavior, sensation, perception, attention, learning and memory, thinking, language, abnormal behavior and therapies, personality, and individual differences. Required for psychology majors.
PSYC 102 - QUANTITATIVE ANALYSIS FOR SOCIAL SCIENCES:
PSYCHOLOGY LAB
Short Title: PSYCHOLOGY STATISTICS LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This lab companion course to SOSC 302: Quantitative Analysis for the Social Sciences involves psychology-specific applications of statistical analysis. The lab focuses on the use of software to analyze data from research in psychological sciences. Students who enroll in this lab section must also enroll in SOSC 302 during the same semester.

PSYC 202 - INTRODUCTION TO SOCIAL PSYCHOLOGY
Short Title: INTRO TO SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 101
Description: Overview of topics in social psychology. Includes conformity and social influence, attitude formation and change, aggression, altruism, relationships, liking and loving, and prejudice and stereotyping, as well as applications to other disciplines (e.g. law, marketing, the workplace, etc.). Required for psychology majors.

PSYC 203 - INTRODUCTION TO COGNITIVE PSYCHOLOGY
Short Title: INTRO TO COGNITIVE PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 203
Description: Critical review of traditional and contemporary approaches to the study of remembering and forgetting. Graduate/Undergraduate Equivalency. PSYC 524.

PSYC 231 - INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY
Short Title: INDUS & ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 101
Description: An overview of the principles, techniques, and theories of psychology applied in the industrial setting.

PSYC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 260 - UNDERGRADUATE PROFESSIONAL ISSUES IN PSYCHOLOGY
Short Title: UNDERGRAD PROF ISSUES IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will provide students interested in psychology with an opportunity to explore psychology as a major and a career. Through guest lecturers, group discussions, and class projects, students will learn about diverse fields and potential career paths in psychology. Instructor Permission Required.

PSYC 308 - MEMORY
Short Title: MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Critical review of traditional and contemporary approaches to the study of remembering and forgetting. Graduate/Undergraduate Equivalency. PSYC 524.

PSYC 309 - PSYCHOLOGY OF LANGUAGE
Short Title: PSYCHOLOGY OF LANGUAGE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Study of human and other animal communication. Includes the structure of human language, word meaning and semantic memory, psychological studies of syntax, bilingualism, language and thought, and language errors and disorders. Cross-list: LING 309.
PSYC 310 - PSYCHOLOGY OF AGING
Short Title: PSYCHOLOGY OF AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: This course focuses on the psychology of aging through a biological, cognitive, and socio-emotional framework. Topics to be covered include how mental capacities change over time, especially memory processing, differences between normal and pathological aging, neurobiological changes with age, dementias such as Alzheimer's disease, and individual differences in aging. There will be an emphasis on discussion of recent literature and developing research ideas in the field of psychology of aging.

PSYC 315 - INTRODUCTION TO SEMANTICS
Short Title: INTRODUCTION TO SEMANTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Cross-list: LING 315. Recommended Prerequisite(s): LING 200 or ANTH 200.

PSYC 321 - DEVELOPMENTAL PSYCHOLOGY
Short Title: DEVELOPMENTAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of behavioral changes with age in both human and nonhuman species. Recommended Prerequisite(s): PSYC 202 and PSYC 203.

PSYC 325 - LANGUAGE ACQUISITION
Short Title: LANGUAGE ACQUISITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: The aim of this course is to explore language development closely through a variety of theories and research findings. Students will become familiar with different theories concerning language development, and develop an understanding of relevant issues, theoretical positions and relevant methodologies in language development using critical thinking skills. Cross-list: LING 325.

PSYC 329 - PSYCHOLOGICAL TESTING
Short Title: PSYCHOLOGICAL TESTING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: Offers a detailed examination of psychological test development and analysis. Topics include an exploration of different forms of psychological tests (e.g. intelligence, attitudes, personality, clinical), reliability and validity of tests, and practical issues in testing such as test bias (e.g. gender differences).

PSYC 330 - PERSONALITY THEORY AND RESEARCH
Short Title: PERSONALITY THEORY & RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 340
Description: Examination of those aspects of personality emphasized by major theorists past and present.

PSYC 331 - PSYCHOLOGY OF GENDER
Short Title: PSYCHOLOGY OF GENDER
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of research and theory on gender in psychology. Cross-list: SWGS 331.
PSYC 332 - ABNORMAL BEHAVIOR
Short Title: ABNORMAL BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of the diagnosis and treatment of mental disorders.

PSYC 333 - MULTICULTURAL PSYCHOLOGY
Short Title: MULTICULTURAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: This seminar examines psychological research and theories that address important issues in the lives of diverse individuals. Readings, discussions, and films will be used to explore the acculturation process; stereotyping, prejudice, discrimination and racism; racial/ethnic identity development; and multicultural competence. Students are required to participate in a service learning project. Recommended Prerequisite(s): PSYC 202 and PSYC 321.

PSYC 339 - STATISTICAL METHODS-PSYCHOLOGY
Short Title: STATISTICAL METHODS-PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 or PSYC 203
Description: Introduction to quantitative and computer methods applicable to the analysis of experimental and correlational data. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 340 - RESEARCH METHODS - PSYCHOLOGY
Short Title: RESEARCH METHODS - PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 339 or SOSC 302)
Description: A continuation of PSYC 339/SOSC 302, with emphasis on individual student experiments and the writing of research reports. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 342 - COMPUTER APPLICATIONS IN PSYCHOLOGY
Short Title: COMPUTER APPLICATIONS IN PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 504. Mutually Exclusive: Cannot register for PSYC 342 if student has credit for PSYC 504.

PSYC 345 - HEALTH PSYCHOLOGY
Short Title: HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203
Description: Contemporary theory and research in health psychology, including topics such as health behaviors, stress and coping, pain and its management, heart disease, psychoneuroimmunology, chronic illness, and dying. Recommended Prerequisite(s): PSYC 332 and PSYC 340.

PSYC 346 - STRESS AND HEALTH ACROSS THE LIFESPAN
Short Title: STRESS/HEALTH ACROSS LIFESPAN
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is an introductory course on psychobiological processes in animals and humans as they pertain to the development of stress responses and disease. In this course, we will review models of stress as well as the physiological processes implicated in bodily diseases. We will also review behavioral, psychological and pharmacological variables involved in stress processes. Recommended Prerequisite(s): PSYC 345
PSYC 351 - PSYCHOLOGY OF PERCEPTION
Short Title: PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency: PSYC 521.

PSYC 353 - PSYCHOLOGY OF EMOTION AND MOTIVATION
Short Title: PSY OF EMOTION & MOTIVATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202
Description: Study of motives and emotions as causes of human behavior; includes biological motives, aggression, emotions and emotional expression, and individual differences in motivation. Recommended Prerequisite(s): PSYC 203.

PSYC 354 - INTRODUCTION TO SOCIAL AND AFFECTIVE NEUROSCIENCE
Short Title: INTRO TO SOC/AFFECTIVE NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Overview of social and affective neuroscience research, including examination of the neurobiological mechanisms supporting social cognition; inter-personal processes; emotion and motivation; and emotion regulation. These topics will be examined in both healthy and affectively-disordered populations, with links made to the fields of health psychology and clinical neuroscience.

PSYC 362 - COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN
Short Title: COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Survey of theory and research on how mental processes are carried out by the human brain, with an emphasis on relating measures of brain activity to cognitive functioning, methods surveyed included electro physiological recording techniques, functional imaging techniques and methods that involve lessening or disrupting neural activity. Cross-list: NEUR 362.

PSYC 364 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 362 (may be taken concurrently) or NEUR 362 (may be taken concurrently)
Description: The objective is to equip the students of PSYC/NEUR 362 the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. The prereq may be taken the same semester as this class. Instructor Permission Required. Cross-list: NEUR 364. Graduate/Undergraduate Equivalency: PSYC 564. Mutually Exclusive: Cannot register for PSYC 364 if student has credit for PSYC 564.

PSYC 366 - METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE
Short Title: METHODS IN SOC COG AFF NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PSYC 202 or PSYC 203) and (PSYC 354 (may be taken concurrently) or PSYC 362 (may be taken concurrently)
Description: This course will give students hands-on training in the research methods of social cognitive and affective neuroscience. Students will learn about the theoretical underpinnings of these allied fields; acquire, preprocess, and analyze human functional neuroimaging data (i.e. using fMRI); and interpret and write-up results. PSYC 354 or PSYC 362 may be taken concurrently.
PSYC 370 - INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS
Short Title: INTRO TO HUMAN FACTORS & ERGO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 309 or LING 309 or LING 200 or ANTH 200) and (PSYC 362 or NEUR 362 or NEUR 380 or BIOE 380 or PSYC 380 or BIOC 380)
Description: Application of principles of psychology and human performance to the design of modern systems.

PSYC 375 - NEUROPSYCHOLOGY OF LANGUAGE AND MEMORY
Short Title: NEUROPSY OF LANGUAGE/MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 309 or LING 309 or LING 200 or ANTH 200) and (PSYC 362 or NEUR 362 or NEUR 380 or BIOE 380 or PSYC 380 or BIOC 380)
Description: An introduction to the neural basis of language and memory, covering patient-based and neuroimaging approaches. Topics include the neural basis of speech perception, language comprehension, language production, short-term memory, working memory, semantic and episodic memory, and domain-specific memory (e.g., verbal, spatial, and emotional memory).

PSYC 380 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will provide a broad overview of the brain's neural systems that subserve perception, learning, and behavior. The course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Cross-list: NEUR 380. Graduate/Undergraduate Equivalency: PSYC 584. Recommended Prerequisite(s): PSYC 101. Mutually Exclusive: Cannot register for PSYC 380 if student has credit for PSYC 584.

PSYC 409 - METHODS IN HUMAN-COMPUTER INTERACTION
Short Title: METHODS HUMAN-COMP INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 609. Recommended
Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 409 if student has credit for PSYC 609.

PSYC 411 - HISTORY OF PSYCHOLOGY
Short Title: HISTORY OF PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203
Description: Survey of evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 511. Mutually Exclusive: Cannot register for PSYC 411 if student has credit for PSYC 511.

PSYC 420 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION
Short Title: ELECTION SYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This multidisciplinary course will consider how elections are conducted to enhance participation, to accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be secure and correct, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election. Cross-list: COMP 435, POLI 420.
PSYC 430 - COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
Short Title: COMP MODELING OF COG PROCESSES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency: PSYC 543. Recommended Prerequisite(s): PSYC 203 and COMP 200 (or equivalent).Mutually Exclusive: Cannot register for PSYC 430 if student has credit for PSYC 543.

PSYC 431 - ADVANCED INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY SEMINAR
Short Title: ADVANCED I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An emphasis on reading original published research. Topics covered include personnel selection, training, motivation, job attitudes, and groups. Instructor Permission Required. Mutually Exclusive: Cannot register for PSYC 431 if student has credit for PSYC 530.

PSYC 432 - BRAIN AND BEHAVIOR
Short Title: BRAIN AND BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231 and PSYC 431
Description: An in-depth examination of the neural basis of higher mental functions in humans, including perception, attention, memory, motor skill, and language. Claims and controversies in cognitive neuroscience will be discussed. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 435 - POLLUTION AND PSYCHOLOGICAL DEVELOPMENT
Short Title: POLLUTION & PSYCHOLOGICAL DEV
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, we will consider research on the effects of various pollutants and toxic substances on the cognitive, social, and emotional development of children. Expert guest speakers will contribute to the course as well. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 436 - ADVANCED ORGANIZATIONAL PSYCHOLOGY
Short Title: ADVANCED ORGANIZATIONAL PSY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231 and PSYC 431
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 636. Mutually Exclusive: Cannot register for PSYC 436 if student has credit for PSYC 636.

PSYC 438 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 551. Recommended Prerequisite(s): PSYC 339 and PSYC 340 and should be majoring in Psychology or Business. Mutually Exclusive: Cannot register for PSYC 438 if student has credit for PSYC 551.

PSYC 439 - ADVANCED STATISTICAL METHODS FOR PSYCHOLOGY UNDERGRADUATES
Short Title: ADV STATISTICAL METHODS-PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: This course is intended as a second course in statistics for psychology and the social sciences. It builds on PSYC 339/SOSC 302. Advanced factorial ANOVA designs, mixed between- and within-subject designs, and multiple regression will be covered. This course is primarily for advanced psychology undergraduates contemplating enrollment in graduate school.
PSYC 440 - RESEARCH SEMINAR: INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY
Short Title: RESEARCH IN I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An examination of selected topics in industrial/organizational psychology, focusing on published and ongoing research by contemporary scholars. Topics will vary. Instructor Permission Required.

PSYC 441 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 441 if student has credit for PSYC 341/PSYC 541.

PSYC 445 - ADVANCED SEMINAR IN CLINICAL PSYCHOLOGY
Short Title: ADV SEM IN CLINICAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 202 or PSYC 203)
Description: Topics will vary. Repeatable for credit with Permission of Department.

PSYC 452 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 552. Mutually Exclusive: Cannot register for PSYC 452 if student has credit for PSYC 552.

PSYC 461 - REASONING, DECISION MAKING, PROBLEM SOLVING
Short Title: DECISION MAKING/PROB SOLVING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 339 or SOSC 302 or STAT 280 or STAT 300 or STAT 305 or STAT 310 or STAT 315 or DSCI 301 or ECON 307)
Description: Study of the higher mental processes. Includes problem solving, judgment, decision making, and reasoning. Graduate/Undergraduate Equivalency: PSYC 527. Mutually Exclusive: Cannot register for PSYC 461 if student has credit for PSYC 360/PSYC 527.

PSYC 462 - NON-TRADITIONAL INTERFACES
Short Title: NON-TRADITIONAL INTERFACES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 662. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 462 if student has credit for PSYC 662.
PSYC 463 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 663. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 463 if student has credit for PSYC 663.

PSYC 464 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency: PSYC 664. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 464 if student has credit for PSYC 664.

PSYC 465 - OLFACTORY PERCEPTION
Short Title: OLFACTORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

PSYC 466 - OLFACTORY PERCEPTION
Short Title: OLFACTORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

PSYC 467 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

PSYC 468 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

PSYC 469 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.

PSYC 470 - ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 370
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency: PSYC 540. Mutually Exclusive: Cannot register for PSYC 470 if student has credit for PSYC 540.

PSYC 471 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 472 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 473 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 474 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 475 - STEREOTYPING AND PREJUDICE
Short Title: STEREOTYPING AND PREJUDICE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 470
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 476 - STEREOTYPING AND PREJUDICE
Short Title: STEREOTYPING AND PREJUDICE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 470
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 478 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 479 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 480 - ADVANCED TOPICS
Short Title: ADVANCED TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 202 (may be taken concurrently) or PSYC 203)
Description: Topics will vary. Please see individual instructor for prerequisite requirements. Repeatable for different topics. Repeatable for Credit.
PSYC 485 - UNDERGRADUATE SUPERVISED RESEARCH
Short Title: UG SUPERVISED RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised empirical research. Research paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339, PSYC 340. Repeatable for Credit.

PSYC 487 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain's three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Instructor Permission Required. Graduate/Undergraduate Equivalency: PSYC 587. Mutually Exclusive: Cannot register for PSYC 487 if student has credit for PSYC 587.

PSYC 488 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised reading of books and empirical papers on a topic of mutual interest to students and faculty. Term paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339 and PSYC 340. Repeatable for Credit.

PSYC 489 - HONORS THESIS
Short Title: HONORS THESIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PSYC 339 or SOSC 302) and PSYC 340
Description: Sponsorship by faculty member required. Students must apply for the Honors Program. Instructor Permission Required. Repeatable for Credit.

PSYC 502 - ADVANCED PSYCHOLOGICAL STATISTICS I
Short Title: ADVANCED PSYC STATISTICS I
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humm Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to inferential statistics, with emphasis on analysis of variance. Students who do not meet registration requirements as Graduate and Psychology or MHCIHF (Master in Human-Computer Interaction and Human Factors) Majors must receive instructor permission to register. Cross-list: STAT 509.

PSYC 503 - ADVANCED PSYCHOLOGICAL STATISTICS II
Short Title: ADVANCED PSYC STATISTICS II
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 502 or STAT 509
Description: A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Cross-list: STAT 510.
PSYC 504 - COMPUTER APPLICATIONS IN PSYCHOLOGY
Short Title: COMPUTER APPLICATIONS IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 342. Mutually Exclusive: Cannot register for PSYC 504 if student has credit for PSYC 342.

PSYC 507 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level treatment of a wide range of laboratory and field research methodologies.

PSYC 511 - HISTORY AND SYSTEMS OF PSYCHOLOGY
Short Title: HISTORY & SYSTEMS OF PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 411. Mutually Exclusive: Cannot register for PSYC 511 if student has credit for PSYC 411.

PSYC 520 - FOUNDATIONS OF COGNITIVE PSYCHOLOGY
Short Title: FOUNDATIONS OF COGNITIVE PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the basic topics in cognitive psychology, including perception, memory, psycholinguistics, concept formation, problem solving, and decision making.
PSYC 529 - COGNITIVE RESEARCH SEMINAR
Short Title: COGNITIVE RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent research about mental phenomena. Repeatable for Credit.

PSYC 530 - FOUNDATIONS OF I-O PSYCHOLOGY
Short Title: FOUNDATIONS OF I-O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level introduction to the study of human behavior in the work setting. Mutually Exclusive: Cannot register for PSYC 530 if student has credit for PSYC 431.

PSYC 531 - HF/HCI RESEARCH SEMINAR
Short Title: HF/HCI RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on various human factors and human-computer interaction topics. Repeatable for Credit.

PSYC 532 - HEALTH RESEARCH SEMINAR
Short Title: HEALTH RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent health and emotion-related research. Repeatable for Credit.

PSYC 533 - I-O PSYCHOLOGY RESEARCH SEMINAR
Short Title: I-O PSYCHOLOGY RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on various industrial-organizational psychology topics. Repeatable for Credit.

PSYC 535 - HUMAN FACTORS/ERGONOMICS
Short Title: HUMAN FACTORS/ERGONOMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Broad overview of the science and profession of human factors/ergonomics. Emphasis is on discussion of literature and presentations of recommendations to applied problems.

PSYC 540 - FOUNDATIONS OF ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency: PSYC 470. Mutually Exclusive: Cannot register for PSYC 540 if student has credit for PSYC 470.

PSYC 541 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 541 if student has credit for PSYC 341/PSYC 441.

PSYC 543 - COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
Short Title: COMP MODELING OF COG PROCESSES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency: PSYC 430. Mutually Exclusive: Cannot register for PSYC 543 if student has credit for PSYC 430.
PSYC 546 - PSYCHONEUROIMMUNOLOGY
Short Title: PSYCHONEUROIMMUNOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Psychoneuroimmunology research

PSYC 547 - FOUNDATIONS OF HEALTH PSYCHOLOGY
Short Title: FOUNDATIONS-HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Foundations of Health Psychology research

PSYC 548 - INTERVENTIONS
Short Title: INTERVENTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will prepare students to conduct high-impact research across the translational continuum in the social, psychobiological, and behavioral sciences. In this course, students will gain a thorough grounding in the conduct of Randomized Controlled Trials (RCTs) and develop competence in the planning, design, and execution of clinical trials involving behavioral interventions. After taking this course, students will be able to plan and conduct longitudinal observational studies and clinical trials that have the potential to change practice guidelines, health care policies, and third-party coverage for health-related outcomes. The first two weeks of the course will cover causal inference in experimental and observational studies and address various implications of counterfactual thinking. The remainder of the course will provide training in planning, designing, and conducting translational research with a focus on randomized controlled trials of health-related behavioral interventions. Each student will develop and write a research grant proposal that will serve as the course "Final." Recommended Prerequisite(s): This course has no specific course prerequisites. It is designed to be most useful to students with knowledge of basic (i.e., undergraduate level statistics and research methods) that are pertinent to the social, behavioral, and biomedical sciences.
Course URL: canvas.rice.edu/courses/33575 (http://canvas.rice.edu/courses/33575/)

PSYC 549 - PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Short Title: PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will take a developmental approach to understand psychopathology and aging. We will seek to evaluate the factors contributing to psychopathology that emerge across the lifespan. We will adopt a biopsychosocial model to address the roots of normal and abnormal adult development, & aging. This course will begin with an overview of the field; we will then work toward a sophisticated understanding anxiety disorders, aging & cognitive disorders, mood disorders, factitious and dissociative disorders, and personality disorders. Although we will cover nosological models of psychopathology, we will primarily focus on etiology.

PSYC 550 - FOUNDATIONS OF SOCIAL PSYCHOLOGY
Short Title: FOUNDATIONS OF SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of theories of social psychology with an emphasis on current empirical research.

PSYC 551 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 438. Mutually Exclusive: Cannot register for PSYC 551 if student has credit for PSYC 438.

PSYC 552 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 452. Mutually Exclusive: Cannot register for PSYC 552 if student has credit for PSYC 452.
PSYC 560 - PSYCHOLOGY PRESENTATIONS
Short Title: PSYCHOLOGY PRESENTATIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Practicum on oral psychology presentation.

PSYC 561 - TEACHING IN PSYCHOLOGY
Short Title: TEACHING IN PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assistance in the teaching of undergraduate and occasionally graduate courses in psychology. Repeatable for Credit.

PSYC 563 - COGNITIVE PSYCHOLOGY INTERNSHIP
Short Title: COGNITIVE PSYC INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in cognitive psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 564 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective is to equip the students of PSYC/NEUR 362 with the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. Cross-list: NEUR 564. Graduate/Undergraduate Equivalency: PSYC 364. Mutually Exclusive: Cannot register for PSYC 564 if student has credit for PSYC 364.

PSYC 565 - HUMAN OLFACTION
Short Title: HUMAN OLFACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 465. Mutually Exclusive: Cannot register for PSYC 565 if student has credit for PSYC 465.

PSYC 567 - FIRST-YEAR PROJECT
Short Title: FIRST-YEAR PROJECT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research project undertaken in the first year of the graduate program. Repeatable for Credit.

PSYC 572 - SECOND-YEAR PROJECT
Short Title: SECOND-YEAR PROJECT
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research project undertaken during the second year of the graduate program. Repeatable for Credit.

PSYC 573 - NON-THESIS GRADUATE RESEARCH
Short Title: NON-THESIS GRADUATE RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research prior to achieving candidacy. Repeatable for Credit.

PSYC 574 - INTRODUCTION TO COGNITIVE NEUROSCIENCE
Short Title: INTRO COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Cross-list: NEUR 508.
PSYC 575 - ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION
Short Title: ATTENTION AND PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods, and the historical and philosophical context of contemporary neuroscience. Cross-list: NEUR 501.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

PSYC 576 - ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS
Short Title: HIGHER MENTAL FUNCTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and neuroimaging approaches to higher mental functions, including language, memory, executive functions, reasoning, and numerical processing. Cross-list: NEUR 502.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

PSYC 577 - INTRODUCTION TO FUNCTIONAL NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. Usually taught at the Texas Medical Center. Instructor Permission Required.

PSYC 578 - COGNITIVE NEUROPSYCHOLOGY: THEORIES AND METHODS
Short Title: COGNEURO: THEORIES AND METHODS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores different approaches in the field of Cognitive Neuropsychology. Topics include single-case studies, case series, voxel-lesion symptom mapping and computational neuropsychology. We will discuss how to do research with each of these techniques, how to draw inferences from neuropsychological data and critiques of the methodology.

PSYC 580 - DEVELOPMENTAL COGNITIVE NEUROSCIENCE
Short Title: DEVELOPMENTAL COGNEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar focusing on the neural/biological bases of both normal and abnormal human development through a survey of recent research in developmental cognitive neuroscience. Topics include perceptual, motive, cognitive, and language development as well as experimental research methods for studying the developing brain.

PSYC 581 - VISION SCIENCE
Short Title: VISION SCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced graduate seminar in the psychology of vision, covering the neural, psychophysical, and phenomenological approaches to visual perception.

PSYC 582 - EARLY SENSORY, PERCEPTUAL AND ATTENTIONAL DEVELOPMENT
Short Title: EARLY SENSORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a survey course for graduate students interested in the development of sensory systems, perception, and attention. There will be original empirical and theoretical readings from the literature on the development of these functions primarily during infancy. Neurobiological underpinnings for these functions will be debated and discussed.

PSYC 583 - THEORY, CONTENT, AND EXECUTION IN COGNITIVE NEUROSCIENCE
Short Title: COGNEURO THEORY/CONTENT/EXECUT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The particular combination of issues in cognitive neuroscience in any one course will vary depending on the background and needs of the students registered for that course and the nature of the important articles in journals covering these areas. Instructor Permission Required. Repeatable for Credit.
PSYC 584 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. This course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Graduate/Undergraduate Equivalency: PSYC 380. Mutually Exclusive: Cannot register for PSYC 584 if student has credit for PSYC 380.

PSYC 585 - FUNCTIONAL MAGNETIC RESONANCE IMAGING LABORATORY
Short Title: FMRI LABORATORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Laboratory course that provides comprehensive introduction to the practical aspects of planning conducting and analyzing Blood Oxygen Dependent Functional Magnetic Resonance Imaging (BOLD fMRI) data. BOLD fMRI is a methodology that allows non-invasive measurements of the neural processing underlying human perception/cognition. Course taught at Baylor College of Medicine for Advanced fMRI.

PSYC 586 - SOCIAL AND AFFECTIVE NEUROSCIENCE
Short Title: SOCIAL AND AFFECTIVE NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of the field of social and affective neuroscience, including conceptual foundations and methodology. Review and discussion of contemporary research on the neurobiological supporting social cognition and emotion in both healthy and affectively-disordered populations.

PSYC 587 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain’s three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Graduate/Undergraduate Equivalency: PSYC 487. Mutually Exclusive: Cannot register for PSYC 587 if student has credit for PSYC 487.

PSYC 589 - ADVANCED TOPICS IN NEUROSCIENCE
Short Title: ADVANCED TOPICS - NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 595 - HUMAN-COMPUTER INTERACTION AND HUMAN FACTORS PROFESSIONAL MASTER'S INTERNSHIP
Short Title: HCI&HF PROF MASTERS INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 503
Description: Supervised internship in Human-Computer Interaction and Human Factors Professional Master's Program. Instructor Permission Required.

PSYC 600 - HCI & HF PROFessional MASTER's CAPSTONE PROJECT
Short Title: HCI&HF PROF MASTER'S CAPSTONE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 503
Description: This course allows students to integrate all of the knowledge they have gained in their HCI/HF professional master’s coursework in the form of a capstone project in the area of human-computer interaction and human factors. The capstone may be either research focused or application focused. Department Permission Required.
PSYC 601 - MULTIVARIATE STATISTICS  
**Short Title:** MULTIVARIATE STATISTICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course provides an overview of a wide range of concepts and skills for conducting data analysis on multivariate data sets encountered in psychology. Issues involve preparing the data set, selecting and conducting the appropriate analysis, interpreting the output from statistical programs, and presenting complex analyses and results in a clear manner.

PSYC 602 - PSYCHOMETRICS  
**Short Title:** PSYCHOMETRICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Test theory, including reliability, validity, item response theory, and generalizability theory. In addition, the course offers hands-on experience with analysis software and discussion of practical issues such as test bias, item writing, and scale construction.

PSYC 609 - METHODS IN HUMAN-COMPUTER INTERACTION  
**Short Title:** METHODS HUMAN-COMP INTERACTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 409. Mutually Exclusive: Cannot register for PSYC 609 if student has credit for PSYC 409.

PSYC 622 - TOPICS IN PSYCHOLINGUISTICS  
**Short Title:** TOPICS IN PSYCHOLINGUISTICS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** In-depth, consideration of specialized topics in the psychology of language. Topics vary from year to year. Repeatable for Credit.

PSYC 624 - SOCIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR  
**Short Title:** SOCIAL/ORG PSYC RESEARCH SEM  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Weekly seminar to discuss recent research in social/organizational psychology. Repeatable for Credit.

PSYC 625 - COGNITIVE NEUROSCIENCE RESEARCH SEMINAR  
**Short Title:** COGNEURO RESEARCH SEMINAR  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Weekly seminar to discuss recent research in cognitive neuroscience. Instructor Permission Required. Repeatable for Credit.

PSYC 626 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION RESEARCH SEMINAR  
**Short Title:** HF/HCI RESEARCH SEMINAR  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Weekly seminar to discuss recent research in human factors/human-computer interaction. Instructor Permission Required. Repeatable for Credit.

PSYC 627 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR  
**Short Title:** I/O PSYC RESEARCH SEMINAR  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Weekly seminar to discuss recent research in industrial/organizational psychology. Instructor Permission Required. Repeatable for Credit.
PSYC 628 - MEMORY RESEARCH SEMINAR
Short Title: MEMORY RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in human memory. Repeatable for Credit.

PSYC 629 - PSYCHOLINGUISTICS RESEARCH SEMINAR
Short Title: PSYCHOLINGUISTICS SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in psycholinguistics. Repeatable for Credit.

PSYC 630 - ADVANCED TOPICS IN I/O
Short Title: ADVANCED TOPICS IN I/O
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Topics will vary. Repeatable for different topics. Repeatable for Credit.

PSYC 631 - FOUNDATIONS OF INDIVIDUAL DIFFERENCES
Short Title: INDIVIDUAL DIFFERENCES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applied psychologists attempt to build theoretical and empirical models that effectively explain how variation in individual differences (e.g., cognitive ability, personality, motivation, interests) relates to variation in practically relevant outcomes (e.g., training effectiveness, job performance, response to clinical treatment). This course covers major theoretical and methodological approaches to this end.

PSYC 632 - LEADERSHIP
Short Title: LEADERSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examination of the major psychological approaches to the study of leadership. Emphasis is on theory and practice in formal organizations.

PSYC 634 - PERSONNEL PSYCHOLOGY
Short Title: PERSONNEL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Examination of the theory, research, and applications in personnel selection, including job analysis, job performance, evaluation of performance, validation of selection methods, and training.

PSYC 635 - MULTILEVEL MODELING IN PSYCHOLOGICAL RESEARCH
Short Title: MULTILEVEL MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Psychological data often have a nested structure (e.g., students within classrooms, time points within individuals). Multilevel modeling of such data yields results that are more appropriate and interpretable than traditional statistical methods. Students will gain both practical and conceptual knowledge of this popular methodology.

PSYC 636 - ORGANIZATIONAL PSYCHOLOGY
Short Title: ORGANIZATIONAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 436. Mutually Exclusive: Cannot register for PSYC 636 if student has credit for PSYC 436.

PSYC 637 - META-ANALYSIS IN PSYCHOLOGICAL RESEARCH
Short Title: META-ANALYSIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Meta-analysis is a popular tool for statistically aggregating effects across related psychological studies. Course topics traverse a wide range of issues, including developing and using a coding sheet, fixed- vs. random-effects models, analysis moderator effects, correcting for statistical artifacts, dealing with dependent outcomes and outliers, and detecting publication bias.
PSYC 638 - STRUCTURAL EQUATION MODELING
Short Title: STRUCTURAL EQUATION MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structural equation modeling attempts to provide improved estimates of construct-level relationships. It also allows for complex hypothesis testing (e.g., mediation between groups, longitudinal) to find an appropriate balance between model parsimony and model fit. This course introduces students to basic concepts and applications of this popular research method.

PSYC 639 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY INTERNSHIP
Short Title: I/O PSYCHOLOGY INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in organizational and/or personnel psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 640 - TOPICS IN HUMAN-COMPUTER INTERACTION
Short Title: TOPICS IN HCI
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 641 - SPECIAL TOPICS IN HUMAN-COMPUTER INTERACTION
Short Title: SPECIAL TOPICS IN HCI
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 649 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION INTERNSHIP
Short Title: HF/HCI PSYC INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in engineering psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 651 - TOPICS IN SOCIAL PSYCHOLOGY
Short Title: TOPICS IN SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 660 - PROFESSIONAL ISSUES
Short Title: PROFESSIONAL ISSUES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics on professional matters. Includes grant writing, licensing, and ethics in psychology.

PSYC 661 - TOPICS IN SOCIAL PSYCHOLOGY
Short Title: TOPICS IN SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 462. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 662 if student has credit for PSYC 462.

PSYC 662 - NON-TRADITIONAL INTERFACES
Short Title: NON-TRADITIONAL INTERFACES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 462. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 662 if student has credit for PSYC 462.

PSYC 663 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 463. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 663 if student has credit for PSYC 463.
PSYC 664 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency. PSYC 464. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 664 if student has credit for PSYC 464.

PSYC 665 - SEMINAR IN GENES AND COGNITION
Short Title: SEMINAR IN GENES AND COGNITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will consist of reading and discussing papers on molecular genetic studies of various cognitive functions broadly construed. This will include studies of genes and attention, genes and working memory, and genes and executive function. Will also include readings on genes and disordered cognition (e.g., ADHD, Alzheimer’s).

PSYC 671 - METHODS IN COGNITIVE NEUROSCIENCE
Short Title: METHODS COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues in functional neuroimaging and provides hands-on experience with experimental design, data acquisition, and analysis. Examines hemodynamic (PET, FMR), electrophysiologic (EEG, MEG), and other (e.g. neural stimulation, event-related optical) methods of measuring functional activation in the human brain related to cognitive operations. This course is usually offered at the University of Texas Medical School.

PSYC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 681 - PERCEPTUAL ORGANIZATION
Short Title: PERCEPTUAL ORGANIZATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 581
Description: Advanced graduate course. Perceptual organization, primarily in human vision but in other senses too. We examine theoretical issues underlying perceptual organization; principal phenomena; methods used to reveal perception of structure; neural basis of perception organization; theories of perceptual organization; and remaining problems in the field.

PSYC 699 - GRADUATE CAPSTONE EXPERIENCE IN I-O PSYCHOLOGY
Short Title: CAPSTONE EXPERIENCE IN I-O
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is required for the MA in IO Psychology. It is a multi-semester, hands-on applied experience that can take the form of either an internship, an applied research experience, or a portfolio of work that reflects the integration of I-O science and practice. Instructor Permission Required. Repeatable for Credit.

PSYC 700 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for the master’s thesis. Repeatable for Credit.

PSYC 800 - DISSERTATION RESEARCH
Short Title: DISSERTATION RESEARCH
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for the doctoral dissertation. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: PSYC

Department Description and Code
- Psychological Sciences: PSYS
Bachelor of Arts (BA) Degree with a Major in Psychology

Program Learning Outcomes for the BA Degree with a Major in Psychology

Upon completing the BA degree with a major in Psychology, students will be able to:

1. Describe key concepts, principles, and overarching themes in psychology, drawing on a broad knowledge base in psychology and its content domains.

2. Understand research methods, and develop and apply research skills. They will be able to explain different research methods used by psychologists, and design and conduct scientific studies to address psychological questions using appropriate research methods. Students will follow the APA Ethics Code in the treatment of human and nonhuman participants in the design, data collection, interpretation, and reporting of psychological research. Students will be able to generalize research conclusions appropriately based on the parameters of particular research methods.

3. Understand the applications of psychology. They will be able to describe major areas (e.g., clinical, cognitive, counseling, human factors, industrial/organizational) and emerging applied areas (e.g., health, forensics, media) of psychology. They will be able to identify appropriate applications of psychology in solving problems, such as: the pursuit and effect of healthy lifestyles; the origin and treatment of abnormal behavior; psychological tests and measurement; psychology-based interventions in areas such as clinical, cognitive, counseling, educational, human factors, and industrial/organizational psychology; and the resolution of interpersonal and intercultural conflicts. Students will be able to articulate how psychological principles can be used to explain social issues and inform public policy. Students will be able to apply psychological concepts, theories, and research findings as these relate to everyday life.

Requirements for the BA Degree with a Major in Psychology

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Psychology must complete:

- A minimum of 15 courses (47 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9 courses (27 credit hours) taken at the 300-level or above.

Once enrolled at Rice, students must obtain approval from the department to transfer courses taken at any other college or university.

The 5 courses listed below (comprising 17 credit hours) must be completed to satisfy the Core Requirements for this major. Students are strongly encouraged to complete the Core Requirements before taking the upper-level courses that comprise their Elective Requirements.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions...
must be formally applied and entered into Degree Works by the major’s
Credit
For Rice University’s policy regarding transfer credit, see

For Rice University’s policy regarding transfer credit, see Transfer Credit guidelines. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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Degree Requirements

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<td>INTRODUCTION TO SOCIAL PSYCHOLOGY</td>
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<td>PSYC 203</td>
<td>INTRODUCTION TO COGNITIVE PSYCHOLOGY</td>
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</tr>
<tr>
<td>PSYC 339</td>
<td>STATISTICAL METHODS - PSYCHOLOGY</td>
<td>4</td>
</tr>
<tr>
<td>or SOSC 302</td>
<td>QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES</td>
<td>4</td>
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<tr>
<td>PSYC 340</td>
<td>RESEARCH METHODS - PSYCHOLOGY</td>
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Elective Requirements

Select a total of 10 additional courses from departmental (PSYC) course offerings

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<th>Title</th>
<th>Credit Hours</th>
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<td></td>
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<td></td>
<td>University Graduation Requirements</td>
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</tbody>
</table>

Total Credit Hours

120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Students are strongly encouraged to complete the Core Requirements before taking the upper-level courses that comprise the Elective Requirements.

2 No substitutions or transfer credits are allowed for PSYC 339, SOSC 302, or PSYC 340. In addition, students should complete PSYC 339 or SOSC 302 and PSYC 340 preferably by the end of their sophomore year.

3 Students may take up to 12 credit hours (combined) of PSYC 485 and/or PSYC 488 to apply toward the major, but only 3 of the 12 credit hours may be from PSYC 488.

Policies for the BA Degree with a Major in Psychology

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit guidelines. Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Psychology should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/.

Opportunities for the BA Degree with a Major in Psychology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors Program

Qualified students may apply to the honors program during preregistration in the spring semester of their junior year. A written proposal for the project must be submitted by the end of the second week of classes in the fall of their senior year, and the faculty will decide on final admission to the honors program by the end of the fourth week of classes. Admission to the honors program requires a major GPA of 3.70 and an overall GPA of 3.50, completion of PSYC 339 or SOSC 302, and completion of or concurrent enrollment in PSYC 340. To graduate with departmental honors, students must complete the requirements for the major, a written honors thesis approved by a faculty committee, and other requirements as determined by their honors committee. Detailed information about the honors program is available from the instructor of the course or the department website (https://psychology.rice.edu/).

Additional Information

For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/.

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Rice University
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Cognitive and Affective Neuroscience

Program Learning Outcomes for the PhD Degree in the field of Psychology and a Major Concentration in Cognitive and Affective Neuroscience

Upon completing the PhD degree in the field of Psychology and a major concentration in Cognitive and Affective Neuroscience, students will be able to:

1. Apply theoretical and methodological tools necessary to carry out independent research in cognitive or affective neuroscience.
2. Write an independent and original thesis that is of sufficient quality to merit publication in a top cognitive psychology, cognitive neuroscience, health neuroscience, or affective neuroscience journal.
3. Conduct a focused review of the literature and develop a research design to carry out independent research.
4. Defend their research design and data analysis choices by presenting their paper in a seminar environment.
5. Communicate their research effectively by writing clearly, concisely, and cogently.
6. Read critically and assess research manuscripts related to their field of study and in other fields.

Requirements for the MA and PhD Degrees in the field of Psychology

MA Degree Program

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA in Psychology, graduate students may earn the MA degree after obtaining approval of their candidacy for the PhD. For general university requirements for PhD degrees, please see Doctoral Degrees (p. 72). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense. Required coursework is determined by the student’s major concentration. Students must complete an admission-to-candidacy procedure to establish their expertise in their chosen major concentration. Competence in a foreign language is not required.

Summary

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<th>Code</th>
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<th>Credit Hours</th>
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<td>PSYC 575 / NEUR 501</td>
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<tr>
<td>PSYC 529</td>
<td>COGNITIVE RESEARCH SEMINAR</td>
<td>1-3</td>
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<tr>
<td>PSYC 532</td>
<td>HEALTH RESEARCH SEMINAR</td>
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Neuroscience Core Courses

Select 2 courses from the following:

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PSYC 575 / NEUR 501</td>
<td>ATTENTION AND PERCEPTION</td>
</tr>
</tbody>
</table>
Cognitive Core Courses
Select 2 courses from the following: \[\begin{align*}
\text{PSYC 524} & : \text{MEMORY} \\
\text{PSYC 525} & : \text{PSYCHOLINGUISTICS} \\
\text{PSYC 527} & : \text{REASONING, DECISION MAKING, PROBLEM SOLVING} \\
\text{PSYC 581} & : \text{VISION SCIENCE}
\end{align*}\]

Affective/Health Core Courses
\[\begin{align*}
\text{PSYC 546} & : \text{PSYCHONEUROIMMUNOLOGY} \\
\text{PSYC 547} & : \text{FOUNDATIONS OF HEALTH PSYCHOLOGY} \\
\text{PSYC 550} & : \text{FOUNDATIONS OF SOCIAL PSYCHOLOGY}
\end{align*}\]

Elective Requirements
Select 2 courses from the following: \[\begin{align*}
\text{BIOE 592} & : \text{SENSORY NEUROENGINEERING} \\
\text{NEUR 505} & : \text{OPTICAL IMAGING} \\
\text{PSYC 511} & : \text{HISTORY AND SYSTEMS OF PSYCHOLOGY} \\
\text{PSYC 522} & : \text{INFORMATION PROCESSING AND ATTENTION} \\
\text{PSYC 524} & : \text{MEMORY} \\
\text{PSYC 525} & : \text{PSYCHOLINGUISTICS} \\
\text{PSYC 527} & : \text{REASONING, DECISION MAKING, PROBLEM SOLVING} \\
\text{PSYC 543} & : \text{COMPUTATIONAL MODELING OF COGNITIVE PROCESSES} \\
\text{PSYC 546} & : \text{PSYCHONEUROIMMUNOLOGY} \\
\text{PSYC 550} & : \text{FOUNDATIONS OF SOCIAL PSYCHOLOGY} \\
\text{PSYC 552} & : \text{EMOTION REGULATION} \\
\text{PSYC 574 / NEUR 508} & : \text{INTRODUCTION TO COGNITIVE NEUROSCIENCE} \\
\text{PSYC 575 / NEUR 501} & : \text{ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION} \\
\text{PSYC 576 / NEUR 502} & : \text{ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS} \\
\text{PSYC 578} & : \text{COGNITIVE NEUROPSYCHOLOGY: THEORIES AND METHODS} \\
\text{PSYC 580} & : \text{DEVELOPMENTAL COGNITIVE NEUROSCIENCE} \\
\text{PSYC 581} & : \text{VISION SCIENCE} \\
\text{PSYC 586} & : \text{SOCIAL AND AFFECTIVE NEUROSCIENCE} \\
\text{PSYC 590} & : \text{ADVANCED TOPICS IN NEUROSCIENCE} \\
\text{PSYC 620} & : \text{ADVANCED TOPICS IN COGNITIVE PSYCHOLOGY} \\
\text{PSYC 621} & : \text{TOPICS IN MEMORY} \\
\text{PSYC 622} & : \text{TOPICS IN PSYCHOLINGUISTICS} \\
\text{PSYC 665} & : \text{SEMINAR IN GENES AND COGNITION} \\
\text{PSYC 681} & : \text{PERCEPTUAL ORGANIZATION}
\end{align*}\]

First-Year Project
Second-Year Project
Thesis Requirement
Completion and public defense of a thesis

Additional Coursework as Approved by Department

Total Credit Hours
Minimum of 90

Footnotes and Additional Information
1 Students enrolled in the PhD degree major concentration in Cognitive and Affective Neuroscience must select either PSYC 529 or PSYC 532 and attend the seminar each semester throughout their enrollment.
2 Students enrolled in the PhD degree major concentration in Cognitive and Affective Neuroscience can select UT School of Public Health courses, subject to approval by department.
3 Elective options PSYC 590, PSYC 620, PSYC 621, and PSYC 622 may only be taken once.

Policies for the PhD Degree in the field of Psychology

Department of Psychological Sciences Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Psychological Sciences publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/](https://gradhandbooks.rice.edu/2021_22/)

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Psychology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Psychological Sciences website: [https://psychology.rice.edu/](https://psychology.rice.edu/)

Opportunities for the PhD Degree in the field of Psychology

Additional Information
For additional information, please see the Psychological Sciences website: [https://psychology.rice.edu/](https://psychology.rice.edu/)
Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Health Psychology and Behavioral Medicine Research

Program Learning Outcomes for the PhD Degree in the field of Psychology and a Major Concentration in Health Psychology and Behavioral Medicine Research

Upon completing the PhD degree in the field of Psychology and a major concentration in Health Psychology and Behavioral Medicine Research, students will be able to:

1. Apply the theoretical tools necessary to carry out independent research in health psychology.
2. Apply the methodological and statistical tools necessary to carry out independent research in health psychology.
3. Conduct a focused literature review tied to an independent research question, design and run a health research study, and write up the results in an APA formatted paper.
4. Communicate and defend their research designs and modeling choices when presenting papers and presentations.
5. Write an independent and original thesis that is of sufficient quality to merit publication in a top journal within the field of health psychology.

Requirements for the MA and PhD Degrees in the field of Psychology

MA Degree Program

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA in Psychology, graduate students may earn the MA degree after obtaining approval of their candidacy for the PhD. For general university requirements for PhD degrees, please see Doctoral Degrees (p. 72). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense. Required coursework is determined by the student’s major concentration. Students must complete an admission-to-candidacy procedure to establish their expertise in their chosen major concentration. Competence in a foreign language is not required.

Summary

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<td>PSYC 601</td>
<td>PSYCHOPATHOLOGY, DEVELOPMENT, &amp; AGING</td>
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<td>PSYC 507</td>
<td>RESEARCH METHODS</td>
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Total Credit Hours Required for the MA Degree in the field of Psychology

30

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). In addition, students pursuing the PhD degree in the field of Psychology must:

- Complete all coursework with a minimum grade of B- (2.67 grade points) in each required course.
- Complete all of the course requirements in their major concentration.
- Successfully complete and present the first-year project in May of the first year.
- Successfully complete and present the second-year project in May of the second year.
- Write and defend a thesis. The thesis committee must be in the area of Health Psychology and Behavioral Medicine Research and be overseen by a Psychology faculty member affiliated with the Health Psychology and Behavioral Medicine Research Major Concentration.

Students who have not previously completed a master’s degree in Psychology or a related field, must successfully defend a master’s thesis and earn the MA degree in Psychology. Students who come to Rice with a master’s degree in a related field can be exempted from this requirement.

Summary

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<td>PSYC 586</td>
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Total Credit Hours Required for the PhD Degree in the field of Psychology and a Major Concentration in Health Psychology and Behavioral Medicine Research

90
PSYC 546 | PSYCHONEUROIMMUNOLOGY | 3
PSYC 586 | SOCIAL AND AFFECTIVE NEUROSCIENCE | 3
PSYC 630 | ADVANCED TOPICS IN I/O | 3
PSYC 631 | FOUNDATIONS OF INDIVIDUAL DIFFERENCES | 3
PSYC 636 | ORGANIZATIONAL PSYCHOLOGY | 3
PSYC 651 | TOPICS IN SOCIAL PSYCHOLOGY | 3

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<th>First-Year Project</th>
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<td>Second-Year Project</td>
</tr>
<tr>
<td>Thesis Requirement</td>
</tr>
<tr>
<td>Additional Coursework as Approved by Department</td>
</tr>
<tr>
<td>Total Credit Hours</td>
</tr>
</tbody>
</table>

### Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Human-Computer Interaction and Human Factors

#### Program Learning Outcomes for the PhD Degree in the field of Psychology and a Major Concentration in Human-Computer Interaction and Human Factors

Upon completing the PhD degree in the field of Psychology and a major concentration in Human-Computer Interaction and Human Factors, students will be able to:

1. Apply theoretical and methodological tools to carry out independent research in human-computer interaction and human factors.
2. Write an independent and original thesis that is of sufficient quality to merit publication in a top human factors/human-computer interaction journal.
3. Conduct a focused review of the literature and develop a research design to carry out independent research.
4. Communicate and defend their research design and modeling choices when presenting their papers and/or presentations.
5. Communicate their research effectively by writing clearly, concisely, and cogently.
6. Read critically and assess research manuscripts related to their field of study and in other fields.

### Requirements for the MA and PhD Degrees in the field of Psychology

#### MA Degree Program

The MA degree is a thesis master's degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA in Psychology, graduate students may earn the MA degree after obtaining approval of their candidacy for the PhD. For general university requirements for PhD degrees, please see Doctoral Degrees (p. 72). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense. Required coursework is determined by the student's major concentration. Students must complete an admission-to-candidacy procedure to establish their expertise in their chosen major concentration. Competence in a foreign language is not required.

#### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 546</td>
<td>PSYCHONEUROIMMUNOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 586</td>
<td>SOCIAL AND AFFECTIVE NEUROSCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 630</td>
<td>ADVANCED TOPICS IN I/O</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 631</td>
<td>FOUNDATIONS OF INDIVIDUAL DIFFERENCES</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 636</td>
<td>ORGANIZATIONAL PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 651</td>
<td>TOPICS IN SOCIAL PSYCHOLOGY</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours Required for the MA Degree in the field of Psychology**: 30
Requirements for the PhD Degree in the field of Psychology

PhD Degree Program

For general university requirements, please see Doctoral Degrees (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). In addition, students pursuing the PhD degree in the field of Psychology must:

- Complete all coursework with a minimum grade of B- (2.67 grade points) in each required course.
- Complete all of the course requirements in their major concentration.
- Successfully complete and present the first-year project in May of the first year.
- Successfully complete and present the second-year project in May of the second year.
- Write and defend a thesis. The thesis committee must be in the area of Human-Computer Interaction and Human Factors and be overseen by a Psychology faculty member affiliated with the Human-Computer Interaction and Human Factors Major Concentration.

Students who have not previously completed a master’s degree in Psychology or a related field, must successfully defend a master’s thesis and earn the MA degree in Psychology. Students who come to Rice with a master’s degree in a related field can be exempted from this requirement.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>PSYC 502 / STAT 509</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 503 / STAT 510</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS II</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 520</td>
<td>FOUNDATIONS OF COGNITIVE PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 531</td>
<td>HF/HCI RESEARCH SEMINAR</td>
<td>1-3</td>
</tr>
<tr>
<td>PSYC 540</td>
<td>FOUNDATIONS OF ENGINEERING PSYCHOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 541</td>
<td>HUMAN-COMPUTER INTERACTION</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 609</td>
<td>METHODS IN HUMAN-COMPUTER INTERACTION</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 660</td>
<td>PROFESSIONAL ISSUES</td>
<td>3</td>
</tr>
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Elective Requirements

Select 5 courses from the following: 15

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>PSYC 504</td>
<td>COMPUTER APPLICATIONS IN PSYCHOLOGY</td>
</tr>
</tbody>
</table>
Opportunities for the PhD Degree in the field of Psychology

Additional Information
For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology

Program Learning Outcomes for the PhD Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology

Upon completing the PhD degree in the field of Psychology and a major concentration in Industrial-Organizational Psychology, students will be able to:

1. Apply the theoretical tools necessary to carry out independent research in industrial-organizational psychology.
2. Apply the methodological and statistical tools necessary to carry out independent research in industrial-organizational psychology.
3. Conduct a focused literature review tied to an independent research question.
4. Develop a research design to carry out independent research.
5. Communicate research effectively by writing clearly, concisely, and cogently.
6. Read critically and assess research manuscripts related to their field of study and in other psychological and multidisciplinary arenas.
7. Communicate and defend their research designs and modeling choices when presenting papers and/or presentations.
8. Write an independent and original thesis that is of sufficient quality to merit publication in a top journal within industrial-organizational psychology.

Requirements for the MA and PhD Degrees in the field of Psychology

MA Degree Program

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA in Psychology, graduate students may earn the MA degree after obtaining approval of their candidacy for the PhD. For general university requirements for PhD degrees, please see Doctoral Degrees (p. 72). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense. Required coursework is determined by the student’s major concentration. Students must complete an admission-to-candidacy procedure to establish their expertise in their chosen major concentration. Competence in a foreign language is not required.

Summary

<table>
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<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MA Degree in the field of Psychology</td>
<td>30</td>
</tr>
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Requirements for the PhD Degree in the field of Psychology

PhD Degree Program

For general university requirements, please see Doctoral Degrees (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). In addition, students pursuing the PhD degree in the field of Psychology must:

- Complete all coursework with a minimum grade of B- (2.67 grade points) in each required course.
- Complete all of the course requirements in their major concentration.
- Successfully complete and present the first-year project in May of the first year.
- Successfully complete and present the second-year project in May of the second year.
- Write and defend a thesis. The thesis committee must be in the area of Industrial-Organizational Psychology and be overseen by a Psychology faculty member affiliated with the Industrial-Organizational Psychology Major Concentration.

Students who have not previously completed a master’s degree in Psychology or a related field, must successfully defend a master’s thesis and earn the MA degree in Psychology. Students who come to Rice with a master’s degree in a related field can be exempted from this requirement.

Summary

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology</td>
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</table>

Requirements for the PhD Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology

Degree Requirements for the PhD Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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<td>Total Credit Hours Required for the PhD Degree in the field of Psychology and a Major Concentration in Industrial-Organizational Psychology</td>
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Core Requirements

<table>
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<tbody>
<tr>
<td>PSYC 502 / STAT 509</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS I</td>
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<tr>
<td>PSYC 503 / STAT 510</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS II</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 530</td>
<td>FOUNDATIONS OF I-O PSYCHOLOGY</td>
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<tr>
<td>PSYC 533</td>
<td>I-O PSYCHOLOGY RESEARCH SEMINAR</td>
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<tr>
<td>PSYC 634</td>
<td>PERSONNEL PSYCHOLOGY</td>
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<td>PSYC 636</td>
<td>ORGANIZATIONAL PSYCHOLOGY</td>
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</tr>
<tr>
<td>PSYC 660</td>
<td>PROFESSIONAL ISSUES</td>
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Substantive Courses
Select 3 courses from the following: 9

<table>
<thead>
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<tr>
<td>PSYC 511</td>
<td>HISTORY AND SYSTEMS OF PSYCHOLOGY</td>
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<tr>
<td>PSYC 520</td>
<td>FOUNDATIONS OF COGNITIVE PSYCHOLOGY</td>
</tr>
<tr>
<td>PSYC 540</td>
<td>FOUNDATIONS OF ENGINEERING PSYCHOLOGY</td>
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<td>PSYC 550</td>
<td>FOUNDATIONS OF SOCIAL PSYCHOLOGY</td>
</tr>
<tr>
<td>PSYC 631</td>
<td>FOUNDATIONS OF INDIVIDUAL DIFFERENCES</td>
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Statistical Courses 1

Select 2 courses from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSYC 507</td>
<td>RESEARCH METHODS</td>
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<tr>
<td>PSYC 601</td>
<td>MULTIVARIATE STATISTICS</td>
</tr>
<tr>
<td>PSYC 602</td>
<td>PSYCHOMETRICS</td>
</tr>
</tbody>
</table>

Additional Courses for Breadth and Depth 2

First-Year Project

Second-Year Project

Thesis Requirement

Completion and public defense of a thesis

Additional Coursework as Approved by Department

Total Credit Hours Minimum of 90

1 Students may select other methodology courses if approved by an advisor in consultation with the faculty under the Major Concentration.

2 Students must select 3 additional courses (9 credit hours) from a set of special topics courses taught by Industrial-Organizational faculty or other advanced courses taught by other Psychological Sciences faculty.

Policies for the PhD Degree in the field of Psychology

Department of Psychological Sciences Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Psychological Sciences publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Psychology_Graduate_Handbook.pdf

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Psychology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/

Opportunities for the PhD Degree in the field of Psychology

For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/

Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Psychometrics and Quantitative Psychology

Program Learning Outcomes for the PhD Degree in the field of Psychology and a Major Concentration in Psychometrics and Quantitative Psychology

Upon completing the PhD degree in the field of Psychology and a major concentration in Psychometrics and Quantitative Psychology, students will be able to:

1. Apply the statistical and measurement concepts necessary to carry out independent research involving psychological measurement.
2. Communicate research involving psychometrics and psychological measurement effectively by writing clearly, concisely, and cogently.
3. Read critically and assess research manuscripts for their psychometric content, across psychological and multidisciplinary arenas.
4. Communicate research by presenting papers and/or presentations.
5. Write an independent and original thesis that includes a strong emphasis in psychometrics and quantitative psychology.

Requirements for the MA and PhD Degrees in the field of Psychology

MA Degree Program

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for an MA in Psychology, graduate students may earn the MA degree after obtaining approval of their candidacy for the PhD. For general university requirements for PhD degrees, please see Doctoral Degrees (p. 72). For both MA and PhD degrees, students must complete a research thesis, including a public oral defense. Required coursework is determined by the student's major concentration. Students must complete an admission-to-candidacy procedure to establish their expertise in their chosen major concentration. Competence in a foreign language is not required.
## Requirements for the PhD Degree in the field of Psychology
### PhD Degree Program
For general university requirements, please see Doctoral Degrees (https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). In addition, students pursuing the PhD degree in the field of Psychology must:

- Complete all coursework with a minimum grade of B- (2.67 grade points) in each required course.
- Complete all of the course requirements in their major concentration.
- Successfully complete and present the first-year project in May of the first year.
- Successfully complete and present the second-year project in May of the second year.
- Write and defend a thesis. The thesis committee must be in the area of Psychometrics and Quantitative Psychology and be overseen by a Psychology faculty member affiliated with the Psychometrics and Quantitative Psychology Major Concentration.

Students who have not previously completed a master's degree in Psychology or a related field, must successfully defend a master's thesis and earn the MA degree in Psychology. Students who come to Rice with a master's degree in a related field can be exempted from this requirement.

### Summary
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>PSYC 543</td>
<td>COMPUTATIONAL MODELING OF COGNITIVE PROCESSES</td>
<td></td>
</tr>
<tr>
<td>PSYC 601</td>
<td>MULTIVARIATE STATISTICS</td>
<td></td>
</tr>
<tr>
<td>PSYC 635</td>
<td>MULTIPLE LEVEL MODELING IN PSYCHOLOGICAL RESEARCH</td>
<td></td>
</tr>
<tr>
<td>PSYC 637</td>
<td>META-ANALYSIS IN PSYCHOLOGICAL RESEARCH</td>
<td></td>
</tr>
<tr>
<td>PSYC 638</td>
<td>STRUCTURAL EQUATION MODELING</td>
<td></td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information
1 Elective courses selected must be approved by department.

## Policies for the PhD Degree in the field of Psychology
### Department of Psychological Sciences Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Psychological Sciences publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Psychology_Graduate_Handbook.pdf

### Transfer Credit
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### Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Psychology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

### Additional Information
For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/.

## Opportunities for the PhD Degree in the field of Psychology
### Additional Information
For additional information, please see the Psychological Sciences website: https://psychology.rice.edu/.

### Religion
Contact Information
Religion
The Religion department’s undergraduate major is built to be as flexible as possible so that students may pursue individual interests and interdisciplinary goals. The major provides students with the opportunity to explore mainline religious traditions and marginal/repressed religious currents within multicultural and transnational contexts. Students will gain religious literacy while studying the historical, social, cultural, psychological, philosophical, and cognitive dynamics of religion and religious experience.

The department also offers an undergraduate minor for students who wish to master a core body of basic knowledge about the study of religion and have the opportunity to get a broad overview of the study of Religion as a field which is outside their major focus of study at Rice.

The department is well-known for its graduate program in the study of Religion which provides students with the opportunity to apprentice with premier faculty and tailor their program of study to their interests. While vibrant coursework in traditional religions is offered, the department is especially known for an emphasis on heterodoxy and multiculturalism. As part of its graduate program, the Religion department offers a Master of Arts and a PhD degree. Additionally, the Certificate in Gnosticism, Esotericism, and Mysticism (GEM) is an extra graduate-level credential the department offers to degree-seeking graduate students.

**Bachelor's Program**
- Bachelor of Arts (BA) Degree with a Major in Religion (p. 1917)

**Minor**
- Minor in Religion (p. 1923)

**Master's Program**
- Master of Arts (MA) Degree in the field of Religion (p. 1922) (thesis terminal master's degree)
- Master of Arts (MA) Degree in the field of Religion*

**Doctoral Program**
- Doctor of Philosophy (PhD) Degree in the field of Religion (p. 1921)

**Certificate**
- Certificate in Gnosticism, Esotericism and Mysticism (p. 1103)
  - Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

**Chair**
Elias K. Bongmba

---

**Director of Undergraduate Studies**
Niki Clements

**Directors of Graduate Studies (MA)**
Claire Fanger
Brian Ogren

**Director of Graduate Studies (PhD)**
William B. Parsons

**Professors**
Elias K. Bongmba
Marcia Brennan
David Cook
April D. DeConick
Matthias Henze
Anne C. Klein
Jeffrey J. Kripal
William B. Parsons
Anthony B. Pinn
John M. Stroup

**Associate Professors**
Claire Fanger
Brian Ogren

**Assistant Professor**
Niki Clements

*For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/I/SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/I/SWKSCAT.cat)*

**Religion (RELI)**
RELI 101 - INTRODUCTION TO THE STUDY OF RELIGION
Short Title: WHAT IS RELIGION?
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Comparative and interdisciplinary analysis of key elements (including scripture, religious experience, ideas of the divine, religious art and practices) of two Western and two non-Western religions, of the scholarly study of religion, and of the role of religion in the contemporary world.
RELI 104 - INTRODUCTION TO JEWISH MYSTICISM  
**Short Title:** INTRO TO JEWISH MYSTICISM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Surveys the historical development and central themes of Jewish mysticism. From the bible to ancient mysticism to medieval Kabbalah to modern expressions, we will critically reflect on ideas such as divine presence in the world, the cultivation of insight and magical powers, contemplative and restorative practices, and charismatic authority. Cross-list: MDEM 105.

RELI 105 - INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT  
**Short Title:** MEDIEVAL CHRISTIAN THOUGHT  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Survey of major medieval Christian thinkers. Primary focus on high and late middle ages (12th-15th century), with some attention to spiritual and apocalyptic writings and dissenting thought in this period. Cross-list: MDEM 105.

RELI 108 - INTRODUCTION TO JUDAISM  
**Short Title:** INTRODUCTION TO JUDAISM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Survey of post-biblical Judaism as reflected in the literature of the classical rabbinic tradition, mysticism, medieval biblical commentary, legal codes and philosophy, and modern movements such as Hasidism, denominational Judaism, Zionism, and feminist Judaism. Jewish material culture such as synagogue architecture, illuminated manuscripts and ritual artifacts will be included. Students will not receive credit for both RELI 108 and RELI 209. Mutually Exclusive: Cannot register for RELI 108 if student has credit for RELI 209.

RELI 109 - RELIGION AND LAW  
**Short Title:** RELIGION AND LAW  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Law and religion: origins, differentiation, relation to legitimacy and stability of basic institutions. Law school, professional life, quest for a fitting career in the search for meaning and authentic selfhood. Required: willingness to share the personal roots of your interest in law and your take on the Big Picture.

RELI 111 - INTRODUCTION TO AFRICAN RELIGIONS  
**Short Title:** INTRO AFRICAN RELIGIONS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction to the structures of African religions through readings. Topics include community, cosmology, ritual, ethical values, magic, witchcraft, spirit possession, contribution to nationalism, social change, religion and art, and transplantation of African Religions in the Americas.

RELI 112 - COMPARING CHRISTIANITIES  
**Short Title:** COMPARING CHRISTIANITIES  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course maps the pluralistic nature of early Christianity from its grassroots beginnings in a commune in Jerusalem to Rome and the conversion of Emperor Constantine. Different Christian movements include the Apostolic Christians, Ebionites, Marcionites, Thomasians, Montanists, Monarchians, Modalists, Arians, and a variety of Gnostic Christians will be studied comparatively as well as historically.

RELI 113 - INTRODUCTION TO CHRISTIANITY IN AFRICA  
**Short Title:** INTRO TO CHRISTIANITY AFRICA  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** An introductory reading course examining the dynamics of African Christianity from the early church to the present. Course will include studying the African church during the Patristic era, the Colonial period, Prophetic Movements, nationalism, racial tensions, the role of women, and the emergence of a distinct theological voice.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Short Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 116</td>
<td>MYSTICISM THROUGHOUT THE AGES</td>
<td>This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.</td>
</tr>
<tr>
<td>RELI 123</td>
<td>INTRODUCTION TO WORLD CHRISTIANITY</td>
<td>This course is designed to introduce students to world Christianity from historical and thematic perspectives. Readings and lectures for the course will draw from interdisciplinary research and scholarship to situate world Christianity as a dynamic spiritual, intellectual, cultural, and communal tradition. This course will introduce students to Christianity in the Americas, Europe, Asia, Africa, and the Pacific using historical analysis to probe the history of the Christian movement, its global distribution, its sacred texts and practices, social engagement, and roles it has in a changing world. Interdisciplinary texts will be used to probe selected topics including but not limited to proselytization, leadership, the dynamic competitive relations between mainline churches, emerging Christian communities, and the social and political dimensions of world Christianity.</td>
</tr>
<tr>
<td>RELI 124</td>
<td>RELIGION AND THE ART OF HAPPINESS</td>
<td>This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.</td>
</tr>
<tr>
<td>RELI 125</td>
<td>INTRODUCTION TO BIBLICAL HEBREW I</td>
<td>An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Cross-list: HEBR 125. Graduate/Undergraduate Equivalency: RELI 507. Mutually Exclusive: Cannot register for RELI 125 if student has credit for RELI 507.</td>
</tr>
<tr>
<td>RELI 126</td>
<td>INTRODUCTION TO BIBLICAL HEBREW II</td>
<td>An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Cross-list: HEBR 125. Graduate/Undergraduate Equivalency: RELI 507. Mutually Exclusive: Cannot register for RELI 125 if student has credit for RELI 507.</td>
</tr>
<tr>
<td>RELI 127</td>
<td>INTERMEDIATE BIBLICAL HEBREW III</td>
<td>Continuation of RELI 125. We will finish the grammar in the second half of this semester and then read selections from the Hebrew Bible. Cross-list: HEBR 126. Graduate/Undergraduate Equivalency: RELI 511. Mutually Exclusive: Cannot register for RELI 125 if student has credit for RELI 511.</td>
</tr>
<tr>
<td>RELI 128</td>
<td>RELIGION AND THE ART OF HAPPINESS</td>
<td>This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.</td>
</tr>
<tr>
<td>RELI 130</td>
<td>INTRODUCTION TO WORLD CHRISTIANITY</td>
<td>This course is designed to introduce students to world Christianity from historical and thematic perspectives. Readings and lectures for the course will draw from interdisciplinary research and scholarship to situate world Christianity as a dynamic spiritual, intellectual, cultural, and communal tradition. This course will introduce students to Christianity in the Americas, Europe, Asia, Africa, and the Pacific using historical analysis to probe the history of the Christian movement, its global distribution, its sacred texts and practices, social engagement, and roles it has in a changing world. Interdisciplinary texts will be used to probe selected topics including but not limited to proselytization, leadership, the dynamic competitive relations between mainline churches, emerging Christian communities, and the social and political dimensions of world Christianity.</td>
</tr>
<tr>
<td>RELI 131</td>
<td>RELIGION AND THE ART OF HAPPINESS</td>
<td>This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.</td>
</tr>
<tr>
<td>RELI 133</td>
<td>INTRODUCTION TO WORLD CHRISTIANITY</td>
<td>This course is designed to introduce students to world Christianity from historical and thematic perspectives. Readings and lectures for the course will draw from interdisciplinary research and scholarship to situate world Christianity as a dynamic spiritual, intellectual, cultural, and communal tradition. This course will introduce students to Christianity in the Americas, Europe, Asia, Africa, and the Pacific using historical analysis to probe the history of the Christian movement, its global distribution, its sacred texts and practices, social engagement, and roles it has in a changing world. Interdisciplinary texts will be used to probe selected topics including but not limited to proselytization, leadership, the dynamic competitive relations between mainline churches, emerging Christian communities, and the social and political dimensions of world Christianity.</td>
</tr>
<tr>
<td>RELI 134</td>
<td>RELIGION AND THE ART OF HAPPINESS</td>
<td>This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.</td>
</tr>
</tbody>
</table>
RELI 157 - RELIGION AND HIP HOP CULTURE IN AMERICA
Short Title: RELIGION AND HIP HOP
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Hip Hop culture has changed how life is discussed and conducted. However, one of the under-explored dimensions of Hip Hop culture involves its religious sensibilities. Using lectures, discussions, films, and video presentations, this course explores Hip Hop culture's religious dimensions through its musical language-rap music. Mutually Exclusive: Cannot register for RELI 157 if student has credit for RELI 311.

RELI 158 - LIBERATION THEOLOGIES
Short Title: LIBERATION THEOLOGIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course seeks to acquaint students with examples of liberation theology, as they relate to the following issues: racism, sexism, classism, and environmental destruction. Attention is given to the context, construction, form, and aims of Latin American liberation theology, Black theology, Feminist theology, and Theology in the Intersections. Mutually Exclusive: Cannot register for RELI 158 if student has credit for RELI 548.

RELI 191 - STAR WARS AND RELIGION
Short Title: STAR WARS AND RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Star Wars films contain one of the richest fictional universes of our time. In this course, we use the theories and methods of Religious Studies (e.g., comparison, psychology, the paranormal, religion and technology) to analyze the Star Wars universe as a modern mythology. Student can expect to gain a working knowledge of tools utilized in the humanities as well as a novel understanding of Star Wars films and fandom.

RELI 203 - JUDAISM OF JESUS AND HILLEL
Short Title: JUDAISM OF JESUS AND HILLEL
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history and literature of Judaism during the Second Temple period, which produced such religious leaders as Jesus and Hillel. Topics include: Jewish sectarianism, scribes and the growth of Scripture, temple worship and the first synagogues, diaspora religion, Jesus and the birth of Christianity, and the origin of Rabbinic Judaism. Counts for the Minor in Jewish Studies. Cross-list: HIST 201.

RELI 213 - THE PROPHET JEREMIAH: THE BIBLICAL BOOK AND ITS RECEPTION IN JUDAISM AND CHRISTIANITY
Short Title: THE PROPHET JEREMIAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A seminar on the book of Jeremiah and its reception. Topics to be explored: ancient Near Eastern prophecy and Israel's cultures of revelation; the composition, production, and transmission of a biblical book; the life of the prophet; the transformation of Jeremiah's message in later, post-biblical texts attributed to him.

RELI 215 - MYSTIC CINEMA: KABBALAH IN FILM
Short Title: MYSTIC CINEMA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores uses by the film industry of ideas drawn from Jewish mysticism. We will examine themes such as monsters, spirits, numerology and the paranormal, as portrayed in classic film and through to contemporary Hollywood. Emphasis will be placed on the medieval textual and folkloric traditions behind such portrayals. Cross-list: FILM 215. Mutually Exclusive: Cannot register for RELI 215 if student has credit for FILM 114/FSEM 141/RELI 114.
RELI 216 - RELIGION AND BLACK LIVES MATTER
Short Title: RELIGION & BLACK LIVES MATTER
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores the intersections of religion, politics, and social justice during the period of history marked by the emergence and activities of the Black Lives Matter Movement.

RELI 217 - SHI'ISM: ASSASSINS AND AYATULLAH
Short Title: SHI'ISM: ASSASSINS & AYATULLAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Ranging from the violent disputes at the beginnings of Islam to the mysterious and misunderstood Assassins, Shi'ism is more than about Iran and Iraq. Ayatullahs rule, Alawis in Syria fight ISIS, Isalamis in London are at the cutting edge of Muslim modernity― Shi'ism is much more than you would expect.

RELI 219 - THE SUPERNATURAL AND RELIGION
Short Title: THE SUPERNATURAL AND RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will treat the history of the supernatural from the biblical materials on the miraculous "sign" through the birth of the "supernatural" in medieval Christianity and the canonization of saints, to the mediating categories of the "preternatural" and the modern "paranormal." Comparative categories and materials in other cultural and religious complexes will also be treated. Mutually Exclusive: Cannot register for RELI 219 if student has credit for RELI 519.

RELI 221 - THE LIFE OF THE PROPHET MUHAMMAD
Short Title: LIFE OF PROPHET MUHAMMAD
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur’an, Ibn Hisham, and Haykal. Cross-list: ASIA 221.

RELI 223 - QUR’AN AND COMMENTARY
Short Title: QUR’AN AND COMMENTARY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Cross-list: ASIA 232. Graduate/Undergraduate Equivalency: RELI 500. Mutually Exclusive: Cannot register for RELI 232 if student has credit for RELI 500.
RELI 233 - INTRODUCTION TO TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INTRO TO TIBETAN LANG & LIT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introducing the Tibetan alphabet and basics of grammar through reading section of a classic Tibetan text. In addition, readings in English in Indian and Tibetan Buddhist materials, also on the art, history, geography and/or modern era in those areas. Final includes a paper drawn from readings and class discussion. Cross-list: TIBT 233. Graduate/Undergraduate Equivalency: RELI 502. Mutually Exclusive: Cannot register for RELI 233 if student has credit for RELI 502.

RELI 234 - INTERMEDIATE TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INT TIBETAN LANG LIT & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. Cross-list: TIBT 234. Graduate/Undergraduate Equivalency: RELI 564. Mutually Exclusive: Cannot register for RELI 234 if student has credit for RELI 564. Repeatable for Credit.

RELI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

RELI 243 - THE BOOK OF GENESIS
Short Title: THE BOOK OF GENESIS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A critical reading in English of the Book of Genesis with close attention to the narrative artistry and theological dimensions of the text. Compares pre-modern modes of interpretation and modern historical criticism.

RELI 270 - INTRODUCTION TO THE BLACK CHURCH IN THE UNITED STATES
Short Title: INTRO BLACK CHURCH IN THE US
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Much of what has historically taken place within Black communities has been shaped by Black Christian churches. These churches are resources for those interested in understanding religious expression and activism within the Black community. This course provides an introduction into the history, thought, and worship of the major Black denominations.

RELI 271 - MEDIEVAL POPULAR CHRISTIANITY
Short Title: MEDIEVAL POPULAR CHRISTIANITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For much of the Middle Ages, literacy was a luxury that ordinary people could not afford. How could peasants participate in Christian traditions? Course surveys devotional practices engaged by the laity, including penance, pilgrimage, plays, charms and spells, as well as traditions of lay interaction with dead saints and ghosts. Cross-list: MDEM 271.

RELI 272 - INTRODUCTION TO CHRISTIANITY
Short Title: INTRO TO CHRISTIANITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Multidisciplinary exploration of Christian religious experience, belief, and social reality with examples from Africa, the Americas, Asia, and Europe during the last two thousand years. Themes include search for lasting marks of identity amid change and diversity as well as the issue of Christianity's relation to processes of modernization and secularization. No prior background in religious studies required.
RELI 294 - RELIGION IN FICTION AND FILM
Short Title: RELIGION IN FICTION AND FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunnel, and Nutley. Graduate/Undergraduate Equivalency: RELI 514. Mutually Exclusive: Cannot register for RELI 294 if student has credit for RELI 514.

RELI 300 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate/Undergraduate Equivalency: RELI 504. Mutually Exclusive: Cannot register for RELI 300 if student has credit for RELI 504.

RELI 301 - NIETZSCHE AND RELIGIOUS THOUGHT
Short Title: NIETZSCHE & RELIGIOUS THOUGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Nietzsche’s thought and background: his impact on religious thinkers and cultural critics; his influence on understanding of God, faith, values, society, his connection with Schopenhauer, Wagner, Tillich, Mann, Barth, Buber, Freud, Jung, D.H. Lawrence, Heidegger, antibourgeois cultural criticism, environmentalism, feminism, and postmodernism. Graduate/Undergraduate Equivalency: RELI 515. Mutually Exclusive: Cannot register for RELI 301 if student has credit for RELI 515.

RELI 302 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE
Short Title: PEOPLE OF THE BOOK
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible: topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 526. Mutually Exclusive: Cannot register for RELI 302 if student has credit for RELI 526.

RELI 304 - JESUS AND THE GOSPELS
Short Title: JESUS AND THE GOSPELS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the various portraits of Jesus in the New Testament and extra-canonical gospels (including the gospels of Thomas, Philip, Mary and Judas) in order to reconstruct each gospel's Christological interpretation of Jesus as well as the "historical" Jesus himself.

RELI 307 - BASIC COPTIC 1
Short Title: BASIC COPTIC 1
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A first semester introduction to Coptic grammar and vocabulary. Graduate/Undergraduate Equivalency: RELI 591. Mutually Exclusive: Cannot register for RELI 307 if student has credit for RELI 591. Repeatable for Credit.

RELI 308 - BASIC COPTIC 2
Short Title: BASIC COPTIC 2
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 307
Description: Second semester introduction to Coptic grammar and vocabulary, with selected readings from the Coptic New Testament, Nag Hammadi, and monastic literature. Prerequisite: Introduction to Coptic Language I. Graduate/Undergraduate Equivalency: RELI 592. Mutually Exclusive: Cannot register for RELI 308 if student has credit for RELI 592.
RELI 309 - BASIC COPTIC 3
Short Title: BASIC COPTIC 3
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Varied readings in original language to include the New Testament, Nag Hammadi, and monastic literature. Prerequisite: Coptic 1 and 2. Graduate/Undergraduate Equivalency: RELI 593. Mutually Exclusive: Cannot register for RELI 309 if student has credit for RELI 593. Repeatable for Credit.

RELI 311 - RELIGION AND HIP HOP CULTURE IN AMERICA
Short Title: RELIGION AND HIP HOP
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Hip Hop culture has changed how life is discussed and conducted. However, one of the under-explored dimensions of Hip Hop culture involves its religious sensibilities. Using lectures, discussions, films, and video presentations, this course explores Hip Hop culture’s religious dimensions through its musical language-rap music. RELI 311 requires additional work above the RELI 157 counterpart, including a term paper, etc. Mutually Exclusive: Cannot register for RELI 311 if student has credit for RELI 157.

RELI 312 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Although many figures played a prominent role during the Civil Rights Movement, Martin L. King, Jr. and Malcolm X made unique contributions. Their work sparked important conversation concerning the methods, goals, and consequences of struggle toward liberation. This course examines their religiosity, theological sensibilities, and the major themes which surface in their writings and public work. Graduate/Undergraduate Equivalency: RELI 546. Mutually Exclusive: Cannot register for RELI 312 if student has credit for RELI 546.

RELI 315 - GENDER AND ISLAM
Short Title: GENDER AND ISLAM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the lives of Muslim women in Asia, the Middle East, Europe, and North America; analyze constructions of gender in the Islamic world over time, the challenges faced from such diverse quarters as colonial administrators, Western feminists, and states, as well as movements and individuals within the Muslim world. Cross-list: ASIA 315, SWGS 315.

RELI 318 - THE BIBLE: A BRIEF INTELLECTUAL HISTORY
Short Title: BIOGRAPHY OF THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate/Undergraduate Equivalency: RELI 518. Mutually Exclusive: Cannot register for RELI 318 if student has credit for RELI 518.

RELI 322 - INTRODUCTION TO BUDDHISM
Short Title: INTRODUCTION TO BUDDHISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Cross-list: ASIA 322. Graduate/Undergraduate Equivalency: RELI 572. Mutually Exclusive: Cannot register for RELI 322 if student has credit for RELI 572.
RELI 328 - RELIGION AND GLOBAL POVERTY
Short Title: RELIGION & GLOBAL POVERTY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of religion and poverty in global context. Course materials will address religious, ethical anthropological theories of development, analyze specific themes economic and social development, examine the role of Faith Based Organizations and do specific case studies. Students will be graded on short reflections papers and a final term paper. Graduate/Undergraduate Equivalency: RELI 528. Mutually Exclusive: Cannot register for RELI 328 if student has credit for RELI 528.

RELI 329 - THE BIBLE AS LIVED EXPERIENCE
Short Title: THE BIBLE AS LIVED EXPERIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Even in today's seemingly secular landscape, the Bible is a strong artistic, social, and political influence. We will explore ways in which the Bible is brought to life in contemporary culture by analyzing biblical references in music, film, art, and contemporary religious practice. We will show how American culture shapes understandings of the Bible and vice versa. Mutually Exclusive: Cannot register for RELI 329 if student has credit for RELI 529.

RELI 332 - ADVANCED TIBETAN LANGUAGE & CULTURE
Short Title: ADV TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 132 or TIBT 132
Description: This class builds on RELI 232 and 234, now including more challenging material in Tibetan, and continuing the trajectory of gaining familiarity with Buddhist philosophical systems as these touch on epistemology, ontology, and contemplative practice. Cross-list: TIBT 332. Graduate/Undergraduate Equivalency: RELI 532. Mutually Exclusive: Cannot register for RELI 332 if student has credit for RELI 532. Repeatable for Credit.

RELI 333 - KNOWING BODY/GLOWING MIND: BUDDHIST ARTS OF CONTEMPLATION AND ANALYSIS
Short Title: KNOWING BODY/GLOWING MIND
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhism is a performing art engaging both mind and body. Our course investigates Buddhist and other literature, epistemology and rituals with an eye to how they speak to contemplative practice. Contemplative practice itself, in class and out, supplements our exploration of the interplay between traditional Asian and contemporary Western perspectives. Graduate/Undergraduate Equivalency: RELI 573. Recommended prerequisite(s): One course in Buddhism. Mutually Exclusive: Cannot register for RELI 333 if student has credit for RELI 573. Repeatable for Credit.

RELI 334 - PSYCHOLOGY OF RELIGION
Short Title: PSYCHOLOGY OF RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of the basic approaches in the psychological understanding of religious belief and practice. Topics to be addressed in religious systems East and West include: sex, religious experience, ritual, myth, saintliness, guilt, God and meditation.

RELI 335 - MEDICINE AND THE MUSEUM: CLINICAL AESTHETICS AND THE MUSEUM OF FINE ARTS, HOUSTON
Short Title: MEDICINE AND THE MUSEUM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through weekly visits to the Museum of Fine Arts, Houston, this class develops key skills and engages relevant themes relating to medicine and caregiving, including observation and description, embodiment and motion, eros and suffering, vulnerable populations, grief and loss, human mortality and spiritual transcendence.
RELI 336 - RELIGION & THE SOCIAL SCIENCES  
Short Title: RELIGION & THE SOCIAL SCIENCES  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Designed to introduce the student to classic and contemporary texts in the social scientific study of religion. Topics include: mysticism, the social construction of gender, the guru-disciple relationship, secularization, healing traditions East and West, cross-cultural debates. Mutually Exclusive: Cannot register for RELI 336 if student has credit for RELI 260/RELI 609.

RELI 337 - SHAMANS, SAINTS, & SAGES  
Short Title: SHAMANS, SAINTS, & SAGES  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Familiarize the student with diverse texts (secular and religious, East and West) found in mystical literature. Emphasis will be placed on psychological and comparative methods. Mutually Exclusive: Cannot register for RELI 337 if student has credit for RELI 262.

RELI 338 - THE CHURCH OF AFRICA  
Short Title: THE CHURCH OF AFRICA  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A reading course designed to examine Christianity in Africa. Course materials and readings will address the development of the church from the Patristic era to the present, paying attention to theological developments, missionization, colonialism, nationalism, prophetic movements, race relations, the role of women, and social issues. Graduate/Undergraduate Equivalency: RELI 540. Mutually Exclusive: Cannot register for RELI 338 if student has credit for RELI 540.

RELI 339 - APOCALYPSE THEN AND NOW  
Short Title: APOCALYPSE THEN AND NOW  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A close reading of some early Jewish and Christian apocalypses, a discussion of the apocalyptic worldview, and an examination of America's fascination with the Apocalypse in media and science. Graduate/Undergraduate Equivalency: RELI 510. Mutually Exclusive: Cannot register for RELI 339 if student has credit for RELI 510.

RELI 340 - THEOLOGY IN AFRICA  
Short Title: THEOLOGY IN AFRICA  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introductory readings on theological thinking in Africa. Course will address methodological issues as well as constructive theological work on enculturation, social and economic justice, gender, health, and liberation. Read 5 major texts, write a major review, lead class discussions, discuss texts used, and write 20 page research paper. Graduate/Undergraduate Equivalency: RELI 539. Mutually Exclusive: Cannot register for RELI 340 if student has credit for RELI 539.

RELI 341 - AMERICAN JUDAISM: RELIGION AND THOUGHT  
Short Title: AMERICAN JUDAISM  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Graduate/Undergraduate Equivalency: RELI 542. Mutually Exclusive: Cannot register for RELI 341 if student has credit for RELI 542.
RELI 342 - NEW RELIGIOUS MOVEMENTS IN AFRICA  
**Short Title:** NEW RELIG MOVEMENTS IN AFRICA  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Discusses new religious movements and the religious, sociological, and political factors leading to their rise, also missionary and colonial reactions to them. Examines their relationship to indigenous religions, political praxis, and their focus on this-worldly salvation in the wake of political and economic marginality. Cross-list: ANTH 343.

RELI 343 - SEMINAR ON LOVE  
**Short Title:** SEMINAR ON LOVE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This seminar explores the themes of love, sex, and spirit from the classical era through the postmodern age. We will examine literary, philosophical, and artistic expressions in painting, sculpture, cinema, novels, poetry, psychoanalysis, religion, and culture. Cross-list: HART 347.

RELI 344 - SEMINAR ON THE END OF LIFE  
**Short Title:** END OF LIFE SEMINAR  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course examines themes associated with death and dying from the historical through the contemporary periods. The class will adopt a highly multidisciplinary approach that combines the critical perspectives of biomedicine, religious studies, art history, philosophy, anthropology, bioethics, and cultural studies as we consider life at the end of life.

RELI 348 - CHRISTIANITY AND ISLAM IN AFRICA  
**Short Title:** CHRISTIANITY & ISLAM IN AFRICA  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will focus upon the history and conflict of Christianity and Islam in Africa, with emphasis placed upon indigenous African developments, cultural and artistic themes, and conversion narratives as well as exploring the co-existence and conflict of the two major faiths of the continent. Mutually Exclusive: Cannot register for RELI 348 if student has credit for RELI 536.

RELI 350 - DEMONS, MENTAL ILLNESS AND MEDICINE  
**Short Title:** DEMONS/MENTAL ILLNESS/MEDICINE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Treats complex connections between religious beliefs/practices and formulation of human psychology in western tradition, through a historical reckoning with demonology. Consider the way demons are represented – from semi-corporeal beings to marks of mental illness – by looking at texts from the ancient world to modern psychiatry. Cross-list: MDEM 350. Mutually Exclusive: Cannot register for RELI 350 if student has credit for RELI 605.

RELI 356 - MAJOR ISSUES IN CONTEMPORARY ISLAM  
**Short Title:** MAJ ISSUES CONTEMPORARY ISLAM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will focus on the major issues confronting contemporary Islam including Islamic unity, the place of the Qur’an and traditions, human rights, Islamic feminism, da’wa, education, science and Islam, globalization and medical ethics.
RELI 357 - WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Graduate/Undergraduate Equivalency: RELI 547. Mutually Exclusive: Cannot register for RELI 357 if student has credit for RELI 547.

RELI 359 - RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION
Short Title: RELIGIOUS TOLERANCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores context and consequences of the concept of religious tolerance in the crucible of globalization politics. Background in settlement of Reformation-era religious wars; American attitudes; impetus for tolerance policies and their implementation, 1945 to present (including governmentality and surveillance); results for historically Christian populations, esp. in US and Europe. Graduate/Undergraduate Equivalency: RELI 580. Mutually Exclusive: Cannot register for RELI 359 if student has credit for RELI 580.

RELI 361 - THE HUMANITIES OF CARE & END OF LIFE
Short Title: THE HUMANITIES OF CARE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Pairing the perspectives of medicine, bioethics, and the medical humanities with thematic case studies in art, literature, cinema, and visual culture, the class examines the humanities of care and the end of life.

RELI 362 - RELIGION AND SCIENCE
Short Title: RELIGION AND SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar analyzes interdisciplinary efforts by scholars of religion to engage scientific research in the cognitive and neuro-sciences. We assess the possibilities for collaboration, as well as conflict, between humanistic and scientific disciplines, asking how the tools of interpretation and empiricism might enrich our understanding of religious phenomena. Graduate/Undergraduate Equivalency: RELI 563. Mutually Exclusive: Cannot register for RELI 362 if student has credit for RELI 563.

RELI 363 - JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT
Short Title: JEWISH PHILOSOPHY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the main figures and themes in Jewish philosophy. Topics to be discussed include reason vs faith and prophetic revelation; Israel's chosenness vs human universalism; creation vs eternity; divine providence and necessity vs free will; evil, justice, and divine omnipotence; prayer, contemplation, and divine and human perfection. Graduate/Undergraduate Equivalency: RELI 567. Mutually Exclusive: Cannot register for RELI 363 if student has credit for RELI 567.

RELI 365 - PAUL AND THE NEW TESTAMENT
Short Title: PAUL & THE NEW TESTAMENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the growth of Christianity from its origins as a Jewish group to a religion in the mid-second century that distinguished itself from Judaism. Includes discussion of Acts, Paul's letters, Johannine corpus, Gospel of Thomas, Pastorals, Catholic letters, Hebrews, and Revelation.
RELI 367 - REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART
Short Title: REPRESENTING THE DEVIL
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on representations of the Devil, demons, and ambiguous spirits in Christian sources from the early medieval to early modern period. Students examine theological as well as ritual sources (blessings and exorcisms), and popular, narrative, dramatic, and artistic representations of evil. Graduate/Undergraduate Equivalency: RELI 557. Mutually Exclusive: Cannot register for RELI 367 if student has credit for RELI 557.

RELI 368 - RISE OF THE NONES: HUMANISMS AND HUMANITIES
Short Title: RISE OF THE NONES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will look at the rise of the “nones,” that is, individuals who affiliate with no religious tradition, through both a history of secular thought in the West and a close reading of key texts and figures. Atheism, humanism, secularism and the “spiritual but not religious” will all be treated as key categories. Graduate/Undergraduate Equivalency: RELI 568. Mutually Exclusive: Cannot register for RELI 368 if student has credit for RELI 568. Repeatable for Credit.

RELI 369 - READING WRIGTH: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT
Short Title: READING RICHARD WRIGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Richard Wright’s fiction and nonfiction are important resources for understanding the nature of radicalized life in the United States. This course explores his writings for what they tell us about the role of religion in the development of identity and life meaning, and we will juxtapose the role of religion with Wright's commentary on the nature and significance of atheism for countering injustice. Graduate/Undergraduate Equivalency: RELI 606. Mutually Exclusive: Cannot register for RELI 369 if student has credit for RELI 606.

RELI 371 - CHRISTIANITY IN THE GLOBAL SOUTH
Short Title: CHRISTIANITY IN GLOBAL SOUTH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings on Christianity in the Global South analyzing historical developments, mission and colonial encounters, growth and expansion; diversity of expression, the development of local initiated Churches, Pentecostalism, and public role of the Church. Graduate/Undergraduate Equivalency: RELI 561. Mutually Exclusive: Cannot register for RELI 371 if student has credit for RELI 561.

RELI 375 - EPIPHANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE
Short Title: EPIPHANIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Epiphanies are events or objects that can note a striking appearance or manifestation, just as an epiphanic experience contains a significant moment of revelation. This course examines expressions of epiphanies in modernist art, literature, film, sacred experience, and in the mundane details of life itself. Cross-list: HART 328.

RELI 378 - MIND AND ART, FILM AND LITERATURE IN BUDDHISM
Short Title: BUDDHIST ART AND LITERATURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the historical origins of Messianism. The Hebrew Bible, the Dead Sea Scrolls, and other ancient texts reflect a surprising diversity of Messianic expectations in early Judaism. These form the background of early Christian depictions of Jesus of Nazareth.
RELI 382 - LOST JUDAISMS: THE APOCRYPHAL WRITINGS  
**Short Title:** LOST JUDAISMS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** After the Hebrew Bible/Old Testament canon was closed, Jews and Christians continued to compose texts and attributed them to the biblical figures of the past. Seminar offers a close reading of some of these apocryphal/pseudepigraphic little known texts. Graduate/Undergraduate Equivalency: RELI 509. Mutually Exclusive: Cannot register for RELI 382 if student has credit for RELI 509.

RELI 383 - THE DEAD SEA SCROLLS  
**Short Title:** THE DEAD SEA SCROLLS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A survey of the Dead Sea Scrolls as a window into the Second Temple period. A close reading of the scrolls will lead to a discussion of the theological and historical issues of the time, a period pivotal for the formation of Rabbinic Judaism and Early Christianity. Graduate/Undergraduate Equivalency: RELI 553. Mutually Exclusive: Cannot register for RELI 383 if student has credit for RELI 553.

RELI 384 - PILGRIMAGE AND CRUSADE  
**Short Title:** PILGRIMAGE AND CRUSADE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Focus on the pilgrimage to Jerusalem and Mecca by Jews, Christians, and Muslims within the context of the crusade period. Also covers the historical religious events of the crusades (approximately 1000-1300) from both a Muslim and a Christian perspective. Mutually Exclusive: Cannot register for RELI 384 if student has credit for RELI 608.

RELI 385 - GOD, TIME AND HISTORY  
**Short Title:** GOD, TIME AND HISTORY  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** How is the passage of time given meaning, and what role—if any—is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world—the cultures in which modern ideas of history began. Cross-list: HIST 381. Mutually Exclusive: Cannot register for RELI 385 if student has credit for RELI 585.

RELI 387 - WESTERN ESOTERICISM: METHOD AND THEORY  
**Short Title:** WESTERN ESOTERICISM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course explores the relation between esoteric texts and the idea of "Western Esotericism." We will look at primary writings from Agrippa to Madame Blavatsky and consider the historical and methodological approaches emerging as Esotericism is constructed as an academic area. Graduate/Undergraduate Equivalency: RELI 587. Mutually Exclusive: Cannot register for RELI 387 if student has credit for RELI 587.

RELI 388 - THE PSALMS  
**Short Title:** THE PSALMS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A seminar on biblical poetry. The Psalms have constituted a book of study, devotion, and prayer for Jews and Christians for two millennia. This course explores the psalms' poetic force, liturgical setting in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 612. Mutually Exclusive: Cannot register for RELI 388 if student has credit for RELI 612.
RELI 390 - SEARCH FOR GOD IN THE POSTMODERN WORLD

Short Title: SEARCH FOR GOD

Department: Religion

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: Explore forms of theistic religious experience, concentrating on the Western Christian tradition; past and present cultural and philosophical challenges to traditional religious belief; the possibility of Christian faith and the struggle for justice and meaning. Mutually Exclusive: Cannot register for RELI 390 if student has credit for RELI 280.

RELI 391 - THE REFORMATION & ITS RESULTS

Short Title: THE REFORMATION & ITS RESULTS

Department: Religion

Grade Mode: Standard Letter

Course Type: Lecture

Distribution Group: Distribution Group I

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: Theology and church-state issues from 16th-century Reformation to 17th-century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Cross-list: MDEM 391.

Mutually Exclusive: Cannot register for RELI 391 if student has credit for RELI 286.

RELI 392 - JERUSALEM: HOLY CITY IN TIME AND IMAGINATION

Short Title: JERUSALEM

Department: Religion

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 3,4

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: A course on Jerusalem's past and present, its religious meanings in Judaism, Christianity, and Islam, and its role in the modern conflict in the Middle East. Instructor Permission Required.

RELI 393 - MUTANTS AND MYSTICS: RACE, SEXUALITY, AND THE FUTURE OF THE HUMANITIES

Short Title: MUTANTS AND MYSTICS

Department: Religion

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: This is a course about the deep historical and conceptual connections between the histories of science fiction, the paranormal, and social transformation around race, gender, sexuality, and the human. We will see that such events tend to erupt in the “gaps” or “fractures” of society and within both personal and historical traumatic contexts in order to both deconstruct the reigning social formations, epistemologies, and ontologies—usually of an objectivizing, colonizing, and scientistic nature—but also supply the numinous foundations for the imagining of new humanities, or what queer theorist Ramzi Fawaz calls our emerging “mutanity.” Graduate/Undergraduate Equivalency: RELI 589. Mutually Exclusive: Cannot register for RELI 393 if student has credit for RELI 589.

RELI 395 - LOSING YOUR RELIGION IN FILM & FICTION & MUSIC

Short Title: LOSING YOUR RELIGION IN FILM

Department: Religion

Grade Mode: Standard Letter

Course Type: Seminar

Distribution Group: Distribution Group I

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: Doubt, sex, despair, obsession, ecstasy in directors, writers, musicians wanting spiritual reboot, 1890-2015: such as Allen Ginsberg, Oscar Wilde, D.H. Lawrence, T.S. Eliot, H.P. Lovecraft, John Updike, and Ingmar Bergman. Graduate/Undergraduate Equivalency: RELI 503.

Mutually Exclusive: Cannot register for RELI 395 if student has credit for RELI 503.

RELI 396 - PENTECOSTALISM

Short Title: PENTECOSTALISM

Department: Religion

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: An introduction to Pentecostalism in a global context focusing historical developments, expansion in Europe, North America, Africa, Latin America and Asia. Graduate/Undergraduate Equivalency: RELI 595. Mutually Exclusive: Cannot register for RELI 396 if student has credit for RELI 595.
RELI 399 - CONTEMPLATIVE PRACTICE
Short Title: CONTEMPLATIVE PRACTICE
Department: Religion
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Literary and artistic creativity, religious experience, and textual interpretation often draw on focused states of consciousness made possible by contemplative practices. The practice will provide historical information about such practices and offer opportunities to participate in techniques ranging from meditation and observing breath to freeform writing and T’ai Chi. Graduate/Undergraduate Equivalency: RELI 597. Mutually Exclusive: Cannot register for RELI 399 if student has credit for RELI 597. Repeatable for Credit.

RELI 400 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Consisting of the writing of a thesis of considerable length, depth, and research, this course will function as the capstone course on writing in the discipline. Required of all majors.

RELI 401 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 402 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 403 - SENIOR THESIS I
Short Title: SENIOR THESIS I
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For the duration of their senior year, qualified students can elect to write a senior thesis. To complete the thesis, the student elects RELI 403 "Senior Thesis I" in Fall semester and RELI 404 "Senior Thesis II" in Spring semester and works with a Religion faculty supervisor for the year. Instructor Permission Required.

RELI 404 - SENIOR THESIS II
Short Title: SENIOR THESIS II
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 403
Description: For the duration of their senior year, qualified students can elect to write a senior thesis. To complete the thesis, the student elects RELI 403 "Senior Thesis I" in Fall semester and RELI 404 "Senior Thesis II" in Spring semester and works with a Religion faculty supervisor for the year. Instructor Permission Required.

RELI 406 - CHRISTIANITY AND LATE ANTIQUITY
Short Title: CHRISTIANITY & LATE ANTIQUITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 506. Mutually Exclusive: Cannot register for RELI 406 if student has credit for RELI 506.
RELI 407 - ARCHIVES OF THE IMPOSSIBLE
Short Title: ARCHIVES OF THE IMPOSSIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After reading Prof. Kripal's Authors of the Impossible as a basic theoretical structure for the semester, this advanced archival research seminar will involve students engaging original historical documents contained in Rice University's archive on Paranormal Currents in American Culture toward the writing of a graduate or undergraduate thesis. Graduate/Undergraduate Equivalency: RELI 607. Mutually Exclusive: Cannot register for RELI 407 if student has credit for RELI 607.

RELI 410 - CONCEPTS IN THE STUDY OF RELIGION
Short Title: CONCEPTS IN RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces useful concepts and key methodological problems in the discipline of religious studies. It aims to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in honors or MA theses in the Religion department. Graduate students must take a final exam and write an additional three to four thousand words. Graduate/Undergraduate Equivalency: RELI 610.

RELI 415 - SECRET RELIGION
Short Title: SECRET RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. Graduate/Undergraduate Equivalency: RELI 615. Mutually Exclusive: Cannot register for RELI 415 if student has credit for RELI 615.

RELI 416 - NEW TESTAMENT / CHRISTIAN ORIGINS
Short Title: NEW TESTAMENT/CHRISTIAN ORIG
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How did Christianity emerge as a new religious movement in the Roman Empire? Covers the history and literature of the first generations of Christians, focusing on Post-Temple developments, issues of authority and leadership, rise of regional forms of Christianity, and formation of distinct Christian identities. Graduate/Undergraduate Equivalency: RELI 616. Mutually Exclusive: Cannot register for RELI 416 if student has credit for RELI 616.

RELI 417 - GnosticaM ERCIA
Short Title: Gnostic America
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers the rise of Gnostic spirituality in American religion and culture, from the Colonial period to the present. Explores the alpha conduits (Boehme, Blavatsky, Jung, academia). Examines the roles of revelatory experience, artifact migration, historical criticism, secularization, hybridity, heresy, and popularization. Case studies vary depending on students’ research goals. 5000-word research paper. Graduate/Undergraduate Equivalency: RELI 517. Mutually Exclusive: Cannot register for RELI 417 if student has credit for RELI 517.

RELI 419 - MYSTERY RELIGIONS
Short Title: MYSTERY RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers literature, practices, and archaeology of esoteric cults within the context of religion in Roman Empire (Demeter, the Great Gods, Cybele, Persephone, Dionysus, Isis, Mithras, Hermes, Qumran, Christianity, Gnostic groups). Case studies vary depending on students’ research goals, including comparison with Renaissance and modern esoteric initiatory groups. 5000-word research paper; GRAD equivalent: 7500-word paper. Graduate/Undergraduate Equivalency: RELI 619. Mutually Exclusive: Cannot register for RELI 419 if student has credit for RELI 619.
RELI 420 - ART OF INTERPRETING THE BIBLE
Short Title: ART OF INTERPRETING THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores issues of history, historiography, and hermeneutics within the context of Biblical Studies. While traditional forms of Biblical criticism are covered, the bulk of the course focuses on intertextuality, reception history, sociological methods, feminist views, and cognitive approaches. Graduate students (7500 word paper, seminar leadership, and oral presentation); Undergraduate students (5000 word paper and oral presentation). Graduate/Undergraduate Equivalency: RELI 620.

RELI 421 - FOUCAULT & THE HERMENEUTICS OF SELF
Short Title: FOUCAULT & THE SELF
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Best known for analyzing domination and power, Michel Foucault shifts his attention to ethics and "technologies of the self" in 1976. In this advanced seminar, we study and critique Foucault's turn to western antiquity through his lectures and volumes of foregrounding resistance to power through religion, politics and ethics. Graduate/Undergraduate Equivalency: RELI 569. Mutually Exclusive: Cannot register for RELI 421 if student has credit for RELI 569.

RELI 423 - AFRICAN MYTHS AND RITUALS
Short Title: AFRICAN MYTHS AND RITUALS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and that serve as a basis for the negotiation of power and ideology for members within that community. Readings from classic theorists: Durkheim, Levi-Strauss, Edmond Leach, Gennap and Turner, and contemporary theorists: Werbner, Heusch, Comaroff, and Ray. Cross-list: ANTH 423. Graduate/Undergraduate Equivalency: RELI 537. Mutually Exclusive: Cannot register for RELI 423 if student has credit for RELI 537.

RELI 424 - RELIGION AND POLITICS IN AFRICA
Short Title: RELIGION & POLITICS IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. Graduate/Undergraduate Equivalency: RELI 534. Mutually Exclusive: Cannot register for RELI 424 if student has credit for RELI 534. Repeatable for Credit.

RELI 426 - RELIGION AND LITERATURE IN AFRICA
Short Title: RELI AND LITERATURE IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analysis of the religious imagination and gender issues in postcolonial literature in Africa focusing on Islam, Christianity, indigenous religions and African Initiated Churches. Religious and gender issues addressed include identity crises, power, clash of cultures, modernity, cosmology, community, and socio-religious conflicts in a postcolonial world. Mutually Exclusive: Cannot register for RELI 426 if student has credit for RELI 538.

RELI 427 - HISTORY AND METHODS: NINETEENTH CENTURY
Short Title: HISTORY AND METHODS: 19TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1800-1900. Graduate/Undergraduate Equivalency: RELI 527. Mutually Exclusive: Cannot register for RELI 427 if student has credit for RELI 527.
REL 428 - HISTORY AND METHODS: TWENTIETH CENTURY
Short Title: HISTORY AND METHODS: 20TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1900-present. Graduate/Undergraduate Equivalency: REL 559. Mutually Exclusive: Cannot register for REL 428 if student has credit for RELI 559.

REL 430 - RELIGION, PSYCHOLOGY & CULTURE
Short Title: RELIGION, PSYCHOLOGY & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the historical development of the psychology of religion and its conversation with theology, comparative studies, gender studies, sociology, and anthropology. Topics include: mysticism, eroticism, conversion, feminism, psychobiography. Examples drawn from a variety of religious traditions. Readings include: Freud, Jung, Tillich, Erikson, Kristeva, Kakar. Graduate/Undergraduate Equivalency: REL 584. Mutually Exclusive: Cannot register for REL 430 if student has credit for RELI 584.

REL 431 - RELIGION AND COGNITIVE SCIENCE
Short Title: RELIGION AND COGNITIVE SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Interdisciplinary approach founded on biological, cross-cultural, evolutionary, neurological and cognitive studies of religion. Explores extreme religious experiences, ritualized behaviors, shamanism and religious therapy, religious community, universality of religion, and transmission of religious ideas and practices. 5000 word research paper. Graduate/Undergraduate Equivalency: RELI 531. Mutually Exclusive: Cannot register for RELI 431 if student has credit for RELI 531.

REL 433 - TIBETAN LANGUAGE AND CULTURE
Short Title: TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Tibetan texts -- debates, philosophical treatises of various kinds, meditation texts for contemplative practice -- accompanied by supportive readings in English and discussion of the thematic issues raised by the material, with an emphasis on cultural awareness. Repeatable for Credit.

REL 440 - ISLAM'S MYSTICAL AND ESOTERIC TRADITION
Short Title: ISLAM'S MYSTICAL TRADITION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ascetic and Sufi aspects of Islam from the middle Islamic period until the present day. Readings from al-Ghazali, Ibn al-Arabi, Sa'di, Hafiz and Rumi. Graduate/Undergraduate Equivalency: RELI 522. Mutually Exclusive: Cannot register for RELI 440 if student has credit for RELI 522.

REL 441 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Cross-list: ASIA 441. Graduate/Undergraduate Equivalency: RELI 525. Mutually Exclusive: Cannot register for RELI 441 if student has credit for RELI 525.

REL 442 - CLASSICAL AND CONTEMPORARY ARABIC TEXTS
Short Title: ARABIC TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study and read classical Arabic texts with the goal of learning the material as well as the syntax and grammar of Arabic. Graduate/Undergraduate Equivalency: RELI 541. Repeatable for Credit.
RELI 458 - MYSTICISM: THEORIES AND METHODS
Short Title: MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A history of the development of the modern category of "mysticism" from the seventeenth century to today, with side studies of cognate terms like "spirituality," "metaphysical religion," and the "paranormal," as these forms of extreme religious experience are by social-scientific and humanistic methods. RELI 558: Additional readings and writing. Graduate/Undergraduate Equivalency: RELI 558. Mutually Exclusive: Cannot register for RELI 458 if student has credit for RELI 558.

RELI 449 - EARLY CHRISTIAN CONTROVERSIES
Short Title: EARLY CHRISTIAN CONTROVERSIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar examines controversies and debates among the early Christians as catholic Christianity emerged from a diversity of Christian movements. Literature reviewed will vary. Students will select to focus on one controversy and write a research paper (undergraduates, 5000 words; graduate students, 7500 words). Oral discussion and presentations will be required. Graduate/Undergraduate Equivalency: RELI 549. Mutually Exclusive: Cannot register for RELI 449 if student has credit for RELI 549. Repeatable for Credit.

RELI 444 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Cross-list: MDEM 444. Graduate/Undergraduate Equivalency: RELI 644. Mutually Exclusive: Cannot register for RELI 444 if student has credit for RELI 644.

RELI 470 - BUDDHIST WISDOM TEXTS
Short Title: BUDDHIST WISDOM TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: FREN 324, POLI 324. Graduate/Undergraduate Equivalency: RELI 604. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for RELI 470 if student has credit for RELI 604.
RELI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Mutually Exclusive: Cannot register for RELI 477 if student has credit for RELI 353. Repeatable for Credit.

RELI 481 - GNOSTICISM SEMINAR
Short Title: GNOSTICISM SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In depth examination of one (or more) Gnostic texts within its literary, social, historical, and religious landscapes. Graduate/Undergraduate Equivalency: RELI 581. Mutually Exclusive: Cannot register for RELI 481 if student has credit for RELI 581.

RELI 488 - THE HISTORY OF RELIGIONS SCHOOLS
Short Title: HISTORY OF RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An historical survey of the History of Religions School that emerged in the 1960s and 70s at the University of Chicago and came to play such an important role in the comparative study of religion. Graduate/Undergraduate Equivalency: RELI 588. Mutually Exclusive: Cannot register for RELI 488 if student has credit for RELI 588.

RELI 490 - AFRICAN AMERICAN LITERATURE AND RELIGION
Short Title: AF/AM LITERATURE & RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar students will read and analyze African American literature in order to explore the various ways in which African Americans have understood and articulated the nature and meaning of African American religious experience and practice. Graduate/Undergraduate Equivalency: RELI 590. Mutually Exclusive: Cannot register for RELI 490 if student has credit for RELI 590.

RELI 500 - RELIGIONS FROM INDIA
Short Title: RELIGIONS FROM INDIA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate students will be required to read a standard and well-known two-volume, 1,200-page collection of primary historical sources. They will also write a research paper (25-30 pages) that is approximately twice as long as the undergraduate paper. Graduate/Undergraduate Equivalency: RELI 395. Mutually Exclusive: Cannot register for RELI 500 if student has credit for RELI 395.

RELI 504 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doubt, sex, despair, obsession, ecstasy in directors, writers, musicians wanting spiritual reboot, 1890-2015: such as Allen Ginsberg, Oscar Wilde, D.H. Lawrence, T.S. Eliot, H.P. Lovecraft, John Updike, and Ingmar Bergman. Graduate/Undergraduate Equivalency: RELI 395. Mutually Exclusive: Cannot register for RELI 504 if student has credit for RELI 395.

RELI 505 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate students will be required to read a standard and well-known two-volume, 1,200-page collection of primary historical sources. They will also write a research paper (25-30 pages) that is approximately twice as long as the undergraduate paper. Graduate/Undergraduate Equivalency: RELI 395. Mutually Exclusive: Cannot register for RELI 504 if student has credit for RELI 395.

RELI 531: write a paper approximately one-third longer than the undergraduate equivalent (RELI 233) and complete a more substantial presentation. Graduate/Undergraduate Equivalency: RELI 233. Mutually Exclusive: Cannot register for RELI 502 if student has credit for RELI 233.

RELI 503 - LOSING YOUR RELIGION IN FILM & FICTION & MUSIC
Short Title: LOSING YOUR RELIGION IN FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doubt, sex, despair, obsession, ecstasy in directors, writers, musicians wanting spiritual reboot, 1890-2015: such as Allen Ginsberg, Oscar Wilde, D.H. Lawrence, T.S. Eliot, H.P. Lovecraft, John Updike, and Ingmar Bergman. Graduate/Undergraduate Equivalency: RELI 395. Mutually Exclusive: Cannot register for RELI 503 if student has credit for RELI 395.

RELI 504 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate students will be required to read a standard and well-known two-volume, 1,200-page collection of primary historical sources. They will also write a research paper (25-30 pages) that is approximately twice as long as the undergraduate paper. Graduate/Undergraduate Equivalency: RELI 395. Mutually Exclusive: Cannot register for RELI 504 if student has credit for RELI 395.
RELI 505 - AMERICAN METAPHYSICAL RELIGION
Short Title: AMERICAN METAPHYSICAL RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar turns to a close study of the Esalen Institute in Big Sur, CA, as a unique window to some of the different ways tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Graduate/Undergraduate Equivalency: RELI 231. Mutually Exclusive: Cannot register for RELI 505 if student has credit for RELI 231.

RELI 506 - CHRISTIANITY AND LATE ANTIQUITY
Short Title: CHRISTIANITY & LATE ANTIQUITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 406. Mutually Exclusive: Cannot register for RELI 506 if student has credit for RELI 406.

RELI 507 - INTRODUCTION TO BIBLICAL HEBREW I
Short Title: INTRO TO BIBLICAL HEBREW I
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Write an exegetical paper on a Hebrew text of your choice. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 125. Mutually Exclusive: Cannot register for RELI 507 if student has credit for RELI 125.

RELI 509 - LOST JUDAISMS: THE APOCRYPHAL WRITINGS
Short Title: LOST JUDAISMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After the Hebrew Bible/Old Testament canon was closed, Jews and Christians continued to compose texts and attributed them to the biblical figures of the past. Seminar offers a close reading of some of these apocryphal/psuedoepigraphic little known texts. Students in RELI 509 will additionally conduct a research project. Graduate/Undergraduate Equivalency: RELI 382. Mutually Exclusive: Cannot register for RELI 509 if student has credit for RELI 382.

RELI 510 - APOCALYPSE THEN AND NOW
Short Title: APOCALYPSE THEN AND NOW
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A close reading of some early Jewish and Christian apocalypses, a discussion of the apocalyptic worldview, and an examination of America's fascination with the Apocalypse in media and science. Graduate/Undergraduate Equivalency: RELI 339. Mutually Exclusive: Cannot register for RELI 510 if student has credit for RELI 339.

RELI 511 - INTRODUCTION TO BIBLICAL HEBREW II
Short Title: INTRO TO BIBLICAL HEBREW II
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of RELI 507. We will finish the grammar in the second half of this semester and then read selections from the Hebrew bible. Write an exegetical paper on a Hebrew text of your choice. Graduate/Undergraduate Equivalency: RELI 126. Mutually Exclusive: Cannot register for RELI 511 if student has credit for RELI 126.

RELI 512 - INTERMEDIATE BIBLICAL HEBREW III
Short Title: INTERM BIBLICAL HEBREW III
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): RELI 125 and RELI 126
Description: Readings in the Hebrew Bible as well as some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Write an exegetical paper on a Hebrew text. UG/GR Equivalent: RELI 127. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 127. Mutually Exclusive: Cannot register for RELI 512 if student has credit for RELI 127.

RELI 514 - RELIGION IN FICTION AND FILM
Short Title: RELIGION IN FICTION AND FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunuel, and Nutley. Term paper twice as long as undergraduate requirement. Graduate/Undergraduate Equivalency: RELI 294. Mutually Exclusive: Cannot register for RELI 514 if student has credit for RELI 294.
RELI 515 - NIETZSCHE AND RELIGIOUS THOUGHT  
Short Title: NIETZSCHE & RELIGIOUS THOUGHT  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine Nietzsche’s dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible. Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 440. Mutually Exclusive: Cannot register for RELI 522 if student has credit for RELI 440.

RELI 522 - ISLAM’S MYSTICAL AND ESOTERIC TRADITION  
Short Title: ISLAM’S MYSTICAL TRADITION  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Graduate/Undergraduate Equivalency: RELI 441. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 441.

RELI 526 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE  
Short Title: PEOPLE OF THE BOOK  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible. Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 302. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 302.

RELI 517 - GNOSTIC AMERICA  
Short Title: GNOSTIC AMERICA  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Covers the rise of Gnostic spirituality in American religion and culture, from the Colonial period to the present. Explores the role of revelatory experience, artifact migration, historical criticism, secularization, hybridity, heresy, and popularization. Case studies vary depending on students’ research goals. 7500-word research paper. Graduate/Undergraduate Equivalency: RELI 301. Mutually Exclusive: Cannot register for RELI 517 if student has credit for RELI 440.

RELI 515 - NIETZSCHE AND RELIGIOUS THOUGHT  
Short Title: NIETZSCHE & RELIGIOUS THOUGHT  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine Nietzsche’s dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible. Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 440. Mutually Exclusive: Cannot register for RELI 522 if student has credit for RELI 440.

RELI 523 - INDEPENDENT STUDY  
Short Title: INDEPENDENT STUDY  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-9  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 524 - INDEPENDENT STUDY  
Short Title: INDEPENDENT STUDY  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-9  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 525 - MAGIC AND POPULAR RELIGION  
Short Title: MAGIC & POPULAR RELIGION  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Graduate/Undergraduate Equivalency: RELI 441. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 441.

RELI 526 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE  
Short Title: PEOPLE OF THE BOOK  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible. Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 302. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 302.

RELI 521 - ADVANCED STUDY OF ISLAM  
Short Title: ADVANCED STUDY OF ISLAM  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The purpose of this course will be to give graduate students a working knowledge of Islam historically and religiously.

RELI 522 - ISLAM’S MYSTICAL AND ESOTERIC TRADITION  
Short Title: ISLAM’S MYSTICAL TRADITION  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Graduate/Undergraduate Equivalency: RELI 441. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 441.

RELI 526 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE  
Short Title: PEOPLE OF THE BOOK  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible. Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 302. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 302.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 527 - HISTORY AND METHODS: 19TH CENTURY</td>
<td>Short Title: HISTORY AND METHODS: 19TH CENT</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Seminar</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1800-1900. Graduate course will require reading of more books and a longer paper to write. Graduate/Undergraduate Equivalency: RELI 427. Mutually Exclusive: Cannot register for RELI 527 if student has credit for RELI 427.</td>
</tr>
<tr>
<td>RELI 528 - RELIGION &amp; GLOBAL POVERTY</td>
<td>Short Title: RELIGION &amp; GLOBAL POVERTY</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Lecture</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description: Advanced study of religion and poverty in global context. Course materials will address religious, ethical anthropological theories of development, analyze specific themes economic and social development, examine the role of Faith Based Organizations and do specific case studies. Students will be graded on short reflections papers and a final term paper. Graduate students taking the course will be assigned 4 additional texts, do a major review of one of the texts, and do two class presentations on one of the texts. Graduate/Undergraduate Equivalency: RELI 328. Mutually Exclusive: Cannot register for RELI 528 if student has credit for RELI 328.</td>
</tr>
<tr>
<td>RELI 530 - PEDAGOGY PRACTICUM</td>
<td>Short Title: PEDAGOGY PRACTICUM</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Internship/Practicum</td>
<td>Credit Hours: 2</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description: As an integral part of the department’s apprenticeship program, this is a semester-long practicum through which a graduate student apprentices with a faculty member teaching an undergraduate course in order to be trained in all aspects of course design, lecturing, advising, and grading. Required of all graduate students. Repeatable for Credit.</td>
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<tr>
<td>RELI 531 - RELIGION AND COGNITIVE SCIENCE</td>
<td>Short Title: RELIGION AND COGNITIVE SCIENCE</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Seminar</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description: Interdisciplinary approach founded on biological, cross-cultural, evolutionary, neurological and cognitive studies of religion. Explores extreme religious experiences, ritualized behaviors, shamanism and religious therapy, religious community, universality of religion, and transmission of religious ideas and practices. GR: seminar leadership, 7500 word research paper. Graduate/Undergraduate Equivalency: RELI 431. Mutually Exclusive: Cannot register for RELI 531 if student has credit for RELI 431.</td>
</tr>
<tr>
<td>RELI 532 - ADVANCED TIBETAN LANGUAGE AND CULTURE</td>
<td>Short Title: ADV TIBETAN LANGUAGE &amp; CULTURE</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Seminar</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Prerequisite(s): RELI 131</td>
</tr>
<tr>
<td>RELI 533 - RELIGION AND POLITICS IN AFRICA</td>
<td>Short Title: RELIGION &amp; POLITICS IN AFRICA</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Seminar</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. RELI 534 requires additional reading, review a book on the subject, and write a 25 page research paper. Graduate/Undergraduate Equivalency: RELI 432. Mutually Exclusive: Cannot register for RELI 532 if student has credit for RELI 132/RELI 332. Repeatable for Credit.</td>
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<tr>
<td>RELI 534 - RELIGION AND POLITICS IN AFRICA</td>
<td>Short Title: RELIGION &amp; POLITICS IN AFRICA</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Seminar</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. RELI 534 requires additional reading, review a book on the subject, and write a 25 page research paper. Graduate/Undergraduate Equivalency: RELI 424. Mutually Exclusive: Cannot register for RELI 534 if student has credit for RELI 424.</td>
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<tr>
<td>RELI 537 - AFRICAN MYTHS AND RITUALS</td>
<td>Short Title: AFRICAN MYTHS AND RITUALS</td>
<td>Department: Religion</td>
<td>Grade Mode: Standard Letter</td>
<td>Course Type: Lecture</td>
<td>Credit Hours: 3</td>
<td>Restrictions: Enrollment is limited to Graduate level students.</td>
<td>Course Level: Graduate</td>
<td>Description:</td>
</tr>
</tbody>
</table>
RELI 539 - THEOLOGY IN AFRICA
Short Title: THEOLOGY IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introductory readings on theological thinking in Africa. This course will address methodological issues as well as constructive theological work on enculturation, social and economic justice, gender, health, and liberation. RELI 539: read 5 major texts, write a major review, lead class discussions, discuss texts used. and write 20 page research paper. Graduate/Undergraduate Equivalency: RELI 338. Mutually Exclusive: Cannot register for RELI 539 if student has credit for RELI 338.

RELI 540 - THE CHURCH OF AFRICA
Short Title: THE CHURCH OF AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introductory readings on theological thinking in Africa. This course will address methodological issues as well as constructive theological work on enculturation, social and economic justice, gender, health, and liberation. RELI 539: read 5 major texts, write a major review, lead class discussions, discuss texts used. and write 20 page research paper. Graduate/Undergraduate Equivalency: RELI 338. Mutually Exclusive: Cannot register for RELI 540 if student has credit for RELI 338.

RELI 541 - CLASSICAL AND CONTEMPORARY ARABIC TEXTS
Short Title: ARABIC TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study and read classical Arabic texts with the goal of learning the material as well as the syntax and grammar of Arabic. Graduate students will have an additional assignment of a paper (15-20 pgs) analyzing their text. Graduate/Undergraduate Equivalency: RELI 442. Repeatable for Credit.

RELI 542 - AMERICAN JUDAISM: RELIGION AND THOUGHT
Short Title: AMERICAN JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 542 if student has credit for RELI 341.

RELI 543 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 543: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 543 if student has credit for RELI 357.

RELI 544 - EARLY CHRISTIAN CONTROVERSIES
Short Title: EARLY CHRISTIAN CONTROVERSIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar examines controversies and debates among the early Christians as catholic Christianity emerged from a diversity of Christian movements. Literature reviewed will vary. Students will select to focus on one controversy and write a research paper (undergraduates, 5000 words; graduate students, 7500 words). Oral discussion and presentations will be required. Graduate/Undergraduate Equivalency: RELI 449. Mutually Exclusive: Cannot register for RELI 544 if student has credit for RELI 449. Repeatable for Credit.

RELI 545 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 545 if student has credit for RELI 341.

RELI 546 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 543: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 543 if student has credit for RELI 357.

RELI 547 - WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 543: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 543 if student has credit for RELI 357.

RELI 548 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 543: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 543 if student has credit for RELI 357.

RELI 549 - EARLY CHRISTIAN CONTROVERSIES
Short Title: EARLY CHRISTIAN CONTROVERSIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar examines controversies and debates among the early Christians as catholic Christianity emerged from a diversity of Christian movements. Literature reviewed will vary. Students will select to focus on one controversy and write a research paper (undergraduates, 5000 words; graduate students, 7500 words). Oral discussion and presentations will be required. Graduate/Undergraduate Equivalency: RELI 449. Mutually Exclusive: Cannot register for RELI 549 if student has credit for RELI 449. Repeatable for Credit.

RELI 550 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 550 if student has credit for RELI 341.

RELI 551 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 550 if student has credit for RELI 341.

RELI 552 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 550 if student has credit for RELI 341.

RELI 553 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 550 if student has credit for RELI 341.
RELI 555 - HISTORICAL ANTHROPOLOGIES OF RELIGION
Short Title: HISTORICAL ANTHROPOLOGIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the study of the religious past through conjunctions of anthropology and history. Readings will include books and selections by Max Weber, Marshall Sahlins, Victor Turner, Jacques Le Goff, Aron Gurevich, and others. Cross-list: ANTH 550.

RELI 557 - REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART
Short Title: REPRESENTING THE DEVIL
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on representations of the Devil, demons and ambiguous spirits in Christian theological, ritual, and narrative sources from the early medieval to early modern period. Graduate work includes added reading (30-50 pp weekly above undergraduate requirements), article length essay (8 to 10 thousand words) and two presentations. Graduate/Undergraduate Equivalency. RELI 567. Mutually Exclusive: Cannot register for RELI 557 if student has credit for RELI 567.

RELI 558 - MYSTICISM: THEORIES AND METHODS
Short Title: MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A history of the development of the modern category of "mysticism" from the seventeenth century to today, with side studies of cognate terms like "spirituality," "metaphysical religion," and the "paranormal," as these forms of extreme religious experience are by social-scientific and humanistic methods. RELI 558: Additional readings and writing. Graduate/Undergraduate Equivalency: RELI 367. Mutually Exclusive: Cannot register for RELI 558 if student has credit for RELI 367.

RELI 559 - HISTORY AND METHODS: TWENTIETH CENTURY
Short Title: HISTORY AND METHODS: 20TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1900-present. Graduate course will require reading of more books and a longer paper to write. Graduate/Undergraduate Equivalency. RELI 428. Mutually Exclusive: Cannot register for RELI 559 if student has credit for RELI 428.

RELI 560 - ADVANCED READINGS IN TIBETAN TEXTS
Short Title: READING TIBETAN TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is to accommodate Grad students’ requests to read more widely in Tibetan texts and genres. Our focus is reading and disciplined discussion of the texts. Repeatable for Credit.

RELI 561 - CHRISTIANITY IN THE GLOBAL SOUTH
Short Title: CHRISTIANITY IN GLOBAL SOUTH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Readings on Christianity in the Global South analyzing historical developments, mission and colonial encounters, growth and expansion; diversity of expression, the development of local initiated Churches, Pentecostalism, and public role of the Church. Graduate students will lead class on a church in a country of their choice. Each graduate student will prepare and lead a seminar on one aspect of the region or country. Each graduate student will also present in class an in-depth study of a selected theme. Graduate students will read additional books selected from a list of texts discussed with instructor. They will also write a 25 page research paper on any topic in Global Christianity. Graduate/Undergraduate Equivalency: RELI 371. Mutually Exclusive: Cannot register for RELI 561 if student has credit for RELI 371.

RELI 563 - RELIGION AND SCIENCE
Short Title: RELIGION AND SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar analyzes interdisciplinary efforts by scholars of religion to engage scientific research in the cognitive and neuro-sciences. We assess the possibilities for collaboration, as well as conflict, between humanistic and scientific disciplines, asking how the tools of interpretation and empiricism might enrich our understanding of religious phenomena. Graduate students will lecture one course session and will engage additional secondary literature throughout the semester. Graduate/Undergraduate Equivalency: RELI 362. Mutually Exclusive: Cannot register for RELI 563 if student has credit for RELI 362.
RELI 564 - INTERMEDIATE TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INT. TIBETAN LANG LIT & CULTUR
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. RELI 564: Write a paper approximately one-third longer and complete a more substantial oral presentation. Graduate/Undergraduate Equivalency: RELI 234. Mutually Exclusive: Cannot register for RELI 564 if student has credit for RELI 234. Repeatable for Credit.

RELI 567 - JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT
Short Title: JEWISH PHILOSOPHY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the main figures and themes in Jewish philosophy. Topics to be discussed include reason vs faith and prophetic revelation; Israel's chosenness vs human universalism; creation vs eternity; divine providence and necessity vs free will; evil, justice, and divine omnipotence; prayer, contemplation, and divine and human perfection. Graduate students are required to write a research paper (25-30 pp.) and to prepare and lead at least one class. Graduate/Undergraduate Equivalency: RELI 363. Mutually Exclusive: Cannot register for RELI 567 if student has credit for RELI 363. Repeatable for Credit.

RELI 568 - RISE OF THE NONES: HUMANISMS AND HUMANITIES
Short Title: RISE OF THE NONES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will look at the rise of the "nones," that is, individuals who affiliate with no religious tradition, through both a history of secular thought in the West and a close reading of key texts and figures. Atheism, humanism, secularism and the "spiritual but not religious" will all be treated as key categories. RELI 568 will require additional readings, 3 additional papers plus a longer research paper, leading discussions and teaching. Graduate/Undergraduate Equivalency: RELI 368. Mutually Exclusive: Cannot register for RELI 568 if student has credit for RELI 368. Repeatable for Credit.

RELI 569 - FOUCAULT & THE HERMENEUTICS OF SELF
Short Title: FOUCAULT & THE SELF
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Best known for analyzing domination and power, Michel Foucault shifts his attention to ethics and "technologies of the self" in 1976. In this advanced seminar, we study and critique Foucault's turn to western antiquity through his lectures and volumes of foregrounding resistance to power through religion, politics and ethics. Graduate/Undergraduate Equivalency: RELI 421. Mutually Exclusive: Cannot register for RELI 569 if student has credit for RELI 421.

RELI 570 - BUDDHIST WISDOM TEXTS
Short Title: BUDDHIST WISDOM TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Indo-Tibetan analyses of the mind and its functions, especially differing views on the role of reasoning and the nature of the "ultimate" in major philosophical schools of Tibet and India. RELI 570: More difficult readings and two longer papers required. Graduate/Undergraduate Equivalency: RELI 470. Repeatable for Credit.

RELI 572 - INTRODUCTION TO BUDDHISM: ARTS FOR LIFE
Short Title: INTRODUCTION TO BUDDHISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Additional readings, more writing. Graduate/Undergraduate Equivalency: RELI 322. Mutually Exclusive: Cannot register for RELI 572 if student has credit for RELI 322.

RELI 573 - KNOWING BODY/GLOWING MIND: BUDDHIST ARTS OF CONTEMPLATION AND ANALYSIS
Short Title: KNOWING BODY/GLOWING MIND
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Buddhism is a performing art engaging both mind and body. Our course investigates Buddhist and other literature, epistemology and rituals with an eye to how they speak to contemplative practice. Contemplative practice itself, in class and out, supplements our exploration of the interplay between traditional Asian and contemporary Western perspectives. Graduate/Undergraduate Equivalency: RELI 333. Recommended prerequisite(s): One course in Buddhism. Mutually Exclusive: Cannot register for RELI 573 if student has credit for RELI 333. Repeatable for Credit.

2021-2022 General Announcements PDF Generated 09/22/21
RELI 582 - KABBALAH SEMINAR
Short Title: KABBALAH SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will delve into literature known as “kabbalah.” Through close readings of first-hand accounts of thinkers and mystics known as “kabbalists,” we will explore themes like secrecy and mystery, the nature of the divine, and religious ecstasy. RELI 562 requirements: Additionally write a lengthy research paper and lead a session. Graduate/Undergraduate Equivalency: RELI 472. Mutually Exclusive: Cannot register for RELI 582 if student has credit for RELI 472.

RELI 584 - RELIGION, PSYCHOLOGY, AND CULTURE
Short Title: RELIGION, PSYCHOLOGY & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a course about the deep historical and conceptual connections between the histories of science fiction, the paranormal, and social transformation around race, gender, sexuality, and the human. We will see that such events tend to erupt in the “gaps” or “fractures” of society and within both personal and historical traumatic contexts in order to both deconstruct the reigning social formations, epistemologies, and ontologies—usually of an objectivizing, colonizing, and scientific nature—but also supply the numerous foundations for the imagining of new humanities, or what queer theorist Ramzi Fawaz calls our emerging “mutancy.” Graduate/Undergraduate Equivalency: RELI 393. Mutually Exclusive: Cannot register for RELI 589 if student has credit for RELI 393.
RELI 590 - AFRICAN AMERICAN LITERATURE AND RELIGION  
Short Title: AF/AM LITERATURE & RELIGION  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: In this seminar students will read and analyze African American literature in order to explore the various ways in which African Americans have understood and articulated the nature and meaning of African American religious experience and practice. Graduate/Undergraduate Equivalency: RELI 490. Mutually Exclusive: Cannot register for RELI 590 if student has credit for RELI 490.

RELI 591 - BASIC COPTIC 1  
Short Title: BASIC COPTIC 1  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A first semester introduction to Coptic grammar and vocabulary. Select a Coptic text, read in its original language, and prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 307. Mutually Exclusive: Cannot register for RELI 591 if student has credit for RELI 307.

RELI 592 - BASIC COPTIC 2  
Short Title: BASIC COPTIC 2  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): RELI 307  
Description: Second semester introduction to Coptic grammar and vocabulary, with selected readings from the Coptic New Testament, Nag Hammadi, and monastic literature. Pre-requisite: Introduction to Coptic Language I RELI 592: Select a Coptic text, read in its original language, and prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 308. Mutually Exclusive: Cannot register for RELI 592 if student has credit for RELI 308.

RELI 593 - BASIC COPTIC 3  
Short Title: BASIC COPTIC 3  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Varied readings in original language to include the New Testament, Nag Hammadi, and monastic literature. Pre-requisite: Coptic 1 and 2. RELI 593: Students will select a Coptic text, and in addition to reading it in its original language, prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 309. Mutually Exclusive: Cannot register for RELI 593 if student has credit for RELI 309. Repeatable for Credit.

RELI 595 - PENTECOSTALISM  
Short Title: PENTECOSTALISM  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Graduate study and analysis of introduction to Pentecostalism in a global context focusing historical developments, expansion in Europe, North America, Africa, Latin America and Asia. Graduate students will read 4 additional texts one from East, Central, West, and Southern Africa. Graduate students will write weekly reflections on the reading to the braded satisfactory or unsatisfactory. They will do two presentations during the semester. Each student will write a research paper that will be at least 25 double spaced pages. Graduate/Undergraduate Equivalency: RELI 396. Mutually Exclusive: Cannot register for RELI 595 if student has credit for RELI 396.

RELI 596 - THE LEGAL FRAMEWORK OF RELIGIOUS TOLERANCE  
Short Title: LEGAL FRMWK RELI TOLERANCE  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The American Constitution embodies a complex experiment in religious tolerance, including the promise of "free exercise of religion" and the prohibition of laws "respecting an establishment of religion". In this class we will primarily seek a critical understanding of our tolerance-rich legal invocations of religious freedom and address fundamental issues such as how can we distinguish "religious" actions and commitments from other morally important beliefs and activities. RELI 596: Write additional paper and more readings. Mutually Exclusive: Cannot register for RELI 596 if student has credit for RELI 320.

RELI 597 - CONTEMPLATIVE PRACTICE  
Short Title: CONTEMPLATIVE PRACTICE  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Literary and artistic creativity, religious experience, and textual interpretation often draw on focused states of consciousness made possible by contemplative practices. The practice will provide historical information about such practices and offer opportunities to participate in techniques ranging from meditation and observing breath to freeform writing and Tai Chi. Graduate students would be expected to write a longer paper and/or to include a segment on contemplative practice in connection with whatever course they are taking. In either case this will involve readings and issues beyond what the undergraduates are responsible for, and which will be developed with each graduate student on an individual basis. Graduate/Undergraduate Equivalency: RELI 399. Mutually Exclusive: Cannot register for RELI 597 if student has credit for RELI 399. Repeatable for Credit.
RELI 600 - GEM RESEARCH FORUM
Short Title: GEM RESEARCH FORUM
Department: Religion
Grade Mode: Satisfactory/ Unsatisfactory
Course Type: Research
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The GEM Research Forum meets regularly throughout the academic year to share and engage the ongoing research of the GEM faculty and students. The annual capstone experience of the Forum features an invited speaker. Evaluation is based on student participation, research and presentations. Repeatable for Credit.

RELI 604 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONI TO GLOBALIZATION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Graduate/Undergraduate Equivalency: RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for RELI 604 if student has credit for FREN 324/ POLI 324/ RELI 476.

RELI 606 - READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT
Short Title: READING RICHARD WRIGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Richard Wright's fiction and nonfiction are important resources for understanding the nature of radicalized life in the United States. This course explores his writings for what they tell us about the role of religion in the development of identity and life meaning, and we will juxtapose the role of religion with Wright's commentary on the nature and significance of atheism for countering injustice. RELI 606 requires additional reflection papers, longer research paper and class presentations. Graduate/Undergraduate Equivalency: RELI 369. Mutually Exclusive: Cannot register for RELI 606 if student has credit for RELI 369.

RELI 607 - ARCHIVES OF THE IMPOSSIBLE
Short Title: ARCHIVES OF THE IMPOSSIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After reading Prof. Kripal's Authors of the Impossible as a basic theoretical structure for the semester, this advanced archival research seminar will involve students engaging original historical documents contained in Rice University's archive on Paranormal Currents in American Culture toward the writing of a graduate or undergraduate thesis. Graduate students will be responsible for a much more extensive engagement with Whitley Strieber's corpus. They will be required to read examples of Stieber's nonfiction (particularly COMMUNION and THE AFTERLIFE REVOLUTION) and fiction, including WOLFEN, THE GRAYS, and THE HYBRIDS. Each of these books bears directly or indirectly on the content of the Anne and Whitley Strieber Collection. Graduate/Undergraduate Equivalency: RELI 407. Mutually Exclusive: Cannot register for RELI 607 if student has credit for RELI 407.

RELI 610 - CONCEPTS IN THE STUDY OF RELIGION
Short Title: CONCEPTS IN RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course serves as an advanced introduction to useful concepts and key methodological problems in the discipline of religious studies. The primary aim of the course is to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in an honors or MA thesis in the department of Religion. Graduate work includes extended writing assignments and exam. Graduate/Undergraduate Equivalency: RELI 410. Mutually Exclusive: Cannot register for RELI 610 if student has credit for RELI 405.

RELI 611 - READINGS IN MEDIEVAL LATIN
Short Title: READINGS IN MEDIEVAL LATIN
Department: Religion
Grade Mode: Satisfactory/ Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Guided readings in Latin from a range of medieval genres, including medicine, theology, visionary literature. Repeatable for Credit.
REL 612 - THE PSALMS
Short Title: THE PSALMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on biblical poetry. The Psalms have constituted a book of study, devotion, and prayer for Jews and Christians for two millennia. This course explores the psalms' poetic force, liturgical setting in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 388. Mutually Exclusive: Cannot register for RELI 612 if student has credit for RELI 388.

REL 614 - THE RICE/LEIPZIG SEMINAR ON EARLY JUDAISM AND CHRISTIAN ORIGINS
Short Title: THE RICE/LEIPZIG SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar on Early Judaism and Christian Origins taught jointly by Dr. Matthias Henze (Rice) and Dr. Jens Herzer (University of Leipzig, Germany). Participation is by invitation only. Instructor Permission Required.

REL 615 - SECRET RELIGION
Short Title: SECRET RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. RELI 615: Write 7,500-10,000 word research paper. Graduate/Undergraduate Equivalency: RELI 415. Mutually Exclusive: Cannot register for RELI 615 if student has credit for RELI 415.

REL 616 - NEW TESTAMENT / CHRISTIAN ORIGINS
Short Title: NEW TESTAMENT/CHRISTIAN ORIG
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How did Christianity emerge as a new religious movement in the Roman Empire? Covers the history and literature of the first generations of Christians, focusing on Post-Temple developments, issues of authority and leadership, rise of regional forms of Christianity, and formation of distinct Christian identities. Graduate requirements: additional writings and presentations. Graduate/Undergraduate Equivalency: RELI 416. Mutually Exclusive: Cannot register for RELI 616 if student has credit for RELI 416.

REL 619 - MYSTERY RELIGIONS
Short Title: MYSTERY RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers literature, practices, and archaeology of esoteric cults within the context of religion in Roman Empire (Demeter, the Great Gods, Cybele, Persephone, Dionysus, Isis, Mithras, Hermes, Qumran, Christianity, Gnostic groups). Case studies vary depending on students' research goals, including comparison with Renaissance and modern esoteric initiatory groups. 7500-word research paper; UG equivalent 5000-word research paper. Graduate/Undergraduate Equivalency: RELI 419. Mutually Exclusive: Cannot register for RELI 619 if student has credit for RELI 419/ RELI 491.

REL 620 - ART OF INTERPRETING THE BIBLE
Short Title: ART OF INTERPRETING THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues of history, historiography, and hermeneutics within the context of Biblical Studies. While traditional forms of Biblical criticism are covered, the bulk of the course focuses on intertextuality, reception history, sociological methods, feminist views, and cognitive approaches. Graduate students (7500 word paper, seminar leadership, and oral presentation); Undergraduate students (5000 word paper and oral presentation). Graduate/Undergraduate Equivalency: RELI 420.

REL 644 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Graduate work includes 10 additional readings (200 pp), double the pages to be written, 30 more minutes presentation time. Graduate/Undergraduate Equivalency: RELI 444. Mutually Exclusive: Cannot register for RELI 644 if student has credit for RELI 444.

REL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Internship/Pacticum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
RELI 700 - RESEARCH FOR COMPREHENSIVE EXAMS
Short Title: RESEARCH FOR COMP EXAMS
Department: Religion
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

RELI 710 - CHRISTIAN ORIGINS READING AND RESEARCH GROUP
Short Title: XIAN ORIGINS READ/RESEARCH GRP
Department: Religion
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced research and reading group for graduate students studying Christian Origins. Topics vary. Instructor Permission Required. Repeatable for Credit.

RELI 800 - RESEARCH FOR DISSERTATION
Short Title: RESEARCH FOR DISSERTATION
Department: Religion
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: (no change to be made to course catalog description) Repeatable for Credit.

RELI 801 - RESEARCH FOR M.A. THESIS
Short Title: RESEARCH FOR MA THESIS
Department: Religion
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students work independently researching and writing their thesis. Repeatable for Credit.

Graduate Degree Descriptions and Codes
• Master of Arts degree: MA
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
• Degree Program in Religion: RELI

Graduate Degree Program Option Description and Code*
• Degree Program Option - Thesis Terminal Master’s Degree: MA-RELI

Graduate Certificate Description and Code
• Certificate in Gnosticism, Esotericism and Mysticism: GEM

CIP Code and Description
• RELI Major/Program: CIP Code/Title: 38.0201 - Religion/Religious Studies
• RELM Minor: CIP Code/Title: 38.0201 - Religion/Religious Studies
• GEM Certificate: CIP Code/Title: 38.0299 - Religion/Religious Studies, Other

* Systems Use Only: this information is used solely by internal offices at Rice University (such as OTR, GPS, etc.) and primarily within student information systems and support.

CIP Code and Description
1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Religion

Program Learning Outcomes for the BA Degree with a Major in Religion
Upon completing the BA degree with a major in Religion, students will be able to:

1. Develop and apply critical toolkit to the study of religion and religious traditions including (inter)disciplinary methodologies and theories at a proficient level. (Critical Skills for the Study of Religion: Theory, Method, and (Inter)Disciplinarity)

2. Understand and interpret religious traditions by examining religion(s) as historical, social, and cultural phenomena. When appropriate, attention is given to the impact of globalism, immigration, colonialism, and other forms of transnational and multi-cultural (non)religious exchange at a proficient level. (Historical, Social, (Multi-)Cultural Dimensions of Religion)

3. Understand and interpret the subjective dimensions of religion(s) through analyses that explore the psychological, philosophical, and cognitive dynamics of religion and religious experience at a proficient level. (Psychological, Philosophical, and Cognitive Dimensions of Religion)

4. Understand and interpret religious traditions by examining the plurality of religious voices and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways at a proficient level. (Religious Plurality and Marginal Currents)
5. Develop the ability to read religious texts in their original languages and perform translations of texts when appropriate to the student’s course of study at a proficient level.

(Foreign Language Skills)

Requirements for the BA Degree with a Major in Religion

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Religion must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 20) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the Major in Religion</td>
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<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Religion</td>
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**Degree Requirements**

**Core Requirements**

- Core Course
  - RELI 101 INTRODUCTION TO THE STUDY OF RELIGION 3

**Religious Traditions**

- Select 1 course from Judaism/Christianity/Islam/African-American Religions (see course list below) 3
- Select 1 course from Indigenous African Religions/African Religions/Buddhism/Hinduism (see course list below) 3

**Elective Requirements**

- Select 6 elective courses from departmental (RELI) course offerings 18

**Senior Project**

- Select 1 course from the following 3
  - RELI 403 SENIOR THESIS I
  - RELI 404 SENIOR THESIS II
  - RELI 406 CHRISTIANITY AND LATE ANTIQUITY
  - RELI 407 ARCHIVES OF THE IMPOSSIBLE
  - RELI 415 SECRET RELIGION

**Course Lists to Satisfy Requirements**

**Judaism/Christianity/Islam/African-American Religions**

Select a minimum of 1 course (3 credit hours) from the Judaism/Christianity/Islam/African-American Religions course options.

**Footnotes and Additional Information**

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1. Selection of courses should be worked out programmatically with a faculty member advisor so that at least 3 courses form a concentrated area of study.

2. The Senior Project course is either a Seminar or Independent Study with a required research paper selected with the approval of the Director of Undergraduate Studies. See the DUS for more information.
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>RELI 104 / MDEM 103</td>
<td>INTRODUCTION TO JEWISH MYSTICISM</td>
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<td>RELI 105 / MDEM 105</td>
<td>INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT</td>
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<td>RELI 108</td>
<td>INTRODUCTION TO JUDAISM</td>
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<td>RELI 112</td>
<td>COMPARING CHRISTIANITIES</td>
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<td>RELI 113</td>
<td>INTRODUCTION TO CHRISTIANITY IN AFRICA</td>
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<td>RELI 116 / MDEM 116</td>
<td>MYSTICISM THROUGHOUT THE AGES</td>
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<td>RELI 124</td>
<td>RELIGION AND THE ART OF HAPPINESS</td>
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<td>RELI 126 / HEBR 126</td>
<td>INTRODUCTION TO BIBLICAL HEBREW II</td>
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<td>RELI 127</td>
<td>INTERMEDIATE BIBLICAL HEBREW III</td>
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<td>RELI 157</td>
<td>RELIGION AND HIP HOP CULTURE IN AMERICA</td>
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<td>RELI 158</td>
<td>LIBERATION THEOLOGIES</td>
<td>3</td>
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<td>RELI 203 / HIST 201</td>
<td>JUDAISM OF JESUS AND HILLEL</td>
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<td>RELI 213</td>
<td>THE PROPHET JEREMIA: THE BIBLICAL BOOK AND ITS RECEPTION IN JUDAISM AND CHRISTIANITY</td>
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<td>RELI 215 / FILM 215</td>
<td>MYSTIC CINEMA: KABBALAH IN FILM</td>
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<td>RELI 217</td>
<td>SHIT'ISM: ASSASSINS AND AYATULLAH</td>
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<td>RELI 221 / ASIA 221</td>
<td>THE LIFE OF THE PROPHET MUHAMMAD</td>
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<td>RELI 223</td>
<td>QUR'AN AND COMMENTARY</td>
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<td>RELI 243</td>
<td>THE BOOK OF GENESIS</td>
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<td>RELI 270</td>
<td>INTRODUCTION TO THE BLACK CHURCH IN THE UNITED STATES</td>
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<td>RELI 271 / MDEM 271</td>
<td>MEDIEVAL POPULAR CHRISTIANITY</td>
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<td>RELI 282</td>
<td>INTRODUCTION TO CHRISTIANITY</td>
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<td>RELI 294</td>
<td>RELIGION IN FICTION AND FILM</td>
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<td>NIETZSCHE AND RELIGIOUS THOUGHT</td>
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<td>RELI 304</td>
<td>JESUS AND THE GOSPELS</td>
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<td>RELI 343 / HART 347</td>
<td>SEMINAR ON LOVE</td>
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<td>CHRISTIANITY AND ISLAM IN AFRICA</td>
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<td>RELI 350 / MDEM 350</td>
<td>DEMONS, MENTAL ILLNESS AND MEDICINE</td>
<td>3</td>
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<td>RELI 356</td>
<td>MAJOR ISSUES IN CONTEMPORARY ISLAM</td>
<td>3</td>
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<td>RELI 357</td>
<td>WHAT'S RELIGIOUS ABOUT BLACK RELIGION?</td>
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<td>RELI 359</td>
<td>RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION</td>
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<td>RELI 365</td>
<td>PAUL AND THE NEW TESTAMENT</td>
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<td>RELI 369</td>
<td>READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT</td>
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<td>RELI 381</td>
<td>THE MESSIAH</td>
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<td>RELI 382</td>
<td>LOST JUDAISMS: THE APOCRYPHAL WRITINGS</td>
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<td>RELI 383</td>
<td>THE DEAD SEA SCROLLS</td>
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<td>RELI 384</td>
<td>PILGRIMAGE AND CRUSADE</td>
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<td>RELI 385 / HIST 381</td>
<td>GOD, TIME AND HISTORY</td>
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<td>RELI 387</td>
<td>WESTERN ESOTERICISM: METHOD AND THEORY</td>
<td>3</td>
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<td>RELI 388</td>
<td>THE PSALMS</td>
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<td>RELI 390</td>
<td>SEARCH FOR GOD IN THE POSTMODERN WORLD</td>
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<td>RELI 391 / MDEM 391</td>
<td>THE REFORMATION &amp; ITS RESULTS</td>
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<td>RELI 395</td>
<td>LOSING YOUR RELIGION IN FILM &amp; FICTION &amp; MUSIC</td>
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<td>RELI 406</td>
<td>CHRISTIANITY AND LATE ANTIQUITY</td>
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<td>RELI 415</td>
<td>SECRET RELIGION</td>
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<td>RELI 416</td>
<td>NEW TESTAMENT / CHRISTIAN ORIGINS</td>
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<td>RELI 424</td>
<td>RELIGION AND POLITICS IN AFRICA</td>
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<td>RELI 426</td>
<td>RELIGION AND LITERATURE IN AFRICA</td>
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<td>RELI 430</td>
<td>RELIGION, PSYCHOLOGY &amp; CULTURE</td>
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<td>RELI 440</td>
<td>ISLAM'S MYSTICAL AND ESOTERIC TRADITION</td>
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<td>RELI 441 / ASIA 441</td>
<td>MAGIC AND POPULAR RELIGION</td>
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<td>RELI 442</td>
<td>CLASSICAL AND CONTEMPORARY ARABIC TEXTS</td>
<td>3</td>
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<td>RELI 449</td>
<td>EARLY CHRISTIAN CONTROVERSIES</td>
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<td>RELI 458</td>
<td>MYSTICISM: THEORIES AND METHODS</td>
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<td>RELI 472</td>
<td>KABBALAH SEMINAR</td>
<td>3</td>
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<tr>
<td>RELI 476 / FREN 324 / POLI 324</td>
<td>FROM DECOLONIZATION TO GLOBALIZATION</td>
<td>3</td>
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<td>RELI 481</td>
<td>GNOSTICISM SEMINAR</td>
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<td>RELI 488</td>
<td>THE HISTORY OF RELIGIONS SCHOOLS</td>
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<td>RELI 490</td>
<td>AFRICAN AMERICAN LITERATURE AND RELIGION</td>
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<td>CHRISTIANITY AND LATE ANTIQUITY</td>
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<td>RELI 493</td>
<td>THE MESSIAH</td>
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<td>RELI 494</td>
<td>RELIGION AND HIP HOP CULTURE IN AMERICA</td>
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<tr>
<td>RELI 500</td>
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<td>3</td>
</tr>
</tbody>
</table>

**Indigenous African Religions/American Religions/Buddhism/Hinduism**

Select a minimum of 1 course (3 credit hours) from the Indigenous African Religions/American Religions/Buddhism/Hinduism course options.

<table>
<thead>
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<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>RELI 111</td>
<td>INTRODUCTION TO AFRICAN RELIGIONS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 113</td>
<td>INTRODUCTION TO CHRISTIANITY IN AFRICA</td>
<td>3</td>
</tr>
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<td>RELI 157</td>
<td>RELIGION AND HIP HOP CULTURE IN AMERICA</td>
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<tr>
<td>RELI 230 / ASIA 230</td>
<td>ASIAN RELIGIONS IN AMERICA</td>
<td>3</td>
</tr>
</tbody>
</table>

2021-2022 General Announcements PDF Generated 09/22/21
maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Religion should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the departmental Director of Undergraduate Studies (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Religion (RELI) are broad-based, accessible to non-majors, and provide a foundation that enables students to integrate knowledge from multiple perspectives.

**Additional Information**

For additional information, please see the Religion website: https://reli.rice.edu/

**Opportunities for the BA Degree with a Major in Religion**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

The Saba Prize is the most prestigious award bestowed by the Department of Religion. It carries with it a substantial financial gift, and designates the student(s) who has demonstrated the highest form of academic excellence and contribution to the department over a four-year period.

**Departmental Honors Program**

Qualified undergraduates may choose to submit their Senior Project to the department for consideration to receive Distinction in Research and Creative Works. For details about the submission process and this honors award, visit the department's website (https://reli.rice.edu/). To complete
the year long Senior Thesis, the student elects RELI 403 (fall semester) and RELI 404 (spring semester) with their agreed-upon advisor. Students must have a minimum 3.20 GPA in Religion courses prior to enrolling in RELI 403 and RELI 404, a Religion faculty advisor, and the permission of the Director of Undergraduate Studies. Further details are available upon consultation with the department’s Director of Undergraduate Studies.

Additional Information

For additional information, please see the Religion website: https://reli.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Doctor of Philosophy (PhD) Degree in the field of Religion

Program Learning Outcomes for the MA and PhD Degrees in the field of Religion

Upon completing the MA and PhD degrees in the field of Religion, students will be able to:

1. Develop and apply critical toolkit to the study of religion and religious traditions, including (inter)disciplinary methodologies and theories at a professional level.
   (Critical Skills for the Study of Religion: Theory, Method and (Inter)Disciplinarity)

2. Understand and interpret religious traditions by examining religion(s) as historical, social, and cultural phenomena. When appropriate, attention is given to the impact of globalism, immigration, colonialism, and other forms of transnational and multi-cultural (non)religious exchanges at a professional level.
   (Historical, Social, (Multi-)Cultural Dimensions of Religion)

3. Understand and interpret the subjective dimensions of religion(s) through analyses that explore the psychological, philosophical, and cognitive dynamics of religion and religious experience at a professional level.
   (Psychological, Philosophical and Cognitive Dimensions of Religion)

4. Understand and interpret religions traditions by examining the plurality of religious voice and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways at a professional level.
   (Religious Plurality and Marginal Currents)

5. Develop the ability to read and understand relevant scholarly research/literature that has been published in foreign languages. Develop the ability to read religious texts in their original languages and perform translations of texts when appropriate to the student’s course of study at a professional level.
   (Foreign Language Skills)

6. Develop the ability to communicate effectively (inter)disciplinary knowledge and critical research in the classroom, at professional conferences, and in academic publications at a professional level.
   (Communication: Pedagogy and Professionalism)

Requirements for the MA and PhD Degrees in the field of Religion

MA Degree Program

The MA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Although students are not normally admitted to study for this non-thesis MA, graduate students may earn the MA after obtaining approval of their candidacy for the PhD. To pursue a thesis, terminal master's degree in the field of Religion, please see the Thesis Master’s Degree (p. 1922) option.

Summary

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<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the MA Degree in the field of Religion</td>
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</table>

Requirements for the PhD Degree in the field of Religion

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The graduate program accepts a limited number of qualified students. A distinguished undergraduate record and high scores on the Graduate Record Examination (GRE) are essential, and an advanced degree in the humanities is desirable. Students admitted into the program normally will receive financial assistance in the form of a tuition waiver and a stipend. As part of their training and in return for their stipends, students are expected to perform a minimum amount of services in return for their stipend by assisting the department as needed.

The PhD degree in the field of Religion is a five to eight year program. Students pursuing the PhD degree in the field of Religion must complete the following:

- A minimum of 36 credit hours taken in 500-level and 600-level seminars.
- 2 Graduate Methods Seminars: RELI 527 and RELI 559.
- Successful completion of the second-year review.
- Passing grades on reading examinations in 2 secondary research languages (French and German) before taking qualifying exams.
- Passing grades in 4 comprehensive examinations.
- Oral discussion of thesis proposal.
- Satisfactory completion of thesis and oral defense.

Summary

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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</table>

Reading Lists

Reading lists are available for all Qualifying Exams. Students are expected to familiarize themselves with this material enough that they draw on it on their exams and the thesis itself. The graduate seminar is, in
part, an introduction to areas of the reading list and to the techniques for engaging in deep, independent reading.

Policies for the PhD Degree in the field of Religion

Department of Religion Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of Religion publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Religion_PhD_Graduate_Handbook.pdf

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Religion should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Religion website: https://reli.rice.edu/

Opportunities for the PhD Degree in the field of Religion

Professional Development
Opportunities are available to teach undergraduate courses in the department. Students are encouraged to pursue teaching opportunities at colleges and universities. Limited funds also are available for students to attend conferences to present their research. The department encourages these and other efforts to prepare students for academic careers.

Additional Information
For additional information, please see the Religion website: https://reli.rice.edu/

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this degree.

Requirements for the MA Degree in the field of Religion

The MA degree is a thesis master's degree. For general university requirements, please see Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MA degree in the field of Religion must complete:

• A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1923) tab.
• A Graduate Methods Seminar.
• A secondary language reading exam (French or German).
• A comprehensive exam on Method and Theory in the study of religion.
• A master's thesis developed from a paper in a course that represents the student's interests in the study of religion.
• An oral defense of thesis with student and three faculty members who have worked with the student. Candidacy, defense, and thesis submission will follow the guidelines described here (p. 75).
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 3.00 or higher in all Rice coursework that satisfies requirements for the thesis master's degree with a

Critical Skills for the Study of Religion: Theory, Method and (Inter)Disciplinarity

1. Understand and interpret religious traditions by examining religion(s) as historical, social, and cultural phenomena. When appropriate, attention is given to the impact of globalization, immigration, colonialism, and other forms of transnational and multi-cultural (non)religious exchange at a level of mastery.
(Historical, Social, (Multi-)Cultural Dimensions of Religion)

2. Understand and interpret the subjective dimensions of religion(s) through analyses that explore the psychological, philosophical, and cognitive dynamics of religion and religious experience at a level of mastery.
(Psychological, Philosophical, and Cognitive Dimensions of Religion)

3. Understand and interpret religious traditions by examining the plurality of religious voices and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways at a level of mastery.
(Religious Plurality and Marginal Currents)

4. Understand and interpret religious traditions by examining the plurality of religious voices and expressions, including currents that have been marginalized, neglected, repressed, and censored in a variety of sociological, psychological, philosophical, and political ways at a level of mastery.
(Foreign Language Skills)

5. Develop the ability to read and understand relevant scholarly research/literature that has been published in foreign languages. Develop the ability to read religious texts in their original languages and perform translations of texts when appropriate to the student's course of study at a level of mastery.

Master of Arts (MA) Degree in the field of Religion

Program Learning Outcomes for the MA Degree in the field of Religion

Upon completing the MA degree in the field of Religion, students will be able to:

1. Develop and apply critical toolkit to the study of religion and religious traditions, including (inter)disciplinary methodologies and theories at a level of mastery.

2021-2022 General Announcements PDF Generated 09/22/21
minimum grade of B- (2.67 grade points) in departmental (RELI) course offerings.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

**Summary**

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**Degree Requirements**

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<td>Graduate Methods Seminar Requirement</td>
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<td>RELI 610</td>
<td>CONCEPTS IN THE STUDY OF RELIGION</td>
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<td>Additional Coursework as Defined by Department ¹</td>
<td>27</td>
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<tr>
<td></td>
<td>Total Credit Hours</td>
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</table>

**Footnotes and Additional Information**

¹ Of the 27 additional credit hours of coursework as defined by the department, a minimum of 8 courses (24 credit hours) must be taken at the graduate-level with a minimum grade of B- (2.67). At least 12 credit hours must be seminars at the 500 or 600-level, where research papers are required. Students may take courses outside the Department of Religion with the advisor’s permission.

**Policies for the MA Degree in the field of Religion**

**Department of Religion Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Department of Religion publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Religion_MA_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Religion_MA_Graduate_Handbook.pdf)

**Admission**

Students will apply for admission to the MA program online (see [https://reli.rice.edu](https://reli.rice.edu) for details). Each January, the faculty in the Religion Department will evaluate the applications and select the MA students for the next academic year.

**Application for Degree**

The student must file a petition to receive the MA. This petition can be obtained from the Graduate Administrator and must be approved and signed by the Chair of the Department and submitted to the Office of Graduate Studies. In exceptional cases, when a student who has completed the terminal MA, applies to the PhD program, and is admitted, the coursework already completed by the student may be applied toward the PhD requirements.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the MA degree in the field of Religion should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Opportunities for the MA Degree in the field of Religion**

**Additional Information**

For additional information, please see the Religion website: [https://reli.rice.edu/](https://reli.rice.edu/)

**Opportunities for the MA Degree in the field of Religion**

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life) for tables of fellowships, prizes, and internships/practica that may be relevant to this degree.

**Minor in Religion**

**Program Learning Outcomes for the Minor in Religion**

Upon completing the minor in Religion, students will be able to:

1. Demonstrate knowledge of the critical toolkit used in the study of religion and religious traditions, including (inter)disciplinary methodologies and theories at a proficient level.

   *(Critical Skills for the Study of Religion: Theory, Method and (Inter)Disciplinarity)*

2. Gain proficient objective knowledge of the beliefs, practices, and institutional histories of the world’s religions.

   *(Religious Literacy)*

**Requirements for the Minor in Religion**

Students pursuing the minor in Religion must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 3 courses (9 credit hours) taken at the 300-level or above.
- No courses from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1925) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted...
upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Minor Requirements

#### Core Requirements

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<td>RELI 101</td>
<td>INTRODUCTION TO THE STUDY OF RELIGION</td>
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</table>

#### Religious Traditions

Select 1 course from each of the following categories (see course lists below):
- Judaism/Christianity/Islam/African-American Religions
- Indigenous African Religions/American Religions/Buddhism/Hinduism

#### Elective Requirements

Select 3 courses from departmental (RELI) course offerings. 9

### Course Lists to Satisfy Requirements

Please Note: The following list of courses can be used to satisfy the requirements of the minor. Specific course offerings may vary from semester to semester. As noted above with minor requirements, in certain instances, courses not on the official list may be substituted upon approval of the minor’s Director of Undergraduate Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

#### Judaism/Christianity/Islam/African-American Religions

Select a minimum of 1 course (3 credit hours) from the Judaism/Christianity/Islam/African-American Religions course options.

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<td>INTRODUCTION TO JEWISH MYSTICISM</td>
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<td>RELI 105 / MDEM 105</td>
<td>INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT</td>
<td>3</td>
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<tr>
<td>RELI 108</td>
<td>INTRODUCTION TO JUDAISM</td>
<td>3</td>
</tr>
<tr>
<td>RELI 112</td>
<td>COMPARING CHRISTIANITIES</td>
<td>3</td>
</tr>
<tr>
<td>RELI 113</td>
<td>INTRODUCTION TO CHRISTIANITY IN AFRICA</td>
<td>3</td>
</tr>
<tr>
<td>RELI 116 / MDEM 116</td>
<td>MYSTICISM THROUGHOUT THE AGES</td>
<td>3</td>
</tr>
<tr>
<td>RELI 124</td>
<td>RELIGION AND THE ART OF HAPPINESS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 126 / HEBR 126</td>
<td>INTRODUCTION TO BIBLICAL HEBREW II</td>
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<td>INTERMEDIATE BIBLICAL HEBREW III</td>
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<td>RELI 157</td>
<td>RELIGION AND HIP HOP CULTURE IN AMERICA</td>
<td>3</td>
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<td>RELI 158</td>
<td>LIBERATION THEOLOGIES</td>
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<td>RELI 203 / HIST 201</td>
<td>JUDAISM OF JESUS AND HILLEL</td>
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<td>RELI 213</td>
<td>THE PROPHET JEREMIAH: THE BIBLICAL BOOK AND ITS RECEPTION IN JUDAISM AND CHRISTIANITY</td>
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<td>RELI 215 / FILM 215</td>
<td>MYSTIC CINEMA: KABBALAH IN FILM</td>
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<td>RELI 217</td>
<td>SHI’ISM: ASSASSINS AND AYATULLAH</td>
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<td>RELI 221 / ASIA 221</td>
<td>THE LIFE OF THE PROPHET MUHAMMAD</td>
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<td>RELI 223</td>
<td>QUR’AN AND COMMENTARY</td>
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<td>RELI 243</td>
<td>THE BOOK OF GENESIS</td>
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<td>RELI 270</td>
<td>INTRODUCTION TO THE BLACK CHURCH IN THE UNITED STATES</td>
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<td>RELI 271 / MDEM 271</td>
<td>MEDIEVAL POPULAR CHRISTIANITY</td>
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<td>RELI 282</td>
<td>INTRODUCTION TO CHRISTIANITY</td>
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<td>RELI 294</td>
<td>RELIGION IN FICTION AND FILM</td>
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<td>NIETZSCHE AND RELIGIOUS THOUGHT</td>
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<td>RELI 304</td>
<td>JESUS AND THE GOSPELS</td>
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<td>RELI 343 / HART 347</td>
<td>SEMINAR ON LOVE</td>
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<td>RELI 348</td>
<td>CHRISTIANITY AND ISLAM IN AFRICA</td>
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<td>RELI 350 / MDEM 350</td>
<td>DEMONS, MENTAL ILLNESS AND MEDICINE</td>
<td>3</td>
</tr>
<tr>
<td>RELI 356</td>
<td>MAJOR ISSUES IN CONTEMPORARY ISLAM</td>
<td>3</td>
</tr>
<tr>
<td>RELI 357</td>
<td>WHAT’S RELIGIOUS ABOUT BLACK RELIGION?</td>
<td>3</td>
</tr>
<tr>
<td>RELI 359</td>
<td>RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>PAUL AND THE NEW TESTAMENT</td>
<td>3</td>
</tr>
<tr>
<td>RELI 369</td>
<td>READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT</td>
<td>3</td>
</tr>
<tr>
<td>RELI 381</td>
<td>THE MESSIAH</td>
<td>3</td>
</tr>
<tr>
<td>RELI 382</td>
<td>LOST JUDAISMS: THE APOCRYPHAL WRITINGS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 383</td>
<td>THE DEAD SEA SCROLLS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 384</td>
<td>PILGRIMAGE AND CRUSADE</td>
<td>3</td>
</tr>
<tr>
<td>RELI 385 / HIST 381</td>
<td>GOD, TIME AND HISTORY</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>WESTERN ESOTERICISM: METHOD AND THEORY</td>
<td>3</td>
</tr>
<tr>
<td>RELI 388</td>
<td>THE PSALMS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 390</td>
<td>SEARCH FOR GOD IN THE POSTMODERN WORLD</td>
<td>3</td>
</tr>
<tr>
<td>RELI 391 / MDEM 391</td>
<td>THE REFORMATION &amp; ITS RESULTS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 395</td>
<td>LOSING YOUR RELIGION IN FILM &amp; FICTION &amp; MUSIC</td>
<td>3</td>
</tr>
<tr>
<td>RELI 406</td>
<td>CHRISTIANITY AND LATE ANTIQUITY</td>
<td>3</td>
</tr>
</tbody>
</table>
Indigenous African Religions/American Religions/Buddhism/Hinduism

Select a minimum of 1 course (3 credit hours) from the Indigenous African Religions/American Religions/Buddhism/Hinduism course options.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 111</td>
<td>INTRODUCTION TO AFRICAN RELIGIONS</td>
<td>3</td>
</tr>
<tr>
<td>RELI 113</td>
<td>INTRODUCTION TO CHRISTIANITY IN AFRICA</td>
<td>3</td>
</tr>
<tr>
<td>RELI 157</td>
<td>RELIGION AND HIP HOP CULTURE IN AMERICA</td>
<td>3</td>
</tr>
<tr>
<td>RELI 230 / ASIA 230</td>
<td>ASIAN RELIGIONS IN AMERICA</td>
<td>3</td>
</tr>
<tr>
<td>RELI 231 / ASIA 231</td>
<td>AMERICAN METAPHYSICAL RELIGION</td>
<td>3</td>
</tr>
<tr>
<td>RELI 232 / ASIA 232</td>
<td>RELIGIONS FROM INDIA</td>
<td>3</td>
</tr>
<tr>
<td>RELI 233 / TIBT 233</td>
<td>INTRODUCTION TO TIBETAN LANGUAGE, LITERATURE AND CULTURE</td>
<td>3</td>
</tr>
<tr>
<td>RELI 234 / TIBT 234</td>
<td>INTERMEDIATE TIBETAN LANGUAGE, LITERATURE AND CULTURE</td>
<td>3</td>
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<tr>
<td>RELI 270</td>
<td>INTRODUCTION TO THE BLACK CHURCH IN THE UNITED STATES</td>
<td>3</td>
</tr>
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<td>RELI 311</td>
<td>RELIGION AND HIP HOP CULTURE IN AMERICA</td>
<td>3</td>
</tr>
<tr>
<td>RELI 322 / ASIA 322</td>
<td>INTRODUCTION TO BUDDHISM</td>
<td>3</td>
</tr>
<tr>
<td>RELI 332 / TIBT 332</td>
<td>ADVANCED TIBETAN LANGUAGE &amp; CULTURE</td>
<td>3</td>
</tr>
</tbody>
</table>

Policies for the Minor in Religion

Program Restrictions and Exclusions

Students pursuing the minor in Religion should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Religion should be aware of the following departmental transfer credit guidelines:

- Transfer credit coursework cannot be applied or used to meet any of the minor’s course requirements.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring.
by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Religion (RELI) are broad-based, accessible to non-majors, and provide a foundation that enables students to integrate knowledge from multiple perspectives.

Additional Information
For additional information, please see the Religion website: https://reli.rice.edu/

Opportunities for the Minor in Religion

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Religion website: https://reli.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practicum that may be relevant to this minor.

Science Teaching

Contact Information
Science Teaching
https://mst.rice.edu
224 Herman Brown Hall
713-348-4634
Patricia H. Reiff
Program Director
reiff@rice.edu

The Master of Science Teaching (MST) degree is a content-based, non-thesis, advanced degree primarily directed towards inservice middle school, IPC (Integrated Physics and Chemistry), Physics, or Astronomy high school teachers and other Education and Public Outreach (EPO) professionals. The goal of the program is to provide content and skills to inservice and preservice K-12 and informal educators, so that they will become proficient in, and able to teach, all the Planetary, Astronomy, and Space Science topics included in the Next Generation Science Standards and the State of Texas science standards.

The teachers who finish the program are encouraged to become master teachers in their school district, multiplying the impact of the program manifold by giving workshops and other inservice programs to other teachers, both in-state and across the country.

Science Teaching does not currently offer an academic program at the undergraduate level.

Master's Program
- Master of Science Teaching (MST) Degree (p. 1927)

Director
Patricia H. Reiff

Application Review Committee
David Alexander
B. Paul Padley
Patricia H. Reiff

Advisory Council
David Alexander
Robert F. Curl, Jr. (Professor Emeritus)
Jason H. Hafner
Neal F. Lane (Professor Emeritus)
Carolyn A. Nichol
Anne Papakonstantinou
B. Paul Padley
Patricia H. Reiff
Carolyn Sumners

Educational Professionals
Matthew Cushing
Carolyn Nichol
Anne Papakonstantinou
Judy Radigan
Patricia H. Reiff
Carolyn Sumners

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: Courses from various subjects may apply towards this program.

Department Description and Code
- Physics and Astronomy: PHYS

Graduate Degree Description and Code
- Master of Science Teaching degree: MST
Graduate Degree Program Description and Code
- Degree Program in Science Teaching: STEA

CIP Code and Description
- STEA Major/Program: CIP Code/Title: 13.1316 - Science Teacher Education/General Science Teacher Education

Requirements for the MST Degree
The MST degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MST degree must complete:
- A minimum of 30 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1928) tab.
- A minimum of 15 credit hours from Content or Content/Skills Courses.
- A final project. Students will prepare a final project which will include scientific research, educational research, and/or curriculum creation or analysis.
- The requirements for one area of specialization. The MST degree program offers nine areas of specialization:
  - Astronomy, or
  - Computer Science, or
  - Earth Science, or
  - Engineering, or
  - Informal Science, or
  - Integrated Physics and Chemistry (IPC), or
  - Mathematics, or
  - Middle School Science, or
  - Physics.

- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Each student will have a 3-person committee, with at least 2 members from the tenure-track faculty, to approve the student's proposed program, advise on which specific courses will best suit the student's needs, and approve their final project. At least 1 of the members of the committee will be an experienced Education Professional, who will ensure the appropriateness of the courses to the educator's program. At least 1 person of the committee will be an expert in the content area that is the student's primary teaching interest.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MST Degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
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</tr>
</tbody>
</table>

Degree Requirements

Core Requirements

Select a minimum of 15 credit hours of Content or Content/Skills courses at the 500-level or above:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 502</td>
<td>Teaching Earth and Space Science</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 503</td>
<td>Astronomy for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 530</td>
<td>Teaching Astronomy Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 501</td>
<td>Physics of Ham Radio for Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Content/Skills or Education Courses

Students must complete a minimum of 3 additional credit hours from content, skills, or education courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 519</td>
<td>Teaching and Learning with Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 520</td>
<td>Teaching Diverse Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 563</td>
<td>Theory and Methods: Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

Research or Practicum

Select at least 3 and no more than 12 credit hours of research (educational or scientific) or practicum teaching:
Social Policy Analysis

Contact Information
Social Policy Analysis
https://sopa.rice.edu
102 Herzstein Hall
713-348-2694

Melissa J. Marschall
Program Director
marschal@rice.edu

The central focus of Rice University's Social Policy Analysis program is policy design, analysis, and communication. Interdisciplinary in nature, the curriculum's emphasis is on integrating rigorous instruction in theory and method with hands-on, skills-based instruction by social science faculty. The primary goal of the program is to train Rice students to obtain the specialized knowledge, skill and experience to be leaders in the field of social policy analysis.

The Social Policy Analysis program focuses on the evaluation of alternative interventions that proposed to improve human well-being. Graduates will be able to answer questions like: Which early interventions lead to greater educational attainment for low-income children? Which juvenile rehabilitation programs are more likely to reduce the recurrence of criminal behavior? How does healthcare policy influence our daily health behaviors? Without evidence-based research and rigorous evaluations to test these ideas, there is no way to know which solutions work and for whom. In a time of limited resources and rising demands, our leaders need the analytical expertise to make a demonstrable, sustained impact on the most pressing issues facing our cities and nation. The Social Policy Analysis program will train Rice students to meet these needs.

Bachelor's Program
• Bachelor of Arts (BA) Degree with a Major in Social Policy Analysis (p. 1930)

Social Policy Analysis does not currently offer an academic program at the graduate level.

Director and Undergraduate Advisor
Melissa J. Marschall, Political Science

Advisory Board
Chase Lesane-Brown, Psychological Sciences
Flávio Cunha, Economics
Robert M. Stein, Political Science
Ruth N. Lopez Turley, Sociology
Paul Treacy, Social Policy Analysis

Affiliated Faculty
Erin Baumgartner, Houston Education Research Consortium
Dominic C. Boyer, Anthropology
Paul Brace, Political Science
Jennifer L. Bratter, Sociology
Tony N. Brown, Sociology

Opportunities for the MST Degree

Additional Information
For additional information, please see the Science Teaching website: https://mst.rice.edu

Social Policy Analysis

4

Footnotes and Additional Information
1 Astronomy, Computer Science, Earth Science, Engineering, Informal Science, Integrated Physics and Chemistry (IPC), Mathematics, Middle School Science, and Physics are example areas of specialization.
2 Courses listed as Core Requirements are examples. Students may select other coursework in consultation with the advisor. At least 9 credit hours should be directly related to the student's major area of specialization. There may be some courses at the 400-level that satisfy this course requirement, but students should be aware that if they take courses at the 400-level, they will likely need to take additional courses at the 500-level or above to satisfy overall graduate-level master's degree requirements. Students may also satisfy the requirement, upon approval of their graduate committee, by completing courses from departmental (ASTR, BIOS, CHEM, EDUC, EEPS, ENGI, MATH, NSCI, or PHYS) course offerings at the 500-level or above.
3 Courses listed as Additional Content/Skills or Education Courses are examples. Students may select other coursework in consultation with the advisor. Students may also satisfy the requirement, upon approval of their graduate committee, by completing courses from departmental (ASTR, BIOS, CHEM, EDUC, EEPS, ENGI, MATH, NSCI, or PHYS) course offerings.
4 The course listed as Research or Practicum is an example. Students may select other coursework in consultation with the advisor. Students must complete, at a minimum, 3 credit hours from graduate research or teaching practicum (including, but not limited to PHYS 800), developing a research project in conjunction with a science or educational advisor.

Policies for the MST Degree

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MST degree should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
• Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information
For additional information, please see the Science Teaching website: https://mst.rice.edu

Opportunities for the MST Degree

Additional Information
For additional information, please see the Science Teaching website: https://mst.rice.edu

PHYS 800  GRADUATE RESEARCH

Total Credit Hours  30
Social Policy Analysis (SOPA)

SOPA 200 - APPROACHES TO SOCIAL POLICY
Short Title: APPROACHES TO SOCIAL POLICY
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides an introduction to the social sciences and the study of public policy. Students will review the nature of different disciplines and their research programs. These approaches will be studied as different paradigms for policy making.

SOPA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SOPA 300 - SOPA FIELD RESEARCH EXPERIENCE
Short Title: SOPA FIELD RESEARCH EXPERIENCE
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOPA 200 and (SOSC 302 or STAT 310 or STAT 315)
Description: Students work on approved field research projects, write a research report for publication and present findings from their field research project to Rice faculty and staff. Recommended Prerequisite(s): POLI 338 or SOSC 301. Repeatable for Credit.

SOPA 340 - INTRODUCTION TO PANDEMIC RESPONSE
Short Title: INTRO TO PANDEMIC RESPONSE
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides students with a broad, introductory-level overview of the knowledge and skills necessary for preparing a public health response to epidemics or pandemics of infectious diseases. The course will use the recent pandemic, COVID-19 (coronavirus disease 2019), and the subsequent response efforts in the United States to provide context to covered topics.

SOPA 400 - SOPA CAPSTONE RESEARCH SEMINAR I
Short Title: SOPA CAPSTONE RESEARCH I
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOPA 400 and (POLI 338 or SOSC 301) and (ECON 209 or SOSC 302) and (POLI 338 or SOSC 301) and SOPA 200
Description: Students work on teams under the guidance of a Rice faculty member, researcher, or community partner (government, nonprofit, advocacy Organization, etc.) to evaluate or design a social policy intervention. Teams write a research report of publication quality and present findings at the end of the year.

SOPA 401 - SOPA CAPSTONE RESEARCH SEMINAR II
Short Title: SOPA CAPSTONE RESEARCH II
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOPA 400 and (POLI 338 or SOSC 301)
Description: The capstone research seminar is a two-semester course taken in the final year of study. During the Spring Semester, the research teams will write up and present their final research report.
SOPA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Social Policy Analysis
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: SOPA

Program Description and Code
• Social Policy Analysis: SOPA

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Social Policy Analysis: SOPA

CIP Code and Description
1
• SOPA Major/Program: CIP Code/Title: 44.0501 - Public Policy Analysis, General

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Social Policy Analysis

Program Learning Outcomes for the Bachelor of Arts (BA) Degree with a Major in Social Policy Analysis

Upon completing the BA degree with a major in Social Policy Analysis, students will be able to:

1. Understand social policy as an interdisciplinary field and demonstrate the ability to synthesize key knowledge, theories, and research across different disciplines in the social sciences.
2. Develop critical analysis, problem solving and research skills in order to design and evaluate evidence-based interventions for social problems.
3. Demonstrate the ability to communicate policy research and findings clearly and persuasively in written and oral formats.
4. Analyze public problems, evaluate policy alternatives against criteria such as equity, efficiency, and effectiveness, and demonstrate knowledge and understanding of social policy analysis tools and methods.
5. Demonstrate mastery of the above outcomes in the senior capstone project.

Requirements for the BA Degree with a Major in Social Policy Analysis

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Social Policy Analysis must complete:

• A minimum of 14 courses (43 credit hours) to satisfy major requirements.
• A minimum of 120 credit hours required to satisfy degree requirements.
• A minimum of 5 courses (15 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional program guidelines regarding transfer credit, see the Policies (p. 1933) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degrowews/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Social Policy Analysis</td>
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<td>Total Credit Hours Required for the BA Degree with a Major in Social Policy Analysis</td>
<td>120</td>
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Degree Requirements

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</thead>
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Core Requirements
Mathematics

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<th>Code</th>
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<tr>
<td>MATH 101</td>
<td>SINGLE VARIABLE CALCULUS I 1</td>
<td>3</td>
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<td>or MATH 105</td>
<td>AP/OTH CREDIT IN CALCULUS I</td>
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<tr>
<td>MATH 102</td>
<td>SINGLE VARIABLE CALCULUS II</td>
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<tr>
<td>or MATH 106</td>
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Foundations Coursework

<table>
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<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
<td>3</td>
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<tr>
<td>POLI 210</td>
<td>INTRODUCTION TO AMERICAN POLITICS</td>
<td>3</td>
</tr>
<tr>
<td>POLI 338 / SOSC 301</td>
<td>POLICY ANALYSIS</td>
<td>3</td>
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SOPA 200 | APPROACHES TO SOCIAL POLICY                    | 3            |

SOSC 302 | QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES  | 4            |

or ECON 209 | APPLIED ECONOMETRICS                           |              |

Advanced Coursework

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>SOPA 400</td>
<td>SOPA CAPSTONE RESEARCH SEMINAR I</td>
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</tr>
<tr>
<td>SOPA 401</td>
<td>SOPA CAPSTONE RESEARCH SEMINAR II</td>
<td>3</td>
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</tbody>
</table>
Elective Requirements

Students must complete a total of 5 courses from the Areas of Specialization listed below. At least 1 course must be taken from each of the 3 Areas of Specialization (see below for course lists for each Area of Specialization):

Groups and Identities

Institutions

Policies, Processes, and Outcomes

Total Credit Hours Required for the Major in Social Policy Analysis

Additional Credit Hours to Complete Degree Requirements *

University Graduation Requirements (p. 29) *

Total Credit Hours

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 MATH 111 and MATH 112 may substitute for the MATH 101 requirement.

Course Lists to Satisfy Requirements

Elective Requirements

Students must complete a total of 5 courses (15 credit hours) from the Areas of Specialization listed below as electives. At least 1 course (3 credit hours) must be taken from each of the 3 Areas of Specialization. The remaining 2 courses (6 credit hours) may be taken from any of the Areas of Specialization. Below is an illustrative list of courses. Student may consult with the major advisor to apply courses not on this list.

Area of Specialization: Groups and Identities

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ANTH 354</td>
<td>ILLNESS, DISABILITY, AND THE GENDERED BODY</td>
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<tr>
<td>SWGS 353</td>
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<td>ANTH 443</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
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<td>EDUC 304</td>
<td>RACE, CLASS, GENDER IN EDUCATION</td>
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<tr>
<td>LING 205</td>
<td>LANGUAGE AND SOCIETY</td>
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<td>SWGS 205</td>
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<tr>
<td>LING 303</td>
<td>LANGUAGE AND GENDER</td>
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<td>LING 322</td>
<td>LANGUAGE AND ETHNICITY</td>
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<tr>
<td>POLI 325</td>
<td>AFRICAN AMERICAN POLITICS</td>
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<tr>
<td>POLI 328</td>
<td>LATINO POLITICS IN THE UNITED STATES</td>
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<tr>
<td>POLI 330</td>
<td>MINORITY POLITICS</td>
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<tr>
<td>POLI 334</td>
<td>AMERICAN POLITICAL PARTIES</td>
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<tr>
<td>POLI 419</td>
<td>POLITICAL PARTIES AND INTEREST GROUPS IN AMERICAN POLITICS</td>
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<tr>
<td>PSYC 331</td>
<td>PSYCHOLOGY OF GENDER</td>
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<td>SWGS 331</td>
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<tr>
<td>PSYC 333</td>
<td>MULTICULTURAL PSYCHOLOGY</td>
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</table>

Select at least 1 course from the following:

| PSYC 438 | GROUP DYNAMICS |
| PSYC 475 | STEREOTYPING AND PREJUDICE |
| SOCI 231 | SOCIAL PROBLEMS |
| SOCI 301 | SOCIAL INEQUALITY |
| SOCI 306 | SOCIOLOGY OF GENDER |
| SWGS 324 |                                                                       |
| SOCI 309 | RACE AND ETHNIC RELATIONS                                             |              |
| SOCI 313 | DEMOGRAPHY                                                            |              |
| SOCI 329 | MULTIRACIAL AMERICA                                                   |              |
| SOCI 343 | RACE, SOCIETY AND POPULATION CHANGE                                   |              |
| SOCI 364 | MUSLIMS IN AMERICAN SOCIETY                                           |              |
| SOCI 374 | SOCIAL PSYCHOLOGY OF PREJUDICE                                       |              |
| SOCI 415 | THE ENVIRONMENT MOVEMENT                                              |              |
| ENST 415 |                                                                       |              |
| SOCI 470 | INEQUALITY AND URBAN LIFE                                             |              |
| SWGS 385 | SEXUAL DEBATES IN THE U.S.: SOCIAL AND CULTURAL CONTEXTS OF SUPREME  |
|           | COURTS DECISIONS                                                      |              |

Area of Specialization: Institutions

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ANTH 326</td>
<td>LAW, POWER AND CULTURE</td>
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<tr>
<td>ANTH 340</td>
<td>NEOLIBERALISM AND GLOBALIZATION</td>
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<tr>
<td>ANTH 341</td>
<td>MUSEUMS AND HERITAGE: EXHIBITING</td>
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<tr>
<td>HURC 341</td>
<td>ART, EXHIBITING CULTURE</td>
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<tr>
<td>ANTH 345</td>
<td>THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT</td>
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<tr>
<td>ECON 210</td>
<td>BEHAVIORAL ECONOMICS</td>
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<tr>
<td>ECON 239</td>
<td>LAW AND ECONOMICS</td>
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<tr>
<td>ECON 260</td>
<td>MICROECONOMICS AND PUBLIC POLICY</td>
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<td>ECON 270</td>
<td>MACROECONOMICS AND PUBLIC POLICY</td>
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<tr>
<td>ECON 275</td>
<td>INTERNATIONAL MACROECONOMICS AND PUBLIC POLICY</td>
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<td>ECON 343</td>
<td>CORPORATE FINANCE</td>
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<tr>
<td>ECON 355</td>
<td>FINANCIAL MARKETS</td>
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<td>ECON 365</td>
<td>WORLD ECONOMIC HISTORY</td>
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<td>HIST 365</td>
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<tr>
<td>ECON 435</td>
<td>INDUSTRIAL ORGANIZATION</td>
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<tr>
<td>ECON 439</td>
<td>ADVANCED TOPICS IN LAW AND ECONOMICS</td>
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<td>ECON 452</td>
<td>RELIGION, ETHICS, AND ECONOMICS</td>
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<td>ECON 455</td>
<td>MONEY AND BANKING</td>
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<td>POLI 301</td>
<td>STATE POLITICS</td>
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<td>POLI 315</td>
<td>ELECTIONS AND VOTING BEHAVIOR</td>
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<td>POLI 317</td>
<td>THE CONGRESS</td>
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<td>POLI 318</td>
<td>THE PRESIDENCY</td>
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<td>POLI 321</td>
<td>AMERICAN CONSTITUTIONAL LAW</td>
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<td>POLI 332</td>
<td>URBAN POLITICS</td>
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<td>POLI 335</td>
<td>POLITICAL ENVIRONMENT OF BUSINESS</td>
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<td>POLI 336</td>
<td>POLITICS OF REGULATION</td>
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<td>POLI 342</td>
<td>POLITICS OF THE JUDICIARY</td>
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<td>Code</td>
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<td>POLI 343</td>
<td>MEDIA AND POLITICS</td>
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<td>POLI 418</td>
<td>MODERN AMERICAN PRESIDENCY</td>
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<td>POLI 432</td>
<td>URBAN POLITICS</td>
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<tr>
<td>POLI 445</td>
<td>SEMINAR IN JUDICIAL PROCESS AND BEHAVIOR</td>
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<tr>
<td>PSYC 231</td>
<td>INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY</td>
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<tr>
<td>PSYC 420 / POLI 420 / COMP 435</td>
<td>ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION</td>
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<td>PSYC 436</td>
<td>ADVANCED ORGANIZATIONAL PSYCHOLOGY</td>
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<tr>
<td>SOCI 308</td>
<td>HOUSTON: THE SOCIOLOGY OF A CITY</td>
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<tr>
<td>SOCI 310</td>
<td>URBAN SOCIOLOGY</td>
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<tr>
<td>SOCI 314</td>
<td>SCIENCE AT RISK? OUT OF THE LAB AND INTO PUBLIC SPHERE</td>
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<tr>
<td>SOCI 319</td>
<td>SOCIOLOGY OF WORK AND OCCUPATIONS</td>
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<td>SOCI 325</td>
<td>SOCIOLOGY OF LAW</td>
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<tr>
<td>SOCI 334 / SWGS 325</td>
<td>SOCIOLOGY OF THE FAMILY</td>
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<td>SOCI 358</td>
<td>CRIME, PUNISHMENT AND SOCIETY</td>
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<tr>
<td>SOCI 389</td>
<td>RACE, GENDER, CLASS IN FILM</td>
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<td>SOCI 437</td>
<td>SOCIOLOGY OF EDUCATION</td>
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<tr>
<td>SOSC 238</td>
<td>SPECIAL TOPICS</td>
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**Area of Specialization: Policies, Processes, and Outcomes**

Select at least 1 course from the following:

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ANTH 332 / ENST 332</td>
<td>THE SOCIAL LIFE OF CLEAN ENERGY</td>
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<tr>
<td>ARCH 455</td>
<td>HOUSING AND URBAN PROGRAMS: ISSUES IN POLICY</td>
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<tr>
<td>ECON 320</td>
<td>PUBLIC POLICY AND SOCIAL PROGRAM EVALUATION</td>
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<tr>
<td>ECON 415</td>
<td>LABOR ECONOMICS</td>
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<td>ECON 418</td>
<td>ECONOMIC FORECASTING</td>
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<tr>
<td>ECON 432</td>
<td>POLITICAL ECONOMY</td>
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<tr>
<td>ECON 437 / ENST 437</td>
<td>ENERGY ECONOMICS</td>
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<td>ECON 450</td>
<td>ECONOMIC DEVELOPMENT</td>
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<tr>
<td>ECON 462</td>
<td>ECONOMICS OF HUMAN CAPITAL</td>
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<td>ECON 470</td>
<td>MARKET DESIGN</td>
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<td>ECON 479</td>
<td>ECONOMIC MODELING AND PUBLIC POLICY</td>
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<td>ECON 480 / ENST 480</td>
<td>ENVIRONMENTAL ECONOMICS</td>
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<td>ECON 481</td>
<td>HEALTH ECONOMICS</td>
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<td>PUBLIC FINANCE</td>
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<td>URBAN ECONOMICS</td>
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<td>ENST 445</td>
<td>Seminar in Urban Sustainability and Livability Research Methods and Applications</td>
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<td>ENST 446</td>
<td>Lab in Engaged Urban Sustainability and Livability Research</td>
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<tr>
<td>HEAL 222</td>
<td>PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH</td>
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<td>HEAL 380</td>
<td>DISPARITIES IN HEALTH IN AMERICA</td>
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<td>HEAL 460</td>
<td>PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION</td>
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<td>NSCI 530</td>
<td>THE SHAPING OF HEALTH POLICY</td>
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<td>ADVOCATING FOR IDEAS TO CHANGE THE WORLD</td>
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<td>POLI 315</td>
<td>ELECTIONS AND VOTING BEHAVIOR</td>
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<td>POLI 322</td>
<td>POLITICS OF INFLUENCE IN THE UNITED STATES</td>
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<td>POLI 348</td>
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<td>REPRESENTATION AND POLICY MAKING</td>
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<td>POLI 362</td>
<td>COMPARATIVE URBAN POLITICS AND POLICY</td>
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<td>RACE AND PUBLIC POLICY</td>
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<td>RESEARCH SEMINAR ON PUBLIC POLICY</td>
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<td>POLI 441 / ENST 441</td>
<td>GOVERNING THE ENVIRONMENTAL COMMONS</td>
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<td>SEMINAR IN JUDICIAL PROCESS AND BEHAVIOR</td>
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<td>POLI 466</td>
<td>POLITICAL PARTIES AND VOTING BEHAVIOR IN WESTERN DEMOCRACIES</td>
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<td>STRESS AND HEALTH ACROSS THE LIFESPAN</td>
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<td>POLLUTION AND PSYCHOLOGICAL DEVELOPMENT</td>
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<td>SPORT SEMINAR IN HEALTH PSYCHOLOGY</td>
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<td>SUPERVISED RESEARCH II</td>
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<td>SOCIOLOGY OF MENTAL HEALTH</td>
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<td>MEDICAL SOCIOLOGY</td>
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<td>SOCI 350</td>
<td>URBAN TRANSPORTATION</td>
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<td>SOCI 366</td>
<td>HOUSING AND SCHOOLS: THE SOCIAL LOCATIONS OF INEQUALITY</td>
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<td>SOCI 367</td>
<td>ENVIRONMENTAL SOCIOLOGY</td>
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<td>SOCI 368</td>
<td>SOCIOLOGY OF DISASTER</td>
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<td>SOCI 406</td>
<td>BASIC DEMOGRAPHIC TECHNIQUES</td>
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<td>SOCI 422</td>
<td>SOCIAL AUTOPSIES: HOW SOCIETY KILLS US</td>
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<td>SOCI 425</td>
<td>POPULATION HEALTH SEMINAR</td>
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<tr>
<td>SOCI 451</td>
<td>IMMIGRATION IN A GLOBAL WORLD</td>
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</table>
Policies for the BA Degree with a Major in Social Policy Analysis

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the major in Social Policy Analysis should be aware of the following program-specific transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing may apply towards the major.
• Request for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Social Policy Analysis website: https://sopa.rice.edu/

Opportunities for the BA Degree with a Major in Social Policy Analysis

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information
For additional information, please see the Social Policy Analysis website: https://sopa.rice.edu/

Social Policy Evaluation

Contact Information
Social Policy Evaluation
https://socialpolicy.rice.edu
713-328-2367
Margaret E. Beier
Faculty Director
beier@rice.edu

Rice University's Master of Social Policy Evaluation (MSPE) degree is a one-year, full-time, 30-credit hour program administered by the School of Social Sciences in coordination with the Texas Policy Lab and other research centers at Rice. The MSPE provides the quantitative skills and hands-on application for real-world policy evaluations and explores specific policy areas in depth, currently criminal and juvenile justice, public health, early childhood development and education, and labor markets. MSPE graduates will have acquired the skills necessary to address the challenges faced by entities in the development, implementation, and evaluation of social policies.

Social Policy Evaluation does not currently offer an academic program at the undergraduate level.

Master's Program
- Master of Social Policy Evaluation (MSPE) Degree (p. 1935)

Professors
Margaret E. Beier
Flávio Cunha
Robert M. Stein
Ruth N. Lopez Turley

Lecturers
Diego Amador
E. Susan Amirian
Erin Baumgartner
James P. Denicco
Ekim Muyan
Paul Treacy

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

Social Policy Evaluation (SOPE)
SOPE 501 - INTRODUCTION TO PUBLIC POLICY
Short Title: INTRODUCTION TO PUBLIC POLICY
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course provides an introduction to the study and evaluation of public policy as practiced across and within different levels and types of governments. Policy making in United States is the principal, but not the exclusive focus of the course. Different models and theories of policy making serve as the focus of the first half of the course. The course will explore how different academic disciplines including, anthropology, economics, political science, psychology sociology and philosophy approach the study and evaluation of public policies.
SOPE 502 - APPLICATIONS OF PROGRAM EVALUATION – CRIMINAL JUSTICE
Short Title: APPS IN PROG EVAL- CRIM JUSTIC
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation literature in the area of criminal justice. There are reform projects underway at every stage of the American criminal justice system. Understanding the impact of these reforms is crucial for the future of criminal justice in the United States. We will study policies and interventions at various stages of criminal justice, from policing to reintegreation.

SOPE 503 - QUANTITATIVE METHODS FOR PROGRAM EVALUATION
Short Title: QUANT METHODS FOR PROG EVAL
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course provides an in-depth introduction to the methods of program evaluation. The associated lab provides concrete examples for the students to gain practical experience in applying these methods. The methods presented will include: Randomized Controlled Trials, Instrumental Variables, Difference in Difference, Propensity Score Matching, and Regression Discontinuity Design. At the end of this course, students should be able to use these methods to conduct impact evaluations of social programs and to do a critical assessment of evaluations performed by others.

SOPE 504 - APPLICATIONS OF PROGRAM EVALUATION – LABOR MARKETS
Short Title: APPS IN PROG EVAL-LABOR
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation literature in the area of labor markets. Students will critically read existing evaluations of labor market policies and evaluate for various types of validity and for generalization, draw on methodological best practices and apply empirical tools to their own evaluations of labor market policies, identify and access important datasets commonly used in influential employment-related research, and discuss with policy professionals the salience, outcomes, workings, and broader context of a variety of public programs designed to improve labor markets.

SOPE 505 - MICROECONOMICS FOR POLICY EVALUATION
Short Title: MICROECONOMICS FOR POLICY EVAL
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course will introduce students to economic principles and tools relevant for policy analysis. The course covers topics such as household decision-making, the economics of information, risk and uncertainty, markets and market structure, externalities and other types of market failure, behavioral economics, game theory, and welfare economics. Students will see how the application of economic theory to policy questions informs and guides social policy analysis.

SOPE 506 - APPLICATIONS OF PROGRAM EVALUATION – HEALTH
Short Title: APPS IN PROG EVAL- HEALTH
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: Public health and healthcare service delivery play a crucial role in shaping population health and in influencing health systems at the federal, state, regional, and local levels. The ability to systematically and critically assess the health program evaluation literature is requisite for understanding how to identify and implement effective, evidence-based legislation, policies, and reforms. This course will provide a framework for analyzing the evidence base for public health programs and interventions, and will help students understand how such programs and interventions can impact health policy and affect the health of populations and individuals.

SOPE 508 - APPLICATIONS OF PROGRAM EVALUATION – EARLY CHILDHOOD AND YOUTH DEVELOPMENT
Short Title: APPS IN PROG EVAL- CHILD DEV
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation literature in the area of early childhood education. In recent years, significant investments have been made in increasing and improving early learning opportunities for children. The course will provide students with an understanding of the evidence on the extent to which early childhood education program offerings have long term impacts on later success. It will examine the policy contexts of early childhood education and discuss the importance of using evidence in driving decision making at all policy levels, from school districts to the U.S. Department of Education. It will also examine the role of family in children’s educational experiences.
SOPE 510 - RESEARCH-PRACTICE PARTNERSHIPS
Short Title: RESEARCH-PRACTICE PARTNERSHIPS
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a foundational understanding of research-practice partnerships (RPPs) in education, an emerging way for education researchers and practitioners to work together on pressing problems of practice. Topics include launching an RPP, theories of action, supporting research use, communications, sustainability, and measuring RPP effectiveness. Cross-list: SOCI 521.

SOPE 512 - POLICY EVALUATION CODING AND SOFTWARE LAB
Short Title: CODING AND SOFTWARE LAB
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This lab course introduces students to relevant programming languages and enhances their knowledge of statistical software packages.

SOPE 513 - SOCIAL POLICY EVALUATION PRACTICUM I
Short Title: MSPE EVALUATION PRACTICUM I
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: The practicum project asks students to integrate and synthesize many components of the curriculum by undertaking a major policy evaluation project of value to an external client from the Texas Policy Lab, HERC or other university research center. During the project, students engage in the entire process of solving a real-world evaluation project. Students will produce IRB documents, write a literature review, clean data and propose an analysis.

SOPE 514 - SOCIAL POLICY EVALUATION PRACTICUM II
Short Title: MSPE PRACTICUM II
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: A continuation of SOPE 513, the student will perform their proposed analysis and write a final report. The report must address both the strengths and weaknesses of the analysis and clearly state the conclusions that can be drawn.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: SOPE

Program Description and Code
• Social Policy Evaluation: SOPE

Graduate Degree Description and Code
• Master of Social Policy Evaluation degree: MSPE

Graduate Degree Program Description and Code
• Degree Program in Social Policy Evaluation: SOPE

CIP Code and Description ¹
• SOPE Major/Program: CIP Code/Title: 30.0601 - Systems Science and Theory

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Master of Social Policy Evaluation (MSPE) Degree
Program Learning Outcomes for the MSPE Degree
Upon completing the MSPE degree, students will be able to:

1. Acquire analytical skills that can be applied to a broad range of policy evaluation questions.
2. Design and conduct a program evaluation by constructing a logical model that uses appropriate data sources, data collection methods, and analytical techniques.
3. Assess the social responsibilities of government, non-government organizations, and corporate policies in the 21st century.
4. Communicate statistical findings in a clear and concise narrative that recognizes the positive and negative outcomes of potential policy solutions.

Requirements for the MSPE Degree
The MSPE degree is a non-thesis master’s degree. For university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MSPE degree must complete:

• A minimum of 10 courses (30 credit hours) to satisfy degree requirements.
• A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
• A minimum of 30 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of full-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1936) tab.

• A practicum.

• A minimum overall GPA of 2.67.

• A minimum program GPA of 2.67 in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MSPE Degree</td>
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Degree Requirements

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>SOPE 501</td>
<td>INTRODUCTION TO PUBLIC POLICY</td>
<td>3</td>
</tr>
<tr>
<td>SOPE 503</td>
<td>QUANTITATIVE METHODS FOR PROGRAM EVALUATION</td>
<td>5</td>
</tr>
<tr>
<td>SOPE 505</td>
<td>MICROECONOMICS FOR POLICY EVALUATION</td>
<td>3</td>
</tr>
<tr>
<td>SOPE 512</td>
<td>POLICY EVALUATION CODING AND SOFTWARE LAB</td>
<td>1</td>
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</tbody>
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Elective Requirements

Select 4 courses from the following: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>SOPE 502</td>
<td>APPLICATIONS OF PROGRAM EVALUATION – CRIMINAL JUSTICE</td>
<td>1</td>
</tr>
<tr>
<td>SOPE 504</td>
<td>APPLICATIONS OF PROGRAM EVALUATION – LABOR MARKETS</td>
<td>1</td>
</tr>
<tr>
<td>SOPE 506</td>
<td>APPLICATIONS OF PROGRAM EVALUATION – HEALTH</td>
<td>1</td>
</tr>
<tr>
<td>SOPE 508</td>
<td>APPLICATIONS OF PROGRAM EVALUATION – EARLY CHILDHOOD AND YOUTH DEVELOPMENT</td>
<td>1</td>
</tr>
<tr>
<td>SOPE 510 / SOCI 521</td>
<td>RESEARCH-PRACTICE PARTNERSHIPS</td>
<td>1</td>
</tr>
</tbody>
</table>

Practicum 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>SOPE 513</td>
<td>SOCIAL POLICY EVALUATION PRACTICUM I</td>
<td>3</td>
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<tr>
<td>SOPE 514</td>
<td>SOCIAL POLICY EVALUATION PRACTICUM II</td>
<td>3</td>
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</tbody>
</table>

Total Credit Hours 30

Footnotes and Additional Information

1 Practicum experience is offered in a two-course summer-long intense consulting evaluation (SOPE 513 and SOPE 514, Social Policy Evaluation Practicum I and Social Policy Evaluation Practicum II) with the Texas Policy Lab, HERC, or other Rice research center clients. Students will be actively engaged in projects to gain real-world, applied experience in areas such as education, health, criminal justice and others. Students summarize their experience in a final paper presented to practicum partners.

Proposed Plan-of-Study

The following plan-of-study represents the current lockstep three-semester (fall, spring, and summer) sequence in which students pursuing the MSPE degree complete the required coursework. Substitution of courses may be made on a rare, exception basis with permission of the program director.

Course | Title | Credit Hours
-------|-------|--------------|
First Year
1st Semester
SOPE 501 | INTRODUCTION TO PUBLIC POLICY | 3 |
SOPE 503 | QUANTITATIVE METHODS FOR PROGRAM EVALUATION | 5 |
SOPE 505 | MICROECONOMICS FOR POLICY EVALUATION | 3 |

Credit Hours 11

2nd Semester
SOPE 512 | POLICY EVALUATION CODING AND SOFTWARE LAB | 1 |
Elective one | Elective one 1 | 3 |
Elective two | Elective two 1 | 3 |
Elective three | Elective three 1 | 3 |
Elective four | Elective four 1 | 3 |

Credit Hours 13

3rd Semester
SOPE 513 | SOCIAL POLICY EVALUATION PRACTICUM I | 3 |
SOPE 514 | SOCIAL POLICY EVALUATION PRACTICUM II | 3 |

Credit Hours 6

Total Credit Hours 30

Footnotes and Additional Information

1 Students must select elective coursework from 4 of the following 5 courses: SOPE 502, SOPE 504, SOPE 506, SOPE 508, SOPE 510/SOCI 521.

Policies for the MSPE Degree

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.
**Program Transfer Credit Guidelines**

Students pursuing the MSPE degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing at Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Social Policy Evaluation website: [https://socialpolicy.rice.edu/](https://socialpolicy.rice.edu/)

**Opportunities for the MSPE Degree**

**Additional Information**

For additional information, please see the Social Policy Evaluation website: [https://socialpolicy.rice.edu/](https://socialpolicy.rice.edu/)

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**Sociology**

**Contact Information**

Sociology  
[https://sociology.rice.edu/](https://sociology.rice.edu/)  
273 Kraft Hall  
713-348-4831

James R. Elliott  
Department Chair  
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Sergio Chavez  
Undergraduate Program Director  
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Sociology is a branch of the social sciences that evolved in response to the revolutionary social changes of the 19th century, such as industrialization and urbanization, that ushered in the modern era. Sociology’s founders explored how social relationships and interactions affect individuals and large-scale social institutions, including religion, government, and education.

Today, sociologists use qualitative techniques, including ethnography; participant observation; and case studies of a variety of social phenomena, processes, and problems as methods for exploring the meaning of social life and culture to those who live it, and in building inductive theory. Quantitative techniques engage in hypothesis testing of established theories and concepts, using techniques that include experimental designs, survey questionnaires, and network analysis. Sociology as a discipline includes “ways of knowing” that link it closely to methods of the natural sciences, and more interpretive and critical perspectives that are closer to scholarship in the humanities.

The Sociology department does not have a terminal MA program. Students seeking only a master’s degree are not admitted. However, the Master of Arts degree is earned as a student progresses toward the PhD.

**Bachelor’s Program**

- Bachelor of Arts (BA) Degree with a Major in Sociology  
  (p. 1958)

**Minor**

- Minor in Sociology  
  (p. 1961)

**Master’s Program**

- Master of Arts (MA) Degree in the field of Sociology

**Doctoral Program**

- Doctor of Philosophy (PhD) Degree in the field of Sociology  
  (p. 1960)
- Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA degree as they work towards the PhD.

**Chair**

James R. Elliott

**Professors**

Jenifer L. Bratter  
Tony N. Brown  
Elaine Howard Ecklund  
James R. Elliott  
Bridget K. Gorman  
Rachel Tolbert Kimbro  
Ruth N. Lopez Turley

**Associate Professor**

Sergio Chavez

**Assistant Professors**

Brielle Bryan  
Christina Diaz  
Shani Evans  
Jeremy Fiel  
Anna Rhodes  
Elizabeth Roberto

**Professors Emeriti**

Elizabeth Long  
William Martin  
Steve H. Murdock  
Stephen L. Klineberg

**Professor in the Practice**

Richard R. Johnson

**Senior Lecturer**

Robert Werth
### Sociology (SOCI)

**SOCI 101 - INTRODUCTION TO SOCIOLOGY**  
**Short Title:** INTRODUCTION TO SOCIOLOGY  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction to the principal concepts, theories and methods of sociology. Required (normally) for sociology majors and minors. Enrollment in section 003 of this course is reserved for new matriculants only.

**SOCI 102 - QUANTITATIVE ANALYSIS FOR SOCIAL SCIENCES:**  
**SOCIETY LAB**  
**Short Title:** SOCIOLOGY STATISTICS LAB  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 0  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This lab companion course to SOSC 302: Quantitative Analysis for the Social Sciences involves sociology-specific applications of statistical analysis. The lab focuses on the use of software to analyze data from research in psychological sciences. Students who enroll in this lab section must also enroll in SOSC 302 during the same semester.

**SOCI 231 - SOCIAL PROBLEMS**  
**Short Title:** SOCIAL PROBLEMS  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course will confront “social problems” in everyday life by focusing on contemporary issues, situations, behaviors, and ideas in national and international contexts. The course will focus primarily on case studies in contemporary issues including racism, religion, politics, classism, sexism, and heterosexism. Mutually Exclusive: Cannot register for SOCI 231 if student has credit for SOCI 338.

**SOCI 238 - SPECIAL TOPICS**  
**Short Title:** SPECIAL TOPICS  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Lecture, Laboratory, Lecture/Laboratory, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours may vary each semester. Contact Department for current semester’s topic(s). Repeatable for Credit.

**SOCI 299 - EXPERIENTIAL EDUCATION IN SOCIOLOGY**  
**Short Title:** EXPERIENTIAL EDUCATION IN SOCI  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to students with a major in Sociology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course provides one hour of university credit for faculty-directed and approved internship. Students must obtain approval from a member of the department’s undergraduate committee and must submit a letter from the internship provider indicating completion and satisfactory performance. Department Permission Required. Repeatable for Credit.

**SOCI 301 - SOCIAL INEQUALITY**  
**Short Title:** SOCIAL INEQUALITY  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course investigates the causes and consequences of social inequality in the U.S., focusing on inequality by class, race, and gender. We will discuss different measures of inequality, the extent of inequality, as well as classical and modern theories for why it has been increasing since the 1970s. In addition, we will discuss how much inequality is justifiable and which redistributive programs work.
SOCI 302 - THE SOCIOLOGICAL IMAGINATION
Short Title: THE SOCIOLOGICAL IMAGINATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will examine the research questions sociologist ask, the methods they use, and how they draw evidence-based conclusions by reading and critically evaluating some of the most critically acclaimed books in the field. Mutually Exclusive: Cannot register for SOCI 302 if student has credit for SOCI 201.

SOCI 304 - ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE
Short Title: ENVIRON ISSUES: RICE IN FUTURE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students use the campus as a laboratory for learning about sustainability through group projects to reduce Rice's environmental impact or resolve environmental issues. Cross-list: ENST 302.

SOCI 306 - SOCIOLGY OF GENDER
Short Title: SOCIOLOGY OF GENDER
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Relationship between gender and social role. Development of the contemporary sexual division of labor and process of socialization with reference to family, education, media, and occupations. Cross-list: SWGS 324.

SOCI 308 - HOUSTON: THE SOCIOLOGY OF A CITY
Short Title: HOUSTON: SOCIOLOGY OF A CITY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Houston as an exemplar of contemporary urban change. The "golden buckle of the sunbelt"; recovery from the oil boom collapse of the 1980s into a restrucotional economy and a demographic revolution; the changing politics of education, quality-of-life issues, and interethnic relations, as they interact to shape the urban future. Guest lectures, field trips.

SOCI 309 - RACE AND ETHNIC RELATIONS
Short Title: RACE & ETHNIC RELATIONS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical and contemporary issues and theories of race and ethnic relations in the United States. The key groups covered will be European Americans, African Americans, Native Americans, Asian Americans, and Mexican Americans. Group patterns of assimilation and conflict inform a basic tenet that race and ethnicity are organizing features of society.

SOCI 310 - URBAN SOCIOLOGY
Short Title: URBAN SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of urban development, form, and heterogeneity; and the conditions of life associated with living in cities. Examines the rise of cities, their growth and purposes in the U.S. and internationally. Examines behavioral adaptations required by city life, and considers urban subcultures.

SOCI 313 - DEMOGRAPHY
Short Title: DEMOGRAPHY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the study of the dynamics of population change. Includes demographic data sources, components of population change, mortality patterns, family planning, the measurement of migration flows, and population-economic models. Graduate/Undergraduate Equivalency: SOCI 513. Mutually Exclusive: Cannot register for SOCI 313 if student has credit for SOCI 513.
SCSI 314 - SCIENCE AT RISK? OUT OF THE LAB AND INTO PUBLIC SPHERE
Short Title: SCIENCE AT RISK
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What happens when science enters the public sphere and when the public sphere enters science? Through the lens of sociology (alongside other disciplines) we will examine some of the most controversial issues facing science today, including biotechnology, science and religion, US knowledge of science, the need to increase the race and gender diversity of the science workforce and corporate funding of science. This course is welcome to students from all majors. It has no prerequisites.

SCSI 316 - ENVIRONMENTAL FILM
Short Title: ENVIRONMENTAL FILM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ways film represents the environment and environmental issues (food, water, energy, waste, environmental justice, sustainability), and both expresses and shapes environmental values. We will view and analyze a variety of genres, as well as reading supplementary material.

SCSI 319 - SOCIOLOGY OF WORK AND OCCUPATIONS
Short Title: WORK AND OCCUPATIONS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Work is a central part of our lives. We will examine how work is structured in occupations and industries and how it changes over time. We will focus on understanding the lives of workers: work and inequalities between men and women, racial/ethnic inequalities, and relations between work and family.

SCSI 320 - SOCIAL MOVEMENTS
Short Title: SOCIAL MOVEMENTS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore some of the main themes and theories in the study of social movements. Using sociological concepts, we examine a variety of movements in the United States and beyond and explore the ways in which social movements are studied, discussed, and understood in sociological literature.

SCSI 321 - CRIMINOLOGY
Short Title: CRIMINOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of criminal behavior. Includes social construction of crime, elementary forms of crime, empirical patterns of crime, and theories of crime. Field work required.

SCSI 325 - SOCIOLOGY OF LAW
Short Title: SOCIOLOGY OF LAW
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore law and legality utilizing a sociological perspective. We place law within its social and political context, and examine how law influences everyday life. We explore sociological theories of law, empirical studies of law, legal institutions, and how social characteristics influence legal outcomes. Fieldwork required.

SCSI 327 - SUPERVISED RESEARCH I
Short Title: SUPERVISED RESEARCH I
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers the opportunity to work with a faculty member on that faculty member's existing research project. The course involves intensive pedagogy and mentoring including a pedagogical plan developed in conjunction with the sponsoring faculty member. Instructor Permission Required.
This course will teach students the important influences and consequences of American family life. We will consider issues such as sex and sexualities, marriage and cohabitation, divorce, family structure, same-sex marriage, domestic violence, and household labor. We will also examine the role of social institutions and social inequality in shaping family norms and constraints on family behaviors. Cross-list: SWGS 325.

SOCI 333 - SOCIOLOGY OF RELIGION
Short Title: SOCIOLOGY OF RELIGION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of religious beliefs, symbols, actions, organizations, roles, and various interrelationships between religion and society. Includes new religious movements, secularization, and fundamentalism. Field work required.

SOCI 334 - SOCIOLOGY OF THE FAMILY
Short Title: SOCIOLOGY OF THE FAMILY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will teach students the important influences and consequences of American family life. We will consider issues such as sex and sexualities, marriage and cohabitation, divorce, family structure, same-sex marriage, domestic violence, and household labor. We will also examine the role of social institutions and social inequality in shaping family norms and constraints on family behaviors. Cross-list: SWGS 325.

SOCI 340 - SOCIOLOGY OF IMMIGRATION
Short Title: SOCIOLOGY OF IMMIGRATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Sociology of Immigration traces the migration process from initiation through its long-term consequences using theories of initiation (e.g. economic and sociological models) and adaptation (e.g. segmented assimilation, new assimilation theory). It also explores the effects of immigration policies.

SOCI 341 - QUALITATIVE RESEARCH METHODS
Short Title: QUALITATIVE RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines qualitative methodological approaches for conducting social science research. Particularly, students will examine how qualitative methods allow social scientists to analyze the symbolic, religious, gendered, socio-economic, policies and historical forces and contexts that underlie and motivate beliefs, ideologies, practices and social change. Graduate/Undergraduate Equivalency. SC 541. Mutually Exclusive: Cannot register for SOCI 341 if student has credit for SOCI 541.

SOCI 342 - SOCIOLOGY OF GLOBALIZATION
Short Title: SOCIOLOGY OF GLOBALIZATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores how the process of global integration transforms human life with specific emphasis on: the global economy and economic development; transnational political organizations; culture an identity; the effect of globalization on social stratification, including gender/race/ethnic inequalities; transnational migration; environmental change; and transnational social movements.
SOCI 343 - RACE, SOCIETY AND POPULATION CHANGE
Short Title: RACE, SOCIETY & POPULATION CHG
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The U.S. population is more diverse than ever before - how did that happen? This course looks at how race and ethnicity patterns demographic processes. This course explores demographic techniques and collection of racial data. Topics include: Roots of racial diversity, collecting racial data, immigration and population growth, and population polices. Graduate/Undergraduate Equivalency: SOCI 543. Mutually Exclusive: Cannot register for SOCI 343 if student has credit for SOCI 543.

SOCI 344 - SOCIOLOGY OF MENTAL HEALTH
Short Title: SOCIOLOGY OF MENTAL HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates the meaning and significance of mental health, with heavy emphasis on the social construction of mental illness; positive psychology and psychological well-being; psychiatric epidemiology; stigma and labeling; and culture and social control. Social determinants of mental health are also discussed.

SOCI 345 - MEDICAL SOCIOLOGY
Short Title: MEDICAL SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the relationship between social factors and health, illness, and mortality, with a heavy emphasis on experiences of illness, the doctor-patient relationship, and the socialization of medical students and new doctors. Social determinants of health, cultural determinants of health, and the ethics surrounding conception, birth, and death will also be discussed.

SOCI 348 - ORGANIZATIONAL SOCIOLOGY
Short Title: ORGANIZATIONAL SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From congregations to corporations to colleges, organizations surround us. While the prominence of organizations in our daily lives is an indicator of their success, we know that organizations can be impersonal, unresponsive and even corrupt. This course will visit social scientists’ best attempts to figure out what makes organizations tick.

SOCI 349 - CRIME, LAW & JUSTICE IN POPULAR CULTURE
Short Title: CRIME LAW JUSTICE IN POP CULT
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will critically explore cultural imaginaries of deviance, crime, law and justice. How are these portrayed (historically and contemporarily) in popular culture, including television, film, social media outlets, newspapers and magazines, novels, and ‘art.’ Well also interrogate has these images and portrayals interact with perceptions, personhood (identity), and policy.

SOCI 350 - URBAN TRANSPORTATION
Short Title: URBAN TRANSPORTATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Moving people and goods within cities is the stuff of legendary challenge and the life blood of urban areas. In this course we study the transportation systems used in European and US cities, examine advantages and disadvantages of different systems, and consider whether major transformations in urban transportation are on the horizon.
SOCI 358 - CRIME, PUNISHMENT AND SOCIETY
Short Title: CRIME, PUNISHMENT AND SOCIETY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A multi-faceted exploration of crime. We explore how crime is socially defined, perceived and portrayed. Next we analyze empirical patterns and theories of crime. Lastly, we examine societal responses, focusing on policing and punishment. Material will encompass both classical/foundational and contemporary scholarship, and a mix of empirical and theoretical work.

SOCI 363 - AFRICAN AMERICAN-JEWISH RELATIONS: RACE, RELIGION, POLITICS, AND POPULAR CULTURE
Short Title: AFRICAN AMER-JEWISH RELATIONS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines African American-Jewish relations in the United States from colonial times to the present day. Through readings, music, images, and films, we will explore constructions of racial identity, arenas of religious and cultural interaction, and the politics and politics that have shaped African American-Jewish relations in urban neighborhoods.

SOCI 364 - MUSLIMS IN AMERICAN SOCIETY
Short Title: MUSLIMS IN AMERICAN SOCIETY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course unearths the history of Muslims in America from the 15th century to present-day. Students will have the opportunity to explore the experiences of African, Middle Eastern, European, South Asian, Hispanic, and black/white Muslims. In studying these communities, students will question what it means to be Muslim in America.

SOCI 365 - POLITICS OF REPRESENTATION: HOW WE UNDERSTAND "WAR" AND "THE RACIAL OTHER"
Short Title: POLITICS OF REPRESENTATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Does media show how things really are? This class explores the politics of representation, particularly in times of social mayhem, revolution, and war. Although we will focus primarily on cultural and political representations of the Israeli-Palestinian conflict, this class will also put this dispute in comparison with other global events. Cross-list: ANTH 365.

SOCI 366 - HOUSING AND SCHOOLS: THE SOCIAL LOCATIONS OF INEQUALITY
Short Title: HOUSING AND SCHOOLS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A persistent link between families' residential location and children's school enrollment in the U.S. plays a significant role in the perpetuation of social inequality. This course examines the factors that shape housing and school opportunities for families, and the policies and interventions attempting to change these opportunities.

SOCI 367 - ENVIRONMENTAL SOCIOLOGY
Short Title: ENVIRONMENTAL SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the foundations of environmental sociology and takes a social and historical approach to examine how humans affect the environment and the environment affects humans. Topics include: agricultural sustainability, resource extraction and climate changes; environmental racism/sexism; globalization and development; population, and consumption, and environmental movements. Cross-list: ENST 367.
SOCI 368 - SOCIOLOGY OF DISASTER
Short Title: SOCIOLOGY OF DISASTER
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will cover social dimensions of disasters stemming from natural and human hazards. Emphasis will focus on social, economic and political forces that put people unequally at risk as well as how vulnerable social groups experience and adjust to these risks and associated hazards.

SOCI 374 - SOCIAL PSYCHOLOGY OF PREJUDICE
Short Title: SOCIAL PSYCHOLOGY OF PREJUDICE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates the meaning, durability and significance of prejudice based upon social psychological literature addressing intergroup and interpersonal conflict and its resolution. Problems of relations between racial groups in contemporary society are also discussed.

SOCI 376 - ART AND ACTIVISM: CRITICAL STUDY OF HOPE IN TIMES OF CRISIS
Short Title: ART AND ACTIVISM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores art and social change in times of mass displacement, racial oppression, and war. It surveys the efforts involved in achieving justice and the possible implications of remaining historically mute and hopeless. The class will host contemporary activists and artists concerned with radical visions of hope in Houston. Cross-list: ANTH 376.

SOCI 377 - HEALTH DISPARITIES IN THE UNITED STATES
Short Title: HEALTH DISPARITIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will explore patterns and explanations surrounding health disparities in the United States based on key status characteristics (socioeconomic status, race/ethnic identity, nativity, gender, and sexual orientation). We will draw on interdisciplinary scholarship covering diverse fields (e.g., medical sociology, social demography, public health, public policy) and methodologies.

SOCI 380 - SOCIAL THEORY
Short Title: SOCIAL THEORY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course engages and analyzes the foundational texts of social theory from its classical roots to its contemporary branches. Students will explore theoretical approaches that inform current sociological research and during the course will examine social phenomena of particular interest to them from the perspective of two major theorists.

SOCI 381 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the methods sociologists use to study human societies and their members. Hypothesis formulation and research design; qualitative studies through observation and interviews; historical and comparative approaches; sample surveys and the statistical analysis of quantitative data, political and ethical issues in social research.

SOCI 382 - SOCIAL STATISTICS
Short Title: SOCIAL STATISTICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Emphasizes the practical uses of statistics to answer the types of questions sociologists ask. We learn sample description, sampling and probability, sampling theory, and how to make inferences from samples to populations. We study and apply common univariate, bivariate, and multivariate statistics. Because most statistical analysis is done with the aid of computers, we also learn how to use a common statistical package.
SOCI 389 - RACE, GENDER, CLASS IN FILM
Short Title: RACE, GENDER, CLASS IN FILM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the theories, tools, concepts, and major debates that are central to the sociology of religion. Specific attention is devoted to religious practices, communities, and identities as well as how the sociology of religion relates to other sub-fields within the broader discipline. Instructor Permission Required. Graduate/Undergraduate Equivalency: SOCI 501. Mutually Exclusive: Cannot register for SOCI 401 if student has credit for SOCI 501.

SOCI 402 - RACE AND FAMILY SEMINAR
Short Title: RACE AND FAMILY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores how race, gender, and class-based differences are presented in the body of American film. We will explore these images as raw materials to understand sociological concepts of identity, bias, and stratification as well as the cultural narratives, or frames, that guide how the public defines these concepts.

SOCI 396 - LAW AND RESISTANCE IN THE EVERYDAY
Short Title: LAW AND RESISTANCE IN THE EVERYDAY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore how people interact with the law in their everyday lives – in the U.S. and elsewhere. Examples will include how individuals experience and respond to policing, examining the effects of immigration and border security policies, and tracing how people and groups mobilize to challenges laws perceived as unjust. Cross-list: ANTH 396.

SOCI 401 - RELIGION SEMINAR
Short Title: RELIGION SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Beginning with the theoretical frameworks for ethnographic and other qualitative research methods, the course will cover ethics, entry, observation, field notes, interviewing, data analysis, and writing reports. It will offer a hands-on approach combining lectures, research through lectures, readings, and fieldwork. Field projects can be conducted in group, classroom, campus, or community settings. Graduate/Undergraduate Equivalency: SOCI 501. Mutually Exclusive: Cannot register for SOCI 401 if student has credit for SOCI 501.
SOCI 406 - BASIC DEMOGRAPHIC TECHNIQUES  
**Short Title:** BASIC DEMOGRAPHIC TECHNIQUES  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The course provides a survey of basic demographic methods for assessing population change, fertility, mortality, and (im)migration and characteristics such as age, gender, race/ethnicity, household/family composition, marital status, economic, employment, and educational. Emphasis placed on the use of the methods in a variety of demographic and other settings. Mutually Exclusive: Cannot register for SOCI 406 if student has credit for SOCI 506.

SOCI 407 - GENDER SEMINAR  
**Short Title:** GENDER SEMINAR  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An overview of the construction and reproduction of gender as a social category. Course will compare various conceptualizations of gender and discuss structural-, interactional-, and individual-level processes that reproduce gender inequality. Will also explore interactions of gender with other axes of social difference, such as sexuality/race/ethnicity and social class. Instructor Permission Required. Graduate/Undergraduate Equivalency: SOCI 607. Mutually Exclusive: Cannot register for SOCI 407 if student has credit for SOCI 607.

SOCI 408 - ETHNOGRAPHIC RESEARCH II  
**Short Title:** ETHNOGRAPHIC RESEARCH II  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** SOCI 405  
**Description:** Continuation of theoretical frameworks for ethnographic and other qualitative research methods including ethics, entry, observation, field notes, interviewing, data analysis and writing reports. Field projects can be conducted in group, classroom, campus or community settings. Instructor Permission Required.

SOCI 409 - SOCIAL STRATIFICATION  
**Short Title:** SOCIAL STRATIFICATION  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course examines how scarce resources unequally distributed among individuals, groups, and societies. Social stratification is a key concept in sociology that examines income and wealth inequality, occupational and class hierarchies, inequality of educational opportunity, poverty, and the consequences of inequality. Examples will drawn from US and international cases. Graduate/Undergraduate Equivalency: SOCI 509. Mutually Exclusive: Cannot register for SOCI 409 if student has credit for SOCI 509.

SOCI 412 - PERSPECTIVES ON RELIGIOUS TOLERANCE IN AN INTOLERANT AGE  
**Short Title:** UG SEMINAR RELIGIOUS TOLERANCE  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** How do we understand religious pluralism in the midst of religious traditions that seem inherently at odds? Is religion more likely to bring peace or conflict? Through readings from the humanities and the social sciences and short lectures, this weekly undergraduate seminar will address these issues and more. Graduate/Undergraduate Equivalency: SOCI 512. Mutually Exclusive: Cannot register for SOCI 412 if student has credit for SOCI 512.

SOCI 415 - THE ENVIRONMENTAL MOVEMENT  
**Short Title:** THE ENVIRONMENTAL MOVEMENT  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Examines the environmental movement in the U.S. and globally. After a historical overview, we will use a social movement perspective to examine mobilization, organizations and tactics, ideologies and identities, as well as exploring aspects of contemporary environmentalism (e.g. green building and slow flood, wildlife management/biodiversity, sustainable development, environmental justice). Cross-list: ENST 415.
SOCI 416 - SOCIAL MOVEMENTS SEMINAR
Short Title: SOCIAL MOVEMENTS SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores advanced topics in sociology of social movements. Drawing on cases in the US and beyond, we discuss theories and empirical studies of social movements. Students will work on a research project and they will present and write a final paper based on their research. Graduate/Undergraduate Equivalency: SOCI 516.

SOCI 421 - RESEARCH-PRACTICE PARTNERSHIPS
Short Title: RESEARCH-PRACTICE PARTNERSHIPS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides a foundational understanding of research-practice partnerships (RPPs) in education, an emerging way for education researchers and practitioners to work together on pressing problems of practice. Topics include launching an RPP, theories of action, supporting research use, communications, sustainability, and measuring RPP effectiveness. Mutually Exclusive: Cannot register for SOCI 421 if student has credit for SOCI 521.

SOCI 422 - SOCIAL AUTOPSIES: HOW SOCIETY KILLS US
Short Title: SOCIAL AUTOPSIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores mortality, and how long we live, as a social process. Though we often reflect on the biological, physiological, and genetic conditions that play parts in the length of our lives, we will explore evidence suggesting that social conditions shape mortality prospects for all of us. Graduate/Undergraduate Equivalency: SOCI 522. Mutually Exclusive: Cannot register for SOCI 422 if student has credit for SOCI 522.

SOCI 423 - SOCILOGY OF FOOD
Short Title: SOCILOGY OF FOOD
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the production, distribution, and consumption of food as a medium to understand the relations between large social processes and the practices of everyday life. Topics include: food policy; commodification of food; food security and hunger; food, health and the body; cultural food practices; and alternative food systems. Graduate/Undergraduate Equivalency: SOCI 523. Mutually Exclusive: Cannot register for SOCI 423 if student has credit for SOCI 523.

SOCI 424 - RACE AND ETHNICITY SEMINAR
Short Title: RACE AND ETHNICITY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the sociological study of race and ethnic relations; identifying the major contributions made to the sociological study of race and the ethnicity; and the major areas in need of new thinking and research. Focus on theoretical formulations, historical understandings, and causes and consequences of race and technical relations globally. Graduate/Undergraduate Equivalency: SOCI 524. Mutually Exclusive: Cannot register for SOCI 424 if student has credit for SOCI 524.

SOCI 425 - POPULATION HEALTH SEMINAR
Short Title: POPULATION HEALTH SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course is a graduate level overview of population health, including the social determinates of morbidity and mortality, fertility and birth outcomes, health disparities, and contextual determinants of health. Course will cover major theoretical perspectives in the field, including fundamental cause theory, life course theory, and theories of stress and resilience. Graduate/Undergraduate Equivalency: SOCI 525. Mutually Exclusive: Cannot register for SOCI 425 if student has credit for SOCI 525.
SOCI 426 - CONTEMPORARY THEORY
Short Title: CONTEMPORARY THEORY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course builds foundational understanding of the diverse theoretical traditions of the last half-century that underlie much of the work currently being undertaken in sociology. Theories include: symbolic interactionism, critical theory, structuralism, power and social control, neo-institutionalism, feminist theory, and cultural theory. Evaluation based on papers, memos and seminar participation.

Graduate/Undergraduate Equivalency: SOCI 526. Mutually Exclusive: Cannot register for SOCI 426 if student has credit for SOCI 526.

SOCI 436 - RESEARCH SEMINAR: THE HOUSTON AREA SURVEY
Short Title: HOUSTON AREA SURVEY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of the series of annual surveys on how Houston residents are reacting to the ongoing economic and demographic changes. Includes sampling procedures, questionnaire construction, interviewing, data analysis, and the logic and skills of survey research. Culminates in a research report that develops empirical hypotheses and tests their validity with the survey findings. Graduate/Undergraduate Equivalency: SOCI 536. Recommended Prerequisite(s): SOCI 381 & SOCI 382. Mutually Exclusive: Cannot register for SOCI 436 if student has credit for SOCI 536.

SOCI 437 - SOCIOLOGY OF EDUCATION
Short Title: SOCIOLOGY OF EDUCATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analyzing educational inequality in the U.S. using concepts of educational equality and inequality and analysis of the factors that shape schooling outcomes. Addressing the role of students, families, neighborhoods, schools, school organizations and teachers. Special topics: education of immigrants, school segregation, accountability, higher education and the future of educational inequality. Graduate/Undergraduate Equivalency: SOCI 537. Mutually Exclusive: Cannot register for SOCI 437 if student has credit for SOCI 337/SOCI 537.

SOCI 438 - FAMILY SEMINAR
Short Title: FAMILY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will cover the history of the family and key theoretical and empirical debates about family formation, stability, and dissolution. Ultimately, we will seek to answer the question: is the American family in decline? Instructor Permission Required. Graduate/Undergraduate Equivalency: SOCI 538. Mutually Exclusive: Cannot register for SOCI 438 if student has credit for SOCI 538.

SOCI 451 - IMMIGRATION IN A GLOBAL WORLD
Short Title: IMMIGRATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course compare 20th century immigration to the US (and other countries) with more recent migratory flows. Topics will be related to the transnational identities of immigrants, ethnic discrimination, and the impact of immigrants on civic and religious institutions. A central part of the course is a semester-long research project. Graduate/Undergraduate Equivalency: SOCI 551. Mutually Exclusive: Cannot register for SOCI 451 if student has credit for SOCI 551.

SOCI 453 - RACE, MIGRATION, AND HEALTH SEMINAR
Short Title: RACE, MIGRATION, AND HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this class we will examine the relationship between racial identity, nativity, and health status. Through readings and class discussion we will examine how racial identity and generational status shape health-related resources, stressors, behaviors, and supports. We will also consider how these factors relate to health care access and use. Graduate/Undergraduate Equivalency: SOCI 553. Mutually Exclusive: Cannot register for SOCI 453 if student has credit for SOCI 553.
SOCI 459 - RELIGION AND PUBLIC LIFE
Short Title: RELIGION AND PUBLIC LIFE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will use the tools of social science to understand how religion shows up in public life, both in the US and around the globe. Topics include: epistemology and methodology of public religion; how religion shapes views on politics, gender, families, science, race, immigration, education, the workplace; the challenges of religious diversity and crossing sociopolitical divides. Graduate/Undergraduate Equivalency: SOCI 559. Mutually Exclusive: Cannot register for SOCI 459 if student has credit for SOCI 559.

SOCI 460 - SPATIAL ANALYSIS IN THE SOCIAL SCIENCES
Short Title: SPATIAL ANALYSIS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the core concepts and tools for analyzing spatial data. Students will gain hands-on experience creating spatial data (including georeferencing, geocoding, and merging data sources), producing and interpreting maps, and describing and analyzing spatial patterns and relationships. Drawing on examples in housing, health, education, public policy, and urban studies, students will learn how to apply spatial concepts and methods to study the geographic distribution of social phenomena, the spatial organization of communities, and the relationship between society and the environment. Graduate/Undergraduate Equivalency: SOCI 560. Recommended Prerequisite(s): The course uses R software for spatial data management and analysis. Students should have introductory-level knowledge of R and basic statistics prior to taking the course. Students can make use of online resources (e.g., https://www.datacamp.com/) to gain experience prior to the start of the course. Mutually Exclusive: Cannot register for SOCI 460 if student has credit for SOCI 560.

SOCI 465 - GENDER AND HEALTH
Short Title: GENDER AND HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the relationship between gender and health (longevity, physical illness and functioning, mental health, and health behavior). Specific topics include masculinity, disease expression, medical research, health care use, stress and social relationships, and intersectionality (race/ethnicity and sexuality) as they relate shaping health outcomes among men and women. Cross-list: SWGS 465. Graduate/Undergraduate Equivalency: SOCI 665. Mutually Exclusive: Cannot register for SOCI 465 if student has credit for SOCI 665.

SOCI 469 - COMMUNITY BRIDGES TRAINING
Short Title: COMMUNITY BRIDGES TRAINING
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is the precursor for the spring course, SOCI 470, Inequality and Urban Life. Only students accepted into the Community Bridges Program may enroll in this course, where we do preparatory readings, trainings and workshops for the spring community internships. Instructor Permission Required.

SOCI 470 - INEQUALITY AND URBAN LIFE
Short Title: INEQUALITY AND URBAN LIFE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines classroom study with seven hours of fieldwork per week, working on projects with a local organization. We study how urban areas generate wealth and poverty, the experience of inequality, and issues of community development. Enrollment is by permission only. Instructor Permission Required.

SOCI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SOCI 483 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This graduate course introduces students to multivariate regression methods. It assumes previous coursework in elementary statistics and the use of STATA. We will cover regression analysis for continuous dependent variables and move in to intermediate and some advanced analysis for categorical dependent variables, commonly referred to as generalized linear models.
SOCI 485 - IDENTITIES IN A DIVERSE WORLD
Short Title: RACIAL IDENTITIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How have shifts in ethnic and race diversity affected the way we answer the question, "who am I?" "Identities in a Diverse World" is a seminar dedicated to answering this core question by exploring the new frontiers of understanding race and ethnicity. Topics include: Racial Passing, Transracial adoption, Whiteness, and Immigration. Graduate/Undergraduate Equivalency: SOCI 585. Mutually Exclusive: Cannot register for SOCI 485 if student has credit for SOCI 585.

SOCI 492 - DIRECTED HONORS RESEARCH
Short Title: DIRECTED HONORS RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Sociological research under faculty supervision. Includes first-semester review of relevant literature and the preparation of an outline for planned research, followed by second-semester research and the writing of an honors thesis. Open only to students in sociology honors program. Instructor Permission Required.

SOCI 493 - DIRECTED HONORS RESEARCH
Short Title: DIRECTED HONORS RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Sociological research under faculty supervision. Includes first-semester review of relevant literature and preparation of outline for planned research, followed by second-semester research and the writing of an honors thesis. Open only to students in sociology honors program. Instructor Permission Required.

SOCI 500 - SUMMER RESEARCH
Short Title: SUMMER RESEARCH
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sociological research for graduate students in sociology. Repeatable for Credit.

SOCI 501 - GRADUATE RELIGION SEMINAR
Short Title: GRADUATE RELIGION SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A graduate level course that explores the theories, tools, concepts, and major debates that are central to the sociology of religion. Specific attention is devoted to religions practices, communities, and identities as well as how the sociology of religion relates to other sub-fields with the broader discipline. Graduate/Undergraduate Equivalency: SOCI 401. Mutually Exclusive: Cannot register for SOCI 501 if student has credit for SOCI 401.

SOCI 502 - RACE AND FAMILY SEMINAR
Short Title: RACE AND FAMILY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What features of family life are marked by race? This course examines the question and gauges whether differences are a matter of culture or do they reflect issues of structure (or access to opportunities) and what are the implications for race/ethnic inequality? Topics include racial socialization and ethnic identity. Graduate/Undergraduate Equivalency: SOCI 402. Mutually Exclusive: Cannot register for SOCI 502 if student has credit for SOCI 402.

SOCI 503 - TEACHING SOCIOLOGY
Short Title: TEACHING SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine different approaches to teaching sociology at the university level, including core curriculum, a syllabus, and different forms of presenting material and evaluating students at the undergraduate and graduate levels. Sociology department faculty will discuss their particular approaches to teaching sociology.
This seminar focuses on the ways in which religion is impacted by society, how society is shaped by religion, and the functions, uses, and meanings of religion in the modern world. We rely on the sociological perspective for understanding religion. Field work required.

SOCI 511 - COMMUNITY AND URBAN SOCIOLOGY
Short Title: COMMUNITY & URBAN SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of urban development, form, and heterogeneity; and the conditions of life associated with living in cities, their growth and purposes globally and locally.

SOCI 512 - PERSPECTIVES ON RELIGIOUS TOLERANCE IN AN INTOLERANT AGE
Short Title: GR SEMINAR RELIGIOUS TOLERANCE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How do we understand religious pluralism in the midst of religious traditions that seem inherently at odds? Is religion more likely to bring peace or conflict? Through readings from the humanities and the social sciences and short lectures, this weekly undergraduate seminar will address these issues and more. Graduate/Undergraduate Equivalency: SOCI 412. Mutually Exclusive: Cannot register for SOCI 512 if student has credit for SOCI 412.

SOCI 513 - DEMOGRAPHY
Short Title: DEMOGRAPHY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the dynamics of population change. Includes demographic data sources, components of population change, mortality patterns, family planning, the measurement of migration flows, and population-economic models. Graduate/Undergraduate Equivalency: SOCI 313. Mutually Exclusive: Cannot register for SOCI 513 if student has credit for SOCI 313.

SOCI 516 - SOCIAL MOVEMENTS SEMINAR
Short Title: SOCIAL MOVEMENTS SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores advanced topics in sociology of social movements. Drawing on cases in the US and beyond, we discuss theories and empirical studies of social movements. Students will work on a research project and they will present and write a final paper based on their research. Graduate/Undergraduate Equivalency: SOCI 416.
### SOCI 521 - RESEARCH-PRACTICE PARTNERSHIPS
- **Short Title:** RESEARCH-PRACTICE PARTNERSHIPS
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course provides a foundational understanding of research-practice partnerships (RPPs) in education, an emerging way for education researchers and practitioners to work together on pressing problems of practice. Topics include launching an RPP, theories of action, supporting research use, communications, sustainability, and measuring RPP effectiveness. Cross-list: SOPE 510. Mutually Exclusive: Cannot register for SOCI 521 if student has credit for SOCI 421.

### SOCI 522 - SOCIAL AUTOPSIES
- **Short Title:** SOCIAL AUTOPSIES
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course explores mortality, and how long we live, as a social process. Though we often reflect on the biological, physiological, and genetic conditions that play parts in the length of our lives, we will explore evidence suggesting that social conditions shape mortality prospects for all of us. Graduate/Undergraduate Equivalency: SOCI 422. Mutually Exclusive: Cannot register for SOCI 522 if student has credit for SOCI 422.

### SOCI 523 - SOCIOLOGY OF FOOD
- **Short Title:** SOCIOLOGY OF FOOD
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course examines the production, distribution, and consumption of food as a medium to understand the relations between large social processes and the practices of everyday life. Topics include: food policy; commodification of food; food security and hunger; food, health and the body; cultural food practices; and alternative food systems. Graduate/Undergraduate Equivalency: SOCI 423. Mutually Exclusive: Cannot register for SOCI 523 if student has credit for SOCI 423.

### SOCI 524 - RACE AND ETHNICITY SEMINAR
- **Short Title:** RACE AND ETHNICITY SEMINAR
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** Overview of the sociological study of race and ethnic relations; identifying the major contributions made to the sociological study of race and the ethnicity; and the major areas in need of new thinking and research. Focus on theoretical formulations, historical understandings, and causes and consequences of race and technical relations globally Graduate/Undergraduate Equivalency: SOCI 424. Mutually Exclusive: Cannot register for SOCI 524 if student has credit for SOCI 424.

### SOCI 525 - POPULATION HEALTH SEMINAR
- **Short Title:** POPULATION HEALTH SEMINAR
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** Course is a graduate level overview of population health, including the social determinates of morbidity and mortality, fertility and birth outcomes, health disparities, and contextual determinants of health. Course will cover major theoretical perspectives in the field, including fundamental cause theory, life course theory, and theories of stress and resilience. Graduate/Undergraduate Equivalency: SOCI 425. Mutually Exclusive: Cannot register for SOCI 525 if student has credit for SOCI 425.

### SOCI 526 - CONTEMPORARY THEORY
- **Short Title:** CONTEMPORARY THEORY
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course builds foundational understanding of the diverse theoretical traditions of the last half-century that underlie much of the work currently being undertaken in sociology. Topics include: symbolic interactionism, critical theory, structuralism, power and social control, neo-institutionalism, feminist theory, and cultural theory. Evaluation based on papers, memos and seminar participation. Graduate/Undergraduate Equivalency: SOCI 426. Mutually Exclusive: Cannot register for SOCI 526 if student has credit for SOCI 426.

### SOCI 528 - GIS FOR SOCIAL SCIENCE RESEARCH
- **Short Title:** GIS FOR SOCIAL SCIENCE RES
- **Department:** Sociology
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture/Laboratory
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** This course will focus on integrating spatial concepts into social science research using GIS software. Topics include: data acquisition, structure and management; principles of exploratory data analysis and cartographic visualization; and exploratory spatial data analysis (spatial auto correlation).
SOCI 534 - BLACK SOCIOLOGICAL THOUGHT
Short Title: BLACK SOCIOLOGICAL THOUGHT
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a graduate level survey seminar on black sociological thought. It will familiarize enrolled students with classic and contemporary work addressing the meaning and consequence of racism with particular emphasis on the black experience in the United States.

SOCI 536 - RESEARCH SEMINAR: THE HOUSTON AREA SURVEY
Short Title: HOUSTON AREA SURVEY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of the series of annual surveys on how Houston residents are reacting to the ongoing economic and demographic changes. Includes sampling procedures, questionnaire construction, interviewing, data analysis, and the logic and skills of survey research. Culminates in a research report that develops empirical hypotheses and tests their validity with the survey findings. Graduate/Undergraduate Equivalency: SOCI 436. Mutually Exclusive: Cannot register for SOCI 536 if student has credit for SOCI 436.

SOCI 537 - SOCIOLOGY OF EDUCATION
Short Title: SOCIOLOGY OF EDUCATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analyzing educational inequality in the U.S. using concepts of educational equality and inequality and analysis of the factors that shape schooling outcomes. Addressing the role of students, families, neighborhoods, schools, school organizations and teachers. Special topics: education of immigrants, school segregation, accountability, higher education and the future of educational inequality. Graduate/Undergraduate Equivalency: SOCI 437. Mutually Exclusive: Cannot register for SOCI 537 if student has credit for SOCI 537/SOCI 437.

SOCI 541 - QUALITATIVE RESEARCH METHODS
Short Title: QUALITATIVE RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines qualitative methodological approaches for conducting social science research. Particularly, students will examine how qualitative methods allow social scientists to analyze the symbolic, religious, gendered, socio-economic, policies and historical forces and contexts that underlie and motivate beliefs, ideologies, practices and social change. Graduate/Undergraduate Equivalency: SOCI 341. Mutually Exclusive: Cannot register for SOCI 541 if student has credit for SOCI 541.

SOCI 543 - RACE, SOCIETY & POPULATION CHG
Short Title: RACE, SOCIETY & POPULATION CHG
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The U.S. population is more diverse than ever before - how did that happen? This course looks at how race and ethnicity patterns demographic processes. This course explores demographic techniques and collection of racial data. Topics include: Roots of racial diversity, collecting racial data, immigration and population growth, and population policies. Graduate/Undergraduate Equivalency: SOCI 343. Mutually Exclusive: Cannot register for SOCI 543 if student has credit for SOCI 543.

SOCI 544 - RACE AND RACISM
Short Title: RACE AND RACISM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a graduate level survey seminar on race and racism. It will familiarize enrolled students with diverse literature addressing the interpersonal and intergroup meaning and consequence of race and racism with particular emphasis on the United States.
**SOCI 551 - IMMIGRATION IN A GLOBAL AGE**
*Short Title:* IMMIGRATION  
*Department:* Sociology  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credt Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* This course compare 20th century immigration to the US (and other countries) with more recent migratory flows. Topics will be related to the transnational identities of immigrants, ethnic discrimination, and the impact of immigrants on civic and religious institutions. A central part of the course is a semester-long research project. Graduate/Undergraduate Equivalency: SOCI 451. Mutually Exclusive: Cannot register for SOCI 551 if student has credit for SOCI 451.

**SOCI 553 - RACE, MIGRATION, AND HEALTH SEMINAR**
*Short Title:* RACE, MIGRATION, AND HEALTH  
*Department:* Sociology  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credt Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* In this class we will examine the relationship between racial identity, nativity, and health status. Through readings and class discussion we will examine how racial identity and generational status shape health-related resources, stressors, behaviors, and supports. We will also consider how these factors relate to health care access and use. Graduate/Undergraduate Equivalency: SOCI 453. Mutually Exclusive: Cannot register for SOCI 553 if student has credit for SOCI 453.

**SOCI 559 - RELIGION AND PUBLIC LIFE**
*Short Title:* RELIGION AND PUBLIC LIFE  
*Department:* Sociology  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credt Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* This course will use the tools of social science to understand how religion shows up in public life, both in the US and around the globe. Topics include: epistemology and methodology of public religion; how religion shapes views on politics, gender, families, science, race, immigration, education, the workplace; the challenges of religious diversity and crossing sociopolitical divides. Graduate/Undergraduate Equivalency: SOCI 459. Mutually Exclusive: Cannot register for SOCI 559 if student has credit for SOCI 459.

**SOCI 560 - SPATIAL ANALYSIS IN THE SOCIAL SCIENCES**
*Short Title:* SPATIAL ANALYSIS  
*Department:* Sociology  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credt Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* Introduction to the core concepts and tools for analyzing spatial data. Students will gain hands-on experience creating spatial data (including georeferencing, geocoding, and merging data sources), producing and interpreting maps, and describing and analyzing spatial patterns and relationships. Drawing on examples in housing, health, education, public policy, and urban studies, students will learn how to apply spatial concepts and methods to study the geographic distribution of social phenomena, the spatial organization of communities, and the relationship between society and the environment. Graduate/Undergraduate Equivalency: SOCI 460. Recommended Prerequisite(s): The course uses R software for spatial data management and analysis. Students should have introductory-level knowledge of R and basic statistics prior to taking the course. Students can make use of online resources (e.g., https://www.datacamp.com/) to gain experience prior to the start of the course. Mutually Exclusive: Cannot register for SOCI 560 if student has credit for SOCI 460.

**SOCI 580 - CLASSICAL THEORY**
*Short Title:* CLASSICAL THEORY  
*Department:* Sociology  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credt Hours:* 3  
*Restrictions:* Enrollment is limited to students with a major in Sociology.  
*Course Level:* Graduate  
*Description:* This course engages and analyzes the foundational texts of social theory from its classical roots to its contemporary branches. Students will explore theoretical approaches that inform current sociological research and during the course will examine social phenomena of particular interest to them from the perspective of two major theorists.

**SOCI 581 - QUANTITATIVE RESEARCH METHODS**
*Short Title:* QUANTITATIVE RESEARCH METHODS  
*Department:* Sociology  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credt Hours:* 3  
*Restrictions:* Enrollment is limited to students with a major in Sociology.  
*Course Level:* Graduate  
*Description:* Designed as a graduate level overview of quantitative research methods, with a focus on survey construction and design. The class moves through the steps of the research design process, and discusses mixed-methods and meta-analysis research. Class also includes a strong focus on writing, critique, peer review, and the publishing process.
SOCI 582 - QUANTITATIVE DATA ANALYSIS I  
Short Title: QUANTITATIVE DATA ANALYSIS I  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Description: An introduction to statistics and data analysis for graduate students in sociology. Topics include descriptive statistics, visual representation of data, univariate and bivariate tests, as well as an introduction to multiple regression. Techniques for visualizing data will be discussed throughout. Familiarity with the statistical package Stata is assumed. Instructor Permission Required. 

SOCI 583 - QUANTITATIVE DATA ANALYSIS II  
Short Title: QUANTITATIVE DATA ANALYSIS II  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Description: This course introduces students to multiple regression methods - a set of models that relate an outcome (also referred to as response or dependent) variable to a set of explanatory or independent variables. Students should have a previous coursework on descriptive statistics, bivariate regression, as well as familiarity with Stata. 

SOCI 584 - QUANTITATIVE ANALYSIS III  
Short Title: QUANTITATIVE ANALYSIS III  
Department: Sociology  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Lecture/Laboratory  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Prerequisite(s): SOCI 582 and SOCI 583  
Description: The course will give an overview of several advanced statistical techniques commonly used in Sociology. 

SOCI 585 - IDENTITIES IN A DIVERSE WORLD  
Short Title: RACIAL IDENTITIES  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Description: How have shifts in ethnic and race diversity affected the way we answer the question, "who am I?" "identities in a Diverse World" is a seminar dedicated to answering this core question by exploring the new frontiers of understanding race and ethnicity. Topics include: Racial Passing, Transracial adoption, Whiteness, and Immigration. Graduate/ Undergraduate Equivalency: SOCI 485. Mutually Exclusive: Cannot register for SOCI 585 if student has credit for SOCI 485. 

SOCI 586 - MULTILEVEL MODELING  
Short Title: MULTILEVEL MODELING  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Prerequisite(s): SOCI 582 and SOCI 583  
Description: This course is an introduction to multilevel modeling methods for data with complex clustering. The major topics include two-level models for continuous, categorical, and count outcomes, three-level models, multilevel models of change and models for imperfectly nested data. Instructor Permission Required. 

SOCI 587 - LONGITUDINAL DATA ANALYSIS  
Short Title: LONGITUDINAL DATA ANALYSIS  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Prerequisite(s): SOCI 582 and SOCI 583  
Description: This course introduces students to the nature of longitudinal data and illustrate the applicability of techniques for the analysis using such data. The subject matter consists of regression models for data collected on the same subjects over time, as well as methods of analyzing event histories. 

SOCI 596 - STATISTICAL PROGRAMMING  
Short Title: STATISTICAL PROGRAMMING  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students. 
Course Level: Graduate  
Description: This course will provide a thorough introduction to the statistical software package Stata. The emphasis will be on important skills for quantitative research that are not typically covered in statistics classes. Topics will include: data management, creating graphs, presentation of results, workflow, and documenting one's work.
SOCI 600 - GRADUATE INDEPENDENT STUDY
Short Title: GRADUATE INDEPENDENT STUDY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: SECTION ONE: This course focuses on the sociology of global cities, especially on their comparative study. It examines their rise and development as central nodes in the world system, the means to their centrality and the threats to maintaining their status. A required end product of the course will be a publishable research paper using a comparative analysis of global cities. SECTION TWO: This course explores the relationship between social factors and health, illness, and mortality, with a heavy emphasis on equative experiences of illness, the doctor-patient relationship, and the socialization of medical students and new doctors. SECTION THREE: This course examines the causes and consequences of societal stratification in different institutional spheres. Students will be expected to examine key theoretical perspectives as well as understand and critique different methodological approaches to the study of social stratification. SECTION FOUR: Designed to familiarize students with the historical and contemporary theoretical explanations of the formation of, identification with, and implications of racial and ethnic categories in the United States and globally. Additionally, this course will cover empirical studies that investigate the perpetuation of racial and ethnic inequality in comparative, international perspective. SECTION FIVE: This course focuses on the mechanisms that lead to and/or perpetuate marginalization of social groups (e.g. racial, socioeconomic, religious, etc...) in urban areas. In particular, this course examines policies (i.e. public housing, cash welfare, corporation tax breaks, zoning laws) that increase or decrease the generational marginalization of groups. SECTION SIX: This course will delve extensively into criminology. The course will cover four broad areas: 1) how crime is imagined and portrayed, 2) empirical patterns of crime, 3) theories of crime causation and victimization, and 4) societal responses to crime, encompassing studies of social control, policing, the legal system, and punishment. Instructor Permission Required. Repeatable for Credit.

SOCI 601 - CLASSICAL THEORY II
Short Title: CLASSICAL THEORY II
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The student will go beyond the basic graduate level theory course, doing advanced readings in theories, related to a substantive area in which the student concentrates.

SOCI 602 - QUANTITATIVE METHODS
Short Title: QUANTITATIVE METHODS
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The student will do advanced work in an area of statistical interest with a faculty member who specializes in the techniques.

SOCI 603 - DIRECTED READING IN URBAN SOCIOLOGY
Short Title: URBAN SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading course covers foundational readings in the area of urban sociology.

SOCI 604 - MAXIMUM LIKELIHOOD ESTIMATION FOR GENERALIZED LINEAR MODELS
Short Title: GENERALIZED LINEAR MODELS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores useful statistical models beyond standard linear regression. Topics covered are logit and probit models for both binary and ordinal dependent variables, even count models, models for heteroskedastic regressions, and more. Maximum likelihood unifies these models by providing a single, coherent approach to estimation and about how data are generated.

SOCI 605 - NON-THESIS GRADUATE RESEARCH
Short Title: NON-THESIS GRADUATE RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research not for thesis credit. Repeatable for Credit.

SOCI 606 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis Research Repeatable for Credit.
SOCI 607 - GENDER SEMINAR
Short Title: GENDER SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of the construction and reproduction of gender as a social category. Course will compare various conceptualizations of gender and discuss structural, interactional-, and individual-level processes that reproduce gender inequality. Will also explore interactions of gender with other axes of social difference, such as sexuality, race/ethnicity and social class. Graduate/Undergraduate Equivalency: SOCI 407. Mutually Exclusive: Cannot register for SOCI 607 if student has credit for SOCI 407/SOCI 504.

SOCI 608 - GRADUATE RESEARCH DESIGN
Short Title: GRADUATE RESEARCH DESIGN
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This required graduate seminar in sociological research design focuses on the logic of inquiry within the discipline, including practices of advanced empirical and theoretical contribution. Topics will span state-of-the-art analyses and their exemplars. Department Permission Required.

SOCI 609 - GRADUATE INDEPENDENT STUDY
Short Title: GRADUATE INDEPENDENT STUDY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sociological independent study under faculty supervision. Only open to graduate students. Repeatable for Credit.

SOCI 610 - PROFESSIONALIZATION WORKSHOP
Short Title: PROFESSIONALIZATION WORKSHOP
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This professionalization workshop is designed to introduce graduate students to professionalization topics such as: giving a conference presentation, writing a fellowship or grant proposal, and the reviewing process of journals. Repeatable for Credit.

SOCI 611 - CRAFTING A DISSERTATION
Short Title: CRAFTING A DISSERTATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will enable students to receive instructor and peer feedback on dissertation proposals and dissertation chapters. Topics covered will include how to write a dissertation, start to finish. Students must have successfully completed at least one comp exam by August 31st to be eligible.

SOCI 620 - QUANTITATIVE METHODS FOR CAUSAL INFERENCE
Short Title: CAUSAL INFERENCE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): SOCI 582 and SOCI 583
Description: This course will introduce sociology graduate students to causal inference and common threats to causal identification. We will cover a variety of quantitative methods intended to strengthen causal identification, including fixed effects, propensity score matching, and instrumental variables, among others. Department Permission Required.

SOCI 665 - GENDER AND HEALTH
Short Title: GENDER AND HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the relationship between gender and health (longevity, physical illness and functioning, mental health, and health behavior). Specific topics include masculinity, disease expression, medical research, health care use, stress and social relationships, and intersectionality (race/ethnicity and sexuality) as they relate shaping health outcomes among men and women. There are additional requirements for Graduate students. Graduate/Undergraduate Equivalency: SOCI 465. Mutually Exclusive: Cannot register for SOCI 665 if student has credit for SOCI 465.

SOCI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
SOCI 700 - DISSERTATION RESEARCH  
Short Title: DISSERTATION RESEARCH  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 1-15  
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Dissertation research credit. Repeatable for Credit.

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule  
• Course offerings/subject code: SOCI

Department Description and Code  
• Sociology: SOCI

Undergraduate Degree Description and Code  
• Bachelor of Arts degree: BA  

Undergraduate Major Description and Code  
• Major in Sociology: SOCI

Undergraduate Minor Description and Code  
• Minor in Sociology: SOCY

Graduate Degree Descriptions and Codes  
• Master of Arts degree: MA  
• Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code  
• Degree Program in Sociology: SOCI

CIP Code and Description  
• SOCI Major/Program: CIP Code/Title: 45.1101 - Sociology  
• SOCY Minor: CIP Code/Title: 45.1101 - Sociology

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Sociology

Program Learning Outcomes for the BA Degree with a Major in Sociology  
Upon completing the BA degree with a major in Sociology, students will be able to:

1. Understand the functions of theory and its use in the social sciences. Students will be familiar with key social theorists in the field. Students will understand key theoretical concepts and be comfortable using them beyond the classroom.

2. Gain richer understanding of the social world, including class, race, gender, ethnicity, education, family, occupation, deviancy, health, and global citizenship as well as how the human social world impacts its environment.

3. Apply sociological knowledge and training to understand theory and policy oriented around issues of human well-being in the US and globally, including how to understand the relationship between inequality and factors like race, class, gender, and education.

4. Apply methodological, theoretical, and research skills to carry out empirical research projects.

Requirements for the BA Degree with a Major in Sociology  
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Sociology must complete:

• A minimum of 11 courses (33-34 credit hours, depending on course selection) to satisfy major requirements.

• A minimum of 120 credit hours to satisfy degree requirements.

• A minimum of 10 courses (30-31 credit hours, depending on course selection) taken at the 300-level or above.

• A maximum of 5 courses (15 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1959) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<td>Total Credit Hours Required for the BA Degree with a Major in Sociology</td>
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Degree Requirements

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<tbody>
<tr>
<td>SOCI 101</td>
<td>INTRODUCTION TO SOCIOLOGY ¹</td>
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<tr>
<td>or SOCI 231</td>
<td>SOCIAL PROBLEMS</td>
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<tr>
<td>SOCI 380</td>
<td>SOCIAL THEORY</td>
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<td>SOCI 381</td>
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<td>SOCI 382</td>
<td>SOCIAL STATISTICS</td>
<td></td>
</tr>
<tr>
<td>SOSC 302</td>
<td>QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES</td>
<td></td>
</tr>
<tr>
<td>&amp; SOCI 102</td>
<td>and QUANTITATIVE ANALYSIS FOR SOCIAL SCIENCES: SOCIOLOGY LAB</td>
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Elective Requirements
Select 7 elective courses from departmental (SOCl) course offerings at the 300-level or above

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<td>Total Credit Hours</td>
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</table>

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Only one of these courses (SOCl 101 or SOCl 231) may fulfill major requirements. Neither course may be used to fulfill Elective Requirements.

Policies for the BA Degree with a Major in Sociology

Program Restrictions and Exclusions

Students pursuing the major in Sociology should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Sociology should be aware of the following departmental transfer credit guidelines:

- No more than 5 courses (15 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.
- Transfer credit coursework from online-only courses cannot be applied or used to meet any of the major’s course requirements.

Additional Information

For additional information, please see the Sociology website: https://sociology.rice.edu.

Opportunities for the BA Degree with a Major in Sociology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Departmental Honors Program

The Sociology Department Honors Program is designed to provide sociology majors with the opportunity to sharpen their research skills and deepen their understanding of the discipline through a 2-to-3 semester program of directed independent research and writing. The program also offers the opportunity for formal recognition, through Departmental Honors, of those undergraduates who have demonstrated unusual competence in sociology by successfully completing a sustained independent research project. Small grants for honors thesis research are generously supported by the Chandler and Ian Davidson Scholars Fund as well as the Walter Hall Scholars program.

Eligibility

To be eligible for the Departmental Honors Program, students must have:

- Taken at least 4 sociology courses beyond SOCl 101 Introduction to Sociology, including SOCl 381 Research Methods. If their project requires statistical analysis, students should also complete SOCl 382 Social Statistics (or SOSC 392 Quantitative Analysis for the Social Sciences) before beginning their research.
- An A- (3.67) GPA in all sociology courses taken.

Application Process

1. During the fall and early spring semester of their junior year, students are invited to consult with tenured and tenure-track members of the faculty about a potential thesis topic. All students must have at least 1 tenured or tenure-track faculty member in the sociology department as their thesis chair. The student must submit a written description of their proposed research project to the chosen faculty member for approval of their topic and review of their proposal, as well as secure agreement of the chosen faculty member(s) to serve as their thesis committee chair.

2. Once a thesis supervisor has been identified, the student must submit a written description of their proposed research project to the departmental undergraduate advisor. The proposal should be 2-3 pages in length, double-spaced, and is due by April 1st of their junior year. It should include a signed statement from the chosen faculty member agreeing to serve as their chair advisor.

3. The sociology faculty will vote on the merits of the proposed thesis project at their monthly faculty meeting in mid-April. If approved, the student may begin work on their thesis immediately, or at a start time agreed upon with their thesis supervisor (including summer semester, if desired).

Program

Students in the Honors Program register for 2 successive semesters in Directed Honors Research (SOCl 492 and SOCl 493). An honors thesis typically involves much discussion over both semesters between the student and their tenured or tenure-track advisor. Students should meet early in the process to agree on ground rules for the project, to choose
the other members of the thesis committee (made up of one additional faculty member, who serves as a reader and ad-hoc advisor), and to set up a schedule for discussions and submission of written work. It is the department’s experience that students who work alone without much consultation with faculty are less likely to succeed in their project than students who maintain close contact with their advisor and the department. Students are also encouraged to include other members of the committee in discussion of the thesis, especially as the project nears completion, so that their feedback can be incorporated before the final draft of the project is submitted.

Students normally begin by conducting a thorough review of the relevant literature, formulating hypotheses that grow out of the literature review, and proposing a research design that clearly describes how the data for the project are to be collected and analyzed. The research itself is usually carried out in the fall semester of the senior year (and sometimes in the summer following the junior year), and is analyzed, written up, and defended as a completed Honor’s Thesis during the spring semester of the senior year. (Students are encouraged to examine several previously written theses, which are available in the sociology department.)

In addition to the student’s primary advisor, the thesis is read and evaluated by the faculty members, sometimes from other departments, who make up the student’s thesis committee.

Program Timeline
• A first draft of the final thesis must be turned in to the committee members no later than February 1st of the student’s senior year.
• After receiving feedback on the project, the student will have until the last Monday in March to submit a final draft of the senior thesis to their committee.
• A short presentation (10-15 minutes) of the final thesis project must be given to the full sociology faculty by mid-April. Faculty will vote on whether to grant Departmental Honors to the student at the conclusion of their presentation.

Additional Information
For additional information, please see the Sociology website: https://sociology.rice.edu/.

Doctor of Philosophy (PhD) Degree in the field of Sociology

Program Learning Outcomes for the MA and PhD Degrees in the field of Sociology
Upon completing the MA and PhD degrees in the field of Sociology, students will be able to:

1. Understand and apply the role of theory in sociology.
2. Demonstrate understanding and application of both qualitative and quantitative sociological methods.
3. Demonstrate expertise in at least two specialty areas within sociology.

Requirements for the MA and PhD Degrees in the field of Sociology
For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60).

Students pursuing the MA and PhD degrees in the field of Sociology must complete:

• A minimum of 90 credit hours to satisfy degree requirements

The PhD program is a five-year degree program. The Sociology department does not admit students seeking only a master’s degree.

The MA degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students will normally obtain a master’s degree after two years of study and research as a student progresses toward the PhD, and will usually need an additional three years to complete the requirements for a PhD. The coursework is sequenced and will typically be completed in two and a half years. By this point, students will be required to have written their Master’s thesis and completed their Master’s degree. This leaves one semester to take the comprehensive exams and two years to complete the thesis. Each student will attend a Teaching and Professionalization Workshop approximately ten times during each semester for the first two years.

Summary

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<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Sociology</td>
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Degree Requirements

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<td>Core Requirements</td>
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<td></td>
<td><strong>SOCI 526</strong> CONTEMPORARY THEORY</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>SOCI 541</strong> QUALITATIVE RESEARCH METHODS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>SOCI 580</strong> CLASSICAL THEORY</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>SOCI 582</strong> QUANTITATIVE DATA ANALYSIS I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>SOCI 583</strong> QUANTITATIVE DATA ANALYSIS II</td>
<td>3</td>
</tr>
<tr>
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<td><strong>SOCI 596</strong> STATISTICAL PROGRAMMING</td>
<td>3</td>
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<td><strong>SOCI 605</strong> NON-THESIS GRADUATE RESEARCH</td>
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<td><strong>SOCI 606</strong> THESIS RESEARCH</td>
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<td><strong>SOCI 608</strong> GRADUATE RESEARCH DESIGN</td>
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<td><strong>SOCI 610</strong> PROFESSIONALIZATION WORKSHOP</td>
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<td><strong>SOCI 700</strong> DISSERTATION RESEARCH</td>
<td>1-15</td>
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<td></td>
<td><strong>UNIV 500</strong> PRINCIPLES OF EFFECTIVE COLLEGE TEACHING</td>
<td>3</td>
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<td>or <strong>UNIV 501</strong> RESEARCH ON TEACHING AND LEARNING</td>
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<td>Elective Requirements, Comprehensive Exams, and Thesis</td>
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<td><strong>Total Credit Hours</strong></td>
<td>90</td>
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Footnotes and Additional Information

1. It is recommended that the required coursework be taken in the sequence prescribed by the department of Sociology (see below). Note that semesters 5-10 will consist of Electives, Comprehensive Exams, and Thesis as determined by the department until degree completion.
**Proposed Plan-of-Study**

The following represents the current recommended sequence in which students pursuing the MA and PhD degrees in the field of Sociology complete the required coursework.

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<td>or SOCI 526</td>
<td>CONTEMPORARY THEORY</td>
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<td>QUANTITATIVE DATA ANALYSIS I</td>
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<td><strong>2nd Semester</strong></td>
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<td>SOCI 583</td>
<td>QUANTITATIVE DATA ANALYSIS II</td>
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<td>or SOCI 580</td>
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</tr>
<tr>
<td>Elective two</td>
<td>Elective two</td>
<td>3</td>
</tr>
<tr>
<td>Elective three</td>
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<td><strong>4th Semester</strong></td>
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<td>Elective four</td>
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**Policies for the PhD Degree in the field of Sociology**

**Department of Sociology Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Sociology publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Sociology_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Sociology_Graduate_Handbook.pdf)

**Admission**

Students are admitted on a competitive basis. Admitted students must have a Baccalaureate degree (BA or BS) or equivalent, a minimum 3.00 (B) GPA in undergraduate work, and the intent to complete a PhD in sociology. We consider GRE scores, undergraduate GPA, letters of recommendation, writing samples, a personal essay, and professional experience when making admission decisions for the PhD program. We strongly encourage applications from women and minority groups.

The Sociology department does not admit students seeking only a masters degree. The Master of Arts degree is earned as a student progresses toward the PhD. Students who currently hold a Master’s Degree are welcome to apply. However, PhD students must complete four semesters of residency and coursework at Rice University. At the department’s discretion, some credits may transfer from other graduate programs.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see [Transfer Credit](https://gradhandbooks.rice.edu/2021_22/Sociology_Graduate_Handbook.pdf) (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the PhD degree in the field of Sociology should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Sociology website: [https://sociology.rice.edu/](https://sociology.rice.edu/)

**Opportunities for the PhD Degree in the field of Sociology**

**Additional Information**

For additional information, please see the Sociology website: [https://sociology.rice.edu/](https://sociology.rice.edu/)

**Minor in Sociology**

Program Learning Outcomes for the Minor in Sociology

Upon completing the minor in Sociology, students will be able to:

1. Gain a richer understanding of the social world, including class, race, gender, ethnicity, education, family, occupation, deviancy, health and global citizenship as well as how the human social world impacts its environment.
2. Apply sociological knowledge and training to understand theory and policy oriented around issues of human well-being in the US and globally, including how to understand the relationship between inequality and factors like race, class, gender and education.
3. Gain an in-depth understanding of the role of theory OR research methods, depending on their preference. This means they will be able to apply sociological knowledge and training to understand theory and policy oriented around issues of human well-being in the US and globally, including how to understand the relationship between inequality and factors like race, class, gender and education. Alternatively, students will be able to apply methodological, theoretical, and research skills to carry out empirical research projects.

**Requirements for the Minor in Sociology**

Students pursuing the minor in Sociology must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
• A minimum of 5 courses (15 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1962) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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Minor Requirements

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<td>Core Requirements</td>
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<td></td>
<td>3 or 3 courses from departmental (SOCI) course offerings at the 300-level or above</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>1 course from departmental (SOCI) course offerings at the 400-level</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements

Footnotes and Additional Information

1 Only one of these courses (SOCI 101 or SOCI 231) may fulfill minor requirements. Neither course may be used to fulfill Elective Requirements.

Policies for the Minor in Sociology

Program Restrictions and Exclusions

Students pursuing the minor in Sociology should be aware of the following program restriction:

• As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the minor in Sociology should be aware of the following departmental transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.
• Transfer credit coursework from online-only courses cannot be applied or used to meet any of the minor’s course requirements.

Additional Information

For additional information, please see the Sociology website: https://sociology.rice.edu.

Opportunities for the Minor in Sociology

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Sociology website: https://sociology.rice.edu.

Space Studies

Contact Information

Space Studies
https://profms.rice.edu/
203 Keck Hall
713-348-3188

David Alexander
Faculty Director
dalex@rice.edu

Patrick Rodi
Faculty Advisor
pr15@rice.edu

Dagmar Beck
PSM Program Director
dkbeck@rice.edu

The professional master’s degree in Space Studies is a collaboration between the Wiess School of Natural Sciences and the George R. Brown School of Engineering, and is geared to help individuals increase their knowledge of space engineering and related science, program management, and policy. The program includes advanced engineering, biological, and physical science classes and introduces students to economics, public policy, and management disciplines, which impact space commercialization and national policy. It focuses on training engineers and scientists interested in program management, providing
them with the tools to face the complex challenges inherent in US space policy, human and robotic space exploration, science in space exploration, and technology development.

The MS in Space Studies (MSSpS) degree is part of the professional science master’s (PSM) program at Rice housed in the Wiess School of Natural Sciences. It focuses on training students in Space Engineering and Science with the intent of creating new opportunities for those students interested in working in the space technology industry or related government entities, e.g. NASA, as well as governmental relations positions in non-profit organizations, industry, and academic institutions. These master’s degrees are designed for students seeking to gain further technical core expertise coupled with enhanced management, communication, and leadership skills, instilling a level of scholastic proficiency that exceeds that of the bachelor’s level, and creating the cross-functional aptitudes needed in modern industry and government.

A coordinated MBA/MSSpS degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Space Studies does not currently offer an academic program at the undergraduate level.

**Master's Program**

- Master of Science in Space Studies (MSSpS) Degree (p. 1963)

**Coordinated Program**

- Master of Science in Space Studies (MSSpS) Degree / Master of Business Administration (MBA) Degree (p. 1966)

**Director**

David Alexander

**Advisor**

Patrick Rodi

**Professors**

Christopher M. Johns-Krull

Adrian Lenardic

Marcia K. O'Malley

Tayfun E. Tezduyar

Frank R. Toffoletto

**Associate Professor**

Stephen J. Bradshaw

**Research Professor**

Erzsébet Merényi

**Adjunct Professors**

Ramon Gonzalez

Hadley Wickham

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)

To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Description and Code Legend**

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

**Course Catalog/Schedule**

- Course offerings/subject codes: Courses from various subjects may apply toward the graduate degree.

**Department Description and Code**

- Physics and Astronomy: PHYS

**Graduate Degree Description and Code**

- Master of Science in Space Studies degree: MSSpS

**Graduate Degree Program Description and Code**

- Degree Program in Space Studies: SPST

**CIP Code and Description**

1. SPST Major/Program: CIP Code/Title: 14.0201 - Aerospace, Aeronautical and Astronautical/Space Engineering

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

**Master of Science in Space Studies (MSSpS) Degree**

**Program Learning Outcomes for the MSSpS Degree**

Upon completing the MSSpS Degree, students will be able to:

1. Achieve advanced science, engineering, and computational skills and a broad understanding of the methodologies applied in the space industry.
2. Gain real life experience in solving technical problems in a science and technology environment.
3. Develop business and communication skills to bridge the gap between science and business.

**Requirements for the MSSpS Degree**

The MSSpS degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MSSpS degree must complete:

- A minimum of 15 courses (minimum of 39 credit hours) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
• A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
• A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
• A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1965) tab.
• A 3-6 month internship. Instead of a thesis, at the conclusion of their internship, students must present their internship project in both oral and written form as part of the Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may request approval to fulfill the internship requirement by working on a specific, pre-approved project with their current employer.
• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

Note: Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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Degree Requirements

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<td>Core Requirements</td>
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<td></td>
<td>Core Technical Courses</td>
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<tr>
<td>ASTR 570</td>
<td>SOLAR SYSTEM PHYSICS</td>
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<tr>
<td>MECH 578</td>
<td>ORBITAL MECHANICS AND MISSION DESIGN</td>
<td>3</td>
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<tr>
<td>STAT 605</td>
<td>R FOR DATA SCIENCE</td>
<td>3</td>
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<tr>
<td></td>
<td>Core Science and Engineering Courses</td>
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<td>Select 2 courses (minimum of 6 hours) from the following:</td>
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<tr>
<td>ASTR 554</td>
<td>ASTROPHYSICS OF THE SUN</td>
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</tr>
<tr>
<td>BIOS 524</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td></td>
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<tr>
<td>CHBE 640</td>
<td>METABOLIC ENGINEERING</td>
<td></td>
</tr>
<tr>
<td>MECH 554 / BIOE 554 / CEVE 554</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td></td>
</tr>
<tr>
<td>MECH 592</td>
<td>DESIGN FOR AEROSPACE ENVIRONMENTS</td>
<td></td>
</tr>
<tr>
<td>PHYS 510</td>
<td>MAGNETOSEROPHIC PHYSICS</td>
<td></td>
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<tr>
<td>PHYS 517</td>
<td>COMPUTATIONAL PHYSICS</td>
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<tr>
<td></td>
<td>Core Statistics/Computation Courses</td>
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<table>
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<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Select 1 course (minimum of 3 credit hours) from the following:</td>
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<td>CAAM 550</td>
<td>NUMERICAL ANALYSIS I</td>
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<tr>
<td>CEVE 528 / ENGI 528</td>
<td>ENGINEERING ECONOMICS</td>
<td></td>
</tr>
<tr>
<td>DSCI 535</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
<td></td>
</tr>
<tr>
<td>EEPS 586</td>
<td>DATA SCIENCE METHODS AND DATA MANAGEMENT</td>
<td></td>
</tr>
<tr>
<td>EEPS 636</td>
<td>GIS FOR SCIENTISTS AND ENGINEERS</td>
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<tr>
<td>MECH 554 / BIOE 554 / CEVE 554</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
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<tr>
<td>PHYS 517</td>
<td>COMPUTATIONAL PHYSICS</td>
<td></td>
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<tr>
<td>STAT 502 / COMP 502 / ELEC 502</td>
<td>NEURAL MACHINE LEARNING I</td>
<td></td>
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<tr>
<td></td>
<td>Cohort Courses</td>
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<td>NSCI 501</td>
<td>PROFESSIONAL MASTER’S SEMINAR</td>
<td>1</td>
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<td>NSCI 502</td>
<td>SPACE STUDIES SEMINAR</td>
<td>1</td>
</tr>
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<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
<td>3</td>
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<td>NSCI 512</td>
<td>PROFESSIONAL MASTER’S PROJECT</td>
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<tr>
<td>NSCI 515</td>
<td>FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT</td>
<td>3</td>
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<tr>
<td>NSCI 610 / ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
<td>3</td>
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</tbody>
</table>

Three to Six Month Internship

A three to six month internship is required²

Elective Requirements

Select a minimum of 3 courses (minimum of 9 credit hours) from 1 of the following areas, depending on the student's individual interests and career goals:¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Engineering</td>
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<tr>
<td>CEVE 504</td>
<td>ATMOSPHERIC PARTICULATE MATTER</td>
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</tr>
<tr>
<td>CEVE 511</td>
<td>ATMOSPHERIC CHEMISTRY AND CLIMATE</td>
<td></td>
</tr>
<tr>
<td>CEVE 576 / MECH 576</td>
<td>STRUCTURAL DYNAMIC SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>COMP 598 / ELEC 598 / MECH 598</td>
<td>INTRODUCTION TO ROBOTICS</td>
<td></td>
</tr>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td></td>
</tr>
<tr>
<td>ENGI 614</td>
<td>LEARNING HOW TO INNOVATE?</td>
<td></td>
</tr>
<tr>
<td>MECH 554 / BIOE 554 / CEVE 554</td>
<td>COMPUTATIONAL FLUID MECHANICS</td>
<td></td>
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<tr>
<td>MECH 574</td>
<td>TURBULENCE</td>
<td></td>
</tr>
<tr>
<td>MECH 578</td>
<td>ORBITAL MECHANICS AND MISSION DESIGN</td>
<td></td>
</tr>
<tr>
<td>MECH 579</td>
<td>LAUNCH VEHICLE AND SPACECRAFT DESIGN</td>
<td></td>
</tr>
<tr>
<td>MECH 590</td>
<td>AEROSPACE PROPULSION</td>
<td></td>
</tr>
<tr>
<td>MECH 591</td>
<td>GAS DYNAMICS</td>
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<tr>
<td>MECH 592</td>
<td>DESIGN FOR AEROSPACE ENVIRONMENTS</td>
<td></td>
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<tr>
<td>MECH 594</td>
<td>INTRODUCTION TO AERONAUTICS</td>
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<tr>
<td>MECH 596</td>
<td>INTRODUCTION TO FLIGHT MECHANICS</td>
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</tr>
<tr>
<td>Course</td>
<td>Title</td>
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<tr>
<td>MECH 691</td>
<td>INTRODUCTION TO HYPERSONIC AERODYNAMICS</td>
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<td>Sciences</td>
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<td>ASTR 542</td>
<td>NEBULAR ASTROPHYSICS</td>
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<td>ASTR 554</td>
<td>ASTROPHYSICS OF THE SUN</td>
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<td>ASTR 555</td>
<td>PROTOSTARS AND PLANETS</td>
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<td>ASTR 565</td>
<td>COMPACT OBJECTS</td>
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<tr>
<td>BIOS 524</td>
<td>MICROBIOLOGY AND BIOTECHNOLOGY</td>
<td></td>
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<td>BIOS 543</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
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<tr>
<td>BIOS 570</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
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<td>EEPS 540</td>
<td>CRYOSPHERE</td>
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<td>EEPS 581</td>
<td>MODERN EXPLORATION TECHNOLOGY</td>
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<td>EEPS 667</td>
<td>GEOMECHANICS</td>
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<tr>
<td>EEPS 672</td>
<td>EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS</td>
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<tr>
<td>MGMT 633 /</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS</td>
<td></td>
</tr>
<tr>
<td>BIOE 633</td>
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<tr>
<td>PHYS 510</td>
<td>MAGNETOSPHERIC PHYSICS</td>
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<td>PHYS 541</td>
<td>RADIATIVE PROCESSES</td>
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<td>PHYS 580</td>
<td>INTRODUCTION TO PLASMA PHYSICS</td>
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<tr>
<td>Management and Entrepreneurship</td>
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</tr>
<tr>
<td>ENGI 515</td>
<td>LEADING TEAMS AND INNOVATION</td>
<td></td>
</tr>
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<td>ENGI 614</td>
<td>LEARNING HOW TO INNOVATE?</td>
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<tr>
<td>MGMT 601</td>
<td>FINANCIAL STATEMENT ANALYSIS</td>
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<tr>
<td>MGMT 618</td>
<td>BESTSELLERS: THE SCIENCE AND WISDOM</td>
<td></td>
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<tr>
<td>MGMT 629</td>
<td>BUSINESS PLAN DEVELOPMENT</td>
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<tr>
<td>MGMT 633 /</td>
<td>ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS</td>
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<tr>
<td>BIOE 633</td>
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<tr>
<td>MGMT 658</td>
<td>APPLIED RISK MANAGEMENT</td>
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<tr>
<td>MGMT 734</td>
<td>TECHNOLOGY ENTREPRENEURSHIP</td>
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<tr>
<td>Interdisciplinary Interest Electives</td>
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<tr>
<td>Select 3 courses (9 credit hours) from any of the Electives listed in the areas above</td>
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</tbody>
</table>

**Total Credit Hours** 39

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**Footnotes and Additional Information**

1. **Note:** Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program's academic advisor. Students should consult with their academic advisors before enrolling.

2. Practical experience is offered via a three to six month immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form for the cohort course Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer.

---

**Policies for the MSSSpS Degree**

**Professional Science Master's Graduate Program Handbook**

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Professional Science Master's Program publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf)

**Admission**

Admission to graduate study in Space Studies is open to qualified students holding a bachelor’s degree in a related science or engineering program that included course work in general physics, chemistry, calculus, linear algebra, and differential equations. Good scores from the general Graduate Record Examination (GRE), good critical thinking and communication skills, and strong quantitative abilities. Statistics, introductory economics, and computer skills preferred. Department faculty evaluate the previous academic record and credentials of each applicant individually and make admission decisions.

**Transfer Credit**

For Rice University's policy regarding transfer credit, see [Transfer Credit](p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Program Transfer Credit Guidelines**

Students pursuing the MSSSpS degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Space Studies website: [https://profms.rice.edu/](https://profms.rice.edu/)

**Opportunities for the MSSSpS Degree**

**Fifth-Year Master's Degree Option for Rice Undergraduate Students**

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

- must complete the requirements for a bachelor's degree and the master's degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science may have the option to pursue the Master of Science in Space Studies (MSSpS) degree. For additional information, students should contact their undergraduate major advisor, the faculty MSSpS program director, and the Professional Science Master’s (PSM) program director.

Additional Information
For additional information, please see the Space Studies website: https://profms.rice.edu/

Master of Science in Space Studies (MSSpS) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MSSpS Degree
Upon completing the MSSpS Degree, students will be able to:

1. Achieve advanced science, engineering, and computational skills and a broad understanding of the methodologies applied in the space technology environment.
2. Gain real-life experience solving technical problems in a science and technology environment.
3. Develop business and communication skills to bridge the gap between science and business.

Program Learning Outcomes for the MBA Degree
Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MSSpS/MBA Coordinated Degrees Program
Students may earn a coordinated MBA degree and a Master of Science degree from the Wiess School of Natural Sciences Professional Science Master’s (PSM) program in the following fields:

• Bioscience and Health Policy (MSBHP)
• Environmental Analysis (MSEA)

• Space Studies (MSSpS)
• Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) program, students must complete:

• A minimum of 75 credit hours in approved coursework, including:
  • A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master’s (PSM) degree requirements
  • A minimum of 30 credit hours in the corresponding science discipline
  • All PSM degree-specific requirements
  • A three to six month internship
  • A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  • All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Wiess School of Natural Sciences PSM program director and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master’s (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certificate (https://registrar.rice.edu/facstaff/degreeworks/officialcertifer/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the Coordinated Master of Science Degree</td>
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<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
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</table>

Coordinated MBA/MSSpS Degree Requirements
Students in the coordinated MBA/MSSpS degrees program must complete the Core Requirements and Three to Six Month Internship of the MSSpS degree program (p. 1963) and the Coordinated MSSpS Elective Requirements below.
Opportunities for the MSSpS/MBA Coordinated Degrees Program

Additional Information

For additional information on these two degrees:

1. Please see the Space Studies website: https://profms.rice.edu/
2. Please see the Jones Graduate School of Business website: https://business.rice.edu/

Spanish and Portuguese

Contact Information

Modern and Classical Literatures and Cultures
https://cultures.rice.edu
207 Rayzor Hall
713-348-4868

Christian J. Emden
Department Chair
dlenden@rice.edu

The Department of Modern and Classical Literatures and Cultures (MCLC) houses the Spanish and Portuguese program which focuses on the literatures and cultures of the Spanish and Portuguese-speaking world and on Spanish and Portuguese linguistics. The program stresses linguistic competence, interdisciplinary study, and a transnational perspective on Spanish, Latin American, and Brazilian literature and culture. In addition to courses on the novel, poetry, and the essay, the program also offers the opportunity to study film, art, cultural theory, translation, and gender. Qualified students may undertake independent work. Students in the program may pursue the BA degree with a major in Spanish and Portuguese. The department also offers a minor in Spanish and Portuguese.

Bachelor’s Program

- Bachelor of Arts (BA) Degree with a Major in Spanish and Portuguese
  (p. 1979)

Minor

- Minor in Spanish and Portuguese
  (p. 1982)

Spanish and Portuguese does not currently offer an academic program at the graduate level.

Chair

Christian J. Emden

Program Advisor

Esther Fernández

Professors

José F. Aranda, Jr.
Luis Duno-Gottberg
Beatriz González-Stephan
Gisela Heffes
M. Rafael Salaberry
Associate Professors
Sophie Esch
Esther Fernández

Adjunct Research Professor
Nicolas Shumway

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Portuguese (PORT)

PORT 106 - ACCELERATED FIRST YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL FIRST YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year Portuguese for students who have a good command of Spanish. This is an intensive course covering the equivalents of PORT 141 and 142. Students will be prepared for PORT 206 upon completion of the course. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 106 if student has credit for PORT 142/PORT 222.

PORT 141 - FIRST YEAR PORTUGUESE I
Short Title: FIRST YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Portuguese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for PORT 141 or PORT 106. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 141 or PORT 106. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 106/PORT 141.

PORT 142 - FIRST YEAR PORTUGUESE II
Short Title: FIRST YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 141
Description: Continuation of PORT 141. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 142 if student has credit for PORT 106/PORT 262.

PORT 206 - ACCELERATED SECOND YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL SECOND YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 106
Description: Alternate second year Portuguese for students who have a very good command of Spanish. This intensive course covers the equivalent of PORT 263 and PORT 264. It will focus on the development of interactional competence in Portuguese to communicate satisfactorily with Portuguese speakers. Mutually Exclusive: Cannot register for PORT 206 if student has credit for PORT 263/PORT 264.

PORT 222 - AP/OTH CREDIT IN PORTUGUESE LANGUAGE
Short Title: AP/OTH CREDIT PORT LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 141 or PORT 106. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 106/PORT 141.
PORT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PORT 263 - SECOND YEAR PORTUGUESE I
Short Title: SECOND YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 142
Description: Continuation of PORT 142. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 263 if student has credit for PORT 201/PORT 206.

PORT 264 - SECOND YEAR PORTUGUESE II
Short Title: SECOND YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 263
Description: Continuation of PORT 263. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 264 if student has credit for PORT 202/PORT 206.

PORT 301 - THIRD YEAR PORTUGUESE I
Short Title: THIRD YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 206 or PORT 264
Description: Continuation of PORT 206 or 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

PORT 302 - BRASIL: CULTURA E SOCIEDADE
Short Title: BRASIL: CULTURE AND SOCIETY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 301
Description: The purpose of this course is to develop speaking, reading, and writing skills via the analysis of Brazilian literary and cultural texts. Through a multidisciplinary approach, students will be introduced to cultural analysis using a broad range of sources such as literature, film, and other audio-visual materials.

PORT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Spanish (SPAN)

SPAN 141 - FIRST YEAR SPANISH I
Short Title: FIRST YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Spanish (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 141 if student has credit for SPAN 161/SPAN 222.
SPAN 142 - FIRST YEAR SPANISH II
Short Title: FIRST YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 141
Description: Continuation of SPAN 141. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 142 if student has credit for SPAN 262.

SPAN 204 - INTERMEDIATE SPANISH FOR HERITAGE LEARNERS
Short Title: INT SPAN HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is for students who have been exposed to Spanish at home, through relatives and/or in the community and who wish to improve their confidence and intermediate fluency by expanding their formal knowledge of the language and of Hispanic cultures. Authentic materials such as short stories, poetry, films and articles will be used to develop reading, writing, speaking and listening skills. Placement Test is required.

SPAN 222 - AP/OTH CREDIT IN SPANISH LANGUAGE
Short Title: AP/OTH CREDIT SPANISH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 222 if student has credit for SPAN 101/SPAN 141/SPAN 161.

SPAN 225 - AP/OTH CREDIT IN INTERMEDIATE SPANISH
Short Title: AP/OTH CREDIT INTERM. SPAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 225 if student has credit for SPAN 201/SPAN 263.

SPAN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPAN 263 - SECOND YEAR SPANISH I
Short Title: SECOND YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 263
Description: Continuation of SPAN 142. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for SPAN 263 if student has credit for SPAN 201/SPAN 225.

SPAN 264 - SECOND YEAR SPANISH II
Short Title: SECOND YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 263
Description: Continuation of SPAN 263. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for SPAN 264 if student has credit for SPAN 202.
SPAN 303 - ADVANCED SPANISH FOR HERITAGE STUDENTS  
**Short Title:** ADV SPAN HERITAGE STUDENTS  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** SPAN 204  
**Description:** SPAN 303 aims to bring students to advanced proficiency in Spanish, enabling them to interact confidently in a wide variety of contexts, while providing them with cultural insights about the Hispanic world. It is designed for students who come with heritage exposure and at least intermediate proficiency in Spanish.

SPAN 321 - SPECIAL TOPICS: ADVANCED SPANISH I  
**Short Title:** SPECIAL TOPICS: ADV SPANISH I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** SPAN 264  
**Description:** This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 322 - SPECIAL TOPICS: ADVANCED SPANISH II  
**Short Title:** SPECIAL TOPICS: ADV SPANISH II  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** SPAN 321  
**Description:** This is a continuation of SPAN 321. This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 323 - SPANISH PROFESSIONAL PRACTICUM I  
**Short Title:** SPANISH PROFESSIONAL PRACTICUM I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This hybrid course combines practicum hours and course hours (whether face to face or online) for students who are interested in using their Spanish-language skills in professional settings. Practicum working hours to be determined between student and instructor. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required.

SPAN 324 - SPANISH PROFESSIONAL PRACTICUM II  
**Short Title:** SPANISH PROFESSIONAL PRACTICUM II  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course provides experiential learning for student show are interested in expanding their interactional and intercultural competence in Spanish in professional settings. Students participate as apprentices which includes working in contextualized strategic scenarios (simulated and/or real) such as simulations, shadowing professionals, work-related tasks, and case studies. Department Permission Required.

SPAN 325 - SPECIAL TOPICS: ADVANCED SPANISH III  
**Short Title:** SPECIAL TOPICS:ADV SPANISH III  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This is a continuation of SPAN 323 or SPAN 324. Students develop an advanced level of proficiency and interactional competence in Spanish through analysis and use of the target language in the study abroad context. Students will facilitate class discussions with students in SPAN 322; collect samples of interactional and sociolinguistic data in various settings, and analyze and classify collected data. Department Permission Required.

SPAN 326 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPAN 327 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPAN and Portuguese (SPPO)  
**SPPO 158 - INTRODUCTION TO LATIN AMERICAN STUDIES**  
**Short Title:** INTRO LATIN AMERICAN STUDIES  
**Department:** Modrn & Classidl Lit & Culture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Formerly SPAN 158. This course immerses students into Caribbean and Latin American studies by introducing them to the history, society, politics, and culture of the region, through a cross-disciplinary and a multi-national approach. Taught in English. Open to all students. Cross-list: LASR 158.
SPPO 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPPO 328 - GAZING AT DISASTER: VISUAL CULTURE AND CATASTROPHE IN LATIN AMERICA
Short Title: GAZING AT DISASTER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual representation of Natural Disasters in the Caribbean and Latin America. Going beyond an enquiry on the role of climate change and environmental transformations in the region's history and culture, we explore the potential and limitations of visual discourse to communicate catastrophe. Taught in Spanish.

SPPO 330 - HISPANIC WRITING SEMINAR
Short Title: HISPANIC WRITING SEMINAR
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this writing intensive seminar, students will learn the skills to think and write critically in Spanish about literary and cultural production from the global Hispanic world. Taught in Spanish.

SPPO 331 - BRASIL ATUAL
Short Title: BRASIL ATUAL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course examines topics in contemporary Brazil as presented in media, literature, film, and music. Works address persistent race, class, and gender inequalities, national identity, urban life, and environmental issues, among other topics. Further development of speaking, writing and vocabulary enrichment emphasized through discussions and interactive activities. Taught in Portuguese. Mutually Exclusive: Cannot register for SPPO 331 if student has credit for PORT 331.

SPPO 332 - APPROACHES TO HISPANIC LITERATURES
Short Title: APPROACHES HISPANIC LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Hispanic Literature where students will become familiar with the methodology of literary analysis to approach different genres and develop original and critical interpretation of texts. Course will give a wide and solid literary and analytical context for more advanced courses in Spanish and Latin American literature. Taught in Spanish. Distribution 1 credit effective Fall 2021.

SPPO 333 - CURRENT HEALTHCARE ISSUES IN LATINX COMMUNITIES
Short Title: LATINX HEALTHCARE ISSUES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examine social, cultural, ethical, and humanitarian issues related to healthcare and Latinx communities in the United States. The course will make use of current multimodal media to guide students in close reading, interpretation, and critical thinking and response. When appropriate, the historical context for current issues will also be considered. Taught in Spanish. Recommended Prerequisite(s): SPAN 322

SPPO 340 - INTRODUCTION TO SPANISH LINGUISTICS
Short Title: INTRO TO SPANISH LINGUISTICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the study of the Spanish language covering the following areas of research: history, phonetics/phonology, morphosyntactic system, lexicon, semantics, pragmatics, sociolinguistics, and language acquisition. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 340 if student has credit for SPAN 352.
SPPO 341 - DIALECTS IN CONTACT: SEARCHING FOR THE 'INTERNATIONAL' FORM OF SPANISH  
Short Title: DIALECTS IN CONTACT  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Formerly SPAN 350. Course will analyze the essence of language against the essence of dialects to determine (i) the logical and linguistic rationale behind judgments about language, (ii) social and political factors that lead to various decisions, and (iii) the role of popular beliefs on traditional views of proper language use. Taught in Spanish.

SPPO 344 - MAPPING LATIN AMERICAN CULTURE  
Short Title: MAPPING LATIN AMER CULTURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Explores key issues in Latin American culture. Important aspects of the contemporary situation in Latin America are also studied, including phenomena such as globalization, the rise of mega-cites, migration, authoritarianism, the impact of colonization and the rise of national states. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 341 if student has credit for SPAN 345.

SPPO 345 - ART IN LATIN AMERICAN LITERATURE  
Short Title: LATIN AMERICAN LITERATURE ART  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores important moments in the history of Latin American European and North American Art by reading literary works that dramatize the transformations of several key artistic movements. 19th century landscape painting, Post-impressionism, Surrealism, Muralism, and 1960s experimental art will be studied through the novels and poems of important Latin American authors. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 345 if student has credit for SPAN 343.

SPPO 347 - INTRODUCTION TO MEDIEVAL AND EARLY MODERN SPANISH LITERATURE AND CULTURE  
Short Title: MEDIEVAL&EARLY SPAN LIT&CULTUR  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Course traces the literary history of Spain from the Medieval period to the 1700's. Students will analyze a wide range of masterpieces in poetry, prose, and drama that have marked the ideological and cultural development of the Iberian Peninsula. Taught in Spanish.

SPPO 348 - INTRODUCTION TO MODERN SPANISH LITERATURE AND CULTURE, 18TH-21ST CENTURY  
Short Title: INTRO MODERN SPAN LIT&CULTURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Course is a panoramic introduction to literary, ideological, cultural, and artistic trends from the Enlightenment to the present. Study will include a wide array of exceptional works, (novels, plays, essays, short stories and poems) from authors who have left milestones in modern Spanish literature. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 348 if student has credit for SPAN 334.

SPPO 350 - BRAZILIAN LITERATURE AND CULTURE  
Short Title: BRAZILIAN LITERATURE & CULTURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Course focuses on critical readings of key texts of the 20th century. Materials drawn from Brazilian literature in translation as well as other cultural productions such as film and art. Some of the topics will include questions of national identity, social-racial relations, gender representations, and urban life. Taught in English. Mutually Exclusive: Cannot register for SPPO 350 if student has credit for SPAN 346.
SPPO 351 - LITERATURES FROM THE SOUTHERN CONE
Short Title: LIT FROM THE SOUTHERN CONE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the literature of the region known as "Cono Sur." Often considered the national literature of Argentina and Uruguay, the "gacho literature" encompasses a wide variety of texts, from traditional ballads to novels, plays and poetry. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 351 if student has credit for SPAN 384.

SPPO 353 - CARIBBEAN LITERATURE
Short Title: CARIBBEAN LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to major writers and theories of Caribbean literature, by focusing on the representation of places, peoples, and practices. Close attention will be paid to historical and cultural contexts, while conducting an in-depth analysis of literary texts from different genres. Taught in Spanish. Topics vary. Mutually Exclusive: Cannot register for SPPO 353 if student has credit for SPAN 391.

SPPO 354 - CHICANO/A LITERATURE
Short Title: CHICANO/A LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: ENGL 371, SWGS 354. Repeatable for Credit.

Course URL: www.english.rice.edu (http://www.english.rice.edu)

SPPO 356 - RACE, GENDER, CLASS, & ENVIRONMENT IN CENTRAL AMERICAN CULTURES
Short Title: UNDERSTANDING CENTRAL AMERICA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This class explores the diverse cultures and complex histories of the seven Central American countries: Panama, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and Belize. This panoramic course discusses Central American literature, visual culture, and music with a special emphasis on topics such as race, gender, class, environment, geopolitics, revolution, trauma, and migration. Taught in Spanish.

SPPO 360 - SECOND LANGUAGE ACQUISITION: LINGUISTIC, COGNITIVE AND SOCIAL DIMENSIONS
Short Title: SECOND LANGUAGE ACQUISITION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: Second language acquisition seeks to describe the development of a second language. It also attempts to provide an explanatory account of the internal and external factors that guide this process. This course surveys various theoretical approaches to the analysis of second language (L2) acquisition. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 360 if student has credit for SPAN 380.

SPPO 361 - WOMEN AND GENDER IN SPANISH CULTURE
Short Title: WOMEN & GENDER IN SPAN CULTURE
Department: Modrn & GENDER IN SPAN CULTURE
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: Contemporary global women's social movements contest misogyny, gender inequality and violence. This course explores representations of women and gender in Spanish literature, art, and culture through a revisionist lens, focusing on the extensive work still needed to rectify the injustices propagated by patriarchy. Taught in Spanish.
SPPO 363 - CONSTRUCTS AND CONTEXTS IN L2 LEARNING: RESEARCH ON STUDY ABROAD
Short Title: RESEARCH ON STUDY ABROAD
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The object of this course is to analyze the effect of context of learning on both the definition of second language competence and the process by which that competence is acquired. Both theoretical constructs (i.e., definition and process) may be categorically different depending on the context in which acquisition occurs. Taught in Spanish (some readings in English).

SPPO 364 - SPANISH CREATIVE WRITING
Short Title: SPANISH CREATIVE WRITING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore Spanish creative writings through an aesthetic experience. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 364 if student has credit for SPAN 383. Repeatable for Credit.

SPPO 368 - LATIN AMERICAN SHORT FICTION
Short Title: LATIN AMERICAN SHORT FICTION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Latin American writers have achieved great distinction in the genre of the short story. This course studies texts by some of the continent’s best-known short-story writers, such as Cortazar, Borges, Monterroso, Rulfo, Fuentes, Garcia Marquez, Elena Garro, Ana Lydia Vega, Clarice Lispector, Benedetti, Uslar Pietri, Massiani, Lemebel, Asis, and Carpenter. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 368 if student has credit for SPAN 388.

SPPO 370 - DISABLED BODIES: ILLNESS AND LITERATURE IN LATIN AMERICA
Short Title: LATIN AMERICAN ILLNESS & LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is an illness? How do we define a sick body? How can literature, films and art convey suffering and healing? How do traditional histories of medicine structure sickness? Is there a perception–and representation–of illness that can be specific to Latin American culture? How does the Spanish language address issues of sickness, disability, and pain? This course will explore experiences of illness, suffering and pain through the readings of narratives, works of theory and criticism, and the writings of artists themselves. Discussions will place the narratives of illness in the intersections with the history of public health, biomedical history, and the sociocultural history of disease in Latin America. Within the framework of the Medical Humanities minor, students will learn to recognize the value and relevance of literature and writing to their personal, educational and professional growth. There is an experiential learning component, at Aishel House Houston, associated with the course. Taught in Spanish.

SPPO 373 - THE MEXICAN REVOLUTION IN LITERATURE, MUSIC AND VISUAL ARTS
Short Title: THE MEXICAN REVOLUTION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the defining moment of modern Mexico: the revolution of 1910-1920/40. Through a study of major literary works, songs, films, photographs, and paintings, the class explores the complex political and cultural legacy of the Mexican Revolution to this date. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 373 if student has credit for SPAN 348.

SPPO 375 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. (The trip is optional. There is a course fee.) Course taught in Spanish. Instructor Permission Required. Cross-list: FILM 339, HART 304. Mutually Exclusive: Cannot register for SPPO 375 if student has credit for SPAN 392.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Distribution Group</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPPO 377</td>
<td>BRAZILIAN MUSIC AND SOCIAL MOVEMENTS</td>
<td>BRESIL: MUSIC &amp; SOCIAL MOVEMENTS</td>
<td>Modern &amp; Classic Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Distribution Group 1</td>
<td>Undergraduate Upper-Level</td>
<td>This course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in English. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.</td>
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<tr>
<td>SPPO 380</td>
<td>SOCIAL ISSUES IN SPAIN</td>
<td>SOCIAL ISSUES IN SPAIN</td>
<td>Modern &amp; Classic Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Distribution Group 1</td>
<td>Undergraduate Upper-Level</td>
<td>This course will examine representations of the city in both new Latin American writings and films, with a special focus on the changing urban landscape, the representation of poverty and the excluded from the new global economy, environmental issues and biopolitics, as well as hybrid cultures and multicultural identities. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 380 if student has credit for SPAN 378.</td>
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<tr>
<td>SPPO 381</td>
<td>SPANISH CINEMA</td>
<td>SPANISH CINEMA</td>
<td>Modern &amp; Classic Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Distribution Group 1</td>
<td>Undergraduate Upper-Level</td>
<td>This cross-genre, multimedia course examines the contributions of major figures (Picasso, Gris, Dalí, Diego, Alberti, Lorca, Bunuel, Gomez de la Serna) to the Spanish avant-garde in the 20th century. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 384 if student has credit for SPAN 377.</td>
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<tr>
<td>SPPO 382</td>
<td>THEATER AND PERFORMANCE WORKSHOP</td>
<td>THEATER &amp; PERFORMANCE WORKSHOP</td>
<td>Modern &amp; Classic Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Distribution Group 1</td>
<td>Undergraduate Upper-Level</td>
<td>This course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in English. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.</td>
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<tr>
<td>SPPO 384</td>
<td>THE SPANISH AVANT-GARDE</td>
<td>THE SPANISH AVANT-GARDE</td>
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<td>Standard Letter</td>
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<td>Undergraduate Upper-Level</td>
<td>This course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.</td>
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<tr>
<td>SPPO 385</td>
<td>TRENDS IN HISPANIC CINEMA</td>
<td>TRENDS IN HISPANIC CINEMA</td>
<td>Modern &amp; Classic Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Distribution Group 1</td>
<td>Undergraduate Upper-Level</td>
<td>This course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.</td>
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<tr>
<td>SPPO 386</td>
<td>THE CITY IN LATIN AMERICA</td>
<td>THE CITY IN LATIN AMERICA</td>
<td>Modern &amp; Classic Lit &amp; Culture</td>
<td>Standard Letter</td>
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<td>Undergraduate Upper-Level</td>
<td>This course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.</td>
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<tr>
<td>SPPO 387</td>
<td>LATIN AMERICAN CONTEMPORARY CINEMA</td>
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<td>Modern &amp; Classic Lit &amp; Culture</td>
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<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Distribution Group 1</td>
<td>Undergraduate Upper-Level</td>
<td>This course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.</td>
</tr>
</tbody>
</table>
SPPO 411 - LITERATURE AND THE ENVIRONMENT IN LATIN AMERICA
Short Title: LATIN AMER LIT & ENVIRONMENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course aims to offer students a systematic contact with a representative sample of the literature and scholarship about the mutual relationships between human societies and their natural environments, particularly but not exclusively in Latin America. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 411 if student has credit for SPAN 403.

SPPO 412 - BOOM-BOOM-CRACK: LATIN AMERICAN NOVEL
Short Title: BOOM-BOOM-CRACK: LATIN AM NOVEL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Works by Asturias, Carpentier, Rulfo, Onetti, Vargas Llosa, Cortazar, Fuentes, and others. Examines how Spanish American novelists from the 1940s onward appropriated the techniques of European modernist literature and infused them with new cultural content. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 412 if student has credit for SPAN 462.

SPPO 415 - BORDER NARRATIVES
Short Title: BORDER NARRATIVES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will analyze certain types of cultural productions (fiction, movies, etc.) produced in geographical contact zones, that generate hybrid languages and genres. These are products of migrations and nomadic people. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 415 if student has credit for SPAN 462.

SPPO 420 - LATIN AMERICAN LITERATURE IN THE MOVIES
Short Title: LATIN AMER LIT IN THE MOVIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course analyzes the relation between literary texts and the movies, and establishes connections and adaptations of both. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 420 if student has credit for SPAN 405/SPAN 505.

SPPO 422 - LATIN AMERICAN CINEMA
Short Title: LATIN AMERICAN CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the national cinemas of various regions of Latin America. Special attention is given to the different periods of its development, to the close relationship between political contexts and filmmaking, to the understanding of Latin American cinema from cultural studies views, and to the current shaping of Latin America in light of globalization. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 422 if student has credit for SPAN 406.

SPPO 427 - MULTICULTURALISM IN SPANISH LITERATURE AND CULTURE
Short Title: MULTICULTURALISM IN SPAN LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates how multiculturalism and race have operated in the Iberian Peninsula through literary texts, legal and historical documents, film, and visual and performative arts. Particular attention will be paid to the coexistence of different identities—religious, racial, and ethnic, in particular. Taught in Spanish. Recommended Prerequisite(s): SPPO 330 or SPPO 332

SPPO 430 - LATIN AMERICAN WOMEN'S CULTURE
Short Title: LATIN AMERICAN WOMEN'S CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 456. Studies the cultural production (literary, artistic, cinematic) of intellectual women in Latin America. Examines the struggles for interpretive power in works by women from the colonial period to the present. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SWGS 466.
### SPPO 435 - LANGUAGE IDEOLOGIES AND LANGUAGE IDENTITIES
- **Short Title:** LANGUAGE IDEOLOGIES/IDENTITIES
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This seminar focuses on the analysis of the interaction of the concepts of language identity (primarily identified at an individual level) and language ideology (described as an institutional/political perspective about the nature of language and its role in society). Some of the topics include: construction and negotiation of social identity through language use, language and nationhood, language policies/planning, beliefs about proper language use, gender-biased language, language contact and multilingualism, bilingual education, etc. Taught in Spanish (some readings in English).

### SPPO 450 - TWENTIETH CENTURY MEXICAN NOVEL
- **Short Title:** TWENTIETH CENTURY MEXICAN NOVEL
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** An introduction to major Mexican novels of the Twentieth Century, including works by Juan Rulfo, Carlos Fuentes, Elena Garro, Jose Emilio Pacheco, Elena Poniatowska, Jorge Volpi and Cristina Rivera Garza. We will examine these works through a variety of methods including historical biographical analysis as well as through formalist approaches. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 450 if student has credit for SPAN 373.

### SPPO 452 - WITNESSING, TRUTH & TRAUMA: TESTIMONIAL WRITING IN MEXICO & CENTRAL AMERICA
- **Short Title:** WITNESSING, TRUTH & TRAUMA
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This seminar provides an exploration of testimonial writing, a crucial and controversial Latin American genre that aims at giving voice to those marginalized within society. Looking at testimonials by indigenous militants, poor women, war crime survivors, and insurgents the course explores the meaning of truth and fiction, historical reckoning, and trauma. Taught in Spanish.

### SPPO 462 - DON QUIJOTE
- **Short Title:** DON QUIJOTE
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Cervantes’s masterpiece is studied in its relationship to the books of knight errantry, and to the picaresque and pastoral novels, with emphasis on the innovative techniques of Cervantes which contribute to the birth of the modern novel. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 462 if student has credit for SPAN 412.

### SPPO 466 - THE SPANISH CIVIL WAR
- **Short Title:** THE SPANISH CIVIL WAR
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Prelude to World War II and culmination of perennial struggles between the so-called “two Spains”; the Spanish Civil War (1936-39) is a watershed moment in modern Spanish and European history. Interdisciplinary, multi-media approach: the war seen through Spanish and foreign novels, poetry, film, painting, journalism, songs, and posters. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 466 if student has credit for SPAN 375.

### SPPO 467 - 20TH-CENTURY SPANISH NOVEL
- **Short Title:** 20TH-CENTURY SPANISH NOVEL
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This course examines the evolution of the Spanish novel as a work of art while exploring how cultural issues are incorporated into fictional worlds. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 467 if student has credit for SPAN 430.

### SPPO 477 - SPECIAL TOPICS
- **Short Title:** SPECIAL TOPICS
- **Department:** Modrn & Classicl Lit & Culture
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture, Seminar, Internship/Practicum, Laboratory, Lecture/Laboratory
- **Credit Hours:** 1-4
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
SPPO 490 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation on any aspect of literature, linguistics, cinema, or cultural studies from Spain, Latin America, or U. S. Latinx communities. Permission of instructor required. Repeatable for Credit.

SPPO 491 - DIRECTED RESEARCH
Short Title: DIRECTED RESEARCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation on any aspect of literature, linguistics, cinema, or cultural studies from Spain, Latin America, or U. S. Latinx communities. This course includes directed research and/or a research project. Student works independently with only minimal faculty supervision. Permission of instructor required. Repeatable for Credit.

SPPO 492 - SUMMER INTERNSHIP IN MADRID
Short Title: SUMMER INTERNSHIP IN MADRID
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will offer the opportunity of an internship with Spanish companies or non-governmental organizations (NGO). This course includes directed research and special projects associated with their particular area of interest. Nearly all interactions with supervisors and colleagues will be in Spanish. 5-Week Summer Session Course. Instructor Permission Required.

SPPO 495 - HONORS THESIS
Short Title: HONORS THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding Hispanic Studies majors leading to a substantial honors essay, undertaken in close cooperation with a departmental faculty member, who must first approve the thesis proposal. Instructor Permission Required. Mutually Exclusive: Cannot register for SPPO 495 if student has credit for SPAN 495.

SPPO 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code for Portuguese: PORT
- Course offerings/subject code for Spanish: SPAN
- Course offerings/subject code for Spanish and Portuguese: SPPO

Department Description and Code
- Modern and Classical Languages and Cultures: MCLC

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Spanish and Portuguese: SPPO
- Minor in Spanish and Portuguese: SPPM

CIP Code and Description ¹
- SPPO Major/Program: CIP Code/Title: 16.0999 - Romance Languages, Literatures, and Linguistics, Other
- SPPM Minor: CIP Code/Title: 16.0999 - Romance Languages, Literatures, and Linguistics, Other

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Spanish and Portuguese

Program Learning Outcomes for the BA Degree with a Major in Spanish and Portuguese

Upon completing the BA degree with a major in Spanish and Portuguese, students will be able to:

1. Demonstrate an advanced level of communicative proficiency when writing, speaking, listening to, reading and translating Spanish or Portuguese, including a high degree of ability in interacting with native Spanish or Portuguese speakers and text.
2. Demonstrate analytical competence and independent and critical thinking skills by analyzing and responding to Spanish or Portuguese communications, including: identifying and evaluating arguments, ideas, and evidence, constructing critical responses to Spanish or Portuguese texts, and pursuing independent study or research in some facet of Spanish or Portuguese language or culture.

3. Demonstrate advanced knowledge of the social, historical, political, and cultural aspects of the Spanish-speaking world and Spanish-speaking communities and apply this knowledge to reading and analyzing authentic cultural products, including literature, art, and film. They will understand how these cultural products reflect or construct facets of the Spanish-speaking world's history, culture, and identity.

Requirements for the BA Degree with a Major in Spanish and Portuguese

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Spanish and Portuguese must complete:

- A minimum of 10 courses (30 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (24 credit hours) taken at the 300-level or above.
- A maximum of 4 courses (12 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 1981) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Spanish and Portuguese</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Spanish and Portuguese</td>
<td>120</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course from the following: 3</td>
<td></td>
</tr>
<tr>
<td>SPPO 330</td>
<td>HISPANIC WRITING SEMINAR</td>
<td></td>
</tr>
<tr>
<td>SPPO 331</td>
<td>BRASIL ATUAL</td>
<td></td>
</tr>
<tr>
<td>PORT 302</td>
<td>BRASIL: CULTURA E SOCIEDADE</td>
<td></td>
</tr>
<tr>
<td>SPPO 332</td>
<td>APPROACHES TO HISPANIC LITERATURES</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced Coursework in Spanish and Portuguese</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hispanic Linguistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 1 course from the following: 1, 2, 3</td>
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</tr>
</tbody>
</table>

SPPO 340 | INTRODUCTION TO SPANISH LINGUISTICS or SPPO 341 DIALECTS IN CONTACT: SEARCHING FOR THE "INTERNATIONAL" FORM OF SPANISH or SPPO 360 SECOND LANGUAGE ACQUISITION: LINGUISTIC, COGNITIVE AND SOCIAL DIMENSIONS

Survey

| Select 2 courses from Survey courses (any course offerings between course numbers SPPO 340 and SPPO 359) | 6           |
| Select 2 courses from Advanced courses (any course offerings between course numbers SPPO 360 and SPPO 399) | 6           |
| Select 2 courses from Seminar courses (any course offerings between course numbers SPPO 401 and SPPO 489) | 6           |

Elective Requirements

| Select 2 courses from the following: | 6           |
| SPAN 303 | ADVANCED SPANISH FOR HERITAGE STUDENTS            |              |
| SPAN 321 | SPECIAL TOPICS: ADVANCED SPANISH I                |              |
| SPAN 322 | SPECIAL TOPICS: ADVANCED SPANISH II               |              |
| SPAN 325 | SPECIAL TOPICS: ADVANCED SPANISH III              |              |

Any Spanish and Portuguese (SPPO) course offerings at the 330 course number or above

Any department approved elective course (see course list below)

Total Credit Hours Required for the Major in Spanish and Portuguese

| 30           |

Additional Credit Hours to Complete Degree Requirements

| 59           |

University Graduation Requirements (p. 29)

| 31           |

Total Credit Hours

| 120          |

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 If either SPPO 340 or SPPO 341 is selected as the Hispanic Linguistics course, it will fulfill 1 of the 2 required Survey courses between course numbers SPPO 340 and SPPO 359.

2 If SPPO 360 is selected as the Hispanic Linguistics course, it will fulfill 1 of the 2 required Advanced courses between course numbers SPPO 360 and SPPO 399.

Course List to Satisfy Requirements

Elective Requirements

Students must complete 2 elective courses (6 credit hours). These may be selected from SPAN 303, SPAN 321, SPAN 322, or SPAN 325, or from Spanish and Portuguese (SPPO) course offerings at the 330 course number or higher, or from the program approved electives listed below.
Program Approved Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ANTH 361</td>
<td>LATIN AMERICAN TOPICS</td>
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<tr>
<td>ENST 301</td>
<td>ENVIRONMENTAL JUSTICE</td>
<td></td>
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<tr>
<td>HART 265</td>
<td>A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA</td>
<td></td>
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<tr>
<td>HART 310 / ARCH 315</td>
<td>BRAZIL BUILT: THE CLINIC, THE TROPICAL, AND THE AESTHETIC</td>
<td></td>
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<tr>
<td>HART 375 / ARCH 375</td>
<td>LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES</td>
<td></td>
</tr>
<tr>
<td>HART 465</td>
<td>LATIN AMERICAN BODIES: ON MODERNISM</td>
<td></td>
</tr>
<tr>
<td>HIST 220</td>
<td>MEXICO: 1910 TO PRESENT</td>
<td></td>
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<tr>
<td>HIST 221</td>
<td>UNITED STATES AND LATIN AMERICAN RELATIONS</td>
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<tr>
<td>HIST 226</td>
<td>COLONIAL SPANISH AMERICA</td>
<td></td>
</tr>
<tr>
<td>HIST 227</td>
<td>LATIN AMERICAN CULTURAL TRADITIONS</td>
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</tr>
<tr>
<td>HIST 228</td>
<td>MODERN LATIN AMERICA</td>
<td></td>
</tr>
<tr>
<td>HIST 251 / LASR 251</td>
<td>CONTINUITIES AND CHANGES IN BRAZILIAN HISTORY</td>
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</tr>
<tr>
<td>HIST 324 / MDEM 324</td>
<td>CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN</td>
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<tr>
<td>HIST 337</td>
<td>LATIN AMERICAN PERSPECTIVES</td>
<td></td>
</tr>
<tr>
<td>HIST 366 / ARCH 366</td>
<td>RIO DE JANEIRO: A SOCIAL AND ARCHITECTURAL HISTORY</td>
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<td>HIST 420</td>
<td>MEXICAN HISTORY</td>
<td></td>
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<tr>
<td>LASR 158 / SPO 158</td>
<td>INTRODUCTION TO LATIN AMERICAN STUDIES</td>
<td></td>
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<tr>
<td>LASR 350</td>
<td>PIRATES, REBELS, NARCOS: LATIN AMERICAN OUTLAW IN THE POLITICAL-CULTURAL IMAGINATION</td>
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<td>LASR 378</td>
<td>LATIN AMERICAN POLITICAL THOUGHT: IDENTITY, LIBERATION, MODERNITY</td>
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<tr>
<td>LASR 491</td>
<td>LATIN AMERICAN STUDIES CAPSTONE</td>
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<td>LASR 492</td>
<td>DIRECTED RESEARCH</td>
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<tr>
<td>POLI 328</td>
<td>LATINO POLITICS IN THE UNITED STATES</td>
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<tr>
<td>POLI 352</td>
<td>THE POLITICS AND CULTURE OF MEXICO</td>
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<tr>
<td>POLI 354</td>
<td>LATIN AMERICAN POLITICS</td>
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</tr>
<tr>
<td>POLI 459</td>
<td>SEX, GENDER, AND POLITICAL REPRESENTATION IN LATIN AMERICA</td>
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</tr>
</tbody>
</table>

Policies for the BA Degree with a Major in Spanish and Portuguese

Program Restrictions and Exclusions

Students pursuing the major in Spanish and Portuguese should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the major in Spanish and Portuguese should be aware of the following program-specific transfer credit guidelines:

- No more than 4 courses (12 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Department of Modern and Classical Literatures and Cultures are broad in theme and scope and provide students with a substantial inquiry into literature, art, media, history, thought, and/or politics, including specific national traditions, linguistic contexts, and historical periods. Such courses involve a broad and often interdisciplinary spectrum of knowledge, providing students with the tools for thinking critically about the formation of modern culture, its colonial past, and its national and linguistic traditions from antiquity to the present.

Additional Information

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

Opportunities for the BA Degree with a Major in Spanish and Portuguese

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.
Departmental Honors
The program offers to outstanding majors the opportunity to do honors work during their final year of study. Honors work consists of an independent research project leading to a thesis and is undertaken under the direction of a departmental faculty member. Students wishing to do honors work must submit a thesis proposal to be approved by the program before the end of the semester prior to the semester in which they will register for the honors thesis (SPPO 495). Every year, the program also presents the Cervantes Award for Outstanding Seniors to its top students.

Additional Information
For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

Minor in Spanish and Portuguese

Program Learning Outcomes for the Minor in Spanish and Portuguese
Upon completing the minor in Spanish and Portuguese, students will be able to:

1. Demonstrate an advanced level of communicative proficiency when writing, speaking, listening to, reading and translating Spanish or Portuguese, including a high degree of ability in interacting with native Spanish or Portuguese speakers and text.
2. Demonstrate analytical competence and independent and critical thinking skills by analyzing and responding to Spanish or Portuguese communications, including: identifying and evaluating arguments, ideas, and evidence, constructing critical responses to Spanish or Portuguese texts, and pursuing independent study or research in some facet of Spanish or Portuguese language or culture.

Requirements for the Minor in Spanish and Portuguese
Students pursuing the minor in Spanish and Portuguese must complete:

- A minimum of 6 courses (18 credit hours) to satisfy minor requirements.
- A minimum of 6 courses (18 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 182) tab.

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Spanish and Portuguese</td>
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</table>

Minor Requirements

Core Requirements

Select 3 courses from the following: 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>SPPO 330</td>
<td>HISPANIC WRITING SEMINAR</td>
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<tr>
<td>SPPO 331</td>
<td>BRASIL ATUAL</td>
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<tr>
<td>SPPO 332</td>
<td>APPROACHES TO HISPANIC LITERATURES</td>
<td></td>
</tr>
<tr>
<td>SPPO 340</td>
<td>INTRODUCTION TO SPANISH LINGUISTICS</td>
<td></td>
</tr>
<tr>
<td>SPPO 341</td>
<td>DIALECTS IN CONTACT: SEARCHING FOR THE &quot;INTERNATIONAL&quot; FORM OF SPANISH</td>
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</tr>
<tr>
<td>SPPO 360</td>
<td>SECOND LANGUAGE ACQUISITION: LINGUISTIC, COGNITIVE AND SOCIAL DIMENSIONS</td>
<td></td>
</tr>
<tr>
<td>PORT 302</td>
<td>BRASIL: CULTURA E SOCIEDADE</td>
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</table>

Elective Requirements

Select 3 elective courses from departmental (SPPO) course offerings at the 300-level and above. 1

<table>
<thead>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Total Credit Hours 18

Footnotes and Additional Information

1 Courses not used to fulfill the Core Requirements may be taken to fulfill Elective Requirements. The same course may not be used to satisfy more than one requirement for this minor.

Policies for the Minor in Spanish and Portuguese

Program Restrictions and Exclusions
Students pursuing the minor in Spanish and Portuguese should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the minor in Spanish and Portuguese should be aware of the following departmental transfer credit guidelines:

| Title                                                        | Code  | Credit Hours |

1982 Minor in Spanish and Portuguese
• No more than 2 courses (6 credit hours) of transfer credit from U.S.
or international universities of similar standing as Rice may apply
towards the minor.
• Requests for transfer credit will be considered by the departmental
  Director of Undergraduate Studies (and/or the program's official
  transfer credit advisor) on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean's Offices of each of the academic schools.

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**Additional Information**

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

**Opportunities for the Minor in Spanish and Portuguese**

**Academic Honors**

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

**Additional Information**

For additional information, please see the Modern and Classical Literatures and Cultures website: https://cultures.rice.edu (https://cultures.rice.edu/)

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this minor.

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**Sport Management**

**Contact Information**

Sport Management  
https://sport.rice.edu/  
2nd Floor, Tudor Fieldhouse  
713-348-5764

Clark D. Haptonstall  
Department Chair  
hapton@rice.edu

Sport Management is an interdisciplinary field of study that draws from a wide range of academic disciplines, including business, management, law, and communication. The thoroughly interdisciplinary emphasis of the sport management major aims to educate students in the skills and theory necessary to assume leadership roles both in and out of the sport industry.

Career preparation for leadership and entrepreneurial positions is the ultimate goal of the sport management major at Rice. Students will acquire a solid academic and practical foundation and thus will be competitive for opportunities that include entering the sport business industry or applying to the country's best law and business schools.

**Bachelor's Programs**

- Bachelor of Arts (BA) Degree with a Major in Sport Management  
  and a Major Concentration in Sport Analytics (p. 1989)  
  and a Major Concentration in Sport Law (p. 1991)  
  and a Major Concentration in Sport Leadership (p. 1993)

Sport Management does not currently offer an academic program at the graduate level.

**Chair and Professor in the Practice**

Clark D. Haptonstall

**Associate Professor**

James G. Disch

**Assistant Professor**

Hua Gong

**Professors in the Practice**

Diane Crossey  
Steven Rackley  
Tom Stallings

**Lecturers**

Kit Ashby  
Carrie Potter

**Adjunct Lecturers**

Chris Canetti  
Jeff Luhnow  
Daryl Morey
For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Sport Management (SMGT)

SMGT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SMGT 260 - INTRODUCTION TO SPORT MANAGEMENT
Short Title: INTRO TO SPORT MANAGEMENT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to: first, provide the student with an overview of the structure of the sport industry as well as issues facing sport organizations and how management techniques can be applied to solve business problems. Second, students will be introduced to the various sub-disciplines within sport management (marketing, law, sales, event management, etc). Third, students will become familiar with career opportunities in sport management. Special Registration is required for Juniors and Seniors.

SMGT 266 - LEADING WITH SERVICE
Short Title: LEADING WITH SERVICE
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SMGT 260
Description: This course will examine industry leaders in customer service, identifying the unique qualities that their employees exhibit. Students will learn the fundamentals of service delivery and various research and various research and analysis methods, then apply those in practical applications with local sports franchises. By the conclusion of this course, students will have created a customer service vision for a fictitious organization, developed training programs for employees and created measureable objectives for success. This course is for Freshmen and Sophomores only. Special Registration is required for Juniors and Seniors.

SMGT 276 - SPORT MANAGEMENT PRACTICUM
Short Title: SPORT MANAGEMENT PRACTICUM
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SMGT 260 or KINE 260
Description: This class is designed to prepare students for working in the sport industry. Students will learn how to construct an effective resume, interview skills, business etiquette, etc. Students will also gain real-life experience by working with one of the numerous sports organizations in Houston for 100 hours during the course of the semester.

SMGT 320 - BUSINESS OF COLLEGE ATHLETICS
Short Title: BUSINESS OF COLLEGE ATHLETICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260
Description: This course will focus on developing an understanding of college athletics and its role in higher education. Students will develop a research project and presentation as well as learn from guest speakers and case studies.

SMGT 350 - SPORT ETHICS
Short Title: SPORT ETHICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260
Description: This course is designed to assist students in self-evaluating, examining and developing a philosophy, values, and moral reasoning skills. Major moral/ethical issues and theoretical frameworks inside and outside of sport will be researched and discussed. Students will experience the ethical decision-making process through opportunities for critical analysis drawing upon their philosophical bases. All major theories of ethics will be examined with special application made to the sport management environment.
Various areas of sports are integrated with the American legal system. This course will also provide an overview of how American law is used in the context of sports. It will explore the fundamental principles used in the marketing of sport, including planning, promotions, operations, and market analysis. Students will be expected to evaluate and understand the nuances that go into event and venue management with a focus on the importance of budgets, tickets, staffing, and crowd management, risk management, and event management, and how they all work together to create a positive experience for their customers and clients. Students will be expected to evaluate and understand the nuances that go into event and venue management with the help of assignments, case studies, guest speakers, and practical experience (when possible). At conclusion of the course a student should fully understand what goes into creating and managing a successful event.

SMGT 365 - Sport Law

Short Title: Sport Law

Department: Sport Management

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: This course is designed to introduce students to the American legal system and to the types of legal reasoning used by lawyers and judges. This course will also provide an overview of how various areas of sports are integrated with the American legal system.
SMGT 376 - SPORT MANAGEMENT INTERNSHIP 1
Short Title: SPORT MANAGEMENT INTERNSHIP 1
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)
Description: Internship experience for upper-level students in sport management.

SMGT 377 - SPORT MANAGEMENT INTERNSHIP 2
Short Title: SPORT MANAGEMENT INTERNSHIP 2
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)
Description: Internship experience for upper-level students in sport management.

SMGT 378 - SPORT MANAGEMENT INTERNSHIP 3
Short Title: SPORT MANAGEMENT INTERNSHIP 3
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)
Description: Internship course in sport management offered specifically during the summer session. Repeatable for Credit.

SMGT 379 - SPORT MANAGEMENT INTERNSHIP 4
Short Title: SPORT MANAGEMENT INTERNSHIP 4
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)
Description: Internship experience for upper-level students in sport management.

SMGT 396 - THE BUSINESS & HISTORY OF THE OLYMPIC GAMES
Short Title: THE OLYMPICS-BUSINESS&HISTORY
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Olympic Games is most watched and internationally-recognized sporting event. This course will examine the history of the Olympic Games but also the political, cultural, financial, and social aspects as well.

SMGT 400 - BUSINESS OF PROFESSIONAL SPORTS
Short Title: BUSINESS OF PRO SPORTS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 276 and SMGT 360 and SMGT 362
Description: This course will provide the student with an intensive, immersive learning experience in conjunction with a professional sports franchise. Students enrolled in this course will interact with senior executives from the front office who will present weekly on the challenges and opportunities facing their various operating departments. Students will engage in traditional classroom learning while also tackling real-world problems and creating potential solutions. Each week a different operating area will be examined. Department Permission Required.

SMGT 405 - RESEARCH IN SPORT MANAGEMENT
Short Title: RESEARCH IN SPORT MANAGEMENT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (KINE 319 or STAT 280) and (SMGT 260 or KINE 260)
Description: This class is designed to provide students with experience working on actual research projects, likely with one of the professional sport franchises in Houston. At the end of the semester, the class will present its findings to the organization's upper management.
SMGT 415 - THEORIES OF HIGH LEVEL PERFORMANCE
Short Title: THEORIES-HIGH LVL PERFORMANCE
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a class designed for students who plan to go into coaching or training. It will provide the most current information available for training elite athletes in the area of strength, power, speed, and flexibility. Experts in the field of strength training, plyometrics, speed training, and flexibility will speak. The nature and basis of elite athlete training related to exercise physiology, biomechanics, motor learning, sport psychology, and nutrition will be explored.

SMGT 430 - INTRODUCTION TO SPORT ANALYTICS
Short Title: INTRO TO SPORT ANALYTICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 and (STAT 280 or SOSC 302)
Description: The focus of this course will be to provide the basics for understanding and applying analytical techniques to professional teams both on the sports side (predicting player performance and outcomes) and the business side (establishing business models). A survey into basic statistical techniques (multiple regression, discriminant analysis, etc.) will be the foundation of the class.

SMGT 431 - ADVANCED SPORT ANALYTICS
Short Title: ADVANCED SPORT ANALYTICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 315 or SOSC 302
Description: This course will assist students in applying and developing advanced analytical skills specifically designed to evaluate sport performance as well as predict team & individual success. Students will achieve this through the development of critical thinking skills as well as advanced knowledge in modeling, statistical analysis, predictive analytics, game theory, optimization, data mining, machine learning techniques, and simulation.

SMGT 440 - SPORT BUSINESS ANALYTICS
Short Title: SPORT BUSINESS ANALYTICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 and (STAT 280 or SOSC 302)
Description: In this age of Big Data, employees must be tech savvy with a strong background in computer and statistical analysis. Sport Business Analytics calls for special approaches to marketing and pricing. This course is designed to introduce the students to techniques that will allow for productive sport business analytics.

SMGT 450 - LEADERSHIP IN SPORT MANAGEMENT
Short Title: LEADERSHIP IN SPORT MANAGEMENT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260
Description: This course will provide an overview of several major leadership theories as well as stimulate discussion on different styles of leadership and how they apply to the sport industry. Students will perform a leadership self-evaluation as well as develop a plan for its real-world application.

SMGT 460 - BUSINESS ANALYSIS IN SPORT
Short Title: BUSINESS ANALYSIS IN SPORT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 or KINE 260
Description: Students will be exposed to the aspects of effectively planning for and introducing change in sport organizations. This will include an examination of the successful management of organizational and behavioral changes, focusing on planned and unplanned changes and emphasizing development of change strategies and the measurement of change effectiveness.
SMGT 464 - ADVANCED SPORT LAW
Short Title: ADVANCED SPORT LAW
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 364
Description: This course examines legal issues impacting amateur and professional sports. Students will analyze sport cases and materials that cover multiple disciplines, including contracts, torts, constitutional law, labor and employment, and criminal law. Students will augment their learning through analysis and discussion of up-to-the-minute professional and collegiate sports law developments.

SMGT 465 - SPORT CONTRACTS AND NEGOTIATION
Short Title: SPORT CONTRACTS & NEGOTIATION
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 and SMGT 364
Description: This course introduces students to contracts and negotiations and how they are used in sport management. Students develop an understanding of contract language, drafting and negotiation, as well as practical experience applying those techniques through exercises and role-play designed to increase understanding and enhance learning.

SMGT 466 - SPORT PUBLIC RELATIONS
Short Title: SPORT PUBLIC RELATIONS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 362 or KINE 362)
Description: An applied study of media in business and sport with an emphasis on press conferences, news releases, media-athlete relations, communications, print journalism, and community relations. Recommended Prerequisite(s): HUMA 201 or LEAD 321.

SMGT 467 - SPORTS JOURNALISM
Short Title: SPORTS JOURNALISM
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 466
Description: Successful journalists must be able to communicate through their writing, their spoken word, and also through video. Students in this class will learn all of the different journalism formats and techniques including writing short and long articles, blogging, videos, podcasts, interviews, PR writing, social media, etc. Students will complete assignments in each of these areas. When students finish the course, they will have an updated portfolio filled with examples of their work. Recommended Prerequisite(s): SMGT 466

SMGT 470 - SPORT MANAGEMENT SEMINAR
Short Title: SPORT MANAGEMENT SEMINAR
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)
Description: The object of this course is to expose students to upper-level problem-solving methods in the sport management industry. Students will learn by writing and solving case studies as well as discussing current issues. This class is designed for students who are pursuing a career in the sport management industry. Students will also interact with a series of speakers from the industry. Students should have completed the majority of SMGT classes before considering taking this course. Instructor Permission Required. Repeatable for Credit.

SMGT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
SMGT 490 - SEMINAR IN SPORTS ANALYTICS

Short Title: SEMINAR IN SPORTS ANALYTICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 140 and SMGT 431 and (STAT 315 or DSCI 301) and STAT 405 and (SOSC 302 or STAT 280)
Description: This course is designed to be the culminating experience in the Sport Analytics Concentration. Students will complete a semester-long research project while also hearing from selected industry professionals who will discuss their cutting edge research in the field of Sport Analytics.

SMGT 495 - INDEPENDENT STUDY

Short Title: INDEPENDENT STUDY
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading or research project to be determined by discussions between student(s) and faculty member(s). Must have the approval of the Chair of the Department of Sport Management and the participating faculty member. Instructor Permission Required.

SMGT 498 - SPECIAL TOPICS

Short Title: SPECIAL TOPICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with the Sport Management Program for additional information. Repeatable for Credit.

SMGT 499 - TEACHING PRACTICUM

Short Title: TEACHING PRACTICUM
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced teaching experience for upper level students who have demonstrated a particular aptitude and interest in an area of sport management. Students assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. The Chair of the Department of Sport Management must approve all teaching assistants. Pre-requisites: declared Sport Management major. Student must have received at least an "A-" in the course serving as the practicum. Instructor Permission Required. Repeatable for Credit.

Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: SMGT

Program Description and Code
- Sport Management: SMGT

Undergraduate Degree Description and Code
- Bachelor of Arts degree: BA

Undergraduate Major Description and Code
- Major in Sport Management: SMGT

Undergraduate Major Concentration Descriptions and Codes
- Major Concentration in Sport Analytics: SPAS
- Major Concentration in Sport Law: SPLW
- Major Concentration in Sport Leadership: SPLS

CIP Code and Description 1
- SMGT Major/Program: CIP Code/Title: 31.0504 - Sport and Fitness Administration/Management
- SPAS Major Concentration: CIP Code/Title: 45.0102 - Research Methodology and Quantitative Methods
- SPLW Major Concentration: CIP Code/Title: 22.0000 - Legal Studies, General
- SPLS Major Concentration: CIP Code/Title: 31.0504 - Sport and Fitness Administration/Management

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Analytics

Program Learning Outcomes for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Analytics

Upon completing the BA Degree with a major in Sport Management and a major concentration in Sport Analytics, students will be able to:

1. Communicate the models in sport analytics, both written and orally.
2. Analyze data using statistical analysis, data mining, and visualization.
3. Provide recommendations for business decisions based on data analysis.
4. Produce a marketing plan specific to a product in the sport industry.
5. Develop and hone professional skills through classroom learning and experiential learning through a steady progression of internships with added responsibilities.

Requirements for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Analytics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Sport Management and must complete:

- A minimum of 16 courses (49-50 credit hours, depending on major concentration declared) to satisfy major requirements.
- A minimum of 120 hours to satisfy degree requirements.
- A minimum of 9-10 courses (28-31 credit hours), depending on major concentration declared, taken at the 300-level or above.
- The requirements of a major concentration. When students declare the major (p. 17) in Sport Management, students must additionally identify and declare one of three major concentrations, either in:
  - Sport Analytics (p. 1990): designed to prepare our graduates as to how to properly use big data to make educated decisions in the sport management industry, or
  - Sport Law (p. 1991): designed to prepare our graduates for law school, or
  - Sport Leadership (p. 1993) designed to prepare our graduates for management, leadership, and entrepreneurial roles within the sport industry.

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<thead>
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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the BA Degree with a Major in Sport Management</td>
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### Degree Requirements

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<td>Core Requirements</td>
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<td>BUSI 296</td>
<td>BUSINESS COMMUNICATION</td>
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<td>DSCI 101</td>
<td>INTRODUCTION TO DATA SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>DSCI 301</td>
<td>PROBABILITY AND STATISTICS FOR DATA</td>
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<tr>
<td>STAT 315</td>
<td>SCIENCE</td>
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<td></td>
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<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
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<tr>
<td>SMGT 260</td>
<td>INTRODUCTION TO SPORT MANAGEMENT</td>
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<td>SMGT 266</td>
<td>LEADING WITH SERVICE</td>
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<td>SMGT 276</td>
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<td>SMGT 350</td>
<td>SPORT ETHICS</td>
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<td>SMGT 362</td>
<td>SPORT MARKETING</td>
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<tr>
<td>SMGT 376</td>
<td>SPORT MANAGEMENT INTERNSHIP 1</td>
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</tr>
<tr>
<td>SMGT 440</td>
<td>SPORT BUSINESS ANALYTICS</td>
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### Major Concentration

Select 1 from the following Major Concentrations (see below for Major Concentration requirements):

- Sport Analytics
- Sport Law
- Sport Leadership

**Total Credit Hours Required for the Major in Sport Management**

**49-50**

**Additional Credit Hours to Complete Degree Requirements**

**39-40**

**University Graduation Requirements** (p. 29)

**31**

**Total Credit Hours**

**120**

### Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

**Major Concentration: Sport Analytics**

Students must complete a total of 5 courses (16 credit hours) as listed below to satisfy the requirements for the major concentration in Sport Analytics.

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<th>Credit Hours</th>
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<tr>
<td>COMP 140</td>
<td>COMPUTATIONAL THINKING</td>
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<tr>
<td>DSCI 302</td>
<td>INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS</td>
<td>3</td>
</tr>
<tr>
<td>SMGT 431</td>
<td>ADVANCED SPORT ANALYTICS</td>
<td>3</td>
</tr>
<tr>
<td>STAT 405</td>
<td>R FOR DATA SCIENCE</td>
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**Capstone Requirement**

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<th>Code</th>
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<tr>
<td>SMGT 490</td>
<td>SEMINAR IN SPORTS ANALYTICS ¹</td>
<td>3</td>
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</table>

**Total Credit Hours**

**16**

**Footnotes and Additional Information**

¹ Students must complete this course after all required courses have been completed.
Policies for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Analytics

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Sport Management and a Major Concentration in Sport Analytics should be aware of the following program restriction:

• Students pursuing the major in Sport Management may pursue only one major concentration within the major.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Sport Management should be aware of the following departmental transfer credit guidelines:

• Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Sport Management website: https://sport.rice.edu/.

Opportunities for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Analytics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Internships
Students are required to complete at least one internship prior to graduation, often with one of the professional teams in Houston (Rockets, Astros, Texans, Dynamo, etc.). Students also will receive networking and out-of-class developmental training, as these play a significant role in obtaining high-profile positions in collegiate and professional sports.

Additional Information
For additional information, please see the Sport Management website: https://sport.rice.edu/.

Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Law

Program Learning Outcomes for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Law
Upon completing the BA Degree with a major in Sport Management and a major concentration in Sport Law, students will be able to:

1. Explain the relationship between the sports industry and the legal sector.
2. Demonstrate an understanding of the role of risk management in the sport industry.
3. Compare legal concepts and governing bodies as they relate to the sport industry.
4. Describe the concepts of morality and the theories of ethics as they apply to sport.
5. Produce a marketing plan specific to a product in the sport industry.
6. Develop and hone professional skills through classroom learning and experiential learning through a steady progression of internships with added responsibilities.
7. Communicate, at an elite level, both orally and in writing.

Requirements for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Law
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Sport Management must complete:

• A minimum of 16 courses (49-50 credit hours, depending on major concentration declared) to satisfy major requirements.
• A minimum of 120 hours to satisfy degree requirements.
• A minimum of 9-10 courses (28-31 credit hours), depending on major concentration declared, taken at the 300-level or above.
• The requirements of a major concentration. When students declare the major (p. 17) in Sport Management, students must additionally identify and declare one of three major concentrations, either in:
  • Sport Analytics (p. 1990): designed to prepare our graduates as to how to properly use big data to make educated decisions in the sport management industry, or
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  • Sport Leadership: (p. 1993) designed to prepare our graduates for management, leadership, and entrepreneurial roles within the sport industry.

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Law

The department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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<td>University Graduation Requirements (p. 29) *</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>120</td>
</tr>
</tbody>
</table>

**Footnotes and Additional Information**

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

**Major Concentration: Sport Law**

Students must complete a total of 5 courses (15 credit hours) as listed below to satisfy the requirements for the major concentration in Sport Law.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMGT 364</td>
<td>SPORT LAW</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Requirements**

Select 4 courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 239</td>
<td>LAW AND ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>HUMA 309</td>
<td>ARGUMENTATION AND DEBATE</td>
<td></td>
</tr>
<tr>
<td>HUMA 315</td>
<td>COMMUNICATION LAW</td>
<td></td>
</tr>
<tr>
<td>PHIL 373</td>
<td>PHILOSOPHY OF LAW</td>
<td></td>
</tr>
<tr>
<td>PLST 305</td>
<td>INTRODUCTION TO LAW</td>
<td></td>
</tr>
<tr>
<td>PLST 401</td>
<td>LEGAL PRACTICUM</td>
<td></td>
</tr>
<tr>
<td>PLST 402</td>
<td>JUDICIAL PRACTICUM</td>
<td></td>
</tr>
<tr>
<td>SOCI 325</td>
<td>SOCIOLOGY OF LAW</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credit Hours**

15

**Policies for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Law**

**Program Restrictions and Exclusions**

Students pursuing the BA Degree with a Major in Sport Management and a Major Concentration in Sport Law should be aware of the following program restriction:

- Students pursuing the major in Sport Management may pursue only one major concentration within the major.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Sport Management should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Sport Management website: https://sport.rice.edu/.
Opportunities for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Law

Academic Honors
The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Internships
Students are required to complete at least one internship prior to graduation, often with one of the professional teams in Houston (Rockets, Astros, Texans, Dynamo, etc.). Students also will receive networking and out-of-class developmental training, as these play a significant role in obtaining high-profile positions in collegiate and professional sports.

Students pursuing the major concentration in Sport Law are encouraged to enroll in SOSC 405 and/or SOSC 406 in order to receive out-of-class developmental training.

Additional Information
For additional information, please see the Sport Management website: https://sport.rice.edu/.

Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Leadership

Program Learning Outcomes for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Leadership
Upon completing the BA Degree with a major in Sport Management and a major concentration in Sport Leadership, students will be able to:

1. Apply a diverse set of fundamental principles and skills, including skills in business, finance, and marketing that would be necessary to produce or evaluate an event from beginning to end (from marketing and media promotion, to budget and sales, to execution and post-event evaluation).

2. Utilize critical thinking skills in analyzing sport management issues as well as in managerial planning and decision making.

3. Communicate, at an elite level, both orally and in writing.

4. Describe the concepts of morality and theories of ethics as they apply to sport.

5. Produce a marketing plan specific to product in the sport industry.

6. Develop and hone professional skill through classroom learning and experiential learning through a steady progression of internships with added responsibilities.

Requirements for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Leadership
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Sport Management must complete:

• A minimum of 16 courses (49-50 credit hours, depending on major concentration declared) to satisfy major requirements.

• A minimum of 120 hours to satisfy degree requirements.

• A minimum of 9-10 courses (28-31 credit hours), depending on major concentration declared, taken at the 300-level or above.

• The requirements of a major concentration. When students declare the major (p. 17) in Sport Management, students must additionally identify and declare one of three major concentrations, either in:
  • Sport Analytics (p. 1990): designed to prepare our graduates as to how to properly use big data to make educated decisions in the sport management industry, or
  • Sport Law (p. 1991): designed to prepare our graduates for law school, or
  • Sport Leadership (p. 1993) designed to prepare our graduates for management, leadership, and entrepreneurial roles within the sport industry.

Because of the common core requirements, it is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degroeworks/officialcertifier/) ) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Sport Management</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Sport Management</td>
<td>49-50</td>
</tr>
</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 296</td>
<td>BUSINESS COMMUNICATION</td>
<td>3</td>
</tr>
<tr>
<td>DSCI 101</td>
<td>INTRODUCTION TO DATA SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>DSCI 301 / STAT 315</td>
<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE</td>
<td>4</td>
</tr>
<tr>
<td>or BUSI 395</td>
<td>DATA ANALYTICS</td>
<td></td>
</tr>
<tr>
<td>ECON 100</td>
<td>PRINCIPLES OF ECONOMICS</td>
<td>3</td>
</tr>
<tr>
<td>SMGT 260</td>
<td>INTRODUCTION TO SPORT MANAGEMENT</td>
<td>3</td>
</tr>
</tbody>
</table>
SMGT 266 LEADING WITH SERVICE  3
SMGT 276 SPORT MANAGEMENT PRACTICUM  3
SMGT 350 SPORT ETHICS  3
SMGT 362 SPORT MARKETING  3
SMGT 376 SPORT MANAGEMENT INTERNSHIP 1  3
SMGT 440 SPORT BUSINESS ANALYTICS  3

Major Concentration
Select 1 from the following Major Concentrations (see below for Major Concentration requirements):  15-16

- Sport Analytics
- Sport Law

Sport Leadership

Total Credit Hours Required for the Major in Sport Management  49-50

Additional Credit Hours to Complete Degree Requirements *  39-40

University Graduation Requirements (p. 29) *  31

Total Credit Hours  120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

Major Concentration: Sport Leadership
Students must complete a total of 5 courses (15 credit hours) as listed below to satisfy the requirements for the major concentration in Sport Leadership.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOSC 444</td>
<td>CONSULTING PRACTICUM</td>
<td>15</td>
</tr>
</tbody>
</table>

Policies for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Leadership

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Sport Management and a Major Concentration in Sport Leadership should be aware of the following program restriction:

- Students pursuing the major in Sport Management may pursue only one major concentration within the major.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

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Additional Information
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Opportunities for the BA Degree with a Major in Sport Management and a Major Concentration in Sport Leadership

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The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

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Additional Information
For additional information, please see the Sport Management website: https://sport.rice.edu/.
Sports Medicine and Exercise Physiology

Contact Information
Kinesiology
https://kinesiology.rice.edu
S203 Tudor Fieldhouse
713-348-8816
Heidi Y. Perkins
Department Chair
hperkins@rice.edu

Sports Medicine and Exercise Physiology is a major offered by the Kinesiology (KINE) Department. The goal of the sports medicine and exercise physiology major is to provide a strong foundation in basic science and interface this with the study of the human body and application to human movement, performance, and exercise. This major provides a foundation for continued studies in graduate school, allied health, physical therapy, or medicine. Graduates are also prepared to pursue exercise or wellness careers in fitness or sport settings.

Bachelor’s Programs
- Bachelor of Arts (BA) Degree with a Major in Sports Medicine and Exercise Physiology (p. 2004)

Sports Medicine and Exercise Physiology does not currently offer an academic program at the graduate level.

Chair
Heidi Y. Perkins

Professors Emeriti
Bruce Etnyre
Nicholas K. Iammarino
Eva J. Lee
Dale W. Spence

Teaching Professor
Heidi Y. Perkins

Associate Teaching Professor
Augusto X. Rodriguez

Assistant Teaching Professors
Cassandra S. Diep
Laura Kabiri
Amanda Perkins Ball

Clinical Professor
Brian Gibson

Lecturers
Lisa Basgall
Nicholas K. Iammarino

Part-Time Lecturers
Roberta Anding
Jaime Aparicio
Steven L. Jones
Nathan Parker
Wendy Schell
P. Burke Wilson

Adjunct Faculty
Karen Basen-Engquist
Daniel C. Hughes
Thomas Krouscoop
Alexis Ortiz
Dawn Stuckey
Armin Weinberg

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Emergency Med Studies/Practice (EMSP)
EMSP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

EMSP 281 - EMT-B: INTRODUCTION TO EMERGENCY CARE
Short Title: EMT-B INTRO TO EMERGENCY CARE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is a state-sanctioned EMT-B Certification course which includes practical and didactic exploration into pre-hospital care. This class culminates with a national certification to practice pre-hospital care on the EMT-B level. This course will discuss anatomy, body systems, and the biochemical basis of emergency intervention in addition to practical application of EMT-B skills. Formerly HEAL 308 and BIOS 281 and NSCI 281. Instructor Permission Required.
EMSP 282 - ADVANCED EMT
Short Title: ADVANCED EMT
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of EMSP 281, Emergency Care. Formerly BIOS 282, HEAL 310, and NSCI 282. Instructor Permission Required.

EMSP 375 - EMS INCHARGE LEADERSHIP COURSE
Short Title: EMS INCHARGE LEADERSHIP COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students preparing to hold leadership positions in EMS will expand their competency in emergency services, including emergency management and incident response, in addition to improving patient care and leadership skills. Participants will achieve certification in national emergency services courses, and will work as a team to manage a major event. Formerly UNIV 275. Instructor Permission Required.

EMSP 491 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 491 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 491. Instructor Permission Required. Repeatable for Credit.

EMSP 499 - EMT TEACHING PRACTICUM
Short Title: EMT TEACHING PRACTICUM
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is open to an undergraduate student who serves as an instructor for the Emergency Medical Technician course. As an instructor, he/she would need to participate in course planning, course assignments, and student evaluation. They would also be expected to present course material through preparing and delivering lectures, presentations, and practical skills instructions. Grade would be assigned based on student self-evaluation, class evaluation, and primary instructor assessment. Formerly NSCI 289. Instructor Permission Required. Repeatable for Credit.

HEAL 103 - NUTRITION
Short Title: NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Concepts underlying the science of nutrition: food composition, calories and needs for energy, special nutrients, and nutritional deficiencies.
HEAL 119 - INTRODUCTION TO HEALTH AND WELLNESS
Short Title: INTRO TO HEALTH & WELLNESS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed to help students develop a greater understanding and appreciation of health and well being, as it relates to themselves and others around them, and for students to apply health and wellness knowledge in their personal life to improve their health.

HEAL 132 - MEDICAL TERMINOLOGY
Short Title: MEDICAL TERMINOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the student interested in medical and health professions to a large vocabulary of medical language which develops skills in understanding and remembering new words. It describes word origins, basic terms in anatomy and terms pertaining to each body system as well as pharmacology and medical equipment, and many frequently used medical terms, abbreviations and symbols.

HEAL 208 - CHEMICAL ALTERATIONS OF BEHAVIOR
Short Title: CHEM ALTERATIONS OF BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of social, cultural psychological, physiological causes and effects of drug use and abuse. Individual, family, and community factors related to prevention and treatment will be addressed.

HEAL 212 - CONSUMER HEALTH AND THE MEDIA
Short Title: CONSUMER HEALTH AND THE MEDIA
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of factual information and guidelines that enable consumers to act intelligently in selecting health products and services, with emphasis on the economic aspects of health.

HEAL 222 - PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH
Short Title: PRIN PUBLIC&COMMHEALTH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Principles of Public & Community Health examines aspects of the community that relate to health including health issues within community subgroups; identification and analysis of community health programs; organizational patterns and functions of voluntary and governmental health agencies and coordination of community health programs.

HEAL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HEAL 306 - HUMAN SEXUALITY
Short Title: HUMAN SEXUALITY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to explore the physiological, psychological, and sociological parameters of human sexuality, while providing accurate information and helping students develop healthy attitudes toward sexuality. Cross-list: SWGS 306.

HEAL 313 - FOUNDATIONS OF HEALTH PROMOTION AND EDUCATION
Short Title: FOUNDATIONS HEALTH PROMO&EDUC
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Foundations of Health Promotion/Health Education is designed to introduce students to the discipline of health education and the practice of health promotion. The course explores critical issues in the field of health promotion, accountability and professional preparation, professional ethics, credentialing and the changing technology in the field. Intended for Health Sciences majors only.
HEAL 350 - UNDERSTANDING CANCER  
**Short Title:** UNDERSTANDING CANCER  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate/Undergraduate Equivalency: HEAL 580. Mutually Exclusive: Cannot register for HEAL 380 if student has credit for HEAL 580.

HEAL 360 - VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE  
**Short Title:** VIOLENCE IN AMERICA  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course presents an overview of issues concerning violence using a public health perspective. Information will be presented and discussed concerning several domains pertinent to violence, including family violence, intimate partner violence, community violence, and workplace harassment.

HEAL 375 - THE BUILT ENVIRONMENT AND PUBLIC HEALTH  
**Short Title:** ENVIRONMENT AND PUBLIC HEALTH  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This interdisciplinary course reviews topics involved in characterizing the built environment and its components, which encompasses economic, environmental, & social factor such as (a) community space governance, planning & management (b) broader functions such as accessibility to healthy food & jobs. Solutions to improve population health must include environmental & other determinants of health. This course explores social, behavioral, and medical factors (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate/Undergraduate Equivalency: HEAL 580. Mutually Exclusive: Cannot register for HEAL 380 if student has credit for HEAL 580.

HEAL 379 - INTERNSHIP IN HEALTH SCIENCES  
**Short Title:** INTERNSHIP IN HEALTH SCIENCES  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Internship experience for upper-level Health Sciences majors. Department Permission Required. Repeatable for Credit.

HEAL 380 - DISPARITIES IN HEALTH IN AMERICA  
**Short Title:** DISPARITIES IN HEALTH IN AMER  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course explores social, behavioral, and medical factors (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate/Undergraduate Equivalency: HEAL 580. Mutually Exclusive: Cannot register for HEAL 380 if student has credit for HEAL 580.

HEAL 407 - EPIDEMIOLOGY  
**Short Title:** EPIDEMIOLOGY  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate/Undergraduate Equivalency: HEAL 507. Mutually Exclusive: Cannot register for HEAL 407 if student has credit for HEAL 507.

HEAL 412 - HEALTH CARE DELIVERY & POLICY IN THE UNITED STATES  
**Short Title:** HEALTH CARE DELIVERY & POLICY  
**Department:** Kinesiology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An in-depth look our current health delivery system intended to introduce student to the historic development, organization and characteristics of the health care delivery system; current payment and reimbursement systems; health insurance options; the functions of health care providers; and organizational patterns of health care facilities. Recommended Prerequisite(s): HEAL 222.
HEAL 422 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORYMODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education.
Graduate/Undergraduate Equivalency: HEAL 522. Mutually Exclusive: Cannot register for HEAL 422 if student has credit for HEAL 522.

HEAL 460 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data.
Graduate/Undergraduate Equivalency: HEAL 560. Mutually Exclusive: Cannot register for HEAL 460 if student has credit for HEAL 560.

HEAL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HEAL 495 - INDEPENDENT RESEARCH IN HEALTH SCIENCES
Short Title: INDEPENDENT RESEARCH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Repeatable for Credit.
Course URL: kinesiology.rice.edu (http://kinesiology.rice.edu)

HEAL 498 - SPECIAL TOPICS IN HEALTH SCIENCES
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces mental health, substance use, and recovery from a public health perspective. Social, biological, and behavioral science approaches to addressing mental health challenges are examined. Course work includes readings and lectures and an experiential learning activity to provide a real-world perspective on substance use and mental health. Spring 2021 Topic: Introduction to Public Mental Health Repeatable for Credit.

HEAL 499 - TEACHING PRACTICUM IN HEALTH SCIENCES
Short Title: TEACH PRACTICUM HEALTH SCIENCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Health Sciences, and at least an "A-" in the course serving as the practicum. Repeatable for Credit.
HEAL 507 - EPIDEMIOLOGY
Short Title: EPIDEMIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 407. Mutually Exclusive: Cannot register for HEAL 507 if student has credit for HEAL 407.

HEAL 522 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORY&MODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 422. Mutually Exclusive: Cannot register for HEAL 522 if student has credit for HEAL 422.

HEAL 560 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 460. Mutually Exclusive: Cannot register for HEAL 560 if student has credit for HEAL 460.

HEAL 580 - DISPARITIES IN HEALTH IN AMERICA
Short Title: DISPARITIES IN HEALTH IN AMER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores social, behavioral, and medical determinants (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 380. Mutually Exclusive: Cannot register for HEAL 580 if student has credit for HEAL 380.

HEAL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Kinesiology (KINE)

KINE 120 - SCIENTIFIC FOUNDATIONS OF KINESIOLOGY
Short Title: FOUNDATIONS OF KINESIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to studies in the areas of human movement: anatomy and physiology, exercise physiology, biomechanics, motor learning and control, and psychological aspects of sport and exercise.

KINE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>KINE 300</td>
<td>HUMAN ANATOMY WITH LAB</td>
<td>HUMAN ANATOMY</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>An introduction to normal human anatomy structure and function. All major body systems will be examined in both lecture and laboratory format using a variety of physical and virtual models.</td>
</tr>
<tr>
<td>KINE 301</td>
<td>HUMAN PHYSIOLOGY</td>
<td>HUMAN PHYSIOLOGY</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course will address the fundamental principles of human physiology at the cell, tissue, organ, organ system, and organism levels. Emphasis will be placed on mechanisms of function and homeostasis as achieved through the coordinated function of homeostatic control systems.</td>
</tr>
<tr>
<td>KINE 302</td>
<td>BIOMECHANICS</td>
<td>BIOMECHANICS</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>An introduction to the discipline of mechanics as it applies to biological systems. Primary emphasis is placed on humans and other vertebrate species. Topics covered include the kinematics and kinetics of movement, material and functional properties of musculoskeletal tissues and the integration of musculoskeletal function from molecules and cells to whole animals. Recommended prerequisite(s): KINE 300.</td>
</tr>
<tr>
<td>KINE 310</td>
<td>PSYCHOLOGICAL ASPECTS OF SPORT AND EXERCISE</td>
<td>PSYCH OF SPORT &amp; EXERCISE</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Examine the psychological foundations that underlie sport and exercise participation. Recommended Prerequisite(s): PSYC 101.</td>
</tr>
<tr>
<td>KINE 311</td>
<td>MOTOR LEARNING</td>
<td>MOTOR LEARNING</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Designed to provide a basic understanding of the theories related to skill acquisition, development, and movement. Learners develop an understanding of the cognitive, behavioral, and neurological concepts needed to become skilled at movements. The course will also incorporate laboratory experiences in the physiological, neurological, and psychological factors of human movement.</td>
</tr>
<tr>
<td>KINE 319</td>
<td>STATISTICS FOR THE HEALTH PROFESSION</td>
<td>STATS FOR HEALTH PROFESSION</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Topics include displaying and describing data, the normal curve, regression, statistical inference including parametric and non-parametric analyses, and hypothesis testing. Students also have the opportunity to analyze data using SPSS and Excel software.</td>
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<tr>
<td>KINE 320</td>
<td>HUMAN PHYSIOLOGY LAB</td>
<td>HUMAN PHYSIOLOGY LAB</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Laboratory</td>
<td>1</td>
<td>Enrollment is limited to students with a major in Sports Medicine &amp; Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course provides a hands-on laboratory to demonstrate and apply in-depth human physiology concepts. Students will collect, analyze, and report data on physiological variables. Findings will be applied to key human physiology concepts including homeostasis, isolated and integrated functions of body systems, and response to activity and exercise.</td>
</tr>
<tr>
<td>KINE 321</td>
<td>EXERCISE PHYSIOLOGY</td>
<td>EXERCISE PHYSIOLOGY</td>
<td>Kinesiology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course examines the acute and chronic effects of exercise on physiological functions. Topics include nutrition, energy transfer, fatigue, metabolism, disease, aging, preventative medicine, genetics, elite performance, ergogenic aids, exercise testing, and specificity of training.</td>
</tr>
</tbody>
</table>
KINE 326 - PHYSICAL ACTIVITY EPIDEMIOLOGY
Short Title: PHYSICAL ACTIVITY EPIDEMIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an epidemiological foundation to exercise and physical activity research related to public health. The course is designed to present evidence of the positive effects of physical activity and exercise in preventing disease, disability, and increasing quality of life.

KINE 351 - ADVANCED HUMAN ANATOMY LAB
Short Title: ADVANCED HUMAN ANATOMY LAB
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: Study of the pro-sections and cadavers are used for learning and understanding human anatomy in a gross anatomy examination laboratory at BCM in the Texas Medical Center. Hands-on examination of human anatomy in this course provides supplemental practical experience for lectures in KINE 300, Human Anatomy courses.

KINE 375 - SPORTS MEDICINE & EXERCISE PHYSIOLOGY INTERNSHIP
Short Title: SPORTS MEDICINE INTERNSHIP
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Internship experience for upperclassmen in the Sports Medicine and Exercise Physiology major. Department Permission Required. Repeatable for Credit.

KINE 403 - SPORT NUTRITION
Short Title: SPORTS NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 103
Description: This course will address current scientific knowledge about common macronutrients, micronutrients, and supplements, and how they may enhance athletic performance. The course will also focus on the role of nutritional timing, volume, and periodization to achieve practical results in endurance, strength, power and speed. Recommended Prerequisite(s): KINE 321.

KINE 410 - CASE STUDIES IN HUMAN PERFORMANCE
Short Title: CASE STUDIES HUMAN PERFORMANCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An advanced, multidisciplinary consideration of how humans perform. Class work will center around problem solving using a case study methodology.

KINE 412 - MOTOR CONTROL
Short Title: MOTOR CONTROL
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the neurophysiological, behavioral, and biomechanical aspects of human movement and development.

KINE 415 - PSYCHOLOGICAL ASPECTS OF SPORTS INJURY & REHABILITATION
Short Title: PSYCHOLOGY OF SPORT INJURY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the psychological factors involved in sport-related injuries and the rehabilitation process. Topics include personal and situational factors influencing injury and recover, adherence to rehabilitation programs, social support, returning to play after injury, and the application of psychological interventions to optimize the recovery process. Recommended Prerequisite(s): KINE 310

KINE 419 - MOVEMENT DISORDERS
Short Title: MOVEMENT DISORDERS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300 and KINE 301 and KINE 311
Description: This course offers an in-depth look into selected developmental, degenerative, and hyperkinetic movement disorders resulting in abnormal muscle tone and/or motor control. Multiple aspects of each disorder (presentation, treatment, and progression) will be considered through a variety of sources.
KINE 421 - ADVANCED TOPICS IN EXERCISE PHYSIOLOGY AND PREVENTIVE MEDICINE  
Short Title: ADV TOPICS IN EX PHYS & MED  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 321 and KINE 323  
Description: This course is a seminar style course that examines acute and chronic effects of exercise stimuli on physiological adaptation as relevant to health, disease and human performance. Topics will vary depending on current issues in exercise physiology. Examples include metabolism, fatigue, diabetes, genetics, muscular dystrophy, orthopedics, cancer and cardiovascular disease. The course is intended for those with a background in biology and/or physiology and interest in exercise and health.

KINE 430 - SPORTS INJURY: EVALUATION, MANAGEMENT, AND TREATMENT  
Short Title: SPORTS INJURY  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 300  
Description: Upper level course designed to provide students with practical application of basic science knowledge obtained in lower level courses within the department of Kinesiology. The course will address the management of common sports injuries from time of injury to return to play. At the end of the course, students will have a comprehensive understanding of athletic injuries and their management.

KINE 440 - RESEARCH METHODS  
Short Title: RESEARCH METHODS  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 319  
Description: Designed to introduce students to research methods, statistical techniques, and topics appropriate for experimental research.

KINE 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Exercise Physiology, students will be able to:

1. Explain anatomical, physiological, and biomechanical principles related to sports medicine and exercise physiology including prevention, diagnosis, and treatment of injuries and disease.

2. Translate fundamental principles of human nutrition to practical application in exercise and sport.

3. Apply theoretical and practical knowledge of psychological factors in sport, exercise, rehabilitation, and performance settings.

4. Demonstrate the ability to work in a collaborative environment and disseminate information about sports medicine and exercise physiology through the preparation and delivery of effective presentations employing proper use of technology.

5. Analyze sports science and exercise physiology research, including physical activity research, through identification and critical evaluation of relevant scientific literature.

6. Design and conduct research studies applying appropriate methodologies and ethical standards including collecting, analyzing, and interpreting data in sports medicine and exercise physiology related classroom and laboratory settings.

Requirements for the BA Degree with a Major in Sports Medicine and Exercise Physiology

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Sports Medicine and Exercise Physiology must complete:

- A minimum of 14 courses (43 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 8 courses (25 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Sports Medicine and Exercise Physiology</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Sports Medicine and Exercise Physiology</td>
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### Degree Requirements

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<th>Code</th>
<th>Title</th>
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<td>Core Requirements ¹</td>
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<tr>
<td>HEAL 103</td>
<td>NUTRITION</td>
<td>3</td>
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<tr>
<td>KINE 300</td>
<td>HUMAN ANATOMY WITH LAB</td>
<td>4</td>
</tr>
<tr>
<td>KINE 301</td>
<td>HUMAN PHYSIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>KINE 302</td>
<td>BIOMECHANICS</td>
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<tr>
<td>KINE 310</td>
<td>PSYCHOLOGICAL ASPECTS OF SPORT AND EXERCISE</td>
<td>3</td>
</tr>
<tr>
<td>KINE 311</td>
<td>MOTOR LEARNING</td>
<td>3</td>
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</tbody>
</table>

¹ Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
Elective Requirements
Select 5 elective courses (see course list below) 15

Total Credit Hours for the Major in Sports Medicine and Exercise Physiology
Additional Credit Hours to Complete Degree Requirements * 46

University Graduation Requirements (p. 29) * 31

Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 The Core Requirements include detailed exposure to human anatomy and human physiology. In addition, students receive coursework in research methods, motor learning, statistics, exercise physiology, and sports psychology.

Course List to Satisfy Requirements
Elective Requirements
To fulfill the elective requirements for the Major in Sports Medicine and Exercise Physiology, students must complete a total of 5 elective courses (minimum of 15 credit hours) from the course list below. This list of electives is drawn from course offerings that are both within the Department of Kinesiology and other academic departments. Kinesiology elective courses include courses in epidemiology, case studies in human performance, motor control, advanced exercise physiology and preventive medicine, sports nutrition, medical terminology and psychology of sports injury. Electives from other departments include courses in chemistry, physics, biology and biochemistry, which may also be utilized as medical school prerequisites.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>KINE 319</td>
<td>STATISTICS FOR THE HEALTH PROFESSIONAL</td>
<td>3</td>
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<td>KINE 321</td>
<td>EXERCISE PHYSIOLOGY</td>
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</tr>
<tr>
<td>KINE 440</td>
<td>RESEARCH METHODS</td>
<td>3</td>
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Elective Requirements
Select 5 courses from the following: 15

<table>
<thead>
<tr>
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<tr>
<td>BIOS 201</td>
<td>INTRODUCTORY BIOLOGY I</td>
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<tr>
<td>BIOS 202</td>
<td>INTRODUCTORY BIOLOGY II</td>
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<td>BIOS 211</td>
<td>INTERMEDIATE EXPERIMENTAL BIOSCIENCES</td>
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<td>BIOS 301</td>
<td>BIOCHEMISTRY I</td>
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<td>BIOS 302</td>
<td>BIOCHEMISTRY II</td>
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<td>BIOS 311</td>
<td>ADVANCED EXPERIMENTAL BIOSCIENCES</td>
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<td>BIOS 313</td>
<td>EXPERIMENTAL SYNTHETIC BIOLOGY</td>
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<td>BIOS 372</td>
<td>IMMUNOLOGY</td>
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<td>or CHEM 112AP/OTH CREDIT IN GENERAL CHEMISTRY I</td>
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<td>CHEM 123</td>
<td>GENERAL CHEMISTRY LABORATORY I 1</td>
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<td></td>
<td>or CHEM 112AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I</td>
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<td>CHEM 124</td>
<td>GENERAL CHEMISTRY LABORATORY II 1</td>
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<td>GENERAL CHEMISTRY III</td>
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<td>CHEM 134</td>
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Footnotes and Additional Information
1 CHEM 151 may be substituted for CHEM 121 or CHEM 111; CHEM 153 may be substituted for CHEM 123 or CHEM 113; CHEM 152 may be substituted for CHEM 122 or CHEM 112; CHEM 154 may be substituted for CHEM 124 or CHEM 114.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Sports Medicine and Exercise Physiology should be aware of the following departmental transfer credit guidelines:
Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Required core coursework must be taken at Rice. Requests for transfer credit will only be considered for elective coursework.

Additional Information
For additional information, please see the Department of Kinesiology website: https://kinesiology.rice.edu/

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Unique Program: Rice-UTSPH Public Health Scholars
Rice undergraduate students interested in pursuing a Master of Public Health (MPH) degree at the University of Texas Health Science Center at Houston (UTHealth School of Public Health (UTSPH)) may apply to the Rice-UT Public Health Scholars Program. This unique coordinated program enables accepted Rice students to earn credit towards their Rice undergraduate degree (BA or BS with any major), and to accelerate in the completion of their UTSPH Master of Public Health degree to within one year after completing their Rice undergraduate degree. For more information on the Rice-UTSPH Public Health Scholars Program, please see the program’s website: https://dou.rice.edu/student-resources/public-health-scholars-program/https://dou.rice.edu/student-resources/public-health-scholars-program/)

Additional Information
For additional information, please see the Department of Kinesiology website: https://kinesiology.rice.edu/

Statistics
Contact Information
Statistics
https://statistics.rice.edu/
2103 Duncan Hall
713-348-6032

Rudy Guerra
Department Chair
rquerra@rice.edu

Marek Kimmel
Associate Department Chair
kimmel@rice.edu

Statistics coursework acquaints students with the role played in the modern world by probabilistic and statistical ideas and methods. Students grow familiar with both the theory and the application of techniques in common use as they are trained in statistical research.

At the undergraduate level, the department offers two undergraduate degrees: the Bachelor of Arts (BA) degree and the Bachelor of Science (BS) degree. The Bachelor of Arts (BA) degree is designed for those students interested in applied statistics while the Bachelor of Science (BS) degree is intended for students desiring to pursue research positions or graduate study in Statistics.

The graduate program has areas of specialization in applied probability, Bayesian methodology, bioinformatics, biomathematics, biostatistics, computational finance, data visualization, environmental health, functional data analysis, graphical models, large and complex data, machine and statistical learning, networks, neuroscience, nonparametric function estimation, social sciences, statistical computing, spatial statistics, stochastic processes, systems biology, time series analysis, and urban analytics. Statistics is a cornerstone of the campus wide data science initiative.

A coordinated MBA/MStat degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Bachelor’s Program

• Bachelor of Arts (BA) Degree with a Major in Statistics (p. 2021)
• Bachelor of Science (BS) Degree with a Major in Statistics (p. 2024)

Minors

• Minor in Financial Computation and Modeling (p. 1030)
• Minor in Statistics (p. 2032)

Master’s Programs

• Master of Arts (MA) Degree in the field of Statistics*
• Master of Statistics (MStat) Degree (p. 2028)

Doctoral Program

• Doctor of Philosophy (PhD) Degree in the field of Statistics (p. 2027)

Coordinated Programs

• Master of Statistics (MStat) Degree / Master of Business Administration (MBA) Degree (p. 2031)

* Although students are not normally admitted to a Master of Arts (MA) degree program, graduate students may earn the MA as they work towards the PhD.

Chair
Rudy Guerra

Professors
Dennis Cox
Katherine Bennett Ensor
Rudy Guerra
Marek Kimmel
David W. Scott
Marina Vannucci

Associate Professor
Philip A. Ernst

Assistant Professors
Daniel R. Kowal
Meng Li
Statistics (STAT)

STAT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

STAT 280 - ELEMENTARY APPLIED STATISTICS
Short Title: ELEMENTARY APPLIED STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics include basic probability, descriptive statistics, probability distributions, confidence intervals, significance testing, simple linear regression and correlation, association between categorized variables.

STAT 305 - INTRODUCTION TO STATISTICS FOR BIOSCIENCES
Short Title: INTRO TO STAT FOR BIOSCIENCES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105 or MATH 112) and (MATH 102 or MATH 106)
Description: An introduction to statistics for Biosciences with emphasis on statistical models and data analysis techniques. Computer-assisted data analysis and examples, are explored in laboratory sessions. Topics include descriptive statistics, correlation and regression, categorical data analysis, statistical inference through confidence intervals and significance testing, rates, and proportions. Real-world examples are emphasized. Recommended Prerequisite(s): MATH 212 or MATH 222

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)
STAT 310 - PROBABILITY AND STATISTICS
Short Title: PROBABILITY & STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): MATH 102 or MATH 106
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Advanced topics (not covered in STAT 310 or STAT 315) include the modeling stochastic phenomena and asymptotic statistical theory. Intended for students wishing to understand more rigorous statistical theory and for those contemplating a BS degree in Statistics or graduate school in statistical science. Required prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for STAT 310 if student has credit for BUSI 395.

STAT 311 - HONORS PROBABILITY AND MATHEMATICAL STATISTICS
Short Title: HONORS STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 212 or MATH 222
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Advanced topics (not covered in STAT 310 or STAT 315) include the modeling stochastic phenomena and asymptotic statistical theory. Intended for students wishing to understand more rigorous statistical theory and for those contemplating a BS degree in Statistics or graduate school in statistical science. Required prerequisite(s): MATH 212 (or equivalent). Mutually Exclusive: A student cannot register for STAT 311 if student has credit for ECON 307/STAT 310 or STAT 315/DSCI 301.

STAT 312 - PROBABILITY & STATISTICS FOR ENGINEERS
Short Title: PROB & STAT FOR ENGINEERS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102
Description: Probability and the central concepts and methods of statistics including probability, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Examples are predominantly from civil and environmental engineering. Recommended Prerequisite(s): MATH 212.

STAT 313 - UNCERTAINTY AND RISK IN URBAN INFRASTRUCTURES
Short Title: RISK-BASED DEC UNDER UNCERT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 312 or STAT 310 or STAT 315 or DSCI 301 or ECON 307 or ECON 382 or STAT 331 or ELEC 331
Description: This course explores methods for practical risk-based decision support, particularly for infrastructure systems. Uncertainty quantification (UQ) to external events including natural hazards is at the core of risk-informed design, operation, and mitigation actions. UQ also guides engineering practice and enables code developments. The course emphasizes decision theory, Bayesian approaches, risk analysis tools, and infrastructure safety. Cross-list: CEVE 313. Repeatable for Credit.

STAT 315 - PROBABILITY AND STATISTICS FOR DATA SCIENCE
Short Title: STATISTICS FOR DATA SCIENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102 or MATH 106 or MATH 112
Description: An introduction to mathematical statistics and computation for applications to data science. Topics include probability, random variables expectation, sampling distributions, estimation, confidence intervals, hypothesis testing and regression. A weekly lab will cover the statistical package, R, and data projects. Cross-list: DSCI 301. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for STAT 315 if student has credit for BUSI 395.

STAT 376 - ECONOMETRICS
Short Title: ECONOMETRICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 209 or ECON 309 or ECON 446) and (ECON 308 or ECON 401 or ECON 477)
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: ECON 310. Mutually Exclusive: Cannot register for STAT 376 if student has credit for ECON 409/STAT 400.
STAT 385 - METHODS OF DATA ANALYSIS AND SYSTEM OPTIMIZATION
Short Title: METHODS FOR DATA ANALYSIS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 305 or STAT 310 or ECON 307 or STAT 312 or STAT 315 or DSCI 301
Description: The three general areas covered in this methodology oriented course are (a) statistical methods, including regression, sampling, and experimental design; (b) simulation based methods in statistics, queuing and inventory problems; (c) an introduction to optimization methods. Excel serves as the basic computing software.

STAT 405 - R FOR DATA SCIENCE
Short Title: R FOR DATA SCIENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 305 or STAT 312 or STAT 310 or ECON 307 or STAT 385 or STAT 315 or DSCI 301
Description: This course introduces students to the statistical programming language, R, and how to use it in statistical and data science problems. The course traces the data science pipeline from importing data into R, exploring and visualizing data, applying a variety of statistical methods, and communicating results. Important computational tools for data science (e.g. databases, web scraping, and big data) and good programming practice are integrated throughout the course. No programming experience is required. Graduate/Undergraduate Equivalency: STAT 605. Mutually Exclusive: Cannot register for STAT 405 if student has credit for STAT 605.

STAT 406 - SAS STATISTICAL PROGRAMMING
Short Title: SAS STATISTICAL PROGRAMMING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 305 or STAT 312 or ECON 307 or ECON 382 or STAT 385 or STAT 310 or STAT 315 or DSCI 301
Description: Students will learn how to work within the statistical programming language SAS. The course covers from getting data into SAS, transforming and plotting it, to applying appropriate statistical analysis, and communicating the results. Important topics such as database managing with SQL, macro programming, interactive Matrix Language, and efficient programming in general are integrated throughout the course. Graduate/Undergraduate Equivalency: STAT 606. Mutually Exclusive: Cannot register for STAT 406 if student has credit for STAT 606.

STAT 410 - LINEAR REGRESSION
Short Title: LINEAR REGRESSION
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 310 or STAT 312 or ECON 307 or ECON 382 or STAT 315 or DSCI 301
Description: An introduction to linear regression and its applications. Topics include simple and multiple linear regression, least squares, analysis of variance, model selection, diagnostics, remedial measures. Applications to real data using statistical software are emphasized. Recommended Prerequisite(s): CAAM 335 or MATH 355.

STAT 411 - ADVANCED STATISTICAL METHODS
Short Title: ADVANCED STATISTICAL METHODS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or ECON 382) and (STAT 410 or STAT 615)
Description: Advanced topics in statistical applications such as sampling, experimental design and statistical process control. STAT 411 will have assignments and examinations focusing more on basic concepts than on theoretical methods. Graduate/Undergraduate Equivalency: STAT 616. Mutually Exclusive: Cannot register for STAT 411 if student has credit for STAT 616.

STAT 413 - INTRODUCTION TO STATISTICAL MACHINE LEARNING
Short Title: INTRO TO STAT MACHINE LEARNING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 411 and CAAM 335 or MATH 355).
Description: This course is an introduction to concepts, methods, and best practices in statistical machine learning. Topics covered include regularized regression, classification, kernels, dimension reduction, clustering, trees, and ensemble learning. Emphasis will be placed on applied data analysis and computation. Recommended Prerequisite(s): STAT 411 and CAAM 335 or MATH 354 or MATH 355.
STAT 415 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 405 or COMP 140 or CAAM 210
Description: Students in this course will advise clients at Rice and beyond in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 515. Recommended Prerequisite(s): STAT 413 or COMP 440 or COMP 540 or COMP 330 or STAT 411. Mutually Exclusive: Cannot register for STAT 415 if student has credit for STAT 515. Repeatable for Credit.

STAT 418 - PROBABILITY
Short Title: PROBABILITY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics include random variables, distributions, transformations, moment generating functions, common families of distributions, independence, sampling distributions, and basic stochastic processes. STAT 418 will have assignments and examinations focusing more on basic concepts than on theoretical methods. Graduate/Undergraduate Equivalency: STAT 518. Mutually Exclusive: Cannot register for STAT 418 if student has credit for STAT 518.

STAT 419 - STATISTICAL INFERENCE
Short Title: STATISTICAL INFERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355 or CAAM 334 or CAAM 335) and STAT 418
Description: Topics include principles of data reduction, point estimation, hypothesis testing, interval estimation, Bayesian inference, Decision Theory, inference foundations of analysis of variance and regression. STAT 419 will have assignments and examinations focusing more on basic concepts than on theoretical methods. Graduate/Undergraduate Equivalency: STAT 519. Mutually Exclusive: Cannot register for STAT 419 if student has credit for STAT 519.

STAT 421 - APPLIED TIME SERIES AND FORECASTING
Short Title: APPLIED TIME SERIES/FORECASTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 410 or ECON 310
Description: Applied time series modeling and forecasting, with applications to financial markets. STAT 621 is a graduate version of STAT 421 with advanced assignments. Graduate/Undergraduate Equivalency: STAT 621. Mutually Exclusive: Cannot register for STAT 421 if student has credit for STAT 621.

STAT 423 - PROBABILITY IN BIOINFORMATICS AND GENETICS
Short Title: PROB BIOINFORMATICS & GENETICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 312 or STAT 418
Description: Course introduces the student to modern biotechnology and genomic data. Statistical methods to analyze genomic data are covered, including probability models, basic stochastic processes, and statistical modeling. Biological topics include DNA sequence analysis, phylogenetic inference, gene finding, and molecular evolution. Graduate/Undergraduate Equivalency: STAT 623. Mutually Exclusive: Cannot register for STAT 423 if student has credit for STAT 623.

STAT 425 - INTRODUCTION TO BAYESIAN INFERENCE
Short Title: INTRO TO BAYESIAN INFERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 410 and STAT 405 or COMP 210 or COMP 140 or COMP 330
Description: This course is an introduction to Bayesian inference, with emphasis on concepts and methods for analyzing data. We will consider a variety of models, including MCMC algorithms and methods for linear regression and hierarchical models. Computational methods will be emphasized. Recommended Prerequisite(s): STAT 411 or CAAM 335 or MATH 355.
STAT 435 - DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this project-based course, students will work with data science research or analysis projects selected from a variety of disciplines and industries. Students will learn best practices in data science. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 535. Mutually Exclusive: Cannot register for STAT 435 if student has credit for STAT 535. Repeatable for Credit.

STAT 440 - STATISTICS FOR BIOENGINEERING
Short Title: STATISTICS FOR BIOENGINEERING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 (may be taken concurrently)
Description: Course covers application of statistics to bioengineering. Topics include descriptive statistics, estimation, hypothesis testing, ANOVA, and regression. BIOE 252 may be taken concurrently with BIOE 440. BIOE 440/STAT 440 and BIOE 439 cannot both be taken for credit. Cross-list: BIOE 440. Mutually Exclusive: Cannot register for STAT 440 if student has credit for BIOE 439.

STAT 449 - QUANTITATIVE FINANCIAL RISK MANAGEMENT
Short Title: QUAN FINANCIAL RISK MANAGEMENT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MATH 212 and (ECON 400 or STAT 400 or ECON 409 or STAT 410) or STAT 310 or ECON 307 or STAT 315 or DSCI 301 or STAT 312 or STAT 331 or ELEC 331
Description: This course covers the use of financial securities and derivatives to take or hedge financial risk positions. Most commonly used instruments, from simple forwards and futures to exotic options and swaptions are covered. The pricing of derivatives securities will also be studied, but the emphasis will be on the mechanics and uses of financial engineering methods. STAT 449 is mutually exclusive to ECON 449. Credit cannot be given for both. Graduate/Undergraduate Equivalency: STAT 649. Mutually Exclusive: Cannot register for STAT 449 if student has credit for ECON 449.

STAT 450 - SENIOR CAPSTONE PROJECT
Short Title: SENIOR CAPSTONE PROJECT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in Statistics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students engage in individual or team-oriented statistical projects to solve problems motivated by theory, computation, or application to real problems and data. Typical projects involve statistical modeling, data analysis, and computing to answer substantive questions in engineering or the physical, biological, or social sciences. Participants attend regular seminars addressing project development, research techniques and effective written and verbal communication skills in presenting statistical results. Repeatable for Credit.

STAT 453 - BIOSTATISTICS
Short Title: BIOSTATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 410
Description: An overview of statistical methodologies useful in the practice of Biostatistics. Topics include epidemiology, rates, and proportions, categorical data analysis, regression, and logistic regression, retrospective studies, case-control studies, survival analysis. Real biomedical applications serve as context for evaluating assumptions of statistical methods and models. R serves as the computing software. Graduate/Undergraduate Equivalency: STAT 553. Mutually Exclusive: Cannot register for STAT 453 if student has credit for STAT 553.

STAT 457 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
STAT 482 - QUANTITATIVE FINANCIAL ANALYTICS
Short Title: QUANT FINANCIAL ANALYTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A modern approach to fundamental analytics of securities, the classic works of Graham and Dodd. Deconstructing the Efficient Market Hypothesis Financial Statement Analysis, Capital Market Theory, CAPM, APT, Fama-French Empirical Financial Forecasting. Graduate/Undergraduate Equivalency: STAT 682. Mutually Exclusive: Cannot register for STAT 482 if student has credit for STAT 682.

STAT 484 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIR RISK ASSESS&HUMAN HLTH
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 305
Description: Learn and apply quantitative risk assessment methodology to estimate human health risk from environmental exposure to contamination in air, soil and water. Students will conduct a series of team projects focused on toxicology, risk based screening levels, exposure concentration estimation and risk characterization. Cross-list: CEVE 484. Graduate/Undergraduate Equivalency: STAT 684. Mutually Exclusive: Cannot register for STAT 484 if student has credit for STAT 684.

STAT 485 - ENVIRONMENTAL STATISTICS AND DECISION MAKING
Short Title: ENVIR STAT & DECISION MAKING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 305 or STAT 385
Description: A project oriented computer intensive course focusing on statistical and mathematical solutions and investigations for the purpose of environmental decisions. This course is the undergraduate version of STAT 685 with reduced requirements. Graduate/Undergraduate Equivalency: STAT 685. Recommended Prerequisite(s): STAT 305 and STAT 385. Mutually Exclusive: Cannot register for STAT 485 if student has credit for STAT 685.

STAT 486 - MARKET MODELS
Short Title: MARKET MODELS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 310 or ECON 307 or STAT 315 or DSCI 301 or ECON 382 or STAT 312
Description: This course takes the classical efficient market models and superimposes upon it models for other stochastic phenomena not generally accounted for in efficient market theory, showing how risk is lessened by portfolios and other mechanisms. This undergraduate course uses computer simulations as an alternative to closed form solutions. Graduate/Undergraduate Equivalency: STAT 686. Mutually Exclusive: Cannot register for STAT 486 if student has credit for STAT 686.

STAT 487 - COFES BLOCKCHAIN AND CRYPTOCURRENCIES
Short Title: COFES BLOCKCHAIN/CRYPTO
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How will blockchains empower positive and radical change in our increasingly globalized and data-driven society? Students should be prepared for exposure to highly interdisciplinary discussions regarding applying new technology to rethink existing economic & social structures. No technical or engineering experience is required. Graduate/Undergraduate Equivalency: STAT 687.

STAT 490 - UNDERGRADUATE RESEARCH IN STATISTICS
Short Title: UNDERGRADUATE RESEARCH IN STAT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides 1-3 credit hours of credit for STAT majors who wish to pursue a research project of mutual interest to the student and a faculty member in a selected area of statistical specialization. The student will conduct independent research under the faculty member's direction. Repeatable for Credit.

STAT 491 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
STAT 492 - STATISTICS PRACTICUM
Short Title: STATISTICS PRACTICUM
Department: Statistics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Statistics.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 498, MATH 498. Graduate/Undergraduate Equivalency: STAT 698. Mutually Exclusive: Cannot register for STAT 498 if student has credit for STAT 698. Repeatable for Credit.

STAT 496 - RTG CROSS-TRAINING IN DATA SCIENCE
Short Title: RTG CROSS-TRAINING IN DATA SCI
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Computer Science or Statistics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course to introduce students to topics in Data Science at the interface between Statistics and Computer Science. Students participate in the process of preparing, delivering and critiquing talks. Topics change each semester. Instructor Permission Required. Cross-list: COMP 496. Graduate/Undergraduate Equivalency: STAT 696. Mutually Exclusive: Cannot register for STAT 496 if student has credit for STAT 696. Repeatable for Credit.

STAT 498 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 498, MATH 498. Graduate/Undergraduate Equivalency: STAT 698. Mutually Exclusive: Cannot register for STAT 498 if student has credit for STAT 698. Repeatable for Credit.

STAT 499 - MATHEMATICAL SCIENCES SEMINAR
Short Title: MATHEMATICAL SCIENCES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: PSYC 502. Graduate/Undergraduate Equivalency: STAT 699. Repeatable for Credit.

STAT 502 - NEURAL MACHINE LEARNING I
Short Title: NEURAL MACHINE LEARNING I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of major neural machine learning (Artificial Neural Network) paradigms. Analytical discussion of supervised and unsupervised neural learning algorithms and their relation to information theoretical methods. Practical applications to data analysis such as pattern recognition, clustering, classification, function approximation/ regression, non-linear PCA, projection pursuit, independent component analysis, with lots of examples from image and digital processings. Details are posted at www.ece.rice.edu/~erzebet/ANNcourse.html. Cross-list: COMP 502, ELEC 502.

STAT 503 - TOPICS IN METHODS AND DATA ANALYSIS
Short Title: TOPICS METHODS&DATA ANALYSIS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applications of least squares and general linear mode. Cross-list: POLI 503.

STAT 509 - ADVANCED PSYCHOLOGICAL STATISTICS I
Short Title: ADVANCED PSYC STATISTICS I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to inferential statistics, with emphasis on analysis of variance. Students who do not meet registration requirements as Graduate and Psychology or MHCIF (Master in Human-Computer Interaction and Human Factors) Majors must receive instructor permission to register. Cross-list: PSYC 502.
STAT 510 - ADVANCED PSYCHOLOGICAL STATISTICS II
Short Title: ADVANCED PSYC STATISTICS II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 502 or STAT 509
Description: A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Cross-list: PSYC 503.

STAT 514 - INTRODUCTION TO BIOSTATISTICS
Short Title: INTRODUCTION TO BIOSTATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presents basic and advanced methods of statistics as applied to problems in bioengineering. Demonstrates techniques for data organization, exploration, and presentation. Foundations of statistical estimation, inference, and testing are reviewed. Optimal planning of experiments is explored. Advanced techniques include multiple regression, variable selection, logistic regression, analysis of variance, survival analysis, multiple measurements and measurements over time. Additional topics, such as Bayesian methods, will be discussed as time allows. Labs will use the statistical software JMP and/or R. Cross-list: BIOE 514.

STAT 515 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in this course will advise clients from across this Rice community in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 415. Recommended Prerequisite(s): STAT 413 or COMP 440 or COMP 540 or COMP 330 or STAT 411. Mutually Exclusive: Cannot register for STAT 515 if student has credit for STAT 415. Repeatable for Credit.

STAT 518 - PROBABILITY
Short Title: PROBABILITY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include random variables, distributions, transformations, moment generating functions, common families of distributions, independence, sampling distributions, and basic stochastic processes. STAT 518 will have more advanced assignments and examinations focusing on theoretical methods. Graduate/Undergraduate Equivalency: STAT 418. Mutually Exclusive: Cannot register for STAT 518 if student has credit for STAT 418.

STAT 519 - STATISTICAL INFEERENCE
Short Title: STATISTICAL INFEERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518
Description: Topics include principles of data reduction, point estimation, hypothesis testing, interval estimation, Bayesian inference, Decision Theory, inference foundations of analysis of variance and regression. STAT 519 will have more advanced assignments and examinations focusing on theoretical methods. Graduate/Undergraduate Equivalency: STAT 419. Mutually Exclusive: Cannot register for STAT 519 if student has credit for STAT 419.

STAT 525 - BAYESIAN STATISTICS
Short Title: BAYESIAN STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518
Description: This course covers Bayesian Inference and methods for analyzing data. The emphasis will be on applied data analysis rather than theoretical development. We will consider a variety of models, including linear regression, hierarchical models, and models for categorical data. Recommended Prerequisite(s): STAT 519 and STAT 615 and STAT 605.

STAT 532 - FOUNDATIONS OF STATISTICAL INFERENCE I
Short Title: FOUNDATIONS OF STAT INF I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519
Description: The first semester in a two-semester sequence in mathematical statistics: random variables, distributions, small and large sample theorems of decision theory and Bayesian methods, hypothesis testing, point estimation, and confidence intervals; topics such as exponential families, univariate and multivariate linear models, and nonparametric inference will also be discussed. Required for graduate students in statistics.
STAT 533 - FOUNDATIONS OF STATISTICAL INFERENCE II

Short Title: FOUNDATIONS OF STAT INF II

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Prerequisite(s): STAT 532

Description: A continuation of STAT 532. Required for Ph.D. students in statistics.

STAT 535 - DATA SCIENCE PROJECTS

Short Title: DATA SCIENCE PROJECTS

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Instructor Permission Required. Graduate/Undergraduate Equivalency. STAT 435. Mutually Exclusive: Cannot register for STAT 535 if student has credit for STAT 435. Repeatable for Credit.

STAT 540 - INTERNSHIP IN STATISTICAL MODELING

Short Title: PRACTICUM IN STAT & DATA SCI

Department: Statistics

Grade Mode: Standard Letter

Course Type: Internship/Practicum

Credit Hours: 1-2

Restrictions: Enrollment is limited to students with a major in Statistics. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Designed for graduate students in statistics. This course introduces current theoretical and applied problems encountered in statistical practice through practical internships. Students will be required to complete a paid or unpaid off-campus internship. MSTAT students will be required to submit a written, 10-15 page report/document summarizing the statistical experience developed during the internship, as well documenting how the internship was instrumental to the Master's in Statistical course of study. Repeatable for Credit.

STAT 541 - MULTIVARIATE ANALYSIS

Short Title: MULTIVARIATE ANALYSIS

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Prerequisite(s): STAT 410 or STAT 615

Description: Study of multivariate data analysis and theory. Topics include normal theory, principal components, factor analysis, discrimination, estimation and hypothesis testing, multivariate analysis of variance and regression clustering.

STAT 542 - SIMULATION

Short Title: SIMULATION

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Prerequisite(s): STAT 519 and (STAT 615 or STAT 410)

Description: Topics in stochastic simulation including; random number generators, Monte Carlo methods, resampling methods, Markov Chain Monte Carlo, importance sampling and simulation based estimation for stochastic processes.

STAT 545 - GLM & CATEGORICAL DATA ANALYSIS

Short Title: GLM & CATEG'L DATA ANALYSIS

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Prerequisite(s): STAT 519 or STAT 615 or STAT 410

Description: Contingency tables, association parameters, chi-squared tests, general theory of generalized linear models, logistics regression, loglinear models, poisson regression.

STAT 547 - SURVIVAL ANALYSIS

Short Title: SURVIVAL ANALYSIS

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Prerequisite(s): STAT 519 and STAT 615

Description: Contingency tables, association parameters, chi-squared tests, general theory of generalized linear models, logistics regression, loglinear models, poisson regression.

STAT 549 - FUNCTIONAL DATA ANALYSIS

Short Title: FUNCTIONAL DATA ANALYSIS

Department: Statistics

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Prerequisite(s): STAT 533 and STAT 581

Description: Statistical methods for functional data; spaces of functions, basis representations including spline functions, orthogonal bases such as wavelets, and functional principal components; methods of inference for functional data including both frequentist and Bayesian methods.
STAT 550 - NONPARAMETRIC FUNCTION ESTIMATION
Short Title: NONPARAMETRIC FUNCTION EST
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of topics in data analysis including data visualization, multivariate density estimation, and nonparametric regression. Advanced applications will include clustering, discrimination, dimension reduction, and bump-hunting using nonparametric density procedures.

STAT 551 - ADVANCED TOPICS IN TIME SERIES
Short Title: ADVANCED TOPICS IN TIME SERIES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 552 or STAT 621 or STAT 622
Description: The course will cover current topics in both modeling and forecasting discrete and continuous time series. A brief coverage will also be given to spatial and spatial-temporal processes.

STAT 552 - APPLIED STOCHASTIC PROCESSES
Short Title: APPLIED STOCHASTIC PROCESSES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518
Description: This course covers the theory of some of the most frequently used stochastic processes in application; discrete and continuous time, Markov chains, Poisson and renewal processes, and Brownian motion.

STAT 553 - BIOSTATISTICS
Short Title: BIOSTATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615
Description: Same as STAT 453 with advanced problem sets. Graduate/Undergraduate Equivalency: STAT 453. Mutually Exclusive: Cannot register for STAT 553 if student has credit for STAT 453.

STAT 555 - BIOSTATISTICS CONSULTING AND COLLABORATION
Short Title: BIOSTAT CONSULTG & COLLAB
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 545 and STAT 553 and STAT 615
Description: Students will gain experience by working on real collaborative projects that biostatisticians encounter every day. The goal of the course is to introduce students to projects where statistics and science meet and interact to produce knowledge. The students will learn to work with clinical/basic science collaborators to elicit the scientific question of interest, design studies, identify the correct statistical analyses tools, and communicate the results in both oral and written form. We will also address important topics related to developing productive collaborations, such as building trust and mutual respect, effective communication, participating in multidisciplinary teams and reproducible research. This course is also offered at GSBS/MD Anderson Cancer Center as GS01 1723. Instructor Permission Required. Repeatable for Credit.
Course URL: statistics.rice.edu (http://statistics.rice.edu)

STAT 581 - MATHEMATICAL PROBABILITY I
Short Title: MATHEMATICAL PROBABILITY I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 545 and STAT 553 and STAT 615

STAT 582 - MATHEMATICAL PROBABILITY II
Short Title: MATHEMATICAL PROBABILITY II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 581
Description: Continuation of STAT 581.

STAT 583 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
Short Title: INTRO RANDOM PROCESSES & APPL
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems, expansions of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: CAAM 583, ELEC 533.
STAT 590 - GRADUATE RESEARCH IN STATISTICS
Short Title: GRAD RESEARCH IN STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research course for graduate level research in probability and statistics. This course provides 1-15 hours of credit for students who wish to pursue a statistical research project of mutual interest to the student and a faculty member. The student will conduct independent research under the faculty member's direction. Repeatable for Credit. Repeatable for Credit.

STAT 591 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent study for graduate level research topics in statistics. It provides credit for independent study in a selected area of statistical specialization. It is intended for directed reading, for conducting independent research, and documentation of conclusions and application of practical internships. Repeatable for Credit.

STAT 600 - GRADUATE SEMINAR IN STATISTICS
Short Title: GRAD SEMINAR IN STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: COMP 602, ELEC 602. Repeatable for Credit.

STAT 601 - STATISTICS COLLOQUIUM
Short Title: STATISTICS COLLOQUIUM
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

STAT 602 - NEURAL MACHINE LEARNING AND DATA MINING II
Short Title: NEURAL MACHINE LEARNING II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 502 or COMP 502 or STAT 502
Description: Advanced topics in ANN theories, with a focus on learning high-dimensional complex manifolds with neural maps (Self-Organizing Maps, Learning Vector Quantizers and variants). Application to data mining, clustering, classification, dimension reduction, sparse representation. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: COMP 602, ELEC 602. Repeatable for Credit.
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

STAT 604 - COMPUTATIONAL ECONOMICS
Short Title: COMPUTATIONAL ECONOMICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 505 and ECON 508 and ECON 510 and ECON 511 and MATH 321
Description: Numerical methods most commonly used in economics and their application to frontier research projects in economic modeling. Topics include optimization theory and numerical integration. Cross-list: ECON 504.

STAT 605 - R FOR DATA SCIENCE
Short Title: R FOR DATA SCIENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students participate in the process of researching professional literature (journal articles, book chapters, dissertations), preparing, delivering and critiquing talks. Literature topics change each semester. Repeatable for Credit.
STAT 606 - SAS STATISTICAL PROGRAMMING
Short Title: SAS STATISTICAL PROGRAMMING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn how to work within the statistical programming language SAS. The course covers from getting data into SAS, transforming and plotting it, to applying appropriate statistical analysis, and communicating the results. Important topics such as database managing with SQL, macro programming, interactive Matrix Language, and efficient programming in general are integrated throughout the course. Graduate/Undergraduate Equivalency: STAT 406. Mutually Exclusive: Cannot register for STAT 606 if student has credit for STAT 406.

STAT 610 - ECONOMETRICS I
Short Title: ECONOMETRICS I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on critical analysis of the literature. Cross-list: ECON 510.

STAT 611 - ECONOMETRICS II
Short Title: ECONOMETRICS II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: ECON 511.

STAT 613 - STATISTICAL MACHINE LEARNING
Short Title: STAT MACHINE LEARNING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615 and STAT 431 may be taken concurrently with STAT 621
Description: This course is an advanced survey of statistical machine learning theory and methods. Emphasis will be placed methodological, theoretical, and computational aspects of tools such as regularized regression, classification, kernels, dimension reduction, clustering, graphical models, trees, and ensemble learning. Recommended Prerequisite(s): STAT 615 and STAT 605 and STAT 519.

STAT 615 - REGRESSION AND LINEAR MODELS
Short Title: REGRESSION AND LINEAR MODELS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (STAT 310 or STAT 312 or ECON 307 or ECON 382) and (MATH 355 or CAAM 335)
Description: A survey of regression, linear models, and experimental design. Topics include simple and multiple linear regression, single- and multi-factor studies, analysis of variance, analysis of covariance, model selection, diagnostics. Data analysis using statistical software is emphasized.
Course URL: ece.rice.edu/~erzsebet/STAT615.html (http://ece.rice.edu/~erzsebet/STAT615.html)

STAT 616 - ADVANCED STATISTICAL METHODS
Short Title: ADVANCED STATISTICAL METHODS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615
Description: Advanced topics in statistical applications such as sampling, experimental design and statistical process control. STAT 616 will have more advanced assignments and examinations focusing on theoretical methods. Graduate/Undergraduate Equivalency: STAT 411. Mutually Exclusive: Cannot register for STAT 616 if student has credit for STAT 411.

STAT 620 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on advanced topics in Statistics. Repeatable for Credit.

STAT 621 - APPLIED TIME SERIES AND FORECASTING
Short Title: APPLIED TIME SERIES/FORECASTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615 (may be taken concurrently)
Description: Applied time series modeling and forecasting, with applications to financial markets with advanced problem sets. This is a graduate version of STAT 421 with advanced assignments. The courses STAT 615 and STAT 431 may be taken concurrently with STAT 621 if courses are not in history. Graduate/Undergraduate Equivalency: STAT 421. Mutually Exclusive: Cannot register for STAT 621 if student has credit for STAT 421.
STAT 623 - PROBABILITY IN BIOINFORMATICS AND GENETICS
Short Title: PROB BIOINFORMATICS & GENETICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 305 or STAT 310 or STAT 315 or DSCI 301 or STAT 331 or STAT 418 or STAT 518
Description: Course introduces the student to modern biotechnology and genomic data. Statistical methods to analyze genomic data are covered, including probability models, basic stochastic processes, and statistical modeling. Biological topics include DNA sequence analysis, phylogenetic inference, gene finding, and molecular evolution. Graduate/Undergraduate Equivalency: STAT 423. Mutually Exclusive: Cannot register for STAT 623 if student has credit for STAT 423.

STAT 625 - ADVANCED BAYESIAN INFERENCE
Short Title: ADVANCED BAYESIAN INFERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 525
Description: This course focuses on the Bayesian inference with emphasis on theory and applications. In this course, we will cover advancements and challenges in modern Bayesian inference, and illustrate a variety of theoretical and computational methods, simulation techniques, and hierarchical models that are suitable to analyze complex data. Repeatable for Credit.

STAT 630 - TOPICS IN CLINICAL TRIALS
Short Title: TOPICS IN CLINICAL TRIALS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519 and STAT 615
Description: This course deals with fundamental concepts in the design of clinical studies, ranging from early dose-finding studies (phase I) to screening studies (phase II) to randomized comparative studies (phase III). The goal is to prepare the student to read the clinical trial literature critically and to design clinical studies. Additionally, the faculty will introduce newer designs for clinical studies that incorporate prior knowledge and/or satisfy optimality considerations. Topics include protocol writing; randomization; sample size calculation; study design options; interim monitoring; adaptive designs; multiple end points; and writing up the results of a clinical trial for publication.

STAT 648 - GRAPHICAL MODELS AND NETWORKS
Short Title: GRAPH MODELS & NETWORKS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519
Description: This course covers the use of financial securities and derivatives to take or hedge financial risk positions. Most commonly used instruments, from simple forwards and futures to exotic options and swaptions are covered. The pricing of derivatives securities will also be studied, but the emphasis will be on the mechanics and uses of financial engineering methods. Students receiving graduate credit in STAT 649 will be expected to address additional homework and test questions targeting a graduate level understanding of the material. Graduate/Undergraduate Equivalency: STAT 449.

STAT 650 - STOCHASTIC CONTROL AND STOCHASTIC DIFFERENTIAL EQUATIONS
Short Title: STOCH CONTRL & STOCH DIFF EQU
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 581 or CAAM 581
Description: This course will cover both theory and applications of stochastic differential equations. Topics include: the Langevin equation from physics, the Wiener process, white noise, the martingale theory, numerical methods and simulation, the Ito and Stratonovitch theories, applications in finance, signal processing, materials science, biology, and other fields.
STAT 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repealable for Credit.

STAT 682 - QUANTITATIVE FINANCIAL ANALYTICS
Short Title: QUANT FINANCIAL ANALYTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A modern approach to fundamental analytics of securities, the classic works of Graham and Dodd. Deconstructing the Efficient Market Hypothesis Financial Statement Analysis, Capital Market Theory, CAPM, APT, Fama-French Empirical Financial Forecasting. Graduate/Undergraduate Equivalency: STAT 482. Mutually Exclusive: Cannot register for STAT 682 if student has credit for STAT 482.

STAT 684 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIRON RISK ASSESS&HUMAN HLTH
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 280 or STAT 305
Description: A modern approach to fundamental analytics of securities, the classic works of Graham and Dodd. Deconstructing the Efficient Market Hypothesis Financial Statement Analysis, Capital Market Theory, CAPM, APT, Fama-French Empirical Financial Forecasting. Graduate/Undergraduate Equivalency: STAT 482. Mutually Exclusive: Cannot register for STAT 684 if student has credit for STAT 484.

STAT 685 - ENVIRONMENTAL STATISTICS AND DECISION MAKING
Short Title: ENVIR STAT & DECISION MAKING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 305 or STAT 385
Description: A project oriented computer intensive course focusing on statistical and mathematical solutions and investigations for the purpose of environmental decisions. This course is required for EADM students. Graduate/Undergraduate Equivalency: STAT 485. Mutually Exclusive: Cannot register for STAT 685 if student has credit for STAT 485.

STAT 686 - MARKET MODELS
Short Title: MARKET MODELS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518 and (STAT 615 or STAT 410)
Description: This course takes the classical efficient market models and superimposes upon it models for other stochastic phenomena not generally accounted for in efficient market theory, showing how risk is lessened by portfolios and other mechanisms. This graduate course uses computer simulations as an alternative to closed form solutions with advanced problem sets. Graduate/Undergraduate Equivalency: STAT 486. Mutually Exclusive: Cannot register for STAT 686 if student has credit for STAT 486.

STAT 687 - COFES BLOCKCHAIN AND CRYPTOCURRENCIES
Short Title: COFES BLOCKCHAIN/CRYPTO
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How will blockchains empower positive and radical change in our increasingly globalized and data-driven society? Students should be prepared for exposure to highly interdisciplinary discussions regarding applying new technology to rethink existing economic & social structures. Graduate/Undergraduate Equivalency: STAT 487.

STAT 696 - RTG CROSS-TRAINING IN DATA SCIENCE
Short Title: RTG CROSS-TRAINING IN DATA SCI
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Computer Science or Statistics. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar course to introduce students to topics in Data Science at the interface between Statistics and Computer Science. Students participate in the process of preparing, delivering and critiquing talks. Topics change each semester. Instructor Permission Required. Cross-list: COMP 696. Graduate/Undergraduate Equivalency: STAT 496. Mutually Exclusive: Cannot register for STAT 696 if student has credit for STAT 496. Repeatable for Credit.
STAT 698 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 698, MATH 698. Graduate/Undergraduate Equivalency: STAT 498. Mutually Exclusive: Cannot register for STAT 698 if student has credit for STAT 498. Repeatable for Credit.

STAT 699 - MATHEMATICAL SCIENCES SEMINAR
Short Title: MATHEMATICAL SCIENCES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics, computational finance, simulation driven optimization, and data simulation. The topics change each semester. Graduate/Undergraduate Equivalency: STAT 499. Repeatable for Credit.
Course URL: www.statistics.rice.edu (http://www.statistics.rice.edu)

STAT 800 - THESIS
Short Title: THESIS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Description: Thesis for Graduate Students. Repeatable for credit. Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: STAT

Department Description and Code
- Statistics: STAT

Undergraduate Degree Description and Code
- Bachelor of Arts Degree: BA
- Bachelor of Science Degree: BS

Undergraduate Major Description and Code
- Major in Statistics (attached to both the BA and BS Degrees): STAT

Undergraduate Minor Descriptions and Codes
- Minor in Financial Computation and Modeling: FCAM
- Minor in Statistics: STAS

Graduate Degree Descriptions and Codes
- Master of Arts degree: MA
- Master of Statistics degree: MStat
- Doctor of Philosophy degree: PhD

Graduate Degree Program Description and Code
- Degree Program in Statistics: STAT

CIP Code and Description 1
- STAT Major/Program: CIP Code/Title: 27.0501 - Statistics, General
- FCAM Minor: CIP Code/Title: 27.0305 - Financial Mathematics
- STAS Minor: CIP Code/Title: 27.0501 - Statistics, General

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Statistics

Program Learning Outcomes for the BA Degree with a Major in Statistics
Upon completing the BA degree with a major in Statistics, students will be able to:
1. Apply fundamental theory in probability and statistical inference.
2. Apply and evaluate statistical models.
3. Apply statistical computing for data analysis and data science.
4. Demonstrate competency as a professional statistician.
5. Effectively communicate as a professional statistician.

Requirements for the BA Degree with a Major in Statistics
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Statistics must complete:

- A minimum of 16 courses (49-56 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 11 courses (34 credit hours) taken at the 300-level or above.
- A maximum of 3 courses (9 credit hours) in departmental (STAT) coursework from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2023) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/.)
Students and their academic advisors should identify and clearly document the courses to be taken.

## Summary

<table>
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## Degree Requirements

### Core Requirements

#### Mathematics

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<td>MATH 102</td>
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<td>or MATH 106</td>
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</table>

Select 1 from the following: 3 or 6

- MATH 212 | MULTIVARIABLE CALCULUS          |
- MATH 221 | HONORS CALCULUS III             |
- MATH 222 | and HONORS CALCULUS IV          |

Select 1 course from the following:

- CAAM 335 | MATRIX ANALYSIS                  |
- or CAAM 334 | MATRIX ANALYSIS FOR DATA SCIENCE |
- or MATH 354 | HONORS LINEAR ALGEBRA            |
- or MATH 355 | LINEAR ALGEBRA                  |

#### Statistical Computation

- STAT 405 | R FOR DATA SCIENCE               |

### Basic Computing

Select 1 course from the following: 3-4

- CAAM 210 | INTRODUCTION TO ENGINEERING COMPUTATION |
- or COMP 130 | ELEMENTS OF ALGORITHMS AND COMPUTATION |
- or COMP 140 | COMPUTATIONAL THINKING |
- or COMP 18 | ALGORITHMIC THINKING |

### Advanced Computing

Select 1 course from the following: 3-4

- CAAM 378 | INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION |
- CAAM 440 | APPLIED MATRIX ANALYSIS  |
- CAAM 453 | NUMERICAL ANALYSIS I |
- CAAM 471 | LINEAR AND INTEGER PROGRAMMING |
- CAAM 519 | COMPUTATIONAL SCIENCE I |
- COMP 215 | INTRODUCTION TO PROGRAM DESIGN |
- COMP 322 / ELEC 323 | PRINCIPLES OF PARALLEL PROGRAMMING |
- COMP 330 | TOOLS AND MODELS FOR DATA SCIENCE |
- COMP 382 | REASONING ABOUT ALGORITHMS |
- DSCI 302 | INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS |

## Elective Requirements

Select 6 elective courses from departmental (STAT) course offerings at the 300-level or above, including at least 3 courses from the following Methodology/Theory courses: 1

### Methodology/Theory

- STAT 411 | ADVANCED STATISTICAL METHODS |
- STAT 413 | INTRODUCTION TO STATISTICAL MACHINE LEARNING |
- STAT 418 | PROBABILITY |
- STAT 419 | STATISTICAL INFERENCE |
- STAT 421 | APPLIED TIME SERIES AND FORECASTING |
- STAT 425 | INTRODUCTION TO BAYESIAN INFERENCE |
- STAT 453 | BIOSTATISTICS |
- STAT 502 / COMP 502 / ELEC 502 | NEURAL MACHINE LEARNING I |
- STAT 541 | MULTIVARIATE ANALYSIS |
- STAT 545 | GLM & CATEGORICAL DATA ANALYSIS |

### Senior Capstone

Select 1 course from the following: 3-4

- DSCI 435 / COMP 449 | APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS |
- STAT 450 | SENIOR CAPSTONE PROJECT |

Total Credit Hours Required for the Major in Statistics 49-56

Additional Credit Hours to Complete Degree Requirements 33-40

University Graduation Requirements (p. 29) 31

Total Credit Hours 120

## Footnotes and Additional Information

1. With advisor approval, 1 course (3 credit hours) from departments other than Statistics may be used as an elective. The substitution course may not be used as a replacement for 1 of the 3 required methodology/theory courses listed above. STAT 305, STAT 310, STAT 311, STAT 315 and STAT 385 will not count as electives. See below for typically approved coursework.

2. DSCI 435 / COMP 449 is also listed in the Approved Elective category outside departmental (STAT) course offerings. If completed to fulfill the Senior Capstone requirement, this course may not be used as an Approved Elective.
Approved Electives
With advisor approval, up to 1 course (3-4 credit hours) from outside departmental (STAT) course offerings may be chosen to fulfill Elective Requirements. The following courses are a sample of approved electives outside Statistics (STAT), however, other courses may be approved by an advisor.

<table>
<thead>
<tr>
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<td>COMP 322 / ELEC 323</td>
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<td>COMP 330</td>
<td>TOOLS AND MODELS FOR DATA SCIENCE</td>
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<td>COMP 382</td>
<td>REASONING ABOUT ALGORITHMS</td>
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<td>COMP 422</td>
<td>PARALLEL COMPUTING</td>
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<td>COMP 430</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
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<td>COMP 440 / ELEC 440</td>
<td>ARTIFICIAL INTELLIGENCE</td>
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<td>COMP 441</td>
<td>LARGE-SCALE MACHINE LEARNING</td>
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<td>COMP 485 / BIE 485 / ELEC 485</td>
<td>FUNDAMENTALS OF MEDICAL IMAGING I</td>
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<td>DSCI 304</td>
<td>INTRODUCTION TO EFFECTIVE DATA VISUALIZATION</td>
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<td>DSCI 435 / COMP 449</td>
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<td>GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS</td>
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<td>ECON 305</td>
<td>GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS</td>
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<td>ECON 308</td>
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<td>ECON 449</td>
<td>PRINCIPLES OF FINANCIAL ENGINEERING</td>
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<td>PSYC 349</td>
<td>ADVANCED STATISTICAL METHODS FOR PSYCHOLOGY UNDERGRADUATES</td>
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<td>SOCI 436</td>
<td>RESEARCH SEMINAR: THE HOUSTON AREA SURVEY</td>
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<td>SOCI 483</td>
<td>DATA ANALYSIS</td>
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<td>SMGT 430</td>
<td>INTRODUCTION TO SPORT ANALYTICS</td>
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</table>

Approved Electives outside Statistics (STAT)

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Statistics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Statistics may not additionally pursue the BS Degree with a Major in Statistics.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

- Students pursuing the minor in Data Science may fulfill its requirements according to the following guidelines: i.) DSCI 301 is fulfilled by STAT 310, STAT 311, or STAT 313; ii.) DSCI 302 may be used as the STAT major’s Advanced Computing elective; and iii.) DSCI 303 must be substituted with STAT 413.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the major in Statistics should be aware of the following departmental transfer credit guidelines:

- No more than 3 courses (9 credit hours) in departmental (STAT) coursework of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.
- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/

Opportunities for the BA Degree with a Major in Statistics

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students
In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or
senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

• must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
• should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
• more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Statistics (MStat) degree. For additional information, students should contact their undergraduate major advisor and the MStat program director.

Internship and Research Opportunities
The Department of Statistics encourages its major and minors to participate the practice of statistics through summer internships, employment and research. Information on current opportunities are posted here: https://statistics.rice.edu/academics/undergraduate. Students can also approach individual faculty about research opportunities in their group. An undergraduate advisor can talk with you about these and other possibilities.

Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/.

Bachelor of Science (BS) Degree with a Major in Statistics

Program Learning Outcomes for the BS Degree with a Major in Statistics

Upon completing the BS degree with a major in Statistics, students will be able to:
1. Apply advanced knowledge and theory in probability and statistical inference.
2. Apply and evaluate statistical models.
3. Apply statistical computing for data analysis and data science.
4. Demonstrate competency as a professional statistician.
5. Effectively communicate as a professional statistician.

Requirements for the BS Degree with a Major in Statistics

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BS degree with a major in Statistics must complete:

• A minimum of 19 courses (58-65 credit hours, depending on course selection) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 14 courses (43 credit hours) taken at the 300-level or above.
• A maximum of 3 courses (9 credit hours) in departmental (STAT) coursework from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2026) tab.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>Total Credit Hours Required for the BS Degree with a Major in Statistics</td>
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Degree Requirements

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<td>Core Requirements</td>
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<td>Mathematics</td>
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<td>MATH 102</td>
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<td>MATH 221</td>
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<td>&amp; MATH 222</td>
<td>and HONORS CALCULUS IV</td>
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<td>CAAM 335</td>
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<td>or CAAM 334</td>
<td>MATRIX ANALYSIS FOR DATA SCIENCE</td>
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<td>or MATH 354</td>
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<td>or MATH 331</td>
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<td>or MATH 427</td>
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<td>STAT 405</td>
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or COMP 14/COMPUTATIONAL THINKING
or COMP 18/ALGORITHMIC THINKING

**Advanced Computing**

Select 1 course from the following:

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<td>CAAM 440</td>
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<td>CAAM 453</td>
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<td>COMP 215</td>
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<tr>
<td>COMP 322 / ELEC 323</td>
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<td>COMP 330</td>
<td>TOOLS AND MODELS FOR DATA SCIENCE ²</td>
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<td>COMP 382</td>
<td>REASONING ABOUT ALGORITHMS ²</td>
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<tr>
<td>DSCI 302</td>
<td>INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS</td>
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</table>

**Elective Requirements** ³

Select 6 elective courses from departmental (STAT) course offerings at the 300-level or above, including at least 4 courses from the following Methodology/Theory courses:

<table>
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<td>3-4</td>
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<td>PROBABILITY AND STATISTICS FOR DATA SCIENCE ²</td>
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<td>STAT 411</td>
<td>ADVANCED STATISTICAL METHODS</td>
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<td>STAT 413</td>
<td>INTRODUCTION TO STATISTICAL MACHINE LEARNING</td>
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<td></td>
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<tr>
<td>STAT 581 / CAAM 581</td>
<td>MATHEMATICAL PROBABILITY I</td>
<td></td>
</tr>
<tr>
<td>STAT 582</td>
<td>MATHEMATICAL PROBABILITY II</td>
<td></td>
</tr>
<tr>
<td>STAT 650</td>
<td>STOCHASTIC CONTROL AND STOCHASTIC DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
</tbody>
</table>

**Senior Capstone**

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSCI 435 / COMP 449</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE</td>
<td>3-4</td>
</tr>
<tr>
<td>STAT 450</td>
<td>SENIOR CAPSTONE PROJECT</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the Major in Statistics: 58-65

Additional Credit Hours to Complete Degree Requirements: 1-24

University Graduation Requirements (p. 29) ⁴

Total Credit Hours: 120

**Footnotes and Additional Information**

* University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

With advisor approval, 1 course (3 credit hours) from departments other than Statistics (STAT) may be used as an elective. The substitution course may not be used as a replacement for 1 of the 4 required Methodology/Theory courses listed above. STAT 305, STAT 310, STAT 311, STAT 315, and STAT 385 will not count as an Elective Requirement. See below for typically approved coursework.

With advisor approval, 1 course (3 credit hours) from departments other than Statistics (STAT) may be used as a elective. The substitution course may not be used as a replacement for 1 of the 4 required Methodology/Theory courses listed above. STAT 305, STAT 310, STAT 311, STAT 315, and STAT 385 will not count as an Elective Requirement. See below for typically approved coursework.

CAAM 378, COMP 322 / ELEC 323, COMP 330, and COMP 382 are also listed in the Approved Elective category outside departmental (STAT) course offerings. If completed to fulfill Advanced Computing, the course may not be used as an Approved Elective.

DSCI 435 / COMP 449 is also listed in the Approved Elective category outside departmental (STAT) course offerings. If complete to fulfill the Senior Capstone requirement, this course may not be used as an Approved Elective.

**Approved Electives**

With advisor approval, up to 1 course (3-4 credit hours) from outside departmental (STAT) course offerings may be chosen to fulfill Elective Requirements. The following courses are a sample of approved electives outside Statistics (STAT), however, other courses may be approved by an advisor.

**Approved Electives outside Statistics (STAT)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAAM 378</td>
<td>INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION ¹</td>
<td></td>
</tr>
<tr>
<td>CAAM 382</td>
<td>STOCHASTIC MODELS</td>
<td></td>
</tr>
<tr>
<td>COMP 322 / ELEC 323</td>
<td>PRINCIPLES OF PARALLEL PROGRAMMING ¹</td>
<td></td>
</tr>
<tr>
<td>COMP 330</td>
<td>TOOLS AND MODELS FOR DATA SCIENCE ¹</td>
<td></td>
</tr>
<tr>
<td>COMP 382</td>
<td>REASONING ABOUT ALGORITHMS ¹</td>
<td></td>
</tr>
<tr>
<td>COMP 422</td>
<td>PARALLEL COMPUTING</td>
<td></td>
</tr>
<tr>
<td>COMP 430</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>COMP 440 / ELEC 440</td>
<td>ARTIFICIAL INTELLIGENCE</td>
<td></td>
</tr>
<tr>
<td>COMP 441</td>
<td>LARGE-SCALE MACHINE LEARNING</td>
<td></td>
</tr>
</tbody>
</table>

* ¹ With advisor approval, 1 course (3 credit hours) from departments other than Statistics (STAT) may be used as an elective. The substitution course may not be used as a replacement for 1 of the 4 required Methodology/Theory courses listed above. STAT 305, STAT 310, STAT 311, STAT 315, and STAT 385 will not count as an Elective Requirement. See below for typically approved coursework.

* ² With advisor approval, 1 course (3 credit hours) from departments other than Statistics (STAT) may be used as an elective. The substitution course may not be used as a replacement for 1 of the 4 required Methodology/Theory courses listed above. STAT 305, STAT 310, STAT 311, STAT 315, and STAT 385 will not count as an Elective Requirement. See below for typically approved coursework.

* ³ DSCI 435 / COMP 449 is also listed in the Approved Elective category outside departmental (STAT) course offerings. If complete to fulfill the Senior Capstone requirement, this course may not be used as an Approved Elective.

* ⁴ University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.
FUNDAMENTALS OF MEDICAL IMAGING I

NEURAL MACHINE LEARNING I

INTRODUCTION TO EFFECTIVE DATA VISUALIZATION

APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS 2

GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS

GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS

MATHEMATICAL ECONOMICS

ECONOMETRICS

ECONOMETRICS

ECONOMETRICS

PRINCIPLES OF FINANCIAL ENGINEERING

Footnotes and Additional Information

1 CAAM 378, COMP 322 / ELEC 323, COMP 330, and COMP 382 are also listed in the Advanced Computing category. If completed to fulfill Advanced Computing, the course may not be used as an Approved Elective.

2 DSCI 435 / COMP 449 is also listed as a Senior Capstone. If completed to fulfill the Senior Capstone requirement, this course may not be used as an Approved Elective.

Policies for the BS Degree with a Major in Statistics

Program Restrictions and Exclusions

Students pursuing the BS Degree with a Major in Statistics should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (p. 17) under Declaring Majors, Minors and Certificates, students may not obtain both a BA and a BS in the same major. Students pursuing the BS Degree with a Major in Statistics may not additionally pursue the BA Degree with a Major in Statistics.

- As noted in Majors, Minors, and Certificates (p. 17), students may not major and minor in the same subject.

- Students pursuing the minor in Data Science may fulfill its requirements according to the following guidelines: i.) DSCI 301 is fulfilled by STAT 310, STAT 311, or STAT 315; ii.) DSCI 302 may be used as the STAT major’s Advanced Computing elective; and iii.) DSCI 303 must be substituted with STAT 413.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university's official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program's transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Statistics should be aware of the following departmental transfer credit guidelines:

- No more than 3 courses (9 credit hours) in departmental (STAT) coursework of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major.

- Requests for transfer credit will be considered by the program director (and/or the program's official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Statistics website: https://statistics.rice.edu.

Opportunities for the BS Degree with a Major in Statistics

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students have an option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing are eligible to pursue the Master of Statistics (MStat) degree. For additional information, please see the Statistics website: https://statistics.rice.edu. Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Statistics (MStat) degree. For additional information, students should contact their undergraduate major advisor and the MStat program director.

1 CAAM 378, COMP 322 / ELEC 323, COMP 330, and COMP 382 are also listed in the Advanced Computing category. If completed to fulfill Advanced Computing, the course may not be used as an Approved Elective.

2 DSCI 435 / COMP 449 is also listed as a Senior Capstone. If completed to fulfill the Senior Capstone requirement, this course may not be used as an Approved Elective.
Internship and Research Opportunities
The Department of Statistics encourages its major and minors to participate in the practice of statistics through summer internships, employment and research. Information on current opportunities are posted here: [https://statistics.rice.edu/academics/undergraduate](https://statistics.rice.edu/academics/undergraduate). Students can also approach individual faculty about research opportunities in their group. An undergraduate advisor can talk with you about these and other possibilities.

Additional Information
For additional information, please see the Statistics website: [https://statistics.rice.edu/](https://statistics.rice.edu/)

Doctor of Philosophy (PhD) Degree in the field of Statistics

Program Learning Outcomes for the MA and PhD Degrees in the field of Statistics
Upon completing the MA and PhD degrees in the field of Statistics, students will be able to:

1. Master fundamental theory in probability and statistics.
2. Become familiar with a broad range of statistical methods for applications.
4. Develop effective communication skills as a professional statistician.
5. Develop the skills to do independent research.

Requirements for the MA and PhD Degrees in the field of Statistics

MA Degree Program
The MA degree is a non-thesis master's degree. For general university requirements, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students awarded the MA degree in the field of Statistics should be aware that:

- The MA degree in the field of Statistics requires 30 credit hours of approved coursework as well as one of the following:
  a. the completion of an original thesis and defense in a public oral examination; or
  b. satisfactory performance on the PhD comprehensive examinations, and the completion of a major project.
- A candidacy MA degree is awarded to statistics PhD students through option (2) where the major project corresponds to the doctoral thesis proposal.
- An MA degree is available to PhD students in the Departments of Economics or Political Science through option (1) where the original doctoral thesis and defense is related to the MA in the field of Statistics.
- The MA degree awarded in the field of statistics is a non-thesis master's degree.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MA Degree in the field of Statistics</td>
<td>30</td>
</tr>
</tbody>
</table>

Requirements for the PhD Degree in the field of Statistics

PhD Degree Program
For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the PhD degree in the field of Statistics must complete:

- A minimum of 90 credit hours of approved coursework beyond the bachelor’s degree and a minimum of 60 hours beyond a master’s degree.
- A satisfactory performance on a required qualifying examination and an original thesis with a public oral defense.

All Statistics graduate students are assigned a limited amount of teaching and other departmental service as part of their graduate education. The assignment usually entails approximately 10 hours per week, averaged over the semester. Students completing the PhD degree in 4 years will be assigned no more than 4 semesters of service.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Statistics</td>
<td>90</td>
</tr>
</tbody>
</table>

Policies for the PhD Degree in the field of Statistics

Department of Statistics Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Statistics publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Statistics_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Statistics_Graduate_Handbook.pdf)

Admission

Preparation for PhD Program: All applicants are required to take the Graduate Record Exam (GRE), and the quantitative, verbal, and analytical tests. Financial support is available for well-qualified doctoral students.

Transfer Credit
For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines
Students pursuing the PhD degree in the field of Statistics should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.
Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/

Opportunities for the PhD Degree in the field of Statistics
Additional Master’s Degrees Options
Students pursuing the PhD degree in the field of Statistics, or in the field of Economics, have the opportunity to also earn a Master of Arts (MA) degree in either the fields of Statistics or Economics, respectively. For additional information, see the Opportunities (p. 853) tab on the Economics page.

Additionally, students pursuing the PhD degree in the field of Political Science have the opportunity to also earn a Master of Arts (MA) degree in the field of Statistics. For additional information, see the Opportunities (p. 1825) tab on the Political Science page.

Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/

Master of Statistics (MStat) Degree
Program Learning Outcomes for the MStat Degree
Upon completing the MStat degree, students will be able to:

1. Master fundamental theory in probability and statistics.
2. Become familiar with a broad range of statistical methods for applications.
4. Develop effective communication skills as a professional statistician.

Requirements for the MStat Degree
The MStat degree is a non-thesis master’s degree. For general university requirements, please see Non-Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MStat degree must complete:

- A minimum of 30 credit hours to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2030) tab.
- The requirements of one area of specialization (see below for areas of specialization). The MStat degree program offers four areas of specialization:

  • Bioinformatics, Statistical Genetics, and Biostatistics, or
  • Environmental Statistics, or
  • Financial Statistics and the Statistics of Risk, or
  • Statistical Computing and Data Mining.

• A minimum overall GPA of 2.67 or higher in all Rice coursework.
• A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master’s degree.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
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<tr>
<th>Code</th>
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<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the MStat Degree</td>
<td>30</td>
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</tbody>
</table>

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Core Requirements ¹</td>
<td></td>
</tr>
<tr>
<td>STAT 518</td>
<td>PROBABILITY</td>
<td>3</td>
</tr>
<tr>
<td>STAT 519</td>
<td>STATISTICAL INFERENCE</td>
<td>3</td>
</tr>
<tr>
<td>STAT 605</td>
<td>R FOR DATA SCIENCE</td>
<td>3</td>
</tr>
<tr>
<td>STAT 615</td>
<td>REGRESSION AND LINEAR MODELS</td>
<td>3</td>
</tr>
<tr>
<td>STAT 616</td>
<td>ADVANCED STATISTICAL METHODS</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Area of Specialization ²</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a minimum of 2 courses (or up to 5 courses) from any of the following Areas of Specialization:</td>
<td>6-15</td>
</tr>
</tbody>
</table>

Bioinformatics, Statistical Genetics, and Biostatistics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 545</td>
<td>GLM &amp; CATEGORICAL DATA ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>STAT 547</td>
<td>SURVIVAL ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>STAT 553</td>
<td>BIOSTATISTICS</td>
<td></td>
</tr>
<tr>
<td>STAT 623</td>
<td>PROBABILITY IN BIOINFORMATICS AND GENETICS</td>
<td></td>
</tr>
</tbody>
</table>

Environmental Statistics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 684 / CEVE 684</td>
<td>ENVIRONMENTAL RISK ASSESSMENT &amp; HUMAN HEALTH</td>
<td></td>
</tr>
<tr>
<td>STAT 685</td>
<td>ENVIRONMENTAL STATISTICS AND DECISION MAKING</td>
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</tbody>
</table>

Financial Statistics and the Statistics of Risk

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>STAT 621</td>
<td>APPLIED TIME SERIES AND FORECASTING</td>
<td></td>
</tr>
<tr>
<td>STAT 682</td>
<td>QUANTITATIVE FINANCIAL ANALYTICS</td>
<td></td>
</tr>
<tr>
<td>STAT 686</td>
<td>MARKET MODELS</td>
<td></td>
</tr>
</tbody>
</table>

Statistical Computing and Data Mining

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 525</td>
<td>BAYESIAN STATISTICS</td>
<td></td>
</tr>
<tr>
<td>STAT 541</td>
<td>MULTIVARIATE ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>STAT 542</td>
<td>SIMULATION</td>
<td></td>
</tr>
<tr>
<td>STAT 613</td>
<td>STATISTICAL MACHINE LEARNING</td>
<td></td>
</tr>
</tbody>
</table>
Elective Requirements
Select up to 9 credit hours of remaining coursework from approved electives in a targeted area of interest to reach 30 total credit hours.  

Total Credit Hours  30

Footnotes and Additional Information
1. These courses are normally completed by the end of the first 2 semesters.
2. Students are allowed to choose either a broad-based or specialized program of study. Depending on the student’s selected specialization, the mix of required, specialization-specific and elective courses will be jointly determined by the student and the graduate advisor. Students will meet with their advisor during the first year of the program to select an individualized plan of study, with periodic tune-ups as the program progresses.
3. Students may be asked to take specific courses outside the department, depending on the incoming background of the student, and career objectives. Area of specialization and elective coursework will be chosen between the MStat student and the advisor. See below for typically approved coursework.

Approved Electives
Depending on the student’s interest, up to 15 credit hours of area of specialization and elective requirements may be chosen from the following typically approved coursework, in conjunction with the MStat advisor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSCI 515</td>
<td>DATA SCIENCE CONSULTING</td>
<td>0-15</td>
</tr>
<tr>
<td>DSCI 535 / COMP 549</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
<td></td>
</tr>
<tr>
<td>STAT 502 / COMP 502 / ELEC 502</td>
<td>NEURAL MACHINE LEARNING I</td>
<td></td>
</tr>
<tr>
<td>STAT 503 / POLI 503</td>
<td>TOPICS IN METHODS AND DATA ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>STAT 509 / PSYC 502</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS I</td>
<td></td>
</tr>
<tr>
<td>STAT 510 / PSYC 503 II</td>
<td>ADVANCED PSYCHOLOGICAL STATISTICS II</td>
<td></td>
</tr>
<tr>
<td>STAT 514 / BIOE 514</td>
<td>INTRODUCTION TO BIOSTATISTICS</td>
<td></td>
</tr>
<tr>
<td>STAT 532 &amp; STAT 533</td>
<td>FOUNDATIONS OF STATISTICAL INFERENCE I and FOUNDATIONS OF STATISTICAL INFERENCE II</td>
<td></td>
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<tr>
<td>STAT 549</td>
<td>FUNCTIONAL DATA ANALYSIS</td>
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<tr>
<td>STAT 550</td>
<td>NONPARAMETRIC FUNCTION ESTIMATION</td>
<td></td>
</tr>
<tr>
<td>STAT 551</td>
<td>ADVANCED TOPICS IN TIME SERIES</td>
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<tr>
<td>STAT 552</td>
<td>APPLIED STOCHASTIC PROCESSES</td>
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<tr>
<td>STAT 553</td>
<td>BIOSTATISTICS</td>
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<tr>
<td>STAT 581 / CAAM 581</td>
<td>MATHEMATICAL PROBABILITY I</td>
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</tr>
<tr>
<td>STAT 582</td>
<td>MATHEMATICAL PROBABILITY II</td>
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</tr>
</tbody>
</table>

STAT 583 / CAAM 583 / ELEC 533 | INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
STAT 602 / COMP 602 / ELEC 602 | NEURAL MACHINE LEARNING AND DATA MINING II
STAT 604 / ECON 504 | COMPUTATIONAL ECONOMICS
STAT 606 | SAS STATISTICAL PROGRAMMING
STAT 610 / ECON 510 | ECONOMETRICS I
STAT 611 / ECON 511 | ECONOMETRICS II
STAT 613 | STATISTICAL MACHINE LEARNING
STAT 623 | PROBABILITY IN BIOINFORMATICS AND GENETICS
STAT 630 | TOPICS IN CLINICAL TRIALS
STAT 648 | GRAPHICAL MODELS AND NETWORKS
STAT 649 | QUANTITATIVE FINANCIAL RISK MANAGEMENT
STAT 650 | STOCHASTIC CONTROL AND STOCHASTIC DIFFERENTIAL EQUATIONS
STAT 682 | QUANTITATIVE FINANCIAL ANALYTICS
STAT 699 | MATHEMATICAL SCIENCES SEMINAR

Approved Electives outside Statistics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 521 / ECON 505</td>
<td>FINANCIAL ECONOMICS I</td>
</tr>
<tr>
<td>BUSI 522</td>
<td>CORPORATE FINANCE</td>
</tr>
<tr>
<td>BUSI 523</td>
<td>EMPIRICAL METHODS IN FINANCE</td>
</tr>
<tr>
<td>CAAM 502</td>
<td>ANALYSIS II</td>
</tr>
<tr>
<td>CAAM 519</td>
<td>COMPUTATIONAL SCIENCE I</td>
</tr>
<tr>
<td>CAAM 536 / CEVE 555</td>
<td>NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS</td>
</tr>
<tr>
<td>CAAM 554</td>
<td>ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION</td>
</tr>
<tr>
<td>CAAM 560</td>
<td>OPTIMIZATION THEORY</td>
</tr>
<tr>
<td>CAAM 564</td>
<td>NUMERICAL OPTIMIZATION</td>
</tr>
<tr>
<td>CAAM 567</td>
<td>SIGNAL RECOVERY: THEORY AND SIMULATION</td>
</tr>
<tr>
<td>CAAM 571</td>
<td>LINEAR AND INTEGER PROGRAMMING</td>
</tr>
<tr>
<td>CEVE 678 / MECH 678</td>
<td>APPLIED STOCHASTIC MECHANICS</td>
</tr>
<tr>
<td>CEVE 679 / MECH 679</td>
<td>APPLIED MONTE CARLO ANALYSIS</td>
</tr>
<tr>
<td>CHBE 615</td>
<td>APPLICATION OF MOLECULAR SIMULATION AND STATISTICAL MECHANICS</td>
</tr>
<tr>
<td>CHBE 682 / BIOE 682</td>
<td>SYSTEMS BIOLOGY OF HUMAN DISEASES</td>
</tr>
<tr>
<td>COMP 504</td>
<td>GRADUATE OBJECT-ORIENTED PROGRAMMING AND DESIGN</td>
</tr>
<tr>
<td>COMP 506</td>
<td>COMPILER CONSTRUCTION FOR GRADUATE STUDENTS</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>COMP 522</td>
<td>MULTI-CORE COMPUTING</td>
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<tr>
<td>COMP 530</td>
<td>DATABASE SYSTEM IMPLEMENTATION</td>
</tr>
<tr>
<td>COMP 533</td>
<td>INTRODUCTION TO DATABASE SYSTEMS</td>
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<tr>
<td>COMP 536 / ELEC 510</td>
<td>SECURE AND CLOUD COMPUTING</td>
</tr>
<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
</tr>
<tr>
<td>COMP 543</td>
<td>GRADUATE TOOLS AND MODELS - DATA SCIENCE</td>
</tr>
<tr>
<td>COMP 544</td>
<td>FUNCTIONAL PROGRAMMING</td>
</tr>
<tr>
<td>COMP 546 / ELEC 546</td>
<td>INTRODUCTION TO COMPUTER VISION</td>
</tr>
<tr>
<td>COMP 554 / ELEC 554</td>
<td>COMPUTER SYSTEMS ARCHITECTURE</td>
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<tr>
<td>COMP 557 / ELEC 557</td>
<td>ARTIFICIAL INTELLIGENCE</td>
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<tr>
<td>COMP 571</td>
<td>BIOINFORMATICS: SEQUENCE ANALYSIS</td>
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<tr>
<td>COMP 573</td>
<td>PROFESSIONAL DEVELOPMENT FOR BIOMEDICAL INFORMATICS</td>
</tr>
<tr>
<td>COMP 582 / ELEC 512</td>
<td>GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS</td>
</tr>
<tr>
<td>COMP 614</td>
<td>COMPUTER PROGRAMMING FOR DATA SCIENCE</td>
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<tr>
<td>ECON 523</td>
<td>DYNAMIC OPTIMIZATION</td>
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<tr>
<td>ECON 547</td>
<td>ADVANCED TOPICS IN ENERGY ECONOMICS</td>
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<tr>
<td>ECON 579</td>
<td>TOPICS IN ECONOMETRICS II</td>
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<tr>
<td>EEPS 651</td>
<td>GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS</td>
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<tr>
<td>ELEC 513 / COMP 513</td>
<td>COMPLEXITY IN MODERN SYSTEMS</td>
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<tr>
<td>ELEC 515</td>
<td>MACHINE LEARNING FOR RESOURCE-CONSTRAINED PLATFORMS</td>
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<td>ELEC 531</td>
<td>STATISTICAL SIGNAL PROCESSING</td>
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<tr>
<td>ELEC 535</td>
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<td>ELEC 571</td>
<td>IMAGING AT THE NANOSCALE</td>
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<td>LEARNING FROM SENSOR DATA</td>
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<td>ELEC 578</td>
<td>INTRODUCTION TO MACHINE LEARNING</td>
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<td>ELEC 591</td>
<td>GRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS-VERTICALLY INTEGRATED PROJECTS</td>
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<tr>
<td>ELEC 677</td>
<td>SPECIAL TOPICS</td>
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<tr>
<td>ELEC 681</td>
<td>FUNDAMENTALS OF MACHINE LEARNING</td>
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<tr>
<td>ENGI 501</td>
<td>WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER’S STUDENTS IN ENGINEERING</td>
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<tr>
<td>ENGI 610 / NSCI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
</tr>
<tr>
<td>ENGI 779 / MGMT 779</td>
<td>BUSINESS AND URBAN ANALYTICS</td>
</tr>
<tr>
<td>INDE 571</td>
<td>PROBABILITY AND STATISTICAL INFERENCE</td>
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<tr>
<td>INDE 577</td>
<td>DATA SCIENCE AND MACHINE LEARNING</td>
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<tr>
<td>INDE 597</td>
<td>TOPICS IN INDUSTRIAL ENGINEERING</td>
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<td>DATA ANALYSIS</td>
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<tr>
<td>MGMT 597</td>
<td>DATA ANALYSIS II</td>
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<tr>
<td>MGMT 616</td>
<td>ENERGY MARKET ORGANIZATION</td>
</tr>
<tr>
<td>MGMT 621</td>
<td>THE NEW ENTERPRISE</td>
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<tr>
<td>MGMT 638</td>
<td>QUANTITATIVE INVESTMENT STRATEGIES</td>
</tr>
<tr>
<td>MGMT 642</td>
<td>FUTURES AND OPTIONS I</td>
</tr>
<tr>
<td>MGMT 645</td>
<td>PORTFOLIO MANAGEMENT</td>
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<tr>
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<td>APPLIED FINANCE</td>
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<tr>
<td>MGMT 650</td>
<td>FUTURES AND OPTIONS II</td>
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<tr>
<td>MGMT 652</td>
<td>MERGERS AND ACQUISITIONS</td>
</tr>
<tr>
<td>MGMT 656</td>
<td>ENERGY DERIVATIVES</td>
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<tr>
<td>MGMT 689</td>
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</tr>
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<td>PHYS 526</td>
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<td>PHYS 551</td>
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<tr>
<td>PHYS 572</td>
<td>FUNDAMENTALS OF QUANTUM OPTICS</td>
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<tr>
<td>PHYS 600</td>
<td>ADVANCED TOPICS IN PHYSICS</td>
</tr>
<tr>
<td>PSYC 637</td>
<td>META-ANALYSIS IN PSYCHOLOGICAL RESEARCH</td>
</tr>
</tbody>
</table>

### Policies for the MStat Degree

**Department of Statistics Graduate Program Handbook**

For more detailed information regarding the MStat degree program policies, please see Statistics department's Graduate Handbook, which can be found here: [https://gradhandbooks.rice.edu/2021_22/Statistics_Graduate_Handbook.pdf](https://gradhandbooks.rice.edu/2021_22/Statistics_Graduate_Handbook.pdf)

**Program Restrictions and Exclusions**

Students pursuing this degree should be aware of the following program restriction:

- Courses comprising the 30-credit hour requirement shall not be taken or completed on a pass/fail grading basis.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see [Transfer Credit](https://gradhandbooks.rice.edu/2021_22/Transfer_Credit.pdf) (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the MStat degree should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

**Additional Information**

For additional information, please see the Statistics website: [https://statistics.rice.edu/academics/graduate/master-statistics](https://statistics.rice.edu/academics/graduate/master-statistics)
Opportunities for the MStat Degree
Fifth-Year Master’s Degree Option for Rice Undergraduate Students

In certain situations and with some terminal master’s degree programs, Rice students may have the option to pursue a master’s degree by adding an additional fifth year to their four years of undergraduate studies.

Advanced Rice undergraduate students in good academic standing typically apply to the master’s degree program during their junior or senior year. Upon acceptance, depending on course load, financial aid status, and other variables, they may then start taking some required courses of the master’s degree program. A plan of study will need to be approved by the student’s undergraduate major advisor and the master’s degree program director.

As part of this option and opportunity, Rice undergraduate students:

1. must complete the requirements for a bachelor’s degree and the master’s degree independently of each other (i.e. no course may be counted toward the fulfillment of both degrees).
2. should be aware there could be financial aid implications if the conversion of undergraduate coursework to that of graduate level reduces their earned undergraduate credit for any semester below that of full-time status (12 credit hours).
3. more information on this Undergraduate - Graduate Concurrent Enrollment opportunity, including specific information on the registration process can be found here (p. 20).

Rice undergraduate students completing studies in science and engineering may have the option to pursue the Master of Statistics (MStat) degree. For additional information, students should contact their engineering may have the option to pursue the Master of Statistics (MStat) degree. For additional information, students should contact their undergraduate major advisor and the master’s degree program director.

Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/academics/graduate/master-statistics/ (https://statistics.rice.edu/academics/graduate/master-statistics/)

Master of Statistics (MStat) Degree / Master of Business Administration (MBA) Degree

Program Learning Outcomes for the MStat Degree
Upon completing the MStat degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

Requirements for the MStat/MBA Coordinated Degrees Program

Students may earn a coordinated MBA degree and a non-thesis Master of Engineering degree from the George R. Brown School of Engineering in the following fields:

- Chemical Engineering (MChE)
- Computational and Applied Mathematics (MCAAM)
- Computer Science (MCS)
- Industrial Engineering (MIE)
- Materials Science and Nanoengineering (MMSNE)
- Mechanical Engineering (MME)
- Statistics (MStat)

For the coordinated MBA/Master of Engineering degrees, students must complete:

- A minimum of 69 credit hours in approved coursework*, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Master of Engineering degree requirements
  - A minimum of 24 credit hours in the corresponding engineering discipline
  - A minimum of 6 credit hours in elective requirements*
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 24 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

*Note: A maximum of 6 credit hours of the Master of Engineering degree elective requirements may be selected from business course offerings (MGMP, MGMT, or MICO) and used to fulfill the requirements for both the MBA and the Master of Engineering degrees.

Students plan their course schedules in consultation with the George R. Brown School of Engineering department in which they are enrolled and with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 2 academic years.

For general university requirements, see Graduate Degrees (p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Candidates in the MBA/Master of Engineering coordinated degrees program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.
The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<th>Credit Hours</th>
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</table>

- **Total Credit Hours Required for the Coordinated Master of Engineering Degree**: Minimum of 30
- **Total Credit Hours Required for the Coordinated MBA Degree**: Minimum of 45

#### Coordinated MStat Degree Requirements

Students in the coordinated MBA/MStat degrees program must complete the Core Requirements and Area of Specialization of the MStat degree program (p. 2028) and Coordinated MStat Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</table>

- **MStat Core Requirements**: 15
- **MStat Area of Specialization**: 9
- **Coordinated MStat Elective Requirements**: 6
- **Total Credit Hours**: 30
- **Select a maximum of 6 credit hours of approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above**

#### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degree program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
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<tr>
<th>Code</th>
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<th>Credit Hours</th>
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</table>

- **Full-time MBA Core Requirements**: 25.5
- **Full-time MBA Work Experience Requirement**: 0.75
- **Full-time MBA Global Field Experience Requirement**: 1.5
- **Full-time MBA Custom Core Courses**: 3-6
- **Coordinated MBA Elective Requirements**: Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. \(^1\)
- **Total Credit Hours**: 45

### Footnotes and Additional Information

1. To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Policies for the MStat/MBA Coordinated Degrees Program

#### Additional Information

For additional information on these two degrees:

1. Please see the Statistics website: [https://statistics.rice.edu/](https://statistics.rice.edu/)
2. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

### Opportunities for the MStat/MBA Coordinated Degrees Program

#### Additional Information

For additional information on these two degrees:

1. Please see the Statistics website: [https://statistics.rice.edu/](https://statistics.rice.edu/)
2. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

### Minor in Statistics

#### Program Learning Outcomes for the Minor in Statistics

Upon completing the minor in Statistics, students will be able to:

1. **Apply and demonstrate a foundational knowledge in fundamental theory in probability and statistical inference.**
2. **Apply and demonstrate a foundational knowledge in evaluating statistical models.**
3. **Apply and demonstrate a foundational knowledge in statistical computing for data analysis and data science.**

### Requirements for the Minor in Statistics

Students pursuing the minor in Statistics must complete:

- A minimum of 6 courses (19-20 credit hours, depending on course selection) to satisfy minor requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the [Policies](p. 2033) tab.
- The requirements for one area of specialization (see below for areas of specialization). The Statistics minor offers two areas of specialization:
The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor’s academic advisor, or where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Minor in Statistics</td>
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### Minor Requirements

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<tr>
<td></td>
<td>Total Credit Hours</td>
<td>19-20</td>
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</table>

#### Area of Specialization: Track A

Students must complete the 6 courses (19-20 credit hours total) as listed below to satisfy the requirements for the Track A area of specialization.

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<td>Total Credit Hours</td>
<td>19-20</td>
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</table>

#### Core Requirements

Select 1 course from the following:

- STAT 310 / ECON 307: PROBABILITY AND STATISTICS
- STAT 311: HONORS PROBABILITY AND MATHEMATICAL STATISTICS
- STAT 315 / DSCI 301: PROBABILITY AND STATISTICS FOR DATA SCIENCE
- STAT 405: R FOR DATA SCIENCE
- STAT 410: LINEAR REGRESSION

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<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>19-20</td>
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</table>

#### Elective Requirements

Select 3 electives from departmental (STAT) course offerings at the 300-level or above. ¹

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<td></td>
<td>Total Credit Hours</td>
<td>19-20</td>
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### Area of Specialization: Track B

Students must complete the 6 courses (20 credit hours total) as listed below to satisfy the requirements for the Track B area of specialization.

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<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
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</table>

#### Core Requirements

Select 2 courses from the following:

- STAT 280: ELEMENTARY APPLIED STATISTICS
- STAT 305: INTRODUCTION TO STATISTICS FOR BIOSCIENCES
- STAT 385: METHODS OF DATA ANALYSIS AND SYSTEM OPTIMIZATION

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<tr>
<td></td>
<td>Total Credit Hours</td>
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### Elective Requirements

Select 4 electives from departmental (STAT) course offerings at the 300-level or above. ¹

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<tbody>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>20</td>
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</table>

### Footnotes and Additional Information

¹STAT 305 and STAT 385 do not count as electives for Track A. The following are recommended electives for Track A: STAT 313, STAT 411, STAT 413, STAT 418, STAT 421, STAT 423, STAT 425, STAT 449, and STAT 453. Other electives may be chosen as well, with advisor approval.

### Policies for the Minor in Statistics

#### Program Restrictions and Exclusions

Students pursuing the minor in Statistics should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (p. 17), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

#### Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

#### Departmental Transfer Credit Guidelines

Students pursuing the minor in Statistics should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the minor.
Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/.

Opportunities for the Minor in Statistics
Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Internship and Research Opportunities
The Department of Statistics encourages its major and minors to participate the practice of statistics through summer internships, employment and research. Information on current opportunities are posted here: https://statistics.rice.edu/academics/undergraduate (https://statistics.rice.edu/academics/undergraduate/). Students can also approach individual faculty about research opportunities in their group. An undergraduate advisor can talk with you about these and other possibilities.

Additional Information
For additional information, please see the Statistics website: https://statistics.rice.edu/.

Study of Women, Gender and Sexuality

Contact Information
Study of Women, Gender and Sexuality
https://cswgs.rice.edu/
318 Rayzor Hall
713-348-5784

Helena Michie
Program Director
michie@rice.edu

The undergraduate major and the graduate certificate program take an interdisciplinary approach in their exploration of women’s lives and histories and the role that ideas about sexual differences and sexual identities have played in human societies.

Areas of inquiry include women’s participation in social and cultural production; the construction of heteronormative gender and sexuality as well as lesbian, gay, bisexual, and transgender identities; the relationship between ideas about gender and concepts inherent in other social, political, and legal structures; and the implications of feminist and sexuality studies for philosophical and epistemological traditions. Students acquire an understanding of how adopting gender as a significant category of analysis challenges existing disciplines. They gain proficiency in the methods used to study and compare cultural constructions of gender and sexuality, and they become familiar with the ongoing fundamental debates in women’s, gender, and sexuality studies.

Bachelor’s Program
• Bachelor of Arts (BA) Degree with a Major in the Study of Women, Gender, and Sexuality (p. 2045)

Certificate
• Certificate in the Study of Women, Gender, and Sexuality (p. 2049)

Center Director and Director of Graduate Studies
Helena Michie

Associate Center Director and Director of Undergraduate Studies
Emily Houlik-Ritchey

Associate Center Director
Brian Riedel

Professors
José F. Aranda, Jr.
Tani E. Barlow
Kathleen M. Beckingham
Elias K. Bongmba
Elizabeth Brake
Jenifer L. Bratter
Marcia Brennan
Joseph A. Campana, Jr.
Kathleen Canning
Krista Comer
Jacqueline Couti
April D. DeConick
Elaine Howard Ecklund
James D. Faubion
Eugenia Georges
Beatriz González-Stephan
Bridget K. Gorman
Michelle “Mikki” R. Hebl
Rosemary Hennessy
A. Cymene Howe
Betty Joseph
Rachel Tolbert Kimbro
Anne C. Klein
Jeffrey J. Kripal
Brett Ashley Leeds
Caroline F. Levander
Susan Keech McIntosh
Helena Michie
Deborah Nelson-Campbell
Kirsten Ostherr
Nanxiu Qian
Sonia Ryang
Paula A. Sanders
Leslie A. Schwindt-Bayer
Elora Shehabuddin
Kamala Visweswaran
Women, Gender, & Sexuality (SWGS)

SWGS 101 - INTRODUCTION TO WOMEN & GENDER
Short Title: INTRO WOMEN & GENDER
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the Study of Women, Gender, and Sexuality- An introductory survey of issues in the study of gender, such as women’s social, political, and legal status in the US and globally; feminist perspectives on sexuality, race, the body, globalization, labor, culture; and the implications of these perspectives for social and critical theory. The course also introduces the concept of engaged research and the public service components of feminist activity.

SWGS 201 - INTRODUCTION TO LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES
Short Title: INTR LESBIAN, GAY, BISEX&TRAN
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to Lesbian, Gay, Bisexual, & Transgender Studies - An introduction to the interdisciplinary examination of sexual desires, sexual orientations, and the concept of sexuality, with a focus on the construction of lesbian, gay, bisexual, and transgender identities. The course looks at how identities interact with other social phenomena such as government, family, popular culture, scientific inquiry, and especially gender, and highlights the complexity and variability of sexualities of both across historical periods and in relation to race, class, ethnicity and nation. The course also introduces the concept of engaged research and the public service component of LGBT activity.

SWGS 205 - LANGUAGE AND SOCIETY
Short Title: LANGUAGE AND SOCIETY
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course treats language as a social phenomenon to show how language, personal identity and institutions of social control inter-relate. The course focuses on linguistic interaction in daily life and how gender, ethnic, class, activity, and geographic variation affect language use. Cross-list: LING 205.
SWGS 234 - U.S. WOMEN'S HISTORY I: COLONIAL BEGINNINGS TO THE CIVIL WAR  
Short Title: U.S. WOMEN'S HISTORY, I  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Survey of American women's history examines the lives of elite, working, black, Indian and white women, and traces changes in women's legal, political, and economic status from the mid-17th century through the Civil War. Topics include slavery, suffrage, sexuality, and feminism. Cross-list: HIST 241.

SWGS 235 - U.S. WOMEN'S HISTORY II: CIVIL WAR TO THE PRESENT  
Short Title: U.S. WOMEN'S HISTORY, II  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Survey of American women's history examines the lives of elite, working, black, Indian and white women, and traces changes in women's legal, political, and economic status from the Civil War to the present. Topics include suffrage, anti-lynching, welfare, birth control, and the modern civil rights and feminist movements. Cross-list: HIST 242.

SWGS 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SWGS 247 - SEX AND THE CITY  
Short Title: SEX AND THE CITY  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Sex literally shapes the city, both structurally and in our social imaginations. City governments regulate sexually oriented businesses, and not just through zoning. Specific urban sites become known as "that part of town." Urban planners look to "gayborhoods" as economic growth engines. This interdisciplinary seminar explores these and other dynamics at work in the past and the present of urban landscapes.

SWGS 250 - SEX, MONEY, AND POWER AROUND THE WORLD  
Short Title: SEX, MONEY, AND POWER  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An interdisciplinary course exploring lives and well-being in the context of gendered international and domestic politics and economic processes. Emphasis on the implications of power relations at levels from the household to the global for women and men around the world (with particular attention to Asia). Cross-list: ASIA 251, POLI 250.

SWGS 273 - MEDICINE AND MEDIA  
Short Title: MEDICINE AND MEDIA  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An interdisciplinary exploration of the role of imaging technologies in the practice of medicine, and the role of mass media in shaping our understandings of the body, health, and disease. This course examines visual media structure "ways of seeing" for physicians and for the public. Emphasis will be placed on developing media literacy skills. Cross-list: ENGL 273.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 301 - ARTHURIAN LITERATURE  
Short Title: ARTHURIAN LITERATURE  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Cross-list: ENGL 317, MDEM 317.

SWGS 303 - GENDER AND SCIENCE  
Short Title: GENDER AND SCIENCE  
Department: Stdy of Women, Gender, & Sxly  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course introduces students to the historical, philosophical and social dimensions of science and technology through the lens of feminist and gender studies. It will explore the ways in which science has factored in producing cultural norms for gender and race, how gender figures in the authority of science, and the role of gender in scientific institutions.
SWGS 305 - CHAUCER
Short Title: CHAUCER
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Geoffrey Chaucer’s The Canterbury Tales, Middle English, and the political and cultural climate of the fourteenth century. Cross-list: ENGL 316, MDEM 316.

SWGS 306 - HUMAN SEXUALITY
Short Title: HUMAN SEXUALITY
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to explore the physiological, psychological, and sociological parameters of human sexuality, while providing accurate information and helping students develop healthy attitudes toward sexuality. Cross-list: HEAL 306.

SWGS 308 - THE FUTURE OF FOOD: FEMINIST, QUEER, AND CRITICAL APPROACHES
Short Title: FOOD FEMINIST QUEER APPROACHES
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines food studies, food movements, and food politics through feminist, queer, and critical approaches, analyzing throughout the course food's relationships to gender, class, race, disability, sexuality, and geography. The course will include sharing food with one another, going on field trips, and participating in an engaged food justice project. Repeatable for Credit.

SWGS 315 - GENDER AND ISLAM
Short Title: GENDER AND ISLAM
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the lives of Muslim women in Asia, the Middle East, Europe, and North America; analyzes constructions of gender in the Islamic world overtime; the challenges faced from such diverse quarters as colonial administrators, Western feminists, and states; as well as movements and individuals within the Muslim world. Cross-list: ASIA 315, RELI 315.

SWGS 317 - TRANSGENDER STUDIES
Short Title: TRANSGENDER STUDIES
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course surveys the evolving category of transgender in global context with a specific focus on the United States. Drawing on medicine, history, law, anthropology, cultural studies, women's studies, and sexuality studies, participants will explore the contested meanings of “transgender” and related terms like “non-binary” and “gender non-conforming.” Instructor Permission Required. Recommended Prerequisite(s): SWGS 101 or SWGS 201.

SWGS 318 - ISRAELI WOMEN WRITERS
Short Title: ISRAELI WOMEN WRITERS
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the last 25 years there has been an explosion of women's poetry and fiction in Israel. In this course we will explore Israeli women’s writing since the inception of the state of Israel and examine what the work of contemporary women writers means for Israeli culture, society, and politics. Cross-list: JWST 318.

SWGS 320 - GENDER, SEXUALITY AND THE ADAPTATION OF TRANSCANSLATIONAL LITERATURE TO PERFORMANCE
Short Title: GENDER AND PERFORMANCE
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the embodiment of gender and sexuality through the oral interpretation of transnational literature. Students will learn how to analyze and adapt to performance novels and short stories from various global and historical contexts that exemplify the genre of the "coming of age" narrative. Cross-list: THEA 320.

SWGS 321 - EXHIBITING SEXUALITIES
Short Title: EXHIBITING SEXUALITIES
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class investigates how sexuality has been constructed, avoided, celebrated, and suppressed in museums. In addition to studying a genealogy of sexual display and spectatorship in museums, students will also do the work of collectors, curators, and critics of artistic, historical, and scientific displays of sex and sexuality. Cross-list: HART 399.
SWGS 324 - SOCIOLOGY OF GENDER
Short Title: SOCIOLOGY OF GENDER
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will teach students the important influences and consequences of American family life. We will consider issues such as sex and sexualities, marriage and cohabitation, divorce, family structure, same-sex marriage, domestic violence, and household labor. We will also examine the role of social institutions and social inequality in shaping family norms and constraints on family behaviors. Cross-list: SOCI 306.

SWGS 325 - SOCIOLOGY OF THE FAMILY
Short Title: SOCIOLOGY OF THE FAMILY
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will teach students the important influences and consequences of American family life. We will consider issues such as sex and sexualities, marriage and cohabitation, divorce, family structure, same-sex marriage, domestic violence, and household labor. We will also examine the role of social institutions and social inequality in shaping family norms and constraints on family behaviors. Cross-list: SOCI 334.

SWGS 327 - TOPICS IN WOMEN WRITERS
Short Title: TOPICS IN WOMEN WRITERS
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that focuses on women from various traditions. Cross-list: ENGL 381. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 329 - THE AMERICAN WEST AND ITS OTHERS
Short Title: THE AMERICAN WEST & ITS OTHERS
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of a body of literature, film, and critical theory about the American West and the concept of regionalism. Explores region in relation to the nation and its borders, global media, coloniality, indignity and race, gender, and an ethics of place. Cross-list: ENGL 369.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 331 - PSYCHOLOGY OF GENDER
Short Title: PSYCHOLOGY OF GENDER
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of research and theory on gender in psychology. Cross-list: PSYC 331.

SWGS 332 - SEX, SELF, AND SOCIETY IN ANCIENT GREECE
Short Title: SOCIETY IN ANCIENT GREECE
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introductory venture into conducting fieldwork in the past. The course treats a wide range of artifacts, from philosophical essays to vase paintings. It derives its focus from a rich corpus of recent research into the ancient problemization of desire and self-control. Cross-list: ANTH 325.

SWGS 333 - MASCULINITIES
Short Title: MASCULINITIES
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home, and war. Cross-list: ANTH 311.

SWGS 336 - THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION
Short Title: THE HISTORICAL IMAGINATION
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Cross-list: ANTH 308.
SWGS 338 - 19TH CENTURY WOMEN'S NARRATIVES
Short Title: 19TH C. WOMEN'S NARRATIVES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the experiences of women in the United States during the nineteenth century through first-hand accounts and scholarly readings. Students will ready a variety of materials to explore the social and legal status of women and consider the impact of race on women's lives. Cross-list: HIST 338.

SWGS 343 - JANE AUSTEN'S WORLDS
Short Title: JANE AUSTEN'S WORLDS
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of Jane Austen as Regency writer and contemporary icon. The course will focus both on Austen's writing her novels, her juvenilia and her letters and on visual and textual adaptations of her work. Cross-list: ENGL 343.

SWGS 345 - HISTORY OF FEMINISM
Short Title: HISTORY OF FEMINISM
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores feminism as political thought and social movement in various times and places. Readings will include classic as well as non-canonical texts. We will consider the historical contexts of feminist action, and examine controversies over and within feminisms. Cross-list: HIST 340.

SWGS 346 - SEMINAR ON LOVE: MAKING LOVE IN MODERN ART AND THOUGHT
Short Title: MAKING LOVE IN MODERN ART
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores various conceptions of love from the classical era to our postmodern age. Ranging from eros to philia to agape, we will examine literary, philosophical, and artistic expressions of love in painting, cinema, literature, psychoanalysis, philosophy, religion, and culture. Cross-list: HART 346.

SWGS 348 - SEX AND GENDER IN MODERN JEWISH CULTURE
Short Title: SEX & GENDER IN JEWISH CULTURE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How has Jewish identity historically been constructed as gendered, and how has that affected Jewish self-perception and representation as well as the representations of others? This course explores the intersection between gender and Jewishness from several different historical and cultural perspectives, using literature, film, and philosophy. Cross-list: JWST 348. Mutually Exclusive: Cannot register for SWGS 348 if student has credit for RELI 347/SWGS 347.

SWGS 353 - ILLNESS, DISABILITY, AND THE GENDERED BODY
Short Title: DISABILITY AND GENDERED BODIES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retrench normative arrangements of gender. Cross-list: ANTH 354. Graduate/Undergraduate Equivalency: SWGS 554. Mutually Exclusive: Cannot register for SWGS 353 if student has credit for SWGS 554.

SWGS 354 - CHICANO/A LITERATURE
Short Title: CHICANO/A LITERATURE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: ENGL 371, SPPO 354. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
SWGS 361 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN
Short Title: NEW GERM FILM: HITLER'S CINEMA
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerrie, Garnier, Tykwer, and others. The first 20 years of German film were oriented on coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: GERM 338, HUMA 373.

SWGS 364 - QUEER LITERARY CULTURES
Short Title: QUEER LITERARY CULTURES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to queer literary theory by reading works in several genres, from Sappho to the present day, including Shakespeare, Dickinson, Tennyson, Whitman, Proust, Stein and Woolf. Cross-list: ENGL 354.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 370 - AFRICAN AMERICAN LITERATURE
Short Title: AFRICAN AMERICAN LITERATURE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that traces, through various genres and themes, African American literary history from the late eighteenth century to the present. Attention is given to theories and critiques of African American literature and culture. Cross-list: ENGL 370.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 372 - SURVEY OF VICTORIAN FICTION
Short Title: VICTORIAN FICTION
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the many genres of the 19th-century novel, this course will try to come to terms with some of the insistent questions posed by and through the fiction of the period. Cross-list: ENGL 342.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 373 - WOMEN'S SOCIAL MOVEMENTS IN LATIN AMERICA AND THE CARIBBEAN
Short Title: WOMEN'S SOCIAL MOVEMENTS
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will examine the historical development of women's social movements in Latin America and the Caribbean. We will explore how they are transforming the region through their diverse forms of political engagement. This is a lecture/seminar course that emphasizes writing and discussion. Cross-list: LASR 373.

SWGS 374 - FEMINIST AND QUEER THEORY IN THE AFRICAN DIASPORA
Short Title: FEM THEORY IN AFRICAN DIASPORA
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an interdisciplinary overview of the body of Black feminist and queer theory that has emerged within the last forty years. We will examine these frameworks in order to understand how racial difference shapes gender and sexual identities. This is a seminar that emphasizes research and discussion. Cross-list: LASR 374.

SWGS 375 - LATINA AND AFRICAN AMERICAN WOMEN'S ACTIVISM IN THE URBAN METROPOLIS
Short Title: WOMEN'S ACTIVISM URBAN METRO
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will investigate the contemporary writings of Latina and African American women in urban spaces across the U.S. Understanding these women's experiences in relationship to each other will reveal the shared, yet distinct, trajectories that orient their struggle to resist poverty, racism, homophobia, and sexual and reproductive violence. Cross-list: LASR 375.
SWGS 376 - CHICANA AND LATINA EXPERIENCE THRU FILM
Short Title: CHICANA/LATINA EXP THRU FILM
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the Chicana and Latina experience in the U.S. We examine these women's response to each other and forces of conquest, capitalism, and patriarchy. Novels, oral life histories, film, and art will be used to interrogate these women's conceptualization and assertion of feminism, activism, and history. Cross-list: LASR 376.

SWGS 377 - RACE, POWER AND THE POLITICS OF PLACE
Short Title: RACE, POWER, PLACE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how the social construction of space informs processes of racial formation, gender, and sexuality by focusing largely on Latina communities in the Americas.

SWGS 380 - FEMINIST THEORY
Short Title: FEMINIST THEORY
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course focusing on concepts that drive and divide social movements centered on gender equality, women's issues, and sexual identity in the two-thirds and one-third world, among them feminism; the body; race; labor; rights, needs, and desires. Cross-list: ENGL 382.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 384 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook "The Modern Girl Around the World," this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: ASIA 328, HIST 384.

SWGS 385 - SEXUAL DEBATES IN THE U.S.: SOCIAL AND CULTURAL CONTEXTS OF SUPREME COURTS DECISIONS
Short Title: SEXUAL DEBATES IN U.S.
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How do sex acts and sexualities enter public conversations over time? This course surveys a variety of sexual debates in the United States with a focus on the social and cultural contacts and the legacies of those debates. Topics vary, but examples include miscegenation, obscenity, abortion and sodomy.

SWGS 389 - YOUTH STUDIES
Short Title: YOUTH STUDIES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course exploring the cultural productions of youth, their social geographies, and youth as a critical field important to the theorization of activism, technology, law and incarceration, reproductive politics, sexuality, consumerism, citizenship, environment. Previous topics: Generation X, Third Wave Feminism, Obama and the Youth Vote, Harry Potter & Gen Y, Power, Politics, and Reading Issues of Access. Cross-list: ENGL 389.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 390 - TRENDS IN HISPANIC CINEMA
Short Title: TRENDS IN HISPANIC CINEMA
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 390. This course examines the ways in which films in both Spain and Latin America have represented the cultural contexts of their countries. Focus is on the theme of power, and the consequences on social and individual lives. Taught in Spanish. Cross-list: SPPO 385.
SWGS 393 - SCIENCE, FEMINISM AND CHRISTIANITY IN THE AMERICAN 20TH CENTURY
Short Title: SCIENCE/FEMINISM/CHRISTIANITY
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines a history of sex and gender at the intersection of American science and American Christianity over the past century. Students will be invited to interrogate the boundaries between scientific and religious discourse as they investigate how these have interacted in producing sex and gender identity.

SWGS 399 - WOMEN IN CHINESE LITERATURE
Short Title: WOMEN IN CHINESE LITERATURE
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Cross-list: ASIA 399, MDEM 379.

SWGS 407 - FEMINIST STUDIES
Short Title: FEMINIST STUDIES
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course designed to build on student knowledge of feminist theory gained earlier in the curriculum. Past topics have included sexualities, Marriage and Its Others, and Third Wave Feminism. Cross-list: ENGL 481. Repeatable for Credit.

SWGS 415 - SOCIOLINGUISTICS
Short Title: SOCIOLINGUISTICS
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 301 or ANTH 301 or LING 311 or ANTH 323 or LING 501 or ANTH 501 or LING 511 or ANTH 523
Description: This course covers contemporary sociolinguistic theory and methodologies. We examine the linguistic consequences to speakers of their group memberships such as gender, race, class and sexuality. Cross-list: LING 415.

SWGS 424 - WOMEN IN FRANCE
Short Title: WOMEN IN FRANCE
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: HART 434, MDEM 434. Graduate/Undergraduate Equivalency: SWGS 534. Mutually Exclusive: Cannot register for SWGS 434 if student has credit for SWGS 534.

SWGS 449 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Cross-list: ASIA 399, MDEM 379.

SWGS 450 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: HART 434, MDEM 434. Graduate/Undergraduate Equivalency: SWGS 534. Mutually Exclusive: Cannot register for SWGS 434 if student has credit for SWGS 534.

SWGS 499 - KNOWLEDGE BODIES, POWER RELATIONS
Short Title: KNOWLEDGE BODIES, POWER RELATIONS
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 301 or LING 301 or ANTH 311 or LING 311 or ANTH 323 or LING 501 or ANTH 501 or LING 511 or ANTH 523
Description: This course covers contemporary sociolinguistic theory and methodologies. We examine the linguistic consequences to speakers of their group memberships such as gender, race, class and sexuality. Cross-list: LING 415.
SWGS 453 - STUDIES IN AFRICAN AMERICAN LITERATURE
Short Title: AFRICAN AMERICAN STUDIES
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course designed to build on student knowledge of African American literature gained earlier in the curriculum. Recent topics include Black Women Writers. Cross-list: ENGL 470. Repeatable for Credit.

SWGS 465 - GENDER AND HEALTH
Short Title: GENDER AND HEALTH
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the relationship between gender and health (longevity, physical illness and functioning, mental health, and health behavior). Specific topics include masculinity, disease expression, medical research, health care use, stress and social relationships, and intersectionality (race/ethnicity and sexuality) as they relate shaping health outcomes among men and women. Cross-list: SOCI 465.

SWGS 466 - LATIN AMERICAN WOMEN'S CULTURE
Short Title: LATIN AMERICAN WOMEN'S CULTURE
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 456. Studies the cultural production (literary, artistic, cinematic) of intellectual women in Latin America. Examines the struggles for interpretive power in works by women from the colonial period to the present. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SPPO 430.

SWGS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SWGS 494 - PRE-SEMINAR IN ENGAGED RESEARCH
Short Title: PRE-SEMINAR: ENGAGED RESEARCH
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course prepares students for the Spring semester and practicum sequence (496 and 497) by establishing a baseline of skills in research design and filing paperwork with the Institutional Review Board at Rice and elsewhere as needed.

SWGS 495 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to SWGS majors only. Instructor Permission Required.

SWGS 496 - ENGAGED RESEARCH PRACTICUM
Short Title: ENGAGED RESEARCH PRACTICUM
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An applied research complement to the Seminar consisting of six hours/week participating in a research-based project at a local public service agency that addresses the needs of women or is focused on gender and/or sexuality related work. Planning for the practicum takes place during the previous fall semester in consultation with the SWGS Director. Practicum projects are presented to a public audience. Permission of the instructor and some background in the study of women, gender or sexuality required.

SWGS 497 - ENGAGED RESEARCH SEMINAR
Short Title: ENGAGED RESEARCH SEMINAR
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taken in conjunction with SWGS 496, the Seminar develops students' research skills and situates the practicum project within a range of perspectives on feminist theory and practice, grassroots organizing, and policy-making around the issues of women, gender, and sexuality, for example, domestic violence, gender and the prison industry, reproductive freedom, the feminization of AIDS. Permission of the instructor and some background in gender or sexuality studies are required.
SWGS 498 - RESEARCH IN THE STUDY OF WOMEN GENDER SEXUALITY
Short Title: RES STUDY WOMEN GENDER SXLY
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research seminar for SWGS seniors to fulfill capstone requirement. Open to SWGS majors only.

SWGS 499 - RESEARCH IN THE STUDY OF WOMEN GENDER SEXUALITY
Short Title: RES STUDY WOMEN GENDER SXLY
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research seminar for SWGS seniors to fulfill capstone requirement. Open to SWGS majors only. Instructor Permission Required.

SWGS 501 - FEMINIST DEBATES
Short Title: FEMINIST DEBATES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course identifies and traces three streams of thought by debates about major issues in women's studies. While the content of these streams will vary, the course will always be attentive to the historical and theoretical context of the debates in question and to the intersection of these debates with others. Topics might include: public and private spheres; the relation between the local and the global links between gender and sexuality; the problem of identity; the relation between activist and academic feminism.

SWGS 502 - GENDER, THE DISCIPLINES, AND INTERDISCIPLINARITY
Short Title: GENDER, DISCIPL, & INTERDISCIP
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): SWGS 501
Description: Structured as a workshop, this course offers SWGS certificate students critically to engage cross-disciplinary feminist scholarship as they integrate the study of women, gender and/or sexuality into their doctoral writing by transforming existing papers into works that are of publishable quality.

SWGS 503 - DIRECTED READING
Short Title: DIRECTED READING
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Directed reading under the supervision of a SWGS faculty member with permission of the instructor. May count only once toward major requirements. Instructor Permission Required.

SWGS 546 - SPECIAL TOPICS: 20TH CENTURY BRITISH LITERATURE
Short Title: SP 20TH CENTURY BRITISH LIT
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included "The Victorian Marriage Plot", "The History of the Novel, Part II"; and "Victorian and Modern Sexualities". Cross-list: ENGL 542. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
SWGS 554 - ILLNESS, DISABILITY, AND THE GENDERED BODY
Short Title: DISABILITY AND GENDERED BODIES
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retract normative arrangements of gender. Cross-list: ANTH 554. Graduate/Undergraduate Equivalency: SWGS 353. Mutually Exclusive: Cannot register for SWGS 554 if student has credit for SWGS 353.

SWGS 581 - CULTURAL STUDIES: CONTEMPORARY LITERATURE, CULTURE AND POLITICS
Short Title: CONTEMPLIT., CULTURE & POLII
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Contemporary Issues in U.S. Culture and Studies in Sexuality. Thinking Sex Under Neo-Liberalism. Cross-list: ENGL 581. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 585 - POSTCOLONIALISM AND BEYOND
Short Title: POSTCOLONIALISM AND BEYOND
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course that serves both as an introduction to postcolonial theory and as a reevaluation of its political and ethical ends vis-a-vis recent debates around globalization and cosmopolitanism. For additional course information please consult the English department website. Cross-list: ENGL 585.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Stdy of Women, Gender, & Sxlt
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: SWGS

Program Description and Code
- Center for the Study of Women, Gender, and Sexuality: SWGS

Undergraduate Degree Code and Description
- Bachelor of Arts Degree: BA

Undergraduate Major Code and Description
- Major in the Study of Women, Gender, and Sexuality: SWGS

Graduate Certificate Description and Code
- Certificate in the Study of Women, Gender and Sexuality: WGS

CIP Code and Description 1
- SWGS Major/Program: CIP Code/Title: 05.0207 - Women's Studies
- WGS Certificate: CIP Code/Title: 05.0207 - Women's Studies

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Bachelor of Arts (BA) Degree with a Major in Study Of Women, Gender and Sexuality

Program Learning Outcomes for the BA Degree with a Major in the Study of Women, Gender and Sexuality

Upon completing the BA degree with a major in the Study of Women, Gender and Sexuality, students will be able to:

1. Demonstrate an awareness of the diversity of feminist thought in the past and present.
2. Demonstrate familiarity with key issues in the study of women’s lives and histories.
3. Demonstrate knowledge of social, political, and cultural features of gender and sexuality in the US and globally.
4. Understand diverse global feminist perspectives, including critical race studies and feminist contributions to social and critical theory.
5. Demonstrate knowledge of the feminist concept of engaged research based upon cumulative practice as engaged researchers in extra-classroom activities.
6. Develop skills in analytical writing as well as in oral and visual presentation.
Requirements for the BA Degree with a Major in the Study of Women, Gender and Sexuality

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in the Study of Women, Gender and Sexuality must complete:

- A minimum of 10-11 courses (30-31 credit hours), depending on course selection, to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 5 courses (15 credit hours) taken at the 300-level or above.

All students must work out their individual courses of study with their faculty advisors. Each student’s course of study must be approved by the SWGS Undergraduate Advisor. Course requirement tracking forms are available in the Study of Women, Gender and Sexuality office.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Total Credit Hours Required for the Major in the Study of Women, Gender and Sexuality</td>
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<tr>
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<td>Total Credit Hours Required for the BA Degree with a Major in Study of Women, Gender and Sexuality</td>
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Degree Requirements

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<td>Core Requirements</td>
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<tr>
<td>SWGS 101</td>
<td>INTRODUCTION TO WOMEN &amp; GENDER</td>
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<tr>
<td>or SWGS 201</td>
<td>INTRODUCTION TO LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES</td>
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<td></td>
<td>Select 1 course from Global South Electives (see course list below)</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course from Critical Race Electives (see course list below)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 1 course from Theory Electives (see course list below)</td>
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<td>Research, Practicum, and Seminar</td>
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<td>Select 1 from the following:</td>
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<td>SWGS 494</td>
<td>PRE-SEMINAR IN ENGAGED RESEARCH</td>
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<td>SWGS 496</td>
<td>ENGAGED RESEARCH PRACTICUM</td>
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<td>SWGS 497</td>
<td>ENGAGED RESEARCH SEMINAR</td>
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<td></td>
<td>Senior Thesis</td>
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<tr>
<td>SWGS 498</td>
<td>RESEARCH IN THE STUDY OF WOMEN GENDER SEXUALITY</td>
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</table>

Elective Requirements

Select 4 elective courses from department approved electives or from additional elective courses in Global South, Critical Race, or Theory Electives (see course list below) 12

Total Credit Hours Required for the Major in Women, Gender and Sexuality 30-31

Additional Credit Hours to Complete Degree Requirements 58-59

University Graduation Requirements (p. 29) 31

Total Credit Hours 120

Footnotes and Additional Information

* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 Students may pursue an optional specialization in Poverty, Social Justice and Human Capabilities. See an advisor for more information.

Course Lists to Satisfy Requirements

Elective Requirements

Students must select a minimum of 1 course (3 credit hours) from Global South Electives and a minimum of 1 course (3 credit hours) from Critical Race Electives, and a minimum of 1 course (3 credit hours) from Theory Electives. To fulfill the remaining major requirements, students must complete a total of 4 courses (12 credit hours) from the department approved electives, or from additional elective courses in Global South Electives, Critical Race Electives, or Theory Electives. Course offerings may vary from year to year, and students are urged to consult with the undergraduate advisor or with the director at the beginning of each semester.

Global South Electives

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<td>ASIA 381</td>
<td>SOUTH ASIAN DIASPORAS</td>
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<td>FREN 337</td>
<td>SHAKEPEARE IN THE CARIBBEAN: POST/</td>
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<tr>
<td></td>
<td>COLONIAL READINGS</td>
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<tr>
<td>FREN 340</td>
<td>GENDER AROUND THE WORLD</td>
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<tr>
<td>FREN 414</td>
<td>SEX AND RACE IN THE FRENCH ATLANTIC</td>
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<tr>
<td>SOCI 389</td>
<td>RACE, GENDER, CLASS IN FILM</td>
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<tr>
<td>SPO 361</td>
<td>WOMEN AND GENDER IN SPANISH CULTURE</td>
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<tr>
<td>SWS 250 / POLI 250 / ASIA 251</td>
<td>SEX, MONEY, AND POWER AROUND THE WORLD</td>
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<tr>
<td>SWS 315 / RELI 315 / ASIA 315</td>
<td>GENDER AND ISLAM</td>
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<tr>
<td>SWS 384 / HIST 384 / ASIA 328</td>
<td>MODERN GIRL AND ASIA IN THE WORLD</td>
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### Critical Race Electives

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<td>EDUC 304</td>
<td>RACE, CLASS, GENDER IN EDUCATION</td>
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<td>ENGL 397</td>
<td>TOPICS IN LITERATURE AND CULTURE</td>
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<td>FREN 308</td>
<td>BEAUTY AND THE BEAST(S): SEX, VIOLENCE, AND FOLKTALES IN THE</td>
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<td>AFRICAN DIASPORA</td>
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<td>GENDER AROUND THE WORLD</td>
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<td>FREN 413</td>
<td>BLACK VENUS/VÉNUS NOIRE: REPRESENTATIONS OF BLACK WOMEN IN</td>
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<td>THE LONG 19TH CENTURY</td>
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<td>FREN 414</td>
<td>SEX AND RACE IN THE FRENCH ATLANTIC</td>
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<td>SOCI 343</td>
<td>RACE, SOCIETY AND POPULATION CHANGE</td>
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<td>SWGS 234</td>
<td>U.S. WOMEN’S HISTORY I: COLONIAL</td>
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<td>HIST 241</td>
<td>BEGINNINGS TO THE CIVIL WAR</td>
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<td>U.S. WOMEN’S HISTORY II: CIVIL WAR TO THE PRESENT</td>
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<td>ENGL 369</td>
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<td>YOUTH STUDIES</td>
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<tr>
<td>ENGL 389</td>
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<tr>
<td>SWGS 415</td>
<td>SOCIOLINGUISTICS</td>
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<td>LING 415</td>
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<tr>
<td>SWGS 453</td>
<td>STUDIES IN AFRICAN AMERICAN LITERATURE</td>
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<td>ENGL 470</td>
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<td>SWGS 466</td>
<td>LATIN AMERICAN WOMEN’S CULTURE</td>
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<tr>
<td>ANTH 380</td>
<td>GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS</td>
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<tr>
<td>ANTH 382</td>
<td>BODY, TECHNOLOGY, AND ENHANCEMENT</td>
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<tr>
<td>ANTH 428</td>
<td>FEMINIST SCIENCE AND TECHNOLOGY STUDIES</td>
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<td>FREN 370</td>
<td>WOMEN IN TALES OF THE FANTASTIC</td>
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<td>FREN 460</td>
<td>WOMEN IN FICTION AND HISTORY NOTIONS OF THE FEMININE SINCE THE</td>
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<td></td>
<td>FREN REVOLUTION</td>
<td></td>
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<tr>
<td>FWIS 103</td>
<td>WOMEN ARTISTS: VON BINGEN TO BEYONCÉ</td>
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<tr>
<td>HART 356</td>
<td>SEX AND MONEY: THE SPECIES DIVIDE</td>
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<td>HART 364</td>
<td>GENDER AND SEXUALITY IN FILM</td>
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<td>LING 303</td>
<td>LANGUAGE AND GENDER</td>
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<td>PHIL 267</td>
<td>PHILOSOPHY OF SEX AND LOVE</td>
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<td>PHIL 275</td>
<td>FEMINIST PHILOSOPHY</td>
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<td>GENDER AND POLITICS</td>
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<td>SEX, GENDER, AND POLITICAL REPRESENTATION IN LATIN AMERICA</td>
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<td>RELI 238</td>
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<td>RELI 393</td>
<td>MUTANTS AND MYSTICS: RACE, SEXUALITY, AND THE FUTURE OF THE</td>
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<td>SWGS 205</td>
<td>LANGUAGE AND INEQUALITY</td>
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<tr>
<td>LING 205</td>
<td></td>
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<td>SWGS 238</td>
<td>SPECIAL TOPICS</td>
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<td>SWGS 273</td>
<td>MEDICINE AND MEDIA</td>
<td></td>
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<tr>
<td>ENGL 273</td>
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<tr>
<td>SWGS 301</td>
<td>ARTHURIAN LITERATURE</td>
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<td>ENGL 317</td>
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<tr>
<td>MDEM 317</td>
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<tr>
<td>SWGS 303</td>
<td>GENDER AND SCIENCE</td>
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<tr>
<td>SWGS 305</td>
<td>CHAUCER</td>
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<td>ENGL 316</td>
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<td>MDEM 316</td>
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<td>SWGS 306</td>
<td>HUMAN SEXUALITY</td>
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<td>HEAL 306</td>
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<td>SWGS 308</td>
<td>THE FUTURE OF FOOD: FEMINIST, QUEER, AND CRITICAL APPROACHES</td>
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<tr>
<td>SWGS 320</td>
<td>GENDER, SEXUALITY AND THE</td>
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<tr>
<td>THEA 320</td>
<td>ADAPTATION OF TRANSNATIONAL LITERATURE TO PERFORMANCE</td>
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<tr>
<td>SWGS 324</td>
<td>SOCIOLOGY OF GENDER</td>
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</tr>
<tr>
<td>SOCIO 306</td>
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</tbody>
</table>
Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from the Study of Women, Gender and Sexuality (SWGS) are broad in theme and scope and prompt students to probe knowledge about how gender and sexuality are crucial components of political life, social life, and general well-being. They involve a broad, interdisciplinary spectrum of such knowledge and provide students with the tools for thinking critically about formations of gender and sexuality in diverse contexts. Current DI courses are 100- and 200-level introductions to the study of women and gender and to LGBT studies.

Additional Information

For additional information, please see the Center for the Study of Women, Gender and Sexuality website: https://cswgs.rice.edu/

Opportunities for the BA Degree with a Major in the Study of Women, Gender and Sexuality

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Senior Thesis

Students wishing to pursue the Study of Women, Gender and Sexuality senior thesis program will complete a thesis under the guidance of a faculty mentor. Students wishing to undertake a senior thesis should confirm their eligibility with the SWGS Director of Undergraduate Studies (major advisor) in the spring of their junior year.
Requirements for admission to the program are:

1. Demonstrate knowledge of historical and contemporary approaches to the study of women, gender and sexuality across diverse disciplines.
2. Engage through their intellectual production feminist concepts and methodologies, and features of women’s studies, gender studies, and/or sexuality studies as academic fields.
3. Incorporate critical debates in the study of women, gender and sexuality in their oral presentations and written analyses, including work for publication and/or use in a thesis.

Requirements for the Certificate in the Study of Women, Gender and Sexuality

The certificate in the Study of Women, Gender and Sexuality is a graduate certificate. For general university requirements, please see Graduate Certificates (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the certificate in the Study of Women, Gender and Sexuality must complete:

- A minimum of 3 courses (9 credit hours) of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy certificate requirements.
- A minimum of 4 semesters of participation in the SWGS Department Annual Colloquium 1.3.
- A thesis (for the PhD program in which they have been admitted) that in some way features the study of women, gender and/or sexuality 1.3.
- All course requirements met with Rice University coursework (transfer credit not permitted). For additional program guidelines regarding transfer credit, see the Policies (p. 2050) tab.
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
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Certificate Requirements

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<tr>
<td>SWGS 501</td>
<td>FEMINIST DEBATES</td>
<td>3</td>
</tr>
<tr>
<td>SWGS 502</td>
<td>GENDER, THE DISCIPLINES, AND INTERDISCIPLINARITY</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirement

Select 1 course from the following: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>POLI 536</td>
<td>WOMEN AND REPRESENTATION</td>
</tr>
<tr>
<td>SWGS 503</td>
<td>DIRECTED READING</td>
</tr>
<tr>
<td>SWGS 534 / HART 534</td>
<td>SEEING SEX IN EUROPEAN ART, 1400-1700</td>
</tr>
<tr>
<td>SWGS 542 / ENGL 542</td>
<td>VICTORIAN FICTION</td>
</tr>
<tr>
<td>SWGS 546 / ENGL 546</td>
<td>SPECIAL TOPICS: 20TH CENTURY BRITISH</td>
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<tr>
<td>SWGS 581 / ENGL 581</td>
<td>CULTURAL STUDIES: CONTEMPORARY LITERATURE</td>
</tr>
<tr>
<td>SWGS 585 / ENGL 585</td>
<td>POSTCOLONIALISM AND BEYOND</td>
</tr>
</tbody>
</table>

Annual Colloquium (minimum of 4 semesters) 1

Total Credit Hours 9

Footnotes and Additional Information

1 The Annual Colloquium requirement is met by attending a series of colloquium seminars and associated public lectures offered by the Center for the Study of Women, Gender and Sexuality (CSWGS) over the course of a year, for a total of four (4) semesters. Generally students complete this requirement within two (2) years of study. It is recommended, though not required, that students attend the Annual Colloquium beyond the minimum requirements. For more information about the Annual Colloquium, see the Opportunities (p. 2050) tab.

2 CSWGS must verify that a student’s thesis (for the PhD program in which they have been admitted) in some way features the study of women, gender and/or sexuality. Students are strongly encouraged to include a member of the CSWGS faculty on their thesis committee and to consult regularly with the faculty member as they pursue their thesis work.

3 The participation in the CSWGS Annual Colloquium and the thesis that in some way features the study of women, gender, and/or sexuality together comprise the experiential learning opportunity requirement for the WGS certificate.

Policies for the Certificate in the Study of Women, Gender and Sexuality

Advising

In most cases, students will be able to complete the certificate requirements within the normal time limits for coursework in their PhD program. All students must work out their individual courses of study with the SWGS graduate advisor and the graduate advisor in their home departments. Each student’s course of study must be pre-approved by the SWGS graduate advisor. Please note that not all courses listed as certificate requirements will be offered every academic year.

Thesis Work

Students pursuing the Certificate in the Study of Women, Gender and Sexuality are strongly encouraged to include a member of the CSWGS faculty on their thesis committee and to consult regularly with the faculty member as they pursue their thesis work.

Program Restrictions and Exclusions

Students pursuing the certificate in the Study of Women, Gender and Sexuality should be aware of the following program restriction:

- Graduate students may declare their intent to pursue a university certificate only after they have first been admitted into a graduate-level Rice degree-granting program.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines

Students pursuing the certificate in the Study of Women, Gender and Sexuality should be aware of the following program-specific transfer credit guidelines:

- Transfer credit coursework cannot be applied or used to meet any of the program’s course requirements.

Additional Information

For additional information, please see the Center for the Study of Women, Gender and Sexuality website: https://cswgs.rice.edu/

Opportunities for the Certificate in the Study of Women, Gender and Sexuality

Colloquium

Students in the Certificate in the Study of Women, Gender and Sexuality program participate in a colloquium consisting of a series of seminars and public lectures over the course of a year, offered annually at Rice and organized by the Center for the Study of Women, Gender and Sexuality (CSWGS). Colloquium topics are determined by the CSWGS steering committee with a view to highlighting emerging knowledge in gender, sexuality, and women’s studies. The colloquium provides graduate students with the opportunity to engage in sustained intellectual exchange with leading scholars and to participate in producing cutting-edge work in the field.

Colloquium attendance constitutes an official requirement for the certificate (for more information, see the Requirements tab). Attendance beyond the required minimum is highly encouraged.

Graduate Stipend

The Center for the Study of Women, Gender and Sexuality (CSWGS) awards graduate stipends, within the limits of available funds, to enrolled certificate students during the prospectus-writing semester. Although timelines vary depending on the student’s home department, this normally occurs during the semester following the completion of all required coursework (within the student’s home department as well as in the Certificate in the Study of Women, Gender and Sexuality), and after achieving candidacy in the PhD program.
To receive the stipend, graduate students will be asked to submit a 500-word thesis proposal that identifies the ways women, gender, and/or sexuality feature in their project. CSWGS will ask for this proposal after the student completes qualifying exams.

Teaching Assistants
Certificate students are eligible to work as teaching assistants for an undergraduate SWGS course. In some cases, certificate students may be eligible to serve as an instructor of record for a SWGS course.

Additional Information
For additional information, please see the Center for the Study of Women, Gender and Sexuality website: https://cswgs.rice.edu/.

See https://humanities.rice.edu/student-life for tables of fellowships, prizes, and internships/practica that may be relevant to this program.

Subsurface Geoscience
Contact Information
Subsurface Geoscience
https://profms.rice.edu/
203 Keck Hall
713-348-3188

Colin A. Zelt
Faculty Director
czelt@rice.edu

Dagmar Beck
PSM Program Director
dbeck@rice.edu

The professional master’s degree in Subsurface Geoscience is designed for students who wish to become proficient in applying geological knowledge and geophysical methods to finding and developing reserves of oil and natural gas.

The MSSG degree program offers three areas of specialization:

- **Energy Data Management**: prepares students to understand exploration and production as a data-driven business, to become data enabled geoscientists to match demands in the energy industry, or
- **Geology**: prepares students to be explorationists, with strong skills in using seismic and other geophysical methods along with geological principles to find oil and natural gas, or
- **Geophysics**: prepares students to become technical experts in aspects of exploration seismology.

The MS in Subsurface Geoscience (MSSG) degree is part of the professional science master’s (PSM) program at Rice housed in the Wiess School of Natural Sciences. These master’s degrees are designed for students seeking to gain further scientific core expertise coupled with enhanced management and communication skills. They instill a level of scholastic proficiency that exceeds that of the bachelor’s level, and create the cross-functional aptitudes needed in modern industry. This program will allow students to move more easily into careers related to energy data management, geology, and/or geophysics.

A coordinated MBA/MSSG degrees program is also offered in conjunction with the Jesse H. Jones Graduate School of Business.

Subsurface Geoscience does not currently offer an academic program at the undergraduate level.

Master's Program
- Master of Science in Subsurface Geoscience (MSSG) Degree (p. 2052)

Coordinated Program
- Master of Science in Subsurface Geoscience (MSSG) Degree / Master of Business Administration (MBA) Degree (p. 2055)

Director
Colin A. Zelt

Professors
Jonathan Ajo-Franklin
Richard G. Gordon
Alan R. Levander
Julia K. Morgan
Fenglin Niu

Associate Professor
Helge Gonnerman

Assistant Professor
Melodie E. French

Adjunct Faculty
Kenneth Abdullah
Omer Alpak
Mauricio Araya
Kevin Biddle
Oner Celepcikay
Detlef Hohl
Jeffrey Nunn
Malcolm Ross
Kurt Rudolph
Eric Scott

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice’s Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester’s course schedule, please see Rice’s Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Description and Code Legend
Note: Internally the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject codes: Courses from various subjects may apply toward the graduate degree.
**Program Description and Code**
- Earth, Environmental, and Planetary Sciences: EEPS

**Graduate Degree Description and Code**
- Master of Science in Subsurface Geoscience degree: MSSG

**Graduate Degree Program Description and Code**
- Degree Program in Subsurface Geoscience: SGEO

**CIP Code and Description**
1. SGEO Major/Program: CIP Code/Title: 40.0601 - Geology/Earth Science, General

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**Master of Science in Subsurface Geoscience (MSSG) Degree**

**Program Learning Outcomes for the MSSG Degree**

Upon completing the MSSG degree, students will be able to:

1. Become proficient in applying geological and geophysical knowledge and data management methods.
2. Develop business and management skills, and obtain practical skills valuable to the energy industry.
3. Develop written, oral, and visual communication skills to bridge the gap between science and business.

**Requirements for the MSSG Degree**

The MSSG degree is a non-thesis master's degree. For general university requirements for non-thesis masters degrees, please see Non-Thesis Master's Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the MSSG degree must complete:

- A minimum of 14 courses (minimum of 40-42 credit hours, depending on course selection) to satisfy degree requirements.
- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above).
- A minimum of 24 graduate semester credit hours must be taken at Rice University.
- A minimum of 24 graduate semester credit hours must be taken in standard or traditional courses (with a course type of lecture, seminar, laboratory, lecture/laboratory).
- A minimum residency enrollment of one fall or spring semester of part-time graduate study at Rice University.
- A maximum of 2 courses (6 graduate semester credit hours) from transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2054) tab.
- A 3-6 month internship. Instead of a thesis, at the conclusion of their internship, students must present their internship project in both oral and written form as part of the Professional Master's Project (NSCI 512). Part-time students who already work in their area of study may request approval to fulfill the internship requirement by working on a specific, pre-approved project with their current employer.
- The requirements for one area of specialization (see below for areas of specialization). The MSSG degree program offers three areas of specialization:
  - Energy Data Management (p. 2053), or
  - Geology (p. 2053), or
  - Geophysics (p. 2054).
- A minimum overall GPA of 2.67 or higher in all Rice coursework.
- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the non-thesis master's degree.

**Note:** Some of the listed courses are not offered every year, and some may also have prerequisites or require instructor permission.

The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

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### Degree Requirements

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<td>EEPS 548</td>
<td>3D SEISMIC REFLECTION DATA INTERPRETATION</td>
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<tr>
<td>EEPS 579</td>
<td>HYDROCARBON SYSTEMS ANALYSIS</td>
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<td>EEPS 583</td>
<td>DATA MANAGEMENT AND DATA GOVERNANCE</td>
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<tr>
<td>EEPS 659</td>
<td>WELL LOGGING AND PETROPHYSICS</td>
<td>3</td>
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<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 1st semester)</td>
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<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required, 2nd semester)</td>
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</tr>
<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
<td>3</td>
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<tr>
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<td>PROFESSIONAL MASTER'S PROJECT</td>
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<tr>
<td>NSCI 610 / ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
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</tr>
</tbody>
</table>

### Three to Six Month Internship

A three to six month internship is required.

### Area of Specialization

Select 1 of the following Areas of Specialization (see Areas of Specialization below):
- Energy Data Management
- Geology

---

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/.
Footnotes and Additional Information

1. EEPS 548 requires a prerequisite of EEPS 448 (previously ESCI 442) or EEPS 648 (previously ESCI 642) that may be taken concurrently. See a faculty advisor for more information.

2. Practical experience is offered via a three to six month immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. At the conclusion of the internship, students must present a summary of their internship project in both oral and written form for the cohort course Professional Master's Project (ESCI 512). Part-time students who already work in their area of study may fulfill the internship requirements by working on an approved project with their current employer.

3. Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program's academic advisor. Students should consult with their academic advisors before enrolling.

Area of Specialization: Energy Data Management

Students must complete a minimum of 6 courses (minimum of 18-20 credit hours, depending on course selection) to satisfy the requirements for the MSSG degree program's Energy Data Management area of specialization.

Elective Requirements (for the Area of Specialization: Energy Data Management)
Select a minimum of 3 courses (minimum of 9 credit hours) from the following:

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<tr>
<th>Code</th>
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<tr>
<td>CEVE 528 / ENGI 528</td>
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<tr>
<td>CHBE 548</td>
<td>ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT</td>
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<tr>
<td>COMP 543</td>
<td>GRADUATE TOOLS AND MODELS - DATA SCIENCE</td>
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<td>COMP 556 / ELEC 556</td>
<td>INTRODUCTION TO COMPUTER NETWORKS</td>
<td>3</td>
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<td>DSCI 535 / COMP 549</td>
<td>APPLIED MACHINE LEARNING AND DATA PROJECTS</td>
<td>3</td>
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<td>ECON 601</td>
<td>ENERGY ECONOMICS I</td>
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<tr>
<td>EEPS 634</td>
<td>CLIMATE OF THE COMMON ERA</td>
<td>3</td>
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<tr>
<td>EEPS 636</td>
<td>GIS FOR SCIENTISTS AND ENGINEERS</td>
<td>3</td>
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<tr>
<td>GLBL 543</td>
<td>ENERGY POLICY</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 610</td>
<td>FUNDAMENTALS OF THE ENERGY INDUSTRY</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 616</td>
<td>ENERGY MARKET ORGANIZATION</td>
<td>3</td>
</tr>
</tbody>
</table>

Area of Specialization: Geology

Students must complete a minimum of 6 courses (minimum of 18-20 credit hours, depending on course selection) to satisfy the requirements for the MSSG degree program's Geology area of specialization.

Elective Requirements (for the Area of Specialization: Geology)
Select a minimum of 4 courses (minimum of 12 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHBE 548</td>
<td>ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 525</td>
<td>APPLIED SEDIMENTOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 530</td>
<td>SILICICLASTIC DEPOSITIONAL SYSTEMS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 545</td>
<td>THEORETICAL GLOBAL SEISMOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 578</td>
<td>HYDROCARBON EXPLORATION</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 579</td>
<td>HYDROCARBON SYSTEMS ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 580</td>
<td>SEMINAR: QUANTITATIVE PETROLEUM SYSTEMS ANALYSIS</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 592</td>
<td>SPECIAL TOPICS IN EARTH, ENVIRONMENTAL &amp; PLANETARY SCIENCES</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 615</td>
<td>GEOCHEMISTRY OF EARTH'S SURFACE</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 630</td>
<td>SEQUENCE STRATIGRAPHY</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information

1. COMP 533 is an acceptable substitute for EEPS 585 (previously ESCI 570). COMP 543 is an acceptable substitute for EEPS 586 (previously ESCI 571). Students should only take the accepted COMP substitute courses if the ESCI courses are not offered.

2. Note: Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program's academic advisor. Students should consult with their academic advisors before enrolling.

3. Students following the Energy Data Management Area of Specialization may take departmental (ESCI) coursework listed in other Areas of Specialization for the MSSG degree with the approval of the Area of Specialization Advisor.
EEPS 633 CLIMATE DYNAMICS
EEPS 634 CLIMATE OF THE COMMON ERA
EEPS 636 GIS FOR SCIENTISTS AND ENGINEERS
EEPS 648 EXPLORATION GEOPHYSICS
EEPS 654 INTRODUCTION TO SEISMIC INTERPRETATION: STRUCTURAL STYLES AND SEISMIC STRATIGRAPHY
EEPS 658 ENVIRONMENTAL & APPLIED ROCK PHYSICS
EEPS 660 GLOBAL TECTONICS
EEPS 661 STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS
EEPS 662 TECTONOPHYSICS
EEPS 667 GEOMECHANICS
EEPS 671 EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS
NSCI 515 FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT

Total Credit Hours 18-20

Footnotes and Additional Information
1 Note: Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program’s academic advisor. Students should consult with their academic advisors before enrolling.

2 EEPS 580 (previously ESCI 527) is taught at the University of Houston campus.

Area of Specialization: Geophysics
Students must complete a minimum of 6 courses (minimum of 18-20 credit hours, depending on course selection) to satisfy the requirements for the MSSG degree program's Geophysics area of specialization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 650</td>
<td>GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING</td>
<td>3</td>
</tr>
<tr>
<td>EEPS 651</td>
<td>GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements (for the Area of Specialization: Geophysics)
Select a minimum of 4 courses (minimum of 12 credit hours) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHBE 548</td>
<td>ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT</td>
</tr>
<tr>
<td>EEPS 545</td>
<td>THEORETICAL GLOBAL SEISMOLOGY I</td>
</tr>
<tr>
<td>EEPS 578</td>
<td>HYDROCARBON EXPLORATION</td>
</tr>
<tr>
<td>EEPS 592</td>
<td>SPECIAL TOPICS IN EARTH, ENVIRONMENTAL &amp; PLANETARY SCIENCES</td>
</tr>
<tr>
<td>EEPS 615</td>
<td>GEOCHEMISTRY OF EARTH'S SURFACE</td>
</tr>
<tr>
<td>EEPS 630</td>
<td>SEQUENCE STRATIGRAPHY</td>
</tr>
<tr>
<td>EEPS 633</td>
<td>CLIMATE DYNAMICS</td>
</tr>
</tbody>
</table>

Footnotes and Additional Information
1 Note: Some of the listed courses are not offered every year, and other coursework may be offered that satisfies the stated requirements upon approval. Depending on the student's background or interest, course substitutions for any required or elective course may be approved by the program’s academic advisor. Students should consult with their academic advisors before enrolling.

Policies for the MSSG Degree
Professional Science Master's Graduate Program Handbook
The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the Professional Science Master's Program publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Professional_Science_Masters_Handbook.pdf

Admission
Admission to graduate study in subsurface geoscience is open to qualified students holding a bachelor’s degree (BA or BS degree) in a related science or engineering program that included coursework in general chemistry, general physics, calculus, linear algebra, and differential equations. Completed coursework in geology and/or geophysics is preferred, as well as completed coursework in computer skills and some programming. Scores from the general Graduate Record Examination (GRE) are required. Department faculty evaluate the previous academic record and credentials of each applicant individually.

Transfer Credit
For Rice University's policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Program Transfer Credit Guidelines
Students pursuing the MSSG degree should be aware of the following program-specific transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the degree.
Upon completing the MSSG degree, students will be able to:

1. Become proficient in applying geological and geophysical knowledge and data management methods.
2. Develop business and management skills, and obtain practical skills valuable to the energy industry.
3. Develop written, oral, and visual communication skills to bridge the gap between science and business.

**Program Learning Outcomes for the MBA Degree**

Upon completing the MBA degree, students will be able to:

1. Demonstrate an understanding and application of the foundational frameworks and tools of all business disciplines, including accounting, finance, marketing, organizational behavior, and strategic management.
2. Develop, evaluate, and implement complex business strategies and operational solutions holistically, integrating management principles across the functional areas.
3. Function effectively in a team setting both as a leader and a contributor.

**Requirements for the MSSG/MBA Coordinated Degrees Program**

Students may earn a coordinated MBA degree and a Master of Science degree from the Professional Science Master’s (PSM) program in the following fields:

- Bioscience and Health Policy (MSBHP)
- Environmental Analysis (MSEA)
- Space Studies (MSSpS)
- Subsurface Geoscience (MSSG)

For the coordinated MBA/Master of Science degree from the Professional Science Master's (PSM) program, students must complete:

- A minimum of 75 credit hours in approved coursework, including:
  - A minimum of 30 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the Professional Science Master's (PSM) degree requirements
  - A minimum of 30 credit hours in the corresponding science discipline
  - All PSM degree-specific requirements
  - A three to six month internship
  - A minimum of 45 credit hours of graduate-level study (coursework at the 500-level or above) to satisfy the MBA degree requirements
  - A minimum of 45 credit hours of business coursework
  - All MBA core requirements, the global field experience, custom core requirements, and coordinated elective requirements

Students plan their course schedules in consultation with the Jones Graduate School of Business Registrar Department. Coordinated degrees candidates can fulfill requirements for both degrees within 3 academic years.

For general university requirements, see [Graduate Degrees](p. 57). For additional requirements, regulations, and procedures for all graduate programs, please see *All Graduate Students* (p. 60). Candidates in the MBA/Master of Science degree from the Professional Science Master’s (PSM) program must complete all requirements as listed for both degrees, and must apply and be accepted in both degree programs.
The courses listed below satisfy the requirements for this degree program. In certain instances, courses not on this official list may be substituted upon approval of the program’s academic advisor, or where applicable, the department or program’s Director of Graduate Studies. Course substitutions must be formally applied and entered into Degree Works by the department or program’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated Master of Science Degree</td>
<td>Minimum of 30</td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the Coordinated MBA Degree</td>
<td>Minimum of 45</td>
</tr>
</tbody>
</table>

### Coordinated MBA/MSSG Degree Requirements

Students in the coordinated MBA/MSSG degrees program must complete the Core Requirements and Three to Six Internship of the MSSG degree program (p. 2052) and the Coordinated Area of Specialization below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSSG Core Requirements</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>MSSG Three to Six Month Internship</td>
<td>18-20</td>
</tr>
<tr>
<td></td>
<td>Coordinated MSSG Area of Specialization</td>
<td>18-20</td>
</tr>
<tr>
<td></td>
<td>Select 1 of the following Areas of Specialization:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Energy Data Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Geology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Geophysics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select a maximum of 6 credit hours from approved course offerings (MGMP, MGMT, or MICO) from the Jones Graduate School of Business at the 500-level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>40-42</td>
</tr>
</tbody>
</table>

### Coordinated MBA Degree Requirements

Students in the coordinated MBA/Master of Engineering degrees program or in the coordinated MBA/Master of Science degree from the Professional Science Master’s (PSM) degrees program must complete the Core Requirements, Global Field Experience, and Custom Core Requirements of the full-time MBA degree program (p. 490) and the Coordinated MBA Elective Requirements below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time MBA Core Requirements</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Work Experience Requirement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Global Field Experience Requirement</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Full-time MBA Custom Core Courses</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td>Coordinated MBA Elective Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credit Hours</td>
<td>45</td>
</tr>
</tbody>
</table>

### Footnotes and Additional Information

1. To fulfill the remaining requirements for the coordinated MBA degree program, students must complete an additional 11.25-14.25 credit hours from departmental (MGMP, MGMT, or MICO) course offerings at the 500-level or above to reach 45 total credit hours. (MGMT 703, MGMT 704, and MGMT 705 are not accepted as electives.) The second year of the program is dedicated entirely to MBA elective coursework. Although the Jones Graduate School of Business offers a variety of courses for students to take as electives, students may wish to take courses from other departments at Rice University. MBA electives are offered on the daytime schedule, the evening schedule, and the weekend schedule.

### Policies for the MSSG/MBA Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Subsurface Geoscience website: [https://profms.rice.edu/](https://profms.rice.edu/)
2. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

### Opportunities for the MSSG/MBA Coordinated Degrees Program

**Additional Information**

For additional information on these two degrees:

1. Please see the Subsurface Geoscience website: [https://profms.rice.edu/](https://profms.rice.edu/)
2. Please see the Jones Graduate School of Business website: [https://business.rice.edu/](https://business.rice.edu/)

### Systems, Synthetic and Physical Biology

**Contact Information**

Systems, Synthetic, and Physical Biology  
[https://sspb.rice.edu/](https://sspb.rice.edu/)  
170 BioScience Research Collaborative  
713-348-5961

Jonathan J. (Joff) Silberg  
Program Director  
joff@rice.edu

Systems, Synthetic, and Physical Biology (SSPB) is a new discipline that draws upon principles from physics, chemistry, engineering, and mathematics and integrates experimental biochemical, cell biological, and molecular genetics approaches with computational design, simulation, and modeling to anticipate the properties of complex and multiscale biological systems. The Graduate Program in SSPB represents a cooperative effort by faculty in the Schools of Natural Sciences and Engineering to provide training in this highly interdisciplinary field. This program is overseen by the Institute of Biosciences and Bioengineering.
and an executive committee composed of members from any of the participating departments.

The interdisciplinary nature of the SSPB program allows students to achieve their graduate degree requirements by taking select classes from any of the participating departments and performing their thesis research under supervision of any faculty associated with the program.

Systems, Synthetic, and Physical Biology does not currently offer an academic program at the undergraduate level.

**Master's Program**

- Master of Science (MS) Degree in the field of Systems, Synthetic, and Physical Biology*

**Doctoral Program**

- Doctor of Philosophy (PhD) Degree in the field of Systems, Synthetic, and Physical Biology. (p. 2059)

*Although students are not normally admitted to a Master of Science (MS) degree program, graduate students may earn the MS as they work towards the PhD.

**Director**

Jonathan J. Silberg, BioSciences

**Professors**

Caroline Ajo-Franklin, BioSciences
Pedro J.J. Alvarez, Civil and Environmental Engineering
Gang Bao, Bioengineering
Matthew Bennett, BioSciences
Cecilia Clementi, Chemistry
Oleg A. Igoshin, Bioengineering
Lydia Kavraki, Computer Science
Marek Kimmel, Statistics
Anatoly B. Kolomeisky, Chemistry
Christy F. Landes, Chemistry
Frederick C. MacKintosh, Chemical and Biomolecular Engineering
Caroline A. Masiello, Earth, Environmental and Planetary Sciences
Luay K. Nakhle, Computer Science
Edward P. Nikonowicz, BioSciences
Jose Nelson Onuchic, Physics and Astronomy
George Phillips, BioSciences
Ka-Yiu San, Bioengineering
Yousif Shamoo, BioSciences
Jonathan J. Silberg, BioSciences
Junghae Suh, Bioengineering
Yizhi Jane Tao, BioSciences
Peter G. Wolynes, Chemistry

**Associate Professors**

Michael Diehl, Bioengineering
Ching-Hwa Kiang, Physics and Astronomy
Natasha Kirienko, BioSciences
Michael H. Kohn, BioSciences
Robert M. Raphael, Bioengineering
Jacob Robinson, Electrical and Computer Engineering
Laura Segatori, Bioengineering
Jeffrey J. Tabor, Bioengineering
Aryeh Warmflash, BioSciences

Chong Xie, Electrical and Computer Engineering
David Zhang, Bioengineering

**Assistant Professors**

Caleb Bashor, Bioengineering
James Chappell, BioSciences
Xue Gao, Chemical and Biomolecular Engineering
Yang Gao, BioSciences
Anna-Karin Gustavson, Chemistry
Isaac Hilton, Bioengineering
George Lu, Bioengineering
Lan Luan, Electrical and Computer Engineering
Lauren Stadler, Civil and Environmental Engineering
Jerzy Szablowski, Bioengineering
Ross Thyer, Chemical and Biomolecular Engineering
Todd Treangen, Computer Science
Omid Veiseh, Bioengineering
Han Xiao, Chemistry
Vicky Yao, Computer Science

**Adjunct Professors**

Herbert Levine, Bioengineering
Jianpeng Ma, Bioengineering
Xaq Pitkow, Electrical and Computer Engineering
Susan M. Rosenberg, BioSciences
François St-Pierre, Electrical and Computer Engineering

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

**Systems/Synthetic/Phys Biology (SSPB)**

SSPB 501 - PHYSICAL BIOLOGY

Short Title: PHYSICAL BIOLOGY

Department: Systems/Synthetic/Phys Biology

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Basic introduction to a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Cross-list: BIOE 502, BIOS 505.
SSPB 502 - INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS
Short Title: INTRO SYSTEMS BIOLOGY MODELING
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. More emphasis on recent advances in the field - paper reading and presentations. Cross-list: BIOE 552. Recommended Prerequisite(s): Basic knowledge of biochemistry, cell biology, linear algebra, and ordinary differential equations is expected.

SSPB 503 - SYNTHETIC BIOLOGY
Short Title: SYNTHETIC BIOLOGY
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of biology at scales from molecules to multicellular organisms will be covered by lecture, primary literature, and student presentations. Students will write a research proposal at the end of the course. Cross-list: BIOE 508.

SSPB 550 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Systems/Synthetic/Phys Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar course to introduce SSPB students to current research topics and activities in the systems, synthetic, and physical biology fields. Repeatable for Credit.

SSPB 575 - INTRODUCTION TO RESEARCH
Short Title: INTRODUCTION TO RESEARCH
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Systems/Synthetic/Phys Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction of first-year graduate students to the research programs and laboratories of individual faculty members. Repeatable for Credit.

SSPB 599 - GRADUATE TEACHING IN SSPB
Short Title: GRADUATE TEACHING IN SSPB
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised instruction in teaching systems, synthetic, and physical biology. Repeatable for Credit.

SSPB 601 - NAVIGATING INTERDISCIPLINARY TEAMS IN SCIENCE AND ENGINEERING
Short Title: INTERDISCIPLINARITY I
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised instruction in teaching systems, synthetic, and physical biology. Repeatable for Credit.

SSPB 602 - INNOVATIONS AND CHALLENGES IN BIOELECTRONICS RESEARCH
Short Title: INTERDISCIPLINARITY II
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): SSPB 601
Description: Covers literature on past biotechnological innovations that required interdisciplinary collaboration for success. Instructor Permission Required.

SSPB 603 - INTERDISCIPLINARY BIOELECTRONICS RESEARCH COLLOQUIUM
Short Title: BIOELECTRONICS COLLOQUIUM
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers effective oral communication in the interdisciplinary field of bioelectronics. Repeatable for Credit.

SSPB 606 - INTERDISCIPLINARY BIOELECTRONICS PEER WRITING GROUPS
Short Title: BIOELECTRONICS WRITING
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers effective written communication in the interdisciplinary field of bioelectronics. Repeatable for Credit.
Doctor of Philosophy (PhD) Degree in the field of Systems, Synthetic and Physical Biology

Program Learning Outcomes for MS and PhD Degrees in the field of Systems, Synthetic and Physical Biology

Upon completing the MS and PhD degrees in the field of Systems, Synthetic and Physical Biology, students will be able to:

1. Develop knowledge of the breadth of topics within Science, Technology, Engineering and Mathematics (STEM) disciplines that underlie the foundations of Systems, Synthetic and Physical Biology.
2. Demonstrate the critical thinking skills and ability to integrate knowledge from diverse STEM fields to solve biological problems.
3. Demonstrate the written communication skills required for a thesis describing independent research, published research, and external research proposals.
4. Demonstrate the effective oral and visual communication skills necessary for articulating scientific findings and significance to diverse audiences.

Requirements for the MS and PhD Degrees in the field of Systems, Synthetic and Physical Biology

MS Degree Program

The MS degree is a thesis master’s degree. For general university requirements, please see Thesis Master’s Degrees (p. 75). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). All students involved in research must complete the Collaborative Institutional Training Initiative (CITI) Responsible Conduct of Research online course. Candidates for the MS degree also must:

- Choose an advisor (PI) by the end of the first semester
- Fulfill a teaching requirement
- Submit an original research thesis
- Complete 30 semester hours of program-approved courses (including thesis research hours)
- Defend the thesis in a public oral examination.

Requirements for the PhD Degree in the field of Systems, Synthetic and Physical Biology

PhD Degree Program

For general university requirements, please see Doctoral Degrees (p. 72). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). The Graduate Program in SSPB offers Master’s and Doctoral degrees. However, students will be directly admitted only to the Doctoral program. For each degree, students must fulfill the university requirements set forth in the General Announcements under which they entered. The semester credit hour requirements may be fulfilled both by classroom hours and research
hours. Students are required to accumulate at least 30 semester hours of graduate-approved courses while maintaining a GPA of 3.00 or higher.

Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the PhD Degree in the field of Systems, Synthetic and Physical Biology</td>
<td>90</td>
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Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSPB 501 / BIOE 502 / BIOS 505</td>
<td>PHYSICAL BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>SSPB 502 / BIOE 552</td>
<td>INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING &amp; DESIGN PRINCIPLES OF BIOCHEM NETWORKS</td>
<td>3</td>
</tr>
<tr>
<td>SSPB 503 / BIOE 508</td>
<td>SYNTHETIC BIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 594</td>
<td>RESPONSIBLE CONDUCT OF RESEARCH</td>
<td>1</td>
</tr>
<tr>
<td>SSPB 599</td>
<td>GRADUATE TEACHING IN SSPB</td>
<td>1</td>
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</tbody>
</table>

Advanced Topics

<table>
<thead>
<tr>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Select at least 3 courses from approved Advanced Topics in the SSPB field</td>
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</tr>
</tbody>
</table>

Seminars

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>SSPB 550</td>
<td>GRADUATE SEMINAR (4 semesters required, 1st semester)</td>
<td>1</td>
</tr>
<tr>
<td>SSPB 550</td>
<td>GRADUATE SEMINAR (4 semesters required, 2nd semester)</td>
<td>1</td>
</tr>
<tr>
<td>SSPB 550</td>
<td>GRADUATE SEMINAR (4 semesters required, 3rd semester)</td>
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<tr>
<td>SSPB 550</td>
<td>GRADUATE SEMINAR (4 semesters required, 4th semester)</td>
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Elective Requirements

<table>
<thead>
<tr>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Select 2 open elective courses</td>
<td>6</td>
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Total Coursework as Approved by the Program

<table>
<thead>
<tr>
<th>Title</th>
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<tbody>
<tr>
<td>90</td>
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Footnotes and Additional Information

1 All students are required to enroll in SSPB 550 each semester in the first two years.

2 Courses are subject to approval by the Program Director. It is recommended that at least one of the courses in advanced topics apply quantitative concepts from computer science, physics, and mathematics or statistics to biological problems, and at least one of the courses focus on biology within the sub-area where students pursue their thesis research.

Other Program Requirements (PhD students)

All students involved in research must complete the Collaborative Institutional Training Initiative (CITI) Responsible Conduct of Research online course. Candidates for the PhD degree also must:

• Submit a thesis proposal that provides evidence of their ability to carry out original research in a specialized area of Systems, Synthetic and Physical Biology before the beginning of their fifth semester in residence
• Complete 90 semester hours of program-approved courses (including thesis research hours)
• Pass their qualifying exam which includes thesis proposal defense
• Defend the PhD thesis in a public oral examination.

Qualifying Exam (PhD students)

Students are expected to pass their qualifying exam before the beginning of their fifth semester in residence unless an extension has been granted by the Program Director. Students may retake the exam up to two times if granted permission to do so by the Program Director. Students who do not pass the Qualifying Exam may exit the program with a MS degree if the appropriate requirements have been met.

Thesis Proposal Defense

Students are required to submit their written proposal to their Research Progress Committee no later than two weeks before the scheduled exam. The proposal is expected to be in NIH NRSA-like format - limited to 10 pages (not including References) and include the following sections: Abstract, Background, Problem Statement, Research Plan, Preliminary Results, References, and Proposed Timeline. Students whose research area may not be suitable for this format may seek approval of an alternative format by their Research Progress Committee. On the day of the defense, students are expected to give an oral presentation of their proposal and answer technical questions. The student should expect to give a presentation, which if uninterrupted would last about 45 minutes, and be prepared for substantial questioning by the Research Progress Committee.

Policies for the PhD Degree in the field of Systems, Synthetic and Physical Biology

Systems, Synthetic and Physical Biology Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, Systems, Synthetic and Physical Biology publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Systems_Synthetic_Physical_Biology_Graduate_Handbook.pdf

Admission

Applicants for graduate study in Systems, Synthetic and Physical Biology must have:

• BA or BS degree in natural sciences, engineering, or related field (or some equivalent)
• Strong ability and motivation for research as indicated by academic record, Graduate Record Examination (GRE) scores, and recommendations

Although the program offers an MS degree, only students who intend to pursue the PhD degree are admitted into the program. In rare instances, students who fulfilled the MS degree requirements and who do not wish to continue their studies toward their PhD degree may choose to graduate with MS degree. Information on admission to the program is available on the SSPB website (http://sspb.rice.edu/admissions/).
### Prerequisite Requirements

Students are required to have training in the following 5 foundation areas:

1. Molecular Biology (Introductory Biology class, and at least 1 upper-level biology class such as Cell Biology, Genetics, or Biophysics)
2. Biochemical Reaction Kinetics (Biochemistry, Bioreaction Engineering, or equivalent)
3. Physical Chemistry or Thermodynamics or Statistical Mechanics
4. Ordinary Differential Equations
5. Statistics

If students are missing formal training in these subjects, they are required to take the equivalent background courses during their first year at Rice (these courses should be taken as Pass/Fail). The corresponding courses at Rice include the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 341</td>
<td><strong>CELL BIOLOGY</strong></td>
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<td><strong>Select 1 from the following:</strong></td>
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</tr>
<tr>
<td>BIOS 301</td>
<td><strong>BIOCHEMISTRY I</strong></td>
<td></td>
</tr>
<tr>
<td>BIOE 330</td>
<td><strong>BIOREACTION ENGINEERING</strong></td>
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<tr>
<td>BIOS 352</td>
<td><strong>PHYSICAL CHEMISTRY FOR THE BIOSCIENCES</strong></td>
<td></td>
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<tr>
<td>BIOS 332</td>
<td><strong>BIOENGINEERING THERMODYNAMICS</strong></td>
<td></td>
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<tr>
<td>CHEM 301</td>
<td><strong>PHYSICAL CHEMISTRY I</strong></td>
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<tr>
<td>PHYS 425</td>
<td><strong>STATISTICAL &amp; THERMAL PHYSICS</strong></td>
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<td><strong>Select 1 from the following:</strong></td>
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<tr>
<td>MATH 211</td>
<td><strong>ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA</strong></td>
<td></td>
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<tr>
<td>CAAM 336</td>
<td><strong>DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING</strong></td>
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<td><strong>Select 1 from the following:</strong></td>
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<tr>
<td>BIOE 439</td>
<td><strong>APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY</strong></td>
<td></td>
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<tr>
<td>STAT 305</td>
<td><strong>INTRODUCTION TO STATISTICS FOR BIOSCIENCES</strong></td>
<td></td>
</tr>
<tr>
<td>STAT 310</td>
<td><strong>PROBABILITY AND STATISTICS</strong></td>
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</tbody>
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### Additional Information

For additional information, please see the Systems, Synthetic and Physical Biology website: [https://sspb.rice.edu](https://sspb.rice.edu)

### Opportunities for the PhD Degree in the field of Systems, Synthetic and Physical Biology

For additional information, please see the Systems, Synthetic and Physical Biology website: [https://sspb.rice.edu](https://sspb.rice.edu)

### Teaching and Learning

#### Contact Information

Teaching and Learning  
[https://cte.rice.edu/](https://cte.rice.edu/)  
129 Herring Hall  
713-348-2929  
Robin Paige  
Program Director  
robin.paige@rice.edu

The graduate certificate in Teaching and Learning is intended to provide participants with a combination of formal pedagogical training, practical experience, and mentoring that will prepare them to be effective college teachers and instructors. The program is open to any Rice graduate student or postdoctoral scholar in good academic standing.

Teaching and Learning does not currently offer an academic program at the undergraduate level.

#### Certificate

- Certificate in Teaching and Learning (p. 2068)

#### Program Director

Robin Paige

For Rice University degree-granting programs:  
To view the list of official course offerings, please see Rice’s [Course Catalog](https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)  
To view the most recent semester’s course schedule, please see Rice’s [Course Schedule](https://courses.rice.edu/admweb/ISWKSCAT.cat)
University Courses (UNIV)

UNIV 105 - SCHOLARLY APPROACHES TO SCIENCE AND ENGINEERING
Short Title: SCHOLARLY APPROACHES TO S&E
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A six-week, academically intensive, pre-college program for pre-matriculating students who intend to major in science or engineering. The program includes coursework in Calculus, Chemistry, and Physics, with a focus on the most challenging topics from the freshman curricula; daily homework and group-work; and complementary seminars on design, bioscience research, and discrete math. Department Permission Required.

UNIV 106 - RISE
Short Title: RISE
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for incoming students with expressed interests in the Humanities, Social Sciences, this course uses scholarship on Houston to explore particular issues of race, place, and power in the city, and the relationship between university life and urban life.

UNIV 110 - FOUNDATIONS FOR SELF-DISCOVERY AND LIFELONG LEARNING
Short Title: FIRST YEAR FOUNDATIONS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to provide new students with the knowledge and tools to succeed at Rice. Combining classroom discussion, information from campus departments, self-assessments and reflections, and other interactive activities, this class will focus on key issues new students will encounter when transitioning to college. This course is limited to first-year students only.

UNIV 180 - INTRODUCTION TO RICE FOR NEW INTERNATIONAL UNDERGRADUATE STUDENTS
Short Title: INTRO TO RICE - INTERNATIONALS
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Course Level: Undergraduate Lower-Level
Description: Survey course of themes geared for new undergraduate international students to the USA and Rice. Adjustment and acculturation topics include Rice culture, US culture and academic success.
UNIV 202 - PEER ACADEMIC ADVISING PROFESSIONAL DEVELOPMENT
Short Title: PAA PROF DEVELOPMENT
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for members of the Peer Academic Advising (PAA) program. Students in this course will learn about best practices in advising and see that being a peer advisor is more than just recommending classes to fellow students. The course is meant to help PAA advisors think differently and more critically about their roles as peer advisors, as well as to discuss the power of PAAs in helping create positive change on campus and in the experiences of individual students. Instructor Permission Required.

UNIV 215 - ALTERNATIVE SPRING BREAK LEADERSHIP COURSE
Short Title: ASBC
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: UNIV 215 is required of all Alternative Spring Break student site leaders. This course consists of weekly 1.5 hour meetings that will include lectures, discussions, group activities, work sessions, and panel presentations. Instructor Permission Required. Repeatable for Credit.

UNIV 214 - PROFESSIONOWL PROGRAM - CAREER AND LIFE OPTIONS
Short Title: PROFESSIONOWL PROGRAM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The ProfessionOwlProgram (POP) is designed to help you learn more about yourself, careers, professional communication skills and more. This class is intended for students who are exploring careers and academic majors. Students will learn about career options that match their interests, personality, and values; become more familiar with the world of work and various career options; understand the connections between careers and major choice; learn about services that will enhance their marketability and academic experiences (internships, study abroad programs, scholarships/grants); and develop an action plan to reach their goals. This course welcomes students who aren't sure what they want to do after graduation, as well as students who have already identified potential career interests. Mutually Exclusive: Cannot register for UNIV 212 if student has credit for HUMA 212. Mutually Exclusive: Cannot register for UNIV 212 if student has credit for HUMA 212.

UNIV 216 - ALTERNATIVE SPRING BREAK LEADERSHIP COURSE
Short Title: ASBC
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): UNIV 215
Description: The course aims to: 1) analyze service philosophy and mechanisms for implementing a mutually beneficial short-term service program, 2) equip students with the knowledge, skills, and confidence necessary to lead a group of their peers, 3) provide a platform for self-assessment and an opportunity for personal and professional development for student leaders. Instructor Permission Required. Repeatable for Credit.
Course URL: ccl.rice.edu (http://ccl.rice.edu)
UNIV 250 - RICE HEALTH ADVISORS
Short Title: RICE HEALTH ADVISORS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides hands-on exposure to the practical legal environment, including legal research, legal writing, and Texas court processes, with optional work placing the Texas legal environment into an international comparative context. Instructor Permission Required. Repeatable for Credit.

UNIV 295 - EXPLORING CAREERS THROUGH AN INTERNSHIP
Short Title: CAREERS THRU INTERNSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for currently enrolled undergraduate students from all areas of study to gain experience in a work place setting, earn course credit, and further develop professional skills. Students meet individually with a CCD team member to process their experience and complete an application. This course is a pre-requisite to becoming a Rice Health Advisor. Instructor Permission Required.

UNIV 299 - SCIENTIA: LECTURES IN SCIENCE AND CULTURE
Short Title: SCIENTIA SCIENCE & CULTURE
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Annual lecture series, panel discussions and discussion talks on topics bridging science, culture and art. 4 lectures plus 2 discussion talks. Lectures are on specified dates, usually Tuesdays. Discussion talks scheduled at semester beginning. Topics vary year to year. Repeatable for Credit.

UNIV 301 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This zero credit course enables students to have supervised research experience on and off campus recorded on their transcript. Students must register the name and contact of their PI in the UNIV 301 OWL-Space site by the end of the second week of classes or drop the class. Repeatable for Credit.

UNIV 304 - RESEARCH ETHICS IN THE COMMUNITY
Short Title: RESEARCH ETHICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces students to a range of ethical issues that arise in community-based participatory research. Drawing on literature review and case studies, the class brings together students who will carry out CBR projects abroad on a Loewenstern Fellowship. We will also focus on cultural communication and how the international landscape influences the role of the researcher.

UNIV 305 - INTERNATIONAL SERVICE
Short Title: INTERNATIONAL SERVICE
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This zero credit course enables students to have supervised research experience on and off campus recorded on their transcript. Students must register the name and contact of their PI in the UNIV 301 OWL-Space site by the end of the second week of classes or drop the class. Repeatable for Credit.
UNIV 311 - JUDICIAL INTERNSHIP - RICE LEGAL LAB
Short Title: RICE LEGAL LAB
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will serve judicial internships with Texas state or federal judges; required travel component over spring break, with associated costs and lab fee. Instructor Permission Required. Repeatable for Credit.

UNIV 313 - INTRODUCTION TO RESEARCH ABROAD
Short Title: INTRO TO RESEARCH ABROAD
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to help undergraduate students develop skills to design, refine, and carry out an individual research project in an international context. This is a preparatory course for students who plan to apply for international scholarships such as Fulbright, Thinkswiss, Wagoner, DAAD or for students who will design an international research project as part of their study abroad program or their honors thesis.

UNIV 320 - ADVANCED ACADEMIC ADVISING PRACTICUM
Short Title: ADVANCED ADVISING PRACTICUM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for current members of the PAA program. This course will focus on individually designed and faculty guided action plans. Students will design plans that enhance the role, effectiveness, and/or educational breadth and depth of academic advising at the individual, college, or university level. Instructor Permission Required. Repeatable for Credit.

UNIV 330 - MEDICAL EXPLORATION AND OBSERVERSHIP
Short Title: MEDICAL EXPLORATION
Department: Dean of Undergraduates
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed for currently enrolled undergraduate students to gain exposure to the medical setting and develop professional skills, while earning course credit. The purpose is to allow you to explore careers in the health professions through exposure to medical shadowing and the healthcare industry. Students must complete the course application using the following link https://forms.gle/ABSeHSU8aNL733h79 and register for UNIV 003. NOTE: Space is limited and registration for UNIV 003 does not guarantee a seat in UNIV 330. Instructor Permission Required. Instructor Permission Required.

UNIV 395 - RICE SCHOLARS ABROAD PREDEPARTURE
Short Title: RICE SCHOLARS ABROAD PREDEPART
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class is for students participating in the Rice Scholars Abroad research project. It requires acceptance into that program and permission of the instructor. Instructor Permission Required. Repeatable for Credit.

UNIV 399 - RICE SCHOLARS ABROAD DIRECTED RESEARCH
Short Title: RICE SCHLARS ABROAD DIR RES
Department: University Courses
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class is for students completing a Rice Scholars Abroad research project and is to be completed before the student goes abroad. Acceptance into that program and permission of the instructor are required. Instructor Permission Required. Repeatable for Credit.

UNIV 400 - STUDENT AFFAIRS INTERNSHIP
Short Title: STUDENT AFFAIRS INTERNSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
UNIV 403 - CIVIC LEADERSHIP CAPSTONE II
Short Title: CIVIC LEADERSHIP CAPSTONE II
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: UNIV 403 is a requirement for the Certificate in Civic Leadership. This course requires students to implement and complete their capstone project, present their findings at a conference or symposium, and submit a final reflection paper. Students who enroll in 403 and do not graduate may be permitted to implement their project during the summer. Instructor Permission Required.

UNIV 420 - PRE-DEPARTURE STUDY ABROAD SEMINAR
Short Title: PRE-DEPARTURE STUDY ABR SEM
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar provides a cultural introduction to study abroad students to help them maximize their international experience and engagement with host cultures. Students will acquire an introductory understanding of the prominent concepts in global citizenship, ethics, and responsibilities while abroad. The course will also introduce students to international research opportunities. Students may additional times outside the original posted time listed during the 2nd Half of Full Semester.

UNIV 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory, Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

UNIV 500 - PRINCIPLES OF EFFECTIVE COLLEGE TEACHING
Short Title: PRINCIPLES EFFECTIVE TEACHING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of essential, research-based methods used by college instructors to enhance the quality of student learning. Topics will include course and syllabus design, student engagement, classroom management, and more. This course will culminate with the development of a syllabus and a statement of teaching philosophy.

UNIV 501 - RESEARCH ON TEACHING AND LEARNING
Short Title: RESEARCH TEACHING & LEARNING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores scholarship on teaching and learning in detail with special attention to the breadth of approaches and methodologies. The culminating project will be a literature review in an area of interest.
UNIV 502 - PRACTICUM IN COLLEGE TEACHING
Short Title: PRACTICUM IN COLLEGE TEACHING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): UNIV 500 and UNIV 501
Description: This practicum allows students to design and deliver teaching demonstrations and to receive feedback on their work. The course will also focus on the place of teaching in the broader landscapes of higher education and the academic job market. Because of the highly practical and interactive nature of the course, students will be asked to attend all classes. In order to develop a schedule of teaching demonstrations, we ask that students register for UNIV 502 two weeks before the start of the semester.

UNIV 555 - INTER-INSTITUTIONAL TRANSFER COURSE
Short Title: INTER-INSTITUTIONAL TRANSFER
Department: University Courses
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is used when a Rice student transfers coursework taken through the inter-institutional program at UH, BCM, UTHSC, TAMHSC, UTMB-Galveston. The transfer course will carry the title of the course at the respective university. Department Permission Required. Repeatable for Credit.

UNIV 594 - RESPONSIBLE CONDUCT OF RESEARCH
Short Title: RESPONSIBLE CONDUCT - RESEARCH
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Responsible conduct of research (RCR) is defined as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. (Formerly BIOC/BIOE 594)

UNIV 599 - TEACHING PORTFOLIO
Short Title: TEACHING PORTFOLIO
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): UNIV 500 and UNIV 501 and UNIV 502 (may be taken concurrently)
Description: This independent study serves as a capstone to the UNIV sequence on teaching and learning. Students will meet individually with the instructor to plan and complete a teaching portfolio.

UNIV 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ACADEMIC READING AND WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how scholars construct arguments and use evidence to support claims, and they will practice writing texts that are relevant to their own courses and careers.

UNIV 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ORAL COMMUNICATION SKILLS
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to pronunciation clarity, small group interactions, and formal presentations. Final projects will be related to students' studies or research.

UNIV 602 - ADVANCED ACADEMIC WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ADVANCED ACADEMIC WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how scholars construct arguments and use evidence to support claims, and they will practice writing texts that are relevant to their own courses and careers.

UNIV 603 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: This course will address writing at both the macro- and micro-level, engaging students in such academic writing tasks as critiquing, reporting, and interpreting research findings, illustrating and justifying the significance of research, while also attending to mechanical topics. Writing assignments in the course will be linked to students' studies, courses, or research. One-on-one conferences with instructors and CAPC staff will be required.

UNIV 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Description and Code Legend

Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
- Course offerings/subject code: UNIV

Center Description and Code
- Rice Center for Teaching Excellence: RCTE

Graduate Certificate Description and Code
- Certificate in Teaching and Learning: TAL

CIP Code and Description
- TAL Certificate: CIP Code/Title: 13.1299 - Teacher Education and Professional Development, Specific Levels and Methods, Other

Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/

Certificate in Teaching and Learning

Program Learning Outcomes for the Certificate in Teaching and Learning

Upon completing the certificate in Teaching and Learning, students will be able to:

1. Develop an understanding of and explain best practices in teaching and learning.
2. Communicate individual pedagogical values and approaches to teaching and learning.
3. Assess key approaches, methodologies, and trends in the scholarship of teaching and learning.
4. Identify and evaluate pedagogical methods that apply to students’ disciplines and teaching interests.
5. Demonstrate effectiveness as instructors through formal presentations.
6. Situate the role of teaching in higher education and the job market.

Requirements for the Certificate in Teaching and Learning

The certificate in Teaching and Learning is a graduate certificate. For general university requirements, please see Graduate Certificates (p. 53). For additional requirements, regulations, and procedures for all graduate programs, please see All Graduate Students (p. 60). Students pursuing the certificate in Teaching and Learning must complete:

- A minimum program GPA of 2.67 or higher in all Rice coursework that satisfies requirements for the graduate certificate with a minimum grade of B- (2.67 grade points) in each course.

This certificate is not a freestanding degree program; in addition to fulfilling the certificate requirements outlined below, candidates will be required to complete successfully the degree program to which they have been admitted in order to receive this certificate. Upon completion, the certificate is awarded at the same time as the conferral of the student’s Rice degree, along with a formal notation on their academic transcript.

The courses listed below satisfy the requirements for this certificate. In certain instances, courses not on this official list may be substituted upon approval of the certificate’s academic advisor, or where applicable, the Program Director. Course substitutions must be formally applied and entered into Degree Works by the certificate’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/). Additionally, these must be approved by the Office of Graduate and Postdoctoral Studies. Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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Certificate Requirements

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<td>UNIV 501</td>
<td>RESEARCH ON TEACHING AND LEARNING</td>
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<td>UNIV 502</td>
<td>PRACTICUM IN COLLEGE TEACHING</td>
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<td>UNIV 599</td>
<td>TEACHING PORTFOLIO 1</td>
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<th>Total Credit Hours</th>
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Footnotes and Additional Information

1. The Teaching Portfolio Course (UNIV 599) comprises the experiential learning opportunity requirement for the TAL certificate.

Policies for the Certificate in Teaching and Learning

Program Restrictions and Exclusions

Students pursuing the certificate in Teaching and Learning should be aware of the following program restriction:

- Graduate students may declare their intent to pursue a university certificate only after they have first been admitted into a graduate-level Rice degree-granting program.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 70). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program’s advisor when considering transfer credit possibilities.
Program Transfer Credit Guidelines

Students pursuing the certificate in Teaching and Learning should be aware of the following program-specific transfer credit guidelines:

• Transfer credit coursework cannot be applied or used to meet any of the program’s course requirements.

Additional Information

For additional information, please see the Teaching and Learning website: https://cte.rice.edu/

Opportunities for the Certificate in Teaching and Learning

Additional Information

For additional information, please see the Teaching and Learning website: https://cte.rice.edu/

University Courses

University courses provide opportunities for dialogue across disciplinary and departmental boundaries. They are an experiment in curriculum development, directed toward students interested in interdisciplinary subjects beyond their elected major.

University Courses is not a degree-granting academic program at the undergraduate level.

University Courses is not a degree-granting academic program at the graduate level.

Dean of Undergraduates

Bridget K. Gorman

Dean of Graduate and Postdoctoral Studies

Seiichi P.T. Matsuda

For Rice University degree-granting programs:

To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/!SWKSCAT.cat? p_action=cata)

To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/!SWKSCAT.cat)

University Courses (UNIV)

UNIV 105 - SCHOLARLY APPROACHES TO SCIENCE AND ENGINEERING

Short Title: SCHOLARLY APPROACHES TO S&E

Department: University Courses

Grade Mode: Satisfactory/Unsatisfactory

Course Type: Intensive Learning Experience

Credit Hours: 0

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: A six-week, academically intensive, pre-college program for pre-matriculating students who intend to major in science or engineering. The program includes coursework in Calculus, Chemistry, and Physics, with a focus on the most challenging topics from the freshman curricula; daily homework and group-work; and complementary seminars on design, bioscience research, and discrete math. Department Permission Required.

UNIV 106 - RISE

Short Title: RISE

Department: University Courses

Grade Mode: Satisfactory/Unsatisfactory

Course Type: Seminar

Credit Hours: 0

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: Designed for incoming students with expressed interests in the Humanities, Social Sciences, this course uses scholarship on Houston to explore particular issues of race, place, and power in the city, and the relationship between university life and urban life.

UNIV 110 - FOUNDATIONS FOR SELF-DISCOVERY AND LIFELONG LEARNING

Short Title: FIRST YEAR FOUNDATIONS

Department: University Courses

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 2

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Lower-Level

Description: This course is designed to provide new students with the knowledge and tools to succeed at Rice. Combining classroom discussion, information from campus departments, self-assessments and reflections, and other interactive activities, this class will focus on key issues new students will encounter when transitioning to college. This course is limited to first-year students only.

UNIV 180 - INTRODUCTION TO RICE FOR NEW INTERNATIONAL UNDERGRADUATE STUDENTS

Short Title: INTRO TO RICE - INTERNATIONALS

Department: University Courses

Grade Mode: Satisfactory/Unsatisfactory

Course Type: Lecture

Credit Hour: 1

Course Level: Undergraduate Lower-Level

Description: Survey course of themes geared for new undergraduate international students to the USA and Rice. Adjustment and acculturation topics include Rice culture, US culture and academic success.
UNIV 181 - ACADEMIC ENGLISH SKILLS FOR VISITING STUDENTS
Short Title: ENGLISH FOR VISITING STUDENTS
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course reviews the written and oral English skills needed by visiting international students to succeed in upper-division courses at Rice. Students will learn to express ideas effectively in individual and group conversations; to give academic presentations; to critique, report, and interpret research findings in writing; and to become better self-editors of their writing. Instructor Permission Required.

UNIV 194 - CTIS WORKSHOP
Short Title: CTIS WORKSHOP
Department: Dean of Undergraduates
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0
Course Level: Undergraduate Lower-Level
Description: CTIS Workshop will draw from a public health model of violence prevention to teach Freshman and transfer students the dynamics of domestic and sexual violence, consent and bystander intervention. Students will understand the impacts of healthy relationships and consent, as well as successful models shown to increase gender equality, healthy sexual communication and empathy. This course is only available to first time matriculants.

UNIV 201 - CENTURY SCHOLARS PROGRAM
Short Title: CENTURY SCHOLARS PROGRAM
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

UNIV 212 - PROFESSIONOWL PROGRAM - CAREER AND LIFE OPTIONS
Short Title: PROFESSIONOWL PROGRAM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The ProfessionOwl Program (POP) is designed to help you learn more about yourself, careers, professional communication skills and more. This class is intended for students who are exploring careers and academic majors. Students will learn about career options that match their interests, personality, and values; become more familiar with the world of work and various career options; understand the connections between careers and major choice; learn about services that will enhance their marketability and academic experiences (internships, study abroad programs, scholarships/grants); and develop an action plan to reach their goals. This course welcomes students who aren’t sure what they want to do after graduation, as well as students who have already identified potential career interests. Mutually Exclusive: Cannot register for UNIV 212 if student has credit for HUMA 212. Mutually Exclusive: Cannot register for UNIV 212 if student has credit for HUMA 212.

UNIV 215 - ALTERNATIVE SPRING BREAK LEADERSHIP COURSE
Short Title: ASBC
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: UNIV 215 is required of all Alternative Spring Break student site leaders. This course consists of weekly 1.5 hour meetings that will include lectures, discussions, group activities, work sessions, and panel presentations. Instructor Permission Required. Repeatable for Credit.

UNIV 216 - ALTERNATIVE SPRING BREAK LEADERSHIP COURSE
Short Title: ASB LEADERSHIP COURSE
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): UNIV 215
Description: The course aims to: 1) analyze service philosophy and mechanisms for implementing a mutually beneficial short-term service program. 2) equip students with the knowledge, skills, and confidence necessary to lead a group of their peers, 3) provide a platform for self-assessment and an opportunity for personal and professional development for student leaders. Instructor Permission Required. Repeatable for Credit.
Course URL: ccl.rice.edu (http://ccl.rice.edu)
UNIV 220 - PEER ACADEMIC ADVISING PROFESSIONAL DEVELOPMENT
Short Title: PAA PROF DEVELOPMENT
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for members of the Peer Academic Advising (PAA) program. Students in this course will learn about best practices in advising and see that being a peer advisor is more than just recommending classes to fellow students. The course is meant to help PAAs think differently and more critically about their roles as peer advisors, as well as to discuss the power PAAs have in helping create positive change on campus and in the experiences of individual students. Instructor Permission Required.

UNIV 235 - APPLIED LEADERSHIP AND ORGANIZATIONAL DEVELOPMENT
Short Title: APPLIED LEADERSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed with an emphasis on critical thinking, this class will assist O-Week Coordinators in the critique, design, development and execution of a comprehensive orientation and new student transition program for freshmen and transfer students. Due to Rice’s unique orientation structure, special attention will be placed on the importance of providing leadership to teams, as well as working successfully in a team environment to allow students to best function in their role as O-Week Coordinator this semester. Instructor Permission Required. Mutually Exclusive: Cannot register for UNIV 235 if student has credit for COLL 199.

UNIV 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

UNIV 295 - EXPLORING CAREERS THROUGH AN INTERNSHIP
Short Title: CAREERS THRU INTERNSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for currently enrolled undergraduate students from all areas of study to gain experience in a work place setting, earn course credit, and further develop professional skills. Students meet individually with a CCD team member to process their experience and complete an action plan to market their qualifications to potential employers and graduate schools. Students arrange internship and receive approval from the course instructor(s). Instructor Permission Required. Mutually Exclusive: Cannot register for UNIV 295 if student has credit for HUMA 295. Repeatable for Credit.

UNIV 299 - SCIENTIA: LECTURES IN SCIENCE AND CULTURE
Short Title: SCIENTIA SCIENCE & CULTURE
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Annual lecture series, panel discussions and discussion talks on topics bridging science, culture and art. 4 lectures plus 2 discussion talks. Lectures are on specified dates, usually Tuesdays. Discussion talks scheduled at semester beginning. Topics vary year to year. Repeatable for Credit.
UNIV 301 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This zero credit course enables students to have supervised research experience on and off campus recorded on their transcript. Students must register the name and contact of their PI in the UNIV 301 OWL-Space site by the end of the second week of classes or drop the class. Repeatable for Credit.

UNIV 304 - RESEARCH ETHICS IN THE COMMUNITY
Short Title: RESEARCH ETHICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces students to a range of ethical issues that arise in community-based participatory research. Drawing on literature review and case studies, the class brings together students who will carry out CBR projects abroad on a Loewenstern Fellowship. We will also focus on cultural communication and how the international landscape influences the role of the researcher.

UNIV 305 - INTERNATIONAL SERVICE
Short Title: INTERNATIONAL SERVICE
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Objectives are to (1) examine the history of international service and service ethics, (2) develop broad knowledge of history, culture, and politics related to the country of service, and to (3) engage students in conversations about global society and international service work. Instructor Permission Required. Repeatable for Credit.

UNIV 310 - RICE LEGAL LAB
Short Title: RICE LEGAL LAB
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides hands-on exposure to the practical legal environment, including legal research, legal writing, and Texas court processes, with optional work placing the Texas legal environment into an international comparative context. Instructor Permission Required. Repeatable for Credit.

UNIV 311 - JUDICIAL INTERNSHIP - RICE LEGAL LAB
Short Title: RICE LEGAL LAB
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will serve judicial internships with Texas state or federal judges; required travel component over spring break, with associated costs and lab fee. Instructor Permission Required. Repeatable for Credit.

UNIV 313 - INTRODUCTION TO RESEARCH ABROAD
Short Title: INTRO TO RESEARCH ABROAD
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to help undergraduate students develop skills to design, refine, and carry out an individual research project in an international context. This is a preparatory course for students who plan to apply for international scholarships such as Fulbright, Thinkswiss, Wagoner, DAAD or for students who will design an international research project as part of their study abroad program or their honors thesis.

UNIV 320 - ADVANCED ACADEMIC ADVISING PRACTICUM
Short Title: ADVANCED ADVISING PRACTICUM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for current members of the PAA program. This course will focus on individually designed and faculty guided action plans. Students will design plans that enhance the role, effectiveness, and/or educational breadth and depth of academic advising at the individual, college, or university level. Instructor Permission Required. Repeatable for Credit.

UNIV 321 - ADVANCED ACADEMIC FELLOWS/MENTORS PRACTICUM
Short Title: ADV FELLOWS/MENTORS PRACTICUM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for current members of the Academic Fellows/ Mentors program. This course will focus on individually designed and faculty guided action plans. Students will design plans that enhance the role and effectiveness of the academic support provided by Fellow/Mentors at the individual, college, or university level. Instructor Permission Required. Repeatable for Credit.
UNIV 330 - MEDICAL EXPLORATION AND OBSERVERSHIP
Short Title: MEDICAL EXPLORATION
Department: Dean of Undergraduates
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed for currently enrolled undergraduate students to gain exposure to the medical setting and develop professional skills, while earning course credit. The purpose is to allow you to explore careers in the health professions through exposure to medical shadowing and the healthcare industry. Students must complete the course application using the following link https://forms.gle/A8SeHSU8aNL733h79 and register for UNIV 003. NOTE: Space is limited and registration for UNIV 003 does not guarantee a seat in UNIV 330. Instructor Permission Required. Instructor Permission Required.

UNIV 395 - RICE SCHOLARS ABROAD PREDEPARTURE
Short Title: RICE SCHOLARS ABROAD PREDEPART
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class is for students participating in a Rice Scholars Abroad research project. It requires acceptance into that program and permission of the instructor. Instructor Permission Required. Repeatable for Credit.

UNIV 399 - RICE SCHOLARS ABROAD DIRECTED RESEARCH
Short Title: RICE SCHLARS ABROAD DIR RES
Department: University Courses
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class is for students participating in the Rice Scholars Abroad program and is to be completed before the student goes abroad. Acceptance into that program and permission of the instructor are required. Instructor Permission Required. Repeatable for Credit.

UNIV 400 - STUDENT AFFAIRS INTERNSHIP
Short Title: STUDENT AFFAIRS INTERNSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

UNIV 401 - INDEPENDENT STUDY: INTERNATIONAL EDUCATION SURVEY
Short Title: IND STUDY: INTERNATIONAL ED
Department: University Courses
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The independent study is intended for upperclassmen who are considering working in the field of international education. Individualized meetings with the instructor and personalized coursework investigate ways to bridge current theoretical research in the field of international education with real-life practicalities in international education offices. Instructor Permission Required. Repeatable for Credit.

UNIV 402 - CIVIC LEADERSHIP CAPSTONE I
Short Title: CIVIC LEADERSHIP CAPSTONE I
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: UNIV 402 is a requirement for the Certificate in Civic Leadership. The course prepares students to develop and implement high-level, independent, community-based projects, and enhances students' capacity to lead in diverse community settings. Students are required to develop a project proposal in collaboration with a community partner and faculty advisor. Instructor Permission Required.

UNIV 403 - CIVIC LEADERSHIP CAPSTONE II
Short Title: CIVIC LEADERSHIP CAPSTONE II
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): UNIV 402
Description: UNIV 403 is a requirement for the Certificate in Civic Leadership. This course requires students to implement and complete their capstone project, present their findings at a conference or symposium, and submit a final reflection paper. Students who enroll in 403 and do not graduate may be permitted to implement their project during the summer. Instructor Permission Required.
UNIV 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory, Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar provides a cultural introduction to study abroad students to help them maximize their international experience and engagement with host cultures. Students will acquire an introductory understanding of the prominent concepts in global citizenship, ethics, and responsibilities while abroad. The course will also introduce students to international research opportunities. Students may additional times outside the original posted time listed during the 2nd Half of Full Semester.

UNIV 500 - PRINCIPLES OF EFFECTIVE COLLEGE TEACHING
Short Title: PRINCIPLES EFFECTIVE TEACHING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of essential, research-based methods used by college instructors to enhance the quality of student learning. Topics will include course and syllabus design, student engagement, classroom management, and more. This course will culminate with the development of a syllabus and a statement of teaching philosophy.

UNIV 501 - RESEARCH ON TEACHING AND LEARNING
Short Title: RESEARCH TEACHING & LEARNING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores scholarship on teaching and learning in detail with special attention to the breadth of approaches and methodologies. The culminating project will be a literature review in an area of interest.

UNIV 502 - PRACTICUM IN COLLEGE TEACHING
Short Title: PRACTICUM IN COLLEGE TEACHING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): UNIV 500 and UNIV 501
Description: This practicum allows students to design and deliver teaching demonstrations and to receive feedback on their work. The course will also focus on the place of teaching in the broader landscapes of higher education and the academic job market. Because of the highly practical and interactive nature of the course, students will be asked attend all classes. In order to develop a schedule of teaching demonstrations, we ask that students register for UNIV 502 two weeks before the start of the semester.

UNIV 555 - INTER-INSTITUTIONAL TRANSFER COURSE
Short Title: INTER-INSTITUTIONAL TRANSFER
Department: University Courses
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is used when a Rice student transfers coursework taken through the inter-institutional program at UH, BCM, UTHSC, TAMHSC, UTMB-Galveston. The transfer course will carry the title of the course at the respective university. Department Permission Required. Repeatable for Credit.

UNIV 594 - RESPONSIBLE CONDUCT OF RESEARCH
Short Title: RESPONSIBLE CONDUCT - RESEARCH
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Responsible conduct of research (RCR) is defined as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. (Formerly BIOL/BIOE 594)

UNIV 599 - TEACHING PORTFOLIO
Short Title: TEACHING PORTFOLIO
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): UNIV 500 and UNIV 501 and UNIV 502 (may be taken concurrently)
Description: This independent study serves as a capstone to the UNIV sequence on teaching and learning. Students will meet individually with the instructor to plan and complete a teaching portfolio.
UNIV 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ACADEMIC READING AND WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how scholars construct arguments and use evidence to support claims, and they will practice writing texts that are relevant to their own courses and careers.

UNIV 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ORAL COMMUNICATION SKILLS
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to pronunciation clarity, small group interactions, and formal presentations. Final projects will be related to students’ studies or research.

UNIV 602 - ADVANCED ACADEMIC WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ADVANCED ACADEMIC WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address writing at both the macro- and micro-level, engaging students in such academic writing tasks as critiquing, reporting, and interpreting research findings, illustrating and justifying the significance of research, while also attending to mechanical topics. Writing assignments in the course will be linked to students’ studies, courses, or research. One-on-one conferences with instructors and CAPC staff will be required.

UNIV 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject: UNIV

Visual and Dramatic Arts
Contact Information
Visual and Dramatic Arts
https://vada.rice.edu/
592 Sewall Hall
713-348-4882

Bruce Hainley
Department Chair (beginning January 2022)
bruce.hainley@rice.edu

John Sparagana
Department Chair (through December 2021)
sparaga@rice.edu

The Department of Visual and Dramatic Arts welcomes the full spectrum of Rice University undergraduate students. Scientists, architects, historians, engineers and economists, among many others, augment our core of arts majors to create a diverse, lively forum of artists and thinkers. We believe this composite community is a vital asset to majors and non-majors alike: art thrives in contact with new and varied perspectives, and the risk-taking and critical thinking necessary to making art are crucial in many other fields. Beyond a dynamic artistic practice, we aim to cultivate an artistic frame of mind.

Students may focus their education in one of three major concentrations: film and photography, studio art, or theatre. Courses draw on the resources of Rice’s active and accomplished faculty, extensive on-campus facilities, and Houston’s vibrant artistic community. The department boasts a state-of-the-art cinema, as well as a 500-seat proscenium-style theater. The Moody Center for the Arts hosts arts-related programming and mounts exhibitions by internationally acclaimed artists. Rice campus is within walking distance of the Museum of Fine Arts Houston and the Contemporary Arts Museum Houston, and a short drive from the renowned Menil Collection. Distinguished speakers, visiting artists, film series, field trips, student exhibitions and performance opportunities all contribute to an immersive arts education that extends well beyond the classroom.

Bachelor’s Program
• Bachelor of Arts (BA) Degree with a Major in Visual and Dramatic Arts
  • and a Major Concentration in Film and Photography (p. 2100)
  • and a Major Concentration in Studio Art (p. 2104)
  • and a Major Concentration in Theatre (p. 2107)

Visual and Dramatic Arts does not currently offer an academic program at the graduate level.

Chair
Bruce Hainley (beginning January 2022)
John Sparagana (through December 2021)

Program Advisors
Lisa Lapinski, Studio Art
Charles Dove, Film and Photography
Christina Keefe, Theatre

Professors
Bruce Hainley
Brian Michael Huberman
John Sparagana
Geoffrey L. Winningham

Associate Professors
Natasha Bowdoin
Christopher Sperandio
Lisa Lapinski

Professor in the Practice of Film and Media Studies
Charles Dove

Professor in the Practice of Theatre
Christina Keefe

Lecturer in Photography
Justin Roykovich

Lecturers in Studio Art
Josh Bernstein
Will Fowler

Lecturers in Theatre
Heather Breikjern
Mark Krouskop

For Rice University degree-granting programs:
To view the list of official course offerings, please see Rice's Course Catalog (https://courses.rice.edu/admweb/ISWKSCAT.cat?p_action=cata)
To view the most recent semester's course schedule, please see Rice's Course Schedule (https://courses.rice.edu/admweb/ISWKSCAT.cat)

Visual and Dramatic Arts (ARTS)

ARTS 103 - CREATIVE 2-D DESIGN
Short Title: CREATIVE 2-D DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the elements and principles of design and drawing using traditional and digital means. The emphasis in the class is on a foundation to culture practice and the critical approaches to art and technology. Students will be required to participate in class discussions and critiques. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Distribution 1 credit effective Fall 2021.

ARTS 165 - BEGINNING SCULPTURE
Short Title: BEGINNING SCULPTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the concepts and forms of contemporary sculpture. Exploration of materials (including plaster, clay, cardboard, fabric, wood, and found objects) and sculpture techniques such as mold making and woodworking. Shop and studios are available days and evening throughout the week. This course has limited enrollment. The roster is formalized on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 200 - SPECIAL PROBLEMS IN STUDIO ART I
Short Title: SPECIAL PROB IN STUDIO ART I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of problems at the introductory level in creative art. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.
ARTS 225 - BEGINNING DRAWING  
Short Title: BEGINNING DRAWING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course introduces students to the basic techniques, materials and processes of drawing. Students will explore line, tone, space, form, composition, and content through a variety of drawing assignments in dry and wet media. Students learn how to draw from direct observation. No previous drawing experience is required.

ARTS 230 - COMICS AND SEQUENTIAL ART  
Short Title: COMICS AND SEQUENTIAL ART  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An introduction to the art of combining words and pictures: diverse applications such as storyboarding for stage and screen, comic books and graphic novels, and serial or multiples in a variety of media all fall under the umbrella of Sequential Art. Through instruction, demos, readings and practice, students will learn the history and implementation of linear visual narratives utilizing the Comics Art Teaching and Study Workshop as a resource. Students in this class will also participate in the construction and establishment of a permanent research center for the study of Comic Book Art within the Department of Visual and Dramatic Arts. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: FILM 275.

ARTS 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Independent Study, Seminar, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARTS 262 - ART OF DIY: PROBLEM SOLVING AND MAKING  
Short Title: ART OF DIY: PROBLEM SOLVING AND MAKING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: The utilization of D.I.Y. (Do It Yourself) communities will be a centralized resource used to guide and complete audio work within the class. Keeping in mind the question: within contemporary society, how has the ability to produce and problem solve on an individual basis changed? The focuses of this class are to produce diverse technically proficient works of art that draw from and inform the student's current research. The class will also, during the course of the semester, build and implement a large, open-source DIY laser cutter. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Instructor Permission Required.

ARTS 263 - ART OF DIY: PROBLEM SOLVING AND MAKING II  
Short Title: ART OF DIY: PROBLEM SOLVING AND MAKING II  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: The focus of this class will be to first build a DIY 3-D printer. We will utilize the laser cutter built in the previous DIY course to make the necessary components for the printer. We will then focus our attention on utilizing these tools to construct works of art that draw from and inform the students current research and interests. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Instructor Permission Required.

ARTS 270 - BIG PAINTING: MATERIALS AND TECHNIQUES FOR THEATRICAL PAINTING  
Short Title: BIG PAINTING FOR THEATRE  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Big Painting: Materials and Techniques for Theatrical Painting will examine the materials and techniques usually associated with scenic and theatrical painting but as applied to the context of 21st century contemporary art practices. Students will learn how to make big paintings. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: THEA 270.
ARTS 280 - HISTORY & AESTHETICS OF FILM  
Short Title: HISTORY & AESTHETICS OF FILM  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narration, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, notification, and Third World cinemas. Cross-list: FILM 280, HART 280.

ARTS 294 - SPECIAL PROBLEMS IN STUDIO ART: JUNIOR FIELD TRIP  
Short Title: JUNIOR FIELD TRIP  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to help visual & dramatic arts majors, in their third year of study, focus on the upcoming senior year of intensive work. The destination city may be national or international and will offer students the opportunity to visit cultural centers, museums, galleries, artist studios, theaters, and participate in meetings with creative professionals in their fields of study. Travel takes place during one of the University's official recess periods. Course may not be used in awarding transfer credit. Instructor Permission Required. Mutually Exclusive: Cannot register for ARTS 294 if student has credit for ARTS 387.

ARTS 300 - SPECIAL PROBLEMS IN STUDIO ART II  
Short Title: SPECIAL PROB IN STUDIO ART II  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of problems at the intermediate level in creative art. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 301 - BEGINNING PAINTING  
Short Title: BEGINNING PAINTING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course introduces students to the basic language, tools, and materials of painting. Students will learn painting techniques and concepts, starting with painting from observation and ending with more student-directed projects. Lectures and filed trips will explore painting through an art historical context as well as a contemporary one.

ARTS 311 - BEGINNING PRINTMAKING  
Short Title: BEGINNING PRINTMAKING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will give an introduction to prints and printmaking through the study of original works on paper and the opportunity to produce printed works of art. Works will include etchings, lithograph, linocut, and monoprints. Enrollment is limited. The instructor will formulate the course roster and may allow additional majors and under classmen to enroll.

ARTS 312 - RELIEF I  
Short Title: RELIEF I  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ARTS 225  
Description: Instruction in black-and-white linoleum prints. Includes advanced color methods. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.
ARTS 314 - SCREEN PRINTING I
Short Title: SCREEN PRINTING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 101 or ARTS 225
Description: Instruction in color screen-printing processes. Emphasis will be on figurative/narrative work with strong print experimentation. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 315 - LINO + MONOPRINTING
Short Title: LINO + MONOPRINTING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 101 or ARTS 225
Description: Introduction to Monotype. Includes black-and-white and color Monotype printing. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 320 - MONOTYPE I
Short Title: MONOTYPE I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Includes black-and-white, color, chine-colle, and additional monotype printing techniques to produce one of a kind prints. Creative and personal imagery is emphasized.

ARTS 322 - 3-D PRINTMAKING
Short Title: 3-D PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: This course will produce 3-dimensional works utilizing the traditional and non-traditional print processes of linocut, photocopy, transfer, vinyl cutter, and monoprinting techniques. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 323 - DRAWING STUDIO
Short Title: DRAWING STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: A continuation of Beginning Drawing, where students continue to investigate the concepts, materials, and possibilities of drawing. Students will explore further drawing in all its permutations, experimenting with scale, new materials, and new techniques. Assignments will continue focusing on working from life while also offering opportunities to work more subjectively.

ARTS 325 - LIFE DRAWING
Short Title: LIFE DRAWING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 101 or ARTS 225
Description: This course introduces students to drawing from the model. Students will work from short and long poses on exercises emphasizing gesture, proportion, composition, and character. A variety of media and approaches will be introduced. Homework and required visits to museums and galleries will build on what students practice in class.

ARTS 326 - COLLAGE
Short Title: COLLAGE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces methods and theories of collage. Lectures, museum visits, and projects examine both the historical precedents for collage and its contemporary possibilities. Students explore collage through experimentation with diverse materials, approaches, and critiques. Students will work with frottage, photomontage, and assemblage, both independently and collaboratively.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Distribution Group</th>
<th>Credit Hours</th>
<th>Restrictions</th>
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<tbody>
<tr>
<td>ARTS 327</td>
<td>DOCUMENTARY PRODUCTION</td>
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<td>Visual and Dramatic Arts</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>ARTS 328</td>
<td>FILMMAKING I</td>
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<td>ARTS 332</td>
<td>CRITICAL STUDIES OF MULTIMEDIA ARTS</td>
<td>CRITICAL STU OF MULTIMEDIA ART</td>
<td>Visual and Dramatic Arts</td>
<td>Standard Letter</td>
<td>Seminar</td>
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<td>3</td>
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<td>ARTS 338</td>
<td>GROTESQUE, IMPURE, AND HYBRID PRACTICES IN ART</td>
<td>MONSTER STUDIO</td>
<td>Visual and Dramatic Arts</td>
<td>Standard Letter</td>
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**ARTS 327 - DOCUMENTARY PRODUCTION**

**Short Title:** DOCUMENTARY PRODUCTION  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Study of the expressive possibilities of documentary production using digital systems. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ANTH 324, FILM 327.

**ARTS 328 - FILMMAKING I**

**Short Title:** FILMMAKING I  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Dramatic film production class that requires the making of one digital video and one 16mm film. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: FILM 328.

**ARTS 329 - FILM FORM**

**Short Title:** FILM FORM  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Viewing, analysis, and discussion of modern and classic films. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: FILM 329.

**ARTS 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS**

**Short Title:** CRITICAL STU OF MULTIMEDIA ART  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; "sculptural" studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: FILM 332, FOTO 332, THEA 332.

**ARTS 338 - GROTESQUE, IMPURE, AND HYBRID PRACTICES IN ART**

**Short Title:** MONSTER STUDIO  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course should be taken in conjunction with Monster (HUMA 368 or BIOC 368). Topics discussed in that seminar will act as prompts for studio projects. Students will work independently and in groups on assignments addressing the monstrous in art, culminating in a final exhibition. Intended for all skill and experience levels.
ARTS 366 - SCULPTURE STUDIO
Short Title: SCULPTURE STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in various sculptural media. Limited enrollment. The roster is formulated on the first day of class by the instructor, who may allow additional registration for majors and under-classmen. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARCH 367.

ARTS 368 - PHYSICAL COMPUTING FOR ART
Short Title: PHYSICAL COMPUTING FOR ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will explore how we relate to other humans and our environment through digital technology. We will begin constructing projects on traditional computers; however, the projects in the class will expand beyond these confines. The class will focus on a hands-on experience of making interactive art projects, performance installations, interactive moving images, and sound within the context of contemporary art. Space in studio class is limited. Registration does not guarantee a place in class. The class roster will be formulated on the first day of class by the individual instructor. Repeatable for Credit.

ARTS 370 - OUTSIDE CONTEXT: ART, ARTISTS AND AUDIENCES BEYOND THE WHITE CUBE
Short Title: OUTSIDE CONTEXT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Outside Context: Art, Artists, and Audiences beyond the White Cube concerns the history and practice of making artwork in mass media forms. Contexts that are traditionally the bailiwick of advertising and entertainment, and now more often, a place where artists implement work that engages wider audiences. Combining lectures and practice, students will participate in the development of new artworks in mass media and public forms. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 378 - EXHIBITION DESIGN
Short Title: EXHIBITION DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the world of museums and galleries through exhibition design. Students will study the curatorial process and exhibition preparation including concept development, educational goals, budget, installation, and publicity. Discussions, workshops, museum visits, and guest lectures will provide students the opportunity to gain practical experience in museum/gallery work.

ARTS 383 - STUDIO ART INTERNSHIP
Short Title: STUDIO ART INTERNSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a field-based, supervised, professional learning experience designed to enhance classroom learning. Students will be responsible for identifying and securing internship positions and must obtain permission from the department chairman and have a department faculty sponsor. All interns are required to keep an internship journal recording duties and activities; the journal will be used as the basis of a five-page paper summarizing the internship experience. Documentation of the work produced during the internship is required, portfolio, CD, DVD, etc. Instructor Permission Required. Repeatable for Credit.

ARTS 384 - TEXT AND IMAGE
Short Title: TEXT AND IMAGE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course will explore the relationship between language, text, and the visual arts. The class will examine poet/artist collaborations, text-focused artistic movements such as Dada, Surrealism, and the early text-based works of the 1960s, along with contemporary artists and writers who push the boundaries of their fields. Field trips, readings, group discussions, and class critique will all be integral to this course. Students will develop projects, either through individual investigation or group collaboration, examining how words and images might intersect. The semester will culminate in a publication of these projects. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.
ARTS 387 - JUNIOR PROFESSIONAL PRACTICES SEMINAR AND FIELD TRIP
Short Title: JUNIOR SEMINAR
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar is to help majors in the Department of Visual and Dramatic Arts establish a frame of reference for professional practices in the fields of Studio Art, Film/Photography and Theater. (Please note: this course will not include a travel component due to COVID-19 during the 2020-2021 academic year) Instructor Permission Required. Mutually Exclusive: Cannot register for ARTS 387 if student has credit for ARTS 294.

ARTS 388 - CRITICAL STUDIES FOR STUDIO PRACTICE
Short Title: CRIT STUDIES STUDIO PRACTICE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Studio Practice is a course designed to familiarize art and non-art majors with key theories and concepts in modern and contemporary art. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and art field trips to local museums, galleries, and alternative art spaces. The course will include discussions on readings, writing, and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts.

ARTS 396 - SPEC PROBLEMS: MOBILE ARTS PROJECT
Short Title: SPEC Prob: Mobile Arts Project
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The focus of this special problems/independent study class will be on the practical conversion of a 30' transit bus into a multi-purpose mobile arts platform. Students will work one-on-one with Professor Sperandio and visiting artists on the development and fabrication of a variety of mechanical systems, including HVAC, electrical and plumbing. Participants will develop a more comprehensive understanding of alternative art practices through targeted readings and discussions, as well as participate in the development of new uses for this mobile arts space once it's completed. This project is funded in part by the Humanities Research Center, Rice Office of Parking and Transportation, and the Department of Visual and Dramatic Arts. Instructor Permission Required. Repeatable for Credit.

ARTS 400 - SPECIAL PROBLEMS IN STUDIO ART III
Short Title: SPECIAL PROB IN STUDIO ART III
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems at the advanced level in creative art. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 401 - PAINTING STUDIO
Short Title: PAINTING STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 301
Description: A continuation of practices and concepts introduced in Beginning Painting. Individual expression will be encouraged through a series of assignments that explore scale, subject matter, and process. Experimentation in different, painterly media will be encouraged. Students will continue to learn how to discuss painting through in-class critique. Mutually Exclusive: Cannot register for ARTS 401 if student has credit for ARTS 303.

ARTS 425 - ADVANCED DRAWING
Short Title: ADVANCED DRAWING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ARTS 225 or ARTS 101) and (ARTS 323 or ARTS 325)
Description: This advanced course uses students to further uncover and articulate the possibilities of drawing. Students will continue to learn drawing techniques while developing their own individual drawing vocabularies. Assignments will be more open in structure, allowing the opportunity for more individually driven projects, specific to each student's interests.

ARTS 428 - FILMMAKING II
Short Title: FILMMAKING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: 16mm film production course utilizing handmade cinema techniques. Space in class is limited. Registration does not guarantee a place in class. The class roster is formulated the first day of class by the individual instructor. Cross-list: FILM 428.
ARTS 430 - ARTS RESEARCH AND PRACTICE
Short Title: ARTS RESEARCH AND PRACTICE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent Study with a faculty member in Visual and Dramatic Arts in a specified art practice and field of research. The student will devise and work upon a chosen artistic practice. Instructor Permission Required.

ARTS 432 - FILM GENRE: THE WESTERN
Short Title: FILM GENRE: THE WESTERN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of the essential American film experience spanning all the years of U.S. cinema, with emphasis on the western and its mythic function in society. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: FILM 432.

ARTS 435 - SEMINAR ON FILM AUTHORSHIP: THE NEW HOLLYWOOD
Short Title: SEMINAR ON FILM AUTHORSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. Cross-list: FILM 435, HART 480.

ARTS 444 - HANDMADE FILM
Short Title: HANDMADE FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: 16mm film production course utilizing handmade cinema techniques, 4 required 16mm films made using surface treatments, shooting with a 16mm film camera, hand developing, classic animation, creating soundtracks and digital editing. Space in class is limited. Registration does not guarantee a place in class. Cross-list: FILM 444.

ARTS 447 - SPECIAL PROBLEMS IN LIFE DRAWING
Short Title: SPECIAL PROBLEMS LIFE DRAWING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.

ARTS 449 - PRINTMAKING STUDIO
Short Title: ADVANCED PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 311 and ARTS 349
Description: Advanced exploration of etching, lithography, photo gravure, and monoprinting. Enrollment is limited. The instructor will formulate the course roster and may allow additional majors to enroll.

ARTS 450 - SPECIAL PROBLEMS IN PRINTMAKING
Short Title: SPECIAL PROBLEMS PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 457 - SPECIAL PROBLEMS IN SCULPTURE
Short Title: SPECIAL PROBLEMS-SCULPTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.
 ARTS 460 - ADVANCED COMPUTER GRAPHICS  
Short Title: ADV COMPUTER GRAPHICS  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This project-based class involves teams of 2-4 CS and Visual Arts students designing and building computer games suitable for Xbox Live Arcade using C# and XNA. For CS students, COMP 160 or COMP 360 is recommended as a prerequisite. For Visual Arts students, previous experience in drawing using Photoshop is suggested. Instructor Permission Required. Cross-list: COMP 460.  
Course URL: www.owlnet.rice.edu/~comp460 (http://www.owlnet.rice.edu/~comp460/)  

 ARTS 465 - ADVANCED SCULPTURE  
Short Title: ADVANCED SCULPTURE  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ARTS 165 or ARTS 365  
Description: Study of advanced problems in various sculptural media. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.  

 ARTS 475 - ADVANCED PAINTING  
Short Title: ADVANCED PAINTING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ARTS 301 and (ARTS 303 or ARTS 401)  
Description: Students will further advance their painting skills while beginning to develop a personal painting vocabulary. Students will have the opportunity to experiment with new materials, at new scales, and with new subject matter. Assignments will be more open in structure, allowing for more individually driven projects, specific to student interest.  

 ARTS 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory, Seminar, Lecture, Laboratory, Internship/Practicum  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.  

 ARTS 494 - SPECIAL PROBLEMS IN PRINTMAKING  
Short Title: SPECIAL PROBLEMS PRINTMAKING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.  

 ARTS 499 - SENIOR STUDIO  
Short Title: SENIOR STUDIO  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in Visual and Dramatic Arts. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Required seminar for all studio track majors. This course is designed to guide the senior major in focused preparation of their work of the annual senior exhibition. Classes will consist of lectures, visits and critiques by artists and curators, and intensive independent studio work. Prerequisites: Students must receive permission from their faculty advisor or department chair to register for this class; only department majors who have senior academic standing will be allowed to register for this course. Department Permission Required. Repeatable for Credit.  

Film (FILM)  

 FILM 180 - 14 FILMS YOU SHOULD SEE BEFORE YOU GRADUATE FROM RICE UNIVERSITY  
Short Title: 14 FILMS BEFORE YOU GRADUATE  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Featuring the important, but less familiar works of American and European directors from the 1930s - 1960s. This class represents an ideal mixture of modernist auteur cinema and shameless viewing pleasure. Cross-list: HART 180.
**FILM 215 - MYSTIC CINEMA: KABBALAH IN FILM**
Short Title: MYSTIC CINEMA  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate  
Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course explores uses by the film industry of ideas drawn from Jewish mysticism. We will examine themes such as monsters, spirits, numerology and the paranormal, as portrayed in classic film and through to contemporary Hollywood. Emphasis will be placed on the medieval textual and folkloric traditions behind such portrayals. Cross-list: RELI 215. Mutually Exclusive: Cannot register for FILM 215 if student has credit for FILM 114/FSEM 141/RELI 114.

**FILM 218 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA**  
Short Title: EAST/NORTHEAST ASIA FILM HIST  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate  
Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  

**FILM 225 - INTRODUCTION TO FILMMAKING AND EDITING**  
Short Title: INTRO TO FILMMAKING & EDITING  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate  
Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course introduces the student to filmmaking in general through specific techniques of digital video production. The emphasis in this class will be the medium as a means of effective storytelling through the craft of filmmaking. All aspects of production will be discussed, including preproduction and postproduction. Core topics will include the basic principles and operation of digital video cameras, lighting instruments, and audio recording gear; concepts and practical use of nonlinear digital editing gear; planning and scripting using applications of various filmmaking techniques; and delivery of a finished project.

**FILM 238 - SPECIAL TOPICS**  
Short Title: SPECIAL TOPICS  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate  
Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**FILM 250 - CONTEMPORARY EUROPEAN CINEMA**  
Short Title: CONTEMPORARY EUROPEAN CINEMA  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate  
Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This class examines trends in European cinema of the last fifteen years. Particular attention will be given to the issues of history, memory and national identity in Europe's shifting geopolitical climate, and to the formal and aesthetic concerns with which filmmakers responded to these shifts. The discussion will include films by Michael Haneke, Fatih Akin, Christian Mingiu and others. Cross-list: HART 250.

**FILM 275 - COMICS AND SEQUENTIAL ART**  
Short Title: COMICS AND SEQUENTIAL ART  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate  
Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An introduction to the art of combining words and pictures: diverse applications such as storyboarding for stage and screen, comic books and graphic novels, and serial or multiples in a variety of media all fall under the umbrella of Sequential Art. Through instruction, demos, readings and practice, students will learn the history and implementation of linear visual narratives utilizing the Comics Art Teaching and Study Workshop as a resource. Students in this class will also participate in the construction and establishment of a permanent research center for the study of Comic Book Art within the Department of Visual and Dramatic Arts. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARTS 230.
FILM 280 - HISTORY & AESTHETICS OF FILM
Short Title: HISTORY & AESTHETICS OF FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narrative, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, nonfiction, and Third World cinemas. Cross-list: ARTS 280, HART 280.

FILM 281 - THE BEGINNINGS OF CINEMA
Short Title: THE BEGINNINGS OF CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class studies the emergence of cinema in the context of cultural developments at the turn of the 20th century. Early films will be examined together with such contemporaneous issues as technologies of vision, modern mass culture, urban expansion and consumerism. Cross-list: HART 281.

FILM 284 - NONFICTION FILM
Short Title: NONFICTION FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the history and aesthetics of nonfiction film as both a social artifact and as a work of art. Includes discussions of actualities, the city film, the social documentary, surrealist cinema, propaganda, ethnography, the essay film, and the contemporary nonfiction film from around the world. Cross-list: HART 284.

FILM 285 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: HART 283. Equivalency: FILM 485. Mutually Exclusive: Cannot register for FILM 285 if student has credit for FILM 485.

FILM 287 - INTRODUCTION TO EXPERIMENTAL VIDEO AND INSTALLATION ART
Short Title: INTRO TO VIDEO AND INSTALL ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to installation art and non-traditional, experimental uses of video. Students will learn the basic tools and techniques of digital video production using Adobe Premiere and After Effects. Course URL: www.arts.rice.edu/ (http://www.arts.rice.edu/)

FILM 308 - IMPROVISATION FOR STAGE AND SCREEN
Short Title: IMPROF FOR STAGE AND SCREEN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a course in the practical training of comedic, long-form, improvisation. Students will learn how to craft scenes spontaneously using tools like character dynamic, status, comedic pattern, beat structuring, and agreement. Classic forms of scenic improv will be taught and the course will also examine the role of improvisation in comedy films, video, and the creation of sketch comedy. Students will get to practice their skills by crafting videos in the class' culmination run of improv shows. Cross-list: THEA 308.
FILM 321 - LIFE IN REAL-TIME  
Short Title: LIFE IN REAL-TIME  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores digital video as a contemporary art medium rich with possibilities of cultural critique. We will examine how artists deploy the speed of time-based media to underscore the urgency of specific environmental issues and offer observations on serous issues through the use of metaphor, irony, and humor. We will compare and contrast these ways through reading, films, and presentations.

FILM 327 - DOCUMENTARY PRODUCTION  
Short Title: DOCUMENTARY PRODUCTION  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of the expressive possibilities of documentary production using digital systems. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ANTH 324, ARTS 327.

FILM 328 - FILMMAKING I  
Short Title: FILMMAKING I  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Dramatic film production class that requires the making of one digital video and one 16mm film. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ANTH 324, ARTS 327.

FILM 329 - FILM FORM  
Short Title: FILM FORM  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Viewing, analysis, and discussion of modern and classic films. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ARTS 329.

FILM 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS  
Short Title: CRITICAL STU OF MULTIMEDIA ART  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; "sculptural" studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: ARTS 332, FOTO 332, THEA 332.

FILM 333 - VIDEO ACTIVISM: CREATING CHANGE THROUGH VIDEO STORYTELLING  
Short Title: VIDEO ACTIVISM  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course employs video as a tool to make and distribute stories about people and issues in our world aimed at affecting change. We will learn about the history of video activism and watch examples to inform our own work. Students in the course will complete a series of exercises and one central issue driven video work. All necessary equipment will be provided. Recommended Prerequisite(s): FILM 327.

FILM 334 - FILM LITERATURE  
Short Title: FILMING LITERATURE  
Department: Visual and Dramatic Arts  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course engages a wide range of filmic adaptations of literary texts, with close attention to the specificity of the medium, genre and sub-genre, narrative and point of view.
FILM 351 - HOLOCAUST REPRESENTATION IN LITERATURE, ART, AND FILM
Short Title: HOLOCAUST REPRESENTATION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the representation of the Holocaust in literature, art, and film. Is the Holocaust representable? What literary and artistic techniques and devices have been employed to represent the unrepresentable? Through Holocaust narrative, poetry, fiction, art, memorials, documentary and narrative film, we will explore these questions. Cross-list: JWST 351. Mutually Exclusive: Cannot register for FILM 351 if student has credit for FILM 349/RELI 349.

FILM 359 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities’ histories and theories of space and film. Cross-list: ARCH 359, HART 359.

FILM 361 - WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS
Short Title: WHAT IS CINEMA?
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using a variety of readings now considered classics as our guide, this class will look closely at a broad range of films and film movements discussed by critics and theorists such as Rudolf Amheim, Jean Epstein, Sergei Fisenstein, Walter Benjamin and Andre Bazin. Cross-list: ARCH 361.

FILM 373 - SURVEY OF AMERICAN FILM AND CULTURE
Short Title: SURVEY OF AMER FILM & CULTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the history of cinema in the U.S. from its origins to the present day. This course will examine the development of narrative, sound, the classical Hollywood form and style; film genres; the emergence of television; the influence of postwar “art cinemas”; the origins of the blockbuster; and the status of Hollywood as “global cinema.” Cross-list: ENGL 373, HART 380.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
FILM 378 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser-known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: ANTH 378, HART 391.

FILM 380 - RIPPED, RECYCLED AND REMADE CINEMA
Short Title: RECYCLED CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This hybrid seminar/production class investigates the practice of cinematic quoting in media works. We will look at how the appropriation process critiques political and cultural concerns between the source and reworked material, new conversations it introduces, and these works in relation to fair-using, hijacking, open sourcing, and stealing.

FILM 381 - MEDICAL MEDIA ARTS LAB
Short Title: MEDICAL MEDIA ARTS LAB
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will collaborate with health professionals to create solutions to real-world medical communication, visualization and design problems. Working individually and in teams, students will apply critical thinking and theory to hands-on design. Projects may include production of short videos, infographics, app development, 3-D virtual models, creative writing, and other media arts. Cross-list: ENGL 386.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

FILM 382 - MODALITIES OF CINEMA
Short Title: MODALITIES OF CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to cinema as a global enterprise. It explores the relationship between nations, identities, races, concepts, and genres. It inquires into the question of globalization as it relates to the motion picture audience, corporations, and the commerce of ideas. Cross-list: HART 382.

FILM 383 - GLOBAL CINEMA
Short Title: AMERICAN INDEPENDENT CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to cinema as a global enterprise. It explores the relationship between nations, identities, races, concepts, and genres. It inquires into the question of globalization as it relates to the motion picture audience, corporations, and the commerce of ideas. Cross-list: HART 383.

FILM 384 - AMERICAN INDEPENDENT CINEMA
Short Title: AMERICAN INDIE CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the history of filmmaking outside of Hollywood in the United States throughout the 20th century, emphasizing the period from 1959 to the present. Special attention to the contributions of marginalized communities and the art world, innovative film styles, and the interdependence of alternative and mainstream media cultures. Cross-list: ENGL 384.

FILM 385 - FILM STUDIES
Short Title: FILM STUDIES
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that may focus on such areas as film genres, national cinemas, world cinema, directors or other thematically organized topics. Cross-list: ENGL 385. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
FILM 386 - MEDICAL MEDIA ARTS LAB
Short Title: MEDICAL STUDIES
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that addresses interdisciplinary approaches to studying the relationships between film, photography, television, and digital technologies such as the internet and computer-generated imaging. Cross-list: ENGL 388. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

FILM 388 - POST WAR EUROPEAN CINEMA
Short Title: POST WAR EUROPEAN CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class surveys major developments in European cinema from the late 1940s to the late 1960s. Our study will include such movements as Italian Neorealism, German Rubble Films, French New Wave, and Soviet cinema in the Thaw. Particular attention will be paid to such issues as cinema and post-war reconstruction, memory and nation, and body and space. Cross-list: HART 388.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

FILM 389 - SPEC. PROB: FILM & VIDEO
Short Title: SPEC. PROB: FILM & VIDEO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems in film and film production. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.

FILM 420 - FILM STUDIO
Short Title: FILM STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FILM 327 and FILM 328
Description: A class for advanced filmmaking students working independently, but meeting as a group to participate in discussions about a variety of filmmaking topics. Instructor Permission Required. Repeatable for Credit.

FILM 428 - FILMMAKING II
Short Title: FILMMAKING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A class for advanced filmmaking students working independently, but meeting as a group to participate in discussions about a variety of filmmaking topics. Instructor Permission Required. Repeatable for Credit.

FILM 430 - ADVANCED METHODS IN SOUND, CINEMATOGRAPHY, AND EDITING
Short Title: ADVANCED METHODS IN SOUND, CINEMATOGRAPHY, AND EDITING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A class for advanced filmmaking students working independently, but meeting as a group to participate in discussions about a variety of filmmaking topics. Instructor Permission Required. Repeatable for Credit.
FILM 432 - FILM GENRE: THE WESTERN
Short Title: FILM GENRE: THE WESTERN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of the essential American film experience spanning all the years of U.S. cinema, with emphasis on the western and its mythic function in society. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ARTS 432.

FILM 433 - FILM GENRE: SCIENCE FICTION CINEMA
Short Title: FILM GENRE: SCIENCE FICTION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will trace the history and elements of the popular film genre of science fiction, from early silents to recent configurations. We will look at the links between the genre cinema itself. Topics for the Film Genre courses will vary and will include the uncanny, transhumanism, utopia and dystopia, and technology.

FILM 435 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the emergence of video and "expanded cinema" as a primary field of artistic practice over the course of the 1960s and 1970s. We will examine seminal works by artists including Andy Warhol, Dan Graham, and Robert Whitman as well as the shifting aesthetic, political, and media landscapes in which this work emerged. Cross-list: HART 457.

FILM 455 - VIDEO AND EXPANDED CINEMA
Short Title: VIDEO AND EXPANDED CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. FILM 485/HART 481 ( 4 Credit Hours ) will require completion of additional coursework for the additional credit than the equivalent: FILM 285/HART 283 ( 3 Credit Hours ). Credit may not be received for more than one of FILM 485 or FILM 485 or Hart 283 or HART 481. Cross-list: HART 481. Equivalency: FILM 285. Mutually Exclusive: Cannot register for FILM 485 if student has credit for FILM 285.
FOTO 200 - PHOTOGRAPHY IN THE COMMUNITY
Short Title: PHOTOGRAPHY IN THE COMMUNITY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Required course for all film and photography concentration majors. This course involves focused preparation of their work for the annual senior exhibition. This course consists of lectures, visits, and critiques by artists, filmmakers and photographers, and intensive work. Students must receive permission from their faculty advisor or department chair to register for this class; only department majors who have senior academic standing will be allowed to register for this course. Instructor Permission Required.

FOTO 202 - PHOTOGRAPHY IN THE COMMUNITY 2 - CULTURAL OUTREACH AND DOCUMENTATION
Short Title: PHOTOGRAPHY IN THE COMMUNITY 2
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers students the opportunity to use photography as a means to interact with the community through public schools and other institutions. After receiving instruction in digital photography, students will go into the community to conceive and execute original projects.

FOTO 205 - INTRODUCTION TO PHOTOGRAPHY
Short Title: INTRODUCTION TO PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to black and white photography through exploration of light-sensitive materials, film and digital cameras. Assignments include viewing analysis, discussion, and writing about pictures to improve visual awareness, technical skills, and understanding of meaning in photography's continuing history. Final roster to be determined by the instructor on the first day of class.

FOTO 206 - PHOTOGRAPHY II
Short Title: PHOTOGRAPHY II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continued exploration of the basic materials and processes of the photographic medium with an emphasis on digital processes. Includes viewing, analysis, and discussion of the medium's history and current trends. Space in studio class is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor.

FOTO 210 - BEGINNING DIGITAL PHOTOGRAPHY
Short Title: BEGINNING DIGITAL PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to digital photography through exploration of light, camera, and computer. Assignments include looking, taking, discussing, adjusting, printing and writing about photographs. The class is a balance of visual awareness, technical skills and meaning in the context of photography's continuing history. Cross-list: HART 209.

FOTO 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
FOTO 263 - EPISODES IN THE HISTORY OF PHOTOGRAPHY: FROM INVENTION TO THE PRESENT
Short Title: HISTORY OF PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class examines the history of both artistic and non-artistic uses of photography from its origins in the nineteenth century, across the 20th century and into the present. In so doing we will pay close attention to a number of specific themes, from the medium’s conception in the late eighteenth century, through avant-garde and institutional debates in the twentieth and twenty-first centuries concerning photography’s relationship to artistic and social issues, to questions of gender, race, class, and global politics. Cross-list: HART 263. Mutually Exclusive: Cannot register for FOTO 263 if student has credit for HART 363.

FOTO 295 - SPECIAL PROBLEMS IN PHOTOGRAPHY
Short Title: SPEC PROB PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of problems at the introductory level in creative art. Topics may vary. Please consult with department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

FOTO 310 - INTERMEDIATE DIGITAL PHOTOGRAPHY
Short Title: INTERMEDIATE DIGITAL PHOTO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FOTO 205 or FOTO 210
Description: A continuation of FOTO 210, which is a prerequisite for this course. The emphasis is on making photographs as distinct from taking them. The course explores the malleability of the digital medium through the use of digital tools in Adobe Photoshop, which is provided on the computers in the VADA Digital Lab in the Rice Media Center. Students must provide their own digital camera.

FOTO 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS
Short Title: CRITICAL STU OF MULTIMEDIA ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; “sculptural” studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: ARTS 332, FILM 332, THEA 332.

FOTO 366 - THE ROAD AS EXPERIENCE AND METAPHOR IN PHOTOGRAPHIC PRACTICE
Short Title: ROAD TRIP PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FOTO 205 or FOTO 210
Description: A search for America and the self through the written and visual literature of moving through the American landscape. This course will search for motifs to emulate in small formats and short distances, as preamble to the culmination recorded in a self-designed book of each personal odyssey. Repeatable for Credit.

FOTO 383 - PHOTOGRAPHY BOOKMAKING
Short Title: PHOTOGRAPHY BOOKMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 205 or FOTO 205 or FOTO 210 or HART 209 or FOTO 310
Description: Intermediate problems in photography culminating in the production of an original book. Students will pursue a project involving either film-based or digital photography, edit, layout, and then produce their own book. Students will participate in scheduled critiques. Priority will be given to students who have taken two or more semesters of photography at Rice.
FOTO 385 - PHOTOGRAPHY SEMINAR
Short Title: PHOTOGRAPHY SEMINAR
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced problems in photography including, but not limited to, color and black and white film-based photography, view camera, and alternative processes. Students will be given advanced assignments tailored to the format and medium they wish to pursue will participate in scheduled critiques of the full class. Space in the class is limited. Registration does not guarantee a place in the course. Priority will be given to students who have taken two or more semesters of photography at Rice. The class roster will be formulated by the instructor on the first day of class. Repeatable for Credit.

FOTO 390 - VISUALIZING NATURE
Short Title: VISUALIZING NATURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An experimental course combining the scientific disciplines of the earth sciences with the artistic disciplines of creative photography to study the natural landscape and related ecosystems. The course will combine classroom lectures and laboratory demonstrations in geoscience with classes in the use of digital and film-based cameras and illustrated lectures on recognized achievements in landscape photography. Extensive field trips will be scheduled. Students will travel frequently, at times in pairs, other times in larger groups and as a full class, accompanied by one or both professors. The budget for the course includes funding both for travel and for photography expenses. Instructor Permission Required. Cross-list: EEPS 309.

FOTO 395 - SPECIAL PROBLEMS IN PHOTOGRAPHY
Short Title: SPEC PROB:PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.

FOTO 400 - ADVANCED DIGITAL PHOTOGRAPHY
Short Title: ADVANCED DIGITAL PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A continuation of FOTO 310, this course offers advanced photo-art students a chance to develop a personal body of artwork supported by digital image processing. Student-driven projects will influence the choice of technical topics covered in class. For example, some techniques covered may include digital animation, digital painting, 3D compositing, or master printing. Students will be expected to critique their work and that of other artists shown on Rice campus and in Houston. Students entering the course should be proficient in the use of Adobe Photoshop. A semester-long project is due at the end of the class.

FOTO 454 - SPECIAL PROBLEMS - PHOTOGRAPHY
Short Title: SPECIAL PROBLEMS-PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

FOTO 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Theatre (THEA)

THEA 100 - STAGE CRAFT
Short Title: STAGE CRAFT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to materials, tools, and standard theatre production techniques. Theory and practice of scenic building and painting techniques, creation of props, sound support requirements, and running crew during performance. No Lab hours required.
**THEA 101 - THEATRE TECHNOLOGY: COSTUME CONSTRUCTION**

**Short Title:** THEA TECH: COSTUME CONSTRUCTION  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction to the materials, tools, and standard techniques of costume/clothing construction. Lab hours required.

**THEA 102 - INTRODUCTION TO ACTING**

**Short Title:** INTRODUCTION TO ACTING  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This is a class in the basic terminology and craft of acting. It will encompass voice and movement training, as well as basic technical theatre terminology and vocabulary for the actor. The course work will progress from ensemble/group work and individual exercises/monologues to scenes. Space in classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor.

**THEA 103 - THEATRE TECHNOLOGY**

**Short Title:** THEATRE TECHNOLOGY  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction to lighting and sound equipment, tools, and board operation. Theory and practice of lighting and sound materials, hang and focus, programming both sound and lights boards as well as introduction to projection elements. No lab required.

**THEA 202 - COSTUME AND PATTERN DRAFTING AND DRAPING FOR STAGE**

**Short Title:** PATTERN DRAFTING AND DRAPING  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** THEA 101  
**Description:** This course enables students to explore pattern-making, design, fit and alteration of costumes for the stage. The course will familiarize students with the draping method of pattern development and the flat-patterning method of pattern development in order to create three-dimensional period and contemporary costumes for the theatre based on two-dimensional research and theatrical designer drawings. Instructor Permission Required.

**THEA 207 - MAKEUP FOR THE STAGE**

**Short Title:** MAKEUP FOR THE STAGE  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Students with a class of Senior may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This is a hands-on class that explores the principals of stage makeup materials and skills, methods and techniques that are used in an actor’s transformation for the stage. This includes techniques for moderate and extreme aging, injuries and character roles and period styles. Class will use the application of analytical and research skills in the visual development of the character. Spring 2021; Seniors must get special permission to enroll.

**THEA 238 - SPECIAL TOPICS**

**Short Title:** SPECIAL TOPICS  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**THEA 270 - BIG PAINTING: MATERIALS AND TECHNIQUES FOR THEATRICAL PAINTING**

**Short Title:** BIG PAINTING FOR THEATRE  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Big Painting: Materials and Techniques for Theatrical Painting will examine the materials and techniques usually associated with scenic and theatrical painting but as applied to the context of 21st century contemporary art practices. Students will learn how to make big paintings. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARTS 270.
THEA 300 - INTRODUCTION TO THEATRE DESIGN
Short Title: INTRODUCTION TO THEATRE DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the theory and practice of theatre design through exploration of the principles and elements of design as they apply to scenery, lighting, and costumes with an emphasis on text analysis and research. Students will complete and present a variety of projects.

THEA 301 - ACTING I
Short Title: ACTING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the fundamentals of acting through the exploration of actor training techniques based on the theories of Stanislavsky, Strasburg, Adler, Meisner, and Hagen, emphasizing the actor's primary tools: voice, body, emotional life, and imagination.

THEA 302 - ACTING II
Short Title: ACTING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: Text analysis for the actor with particular emphasis on a thorough investigation of given circumstances and dramatic action. Students will work on scenes from Ibsen to contemporary playwrights. Space in classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor.

THEA 303 - INTRODUCTION TO THEATRE
Short Title: INTRODUCTION TO THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey course of the art and theory of the theatre through an examination of dramatic literature and theatrical venues from the Greeks through the modern era. The course will also explore the craft of the theatre from a practitioner's point of view as it is realized today. Requires attending several theatre productions in local Houston venues. Cross-list: ENGL 390.

THEA 304 - COSTUME DESIGN
Short Title: COSTUME DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Students with a class of Junior or Senior may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 300
Description: Exploration of costume design and the designers' role in the collaborative process. Students will read diverse plays then present design projects that explore character, storytelling, and the relationship between performer and audience. Students will experiment with rendering techniques to explore the visual language of period and contemporary clothing. Juniors and Seniors must obtain special permission of the instructor before enrolling.

THEA 305 - LIGHTING DESIGN
Short Title: LIGHTING DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 300
Description: Exploration of the role that lighting plays in a production and the lighting designer's place as an artist in the collaboration process. Emphasis on the practical application of the controllable properties of light as they apply to theatre. Students will be required to complete a variety of projects including light labs responding to music and culminating in a final lighting project.
THEA 306 - SCENIC DESIGN
Short Title: SCENIC DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 300
Description: Advanced examination of the principles of scenic design including research, rendering, technical drawing, model construction, text analysis and the role of the scenic designer in collaboration with directors, actors, and other designers. Students will read and analyze a variety of plays in different periods and styles, and then, based on text analysis and research, complete and present design projects.

THEA 307 - HISTORY OF ARCHITECTURE, INTERIORS, AND CLOTHING FOR THEATRE DESIGNERS
Short Title: HIST FOR THEATER DESIGNERS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: HISTORY OF ARCHITECTURE, INTERIORS, AND CLOTHING FOR THEATRE DESIGNERS ***** Survey of the major period styles of buildings, homes, furnishings, and clothing from ancient Egypt through the 20th century including a critical analysis of the interdependent nature of the evolution of design and the relationship to the cultures in which they were created. Repeatable for Credit.

THEA 308 - IMPROVISATION FOR STAGE AND SCREEN
Short Title: IMPROV FOR STAGE AND SCREEN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a course in the practical training of comedic, long-form, improvisation. Students will learn how to craft scenes spontaneously using tools like character dynamic, status, comedic pattern, beat structuring, and agreement. Classic forms of scenic improv will be taught and the course will also examine the role of improvisation in comedy films, video, and the creation of sketch comedy. Students will get to practice their skills by crafting videos in the class’ culmination run of improv shows. Cross-list: FILM 308.

THEA 309 - MUSICAL THEATRE STUDIO
Short Title: MUSICAL THEATRE STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Practical training and experience in musical theatre performance. This course will focus on the particular challenges that musical theatre presents as distinct from non-musical theatre. Performance techniques will emphasize the skills necessary for successful presentation of a musical number by an actor, as well as how to prepare an effective audition.

THEA 310 - THE SPOKEN TEXT
Short Title: THE SPOKEN TEXT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: An exploration of language through voice, movement and text as one of the actor’s primary means of communication and expression. The student will analyze, rehearse, and perform scenes from the work of William Shakespeare and his contemporaries. Recommended prerequisite(s): ENGL 321.

THEA 311 - HISTORY OF MUSICAL THEATRE
Short Title: HISTORY OF MUSICAL THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: This course is designed to familiarize students with the repertoire of a uniquely American art form that has had a widespread cultural influence. It will present a historical perspective of the decades of musical theatre from the 1920s to the present, with particular emphasis on representative innovative examples of change and the transition from musical comedy into musical theatre.
THEA 312 - DIRECTING I
Short Title: DIRECTING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: An introductory course exploring the tools and craft of the stage director. Students will learn how to analyze dramatic text and will gain a fundamental knowledge of the director’s basic skills, including composition, picture, movement, rhythm, and pantomimic dramatization. Recommended prerequisite(s): THEA 303 or 300.

THEA 314 - PUPPETRY DESIGN
Short Title: PUPPETRY DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of puppetry design, including the history of puppets and puppet styles. Students will create their own puppets by immersion into original character design and expanding on their practical capabilities by building a table top puppet. The students will work with a variety of materials, including leather, hooks, fabric, yarn, fur and fake hair.

THEA 315 - THEATRE IN WESTERN CULTURE: A HISTORICAL INTRODUCTION
Short Title: INTRO TO THEATRE HISTORY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through reading and watching a selection of major plays and exploring other primary historical and critical sources, students in this course will study the development of the western dramatic tradition from ancient roots to modern day. Students will explore how the theatrical experience reflects and effects the society in which it exists and will consider how theater holds a mirror up to cultural power, taboos, and changes.

THEA 320 - GENDER, SEXUALITY AND THE ADAPTATION OF TRANSATIONAL LITERATURE TO PERFORMANCE
Short Title: GENDER AND PERFORMANCE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the embodiment of gender and sexuality through the oral interpretation of transnational literature. Students will learn how to analyze and adapt to performance novels and short stories from various global and historical contexts that exemplify the genre of the "coming of age" narrative. Cross-list: SWGS 320.

THEA 322 - DIRECTING SHAKESPEARE
Short Title: DIRECTING SHAKESPEARE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: Staging Shakespeare’s plays for modern audiences: learning to speak the lines “trippingly off the tongue”, analyzing textual clues, and researching the period to find correlations to contemporary society in the process of active rehearsal. Students will work with THEA 310 to stage a final scene. Recommended prerequisite(s): THEA 310.

THEA 323 - VOICE AND SPEECH FOR THEATRE
Short Title: VOICE AND SPEECH FOR THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Development of an expressive speaking voice through awareness and overcoming physical and vocal habits and limitations, including alignment, relaxation, breath support, resonance, tone and projection. Recommended prerequisite(s): THEA 301.

THEA 324 - MOVEMENT FOR STAGE AND STAGE COMBAT
Short Title: COMBATING & MOVEMENT FOR STAGE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to body dynamics and stage combat through partner exercises, physical stretching and conditioning, ensemble movement, full body awareness, focus, action and counter-action, precision, and economy of effort. Recommended prerequisite(s): THEA 301.
THEA 325 - ACTING FOR FILM
Short Title: ACTING FOR FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 102 or THEA 301
Description: This course provides an introduction to the art of acting on camera. It emphasizes specific techniques of speech, movement, character development, and the creation of relationships as they relate to the recorded medium (film, television, commercials, industrial films). The elements of study include proper voice placement, appropriate acting styles, and subtlety in performance. Student performances will be videotaped for study.

THEA 330 - CONTEMPORARY DRAMATIC LITERATURE
Short Title: CONTEMP DRAM LITERATURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will examine contemporary American plays that have had a significant impact on theatrical form or that are highly reflective of contemporary society. Playwrights whose work will be studied will include Mamet, Guare, Lucas, Wilson and many others.

THEA 331 - THEATRE PRODUCTION
Short Title: THEATRE PRODUCTION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Practical application of skills acquired in previous THEA courses in a realized Theatre Program production as a company member. Admission to class requires either an audition, interview, or portfolio review with the director and/or production manager. Possible roles include: actor, assistant director, stage manager, assistant stage manager, designer, and technical support in scenery, costumes, lighting, or sound. Prerequisites: permission of instructor. Instructor Permission Required. Repeatable for Credit.

THEA 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS
Short Title: CRITICAL STU OF MULTIMEDIA ARTS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; “sculptural” studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: ARTS 332, FILM 332, FOTO 332.

THEA 333 - SPECIAL PROBLEMS: THEATRE PRODUCTION
Short Title: SPECIAL PROBLEMS: THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1.2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems at the intermediate level in theatre making. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit. Instructor Permission Required. Repeatable for Credit.

THEA 396 - THEATRE INTERNSHIP
Short Title: THEATRE INTERNSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a field-based, supervised, professional learning experience designed to enhance classroom learning. Students will be responsible for identifying and securing internship positions and must obtain permission from the department chairman and have a department faculty sponsor. All interns are required to keep an internship journal recording duties and activities; the journal will be used as the basis of a five-page paper summarizing the internship experience. Documentation of the work produced during the internship is required, portfolio, CD, DVD, etc. Instructor Permission Required. Repeatable for Credit.
THEA 432 - SPECIAL PROBLEMS: DIRECTING AND DESIGN
Short Title: SPEC PROB: DIRECT & DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study. Instructor Permission Required. Repeatable for Credit.

THEA 435 - SPECIAL PROBLEMS: ADVANCED TOPICS
Short Title: SPEC PROB:ADVANCED TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study. Instructor Permission Required. Repeatable for Credit.

THEA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code for Visual and Dramatic Arts: ARTS
• Course offerings/subject code for Film: FILM
• Course offerings/subject code for Photography: FOTO
• Course offerings/subject code for Theatre: THEA

Department Description and Code
• Visual and Dramatic Arts: VADA

Undergraduate Degree Description and Code
• Bachelor of Arts degree: BA

Undergraduate Major Description and Code
• Major in Visual and Dramatic Arts: VADA

Undergraduate Major Concentration Descriptions and Codes
• Major Concentration in Film and Photography: VFIL
• Major Concentration in Studio Art: VSTU
• Major Concentration in Theatre: VTHE

CIP Code and Description 1
• VADA Major/Program: CIP Code/Title: 50.0101 - Visual and Performing Arts, General
• VFIL Major Concentration: CIP Code/Title: 50.0605 - Photography
• VSTU Major Concentration: CIP Code/Title: 50.0701 - Art/Art Studies, General
• VTHE Major Concentration: CIP Code/Title: 50.0507 - Directing and Theatrical Production

Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Film and Photography

Program Learning Outcomes for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Film and Photography
Upon completing the BA degree with a major in Visual and Dramatic Arts and a major concentration in Film and Photography, students will be able to:

1. Understand the social, aesthetic, and technological history of film and photography.
2. Become fluent in both older forms of filmmaking and photography and newer ones.
3. Grasp the relationship between the tools and the art.
4. Utilize the understanding and the fluency to create works of art.

Requirements for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Film and Photography
For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Visual and Dramatic Arts and a major concentration in Film and Photography must complete:

• A minimum of 12 courses (36-39 credit hours, depending on course selection) to satisfy major requirements.
• A minimum of 120 credit hours to satisfy degree requirements.
• A minimum of 7 courses (21 credit hours) taken at the 300-level or above.
• A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2102) tab.
• The requirements of a major concentration. When students declare the major (p. 17) in Visual and Dramatic Arts, students must additionally identify and declare one of three major concentrations, either in:

1 Classification of Instructional Programs (CIP) 2020 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/
• Film and Photography (p. 2100), or
• Studio Art (p. 2104), or
• Theatre (p. 2107).

It is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Students pursuing the major concentration in Film and Photography are strongly encouraged to explore film-related courses offered in other departments that may enrich their selected major concentration, such as philosophy, anthropology, science, history, cultural studies, language, writing, comparative studies, etc. Students should speak with their faculty advisor prior to enrolling.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credit Hours Required for the Major in Visual and Dramatic Arts and a Major Concentration in Film and Photography</td>
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<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Visual and Dramatic Arts</td>
<td>120</td>
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### Degree Requirements

#### Core Requirements

Select 5 courses from the following:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>FILM 280 / ARTS 280 / HART 280</td>
<td>HISTORY &amp; AESTHETICS OF FILM</td>
<td>15-16</td>
</tr>
<tr>
<td>FILM 327 / ANTH 234 / ARTS 327</td>
<td>DOCUMENTARY PRODUCTION</td>
<td>6-8</td>
</tr>
<tr>
<td>FILM 328 / ARTS 328</td>
<td>FILMMAKING I</td>
<td>3</td>
</tr>
<tr>
<td>FILM 444 / ARTS 444</td>
<td>HANDMADE FILM</td>
<td>3-6</td>
</tr>
<tr>
<td>FILM 499</td>
<td>SENIOR FILM AND PHOTOGRAPHY STUDIO</td>
<td>3</td>
</tr>
<tr>
<td>FOTO 205 / HART 209</td>
<td>INTRODUCTION TO PHOTOGRAPHY</td>
<td>3</td>
</tr>
<tr>
<td>FOTO 310 / HART 309</td>
<td>INTERMEDIATE DIGITAL PHOTOGRAPHY</td>
<td>3</td>
</tr>
<tr>
<td>FOTO 383</td>
<td>PHOTOGRAPHY BOOKMAKING</td>
<td>3</td>
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</table>

Select 1 course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>FOTO 385</td>
<td>PHOTOGRAPHY SEMINAR</td>
<td>3</td>
</tr>
<tr>
<td>FOTO 390 / EEPS 309</td>
<td>VISUALIZING NATURE</td>
<td>3</td>
</tr>
<tr>
<td>FOTO 410</td>
<td>ADVANCED DIGITAL PHOTOGRAPHY</td>
<td>3</td>
</tr>
</tbody>
</table>

### Elective Requirements

Electives in Visual Arts, Film, Photography, or Theatre

Select 2 elective courses from Studio Arts (ARTS), Film (FILM), Photography (FOTO) or Theatre (THEA) course offerings at the 100-level or above

### Additional Credit Hours to Complete Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 387</td>
<td>JUNIOR PROFESSIONAL PRACTICES</td>
<td>3</td>
</tr>
</tbody>
</table>

### Professional Practices Seminar and Field Trip

Select 1 elective course in the Theory/Criticism of Studio Arts (ARTS), Theatre (THEA), or Film/Media Studies (offered in the departments of Anthropology, English, French Studies, History, etc.)

Select 2 elective courses from Studio Arts (ARTS), Theatre (THEA), or Film/Media Studies (offered in the departments of Anthropology, English, French Studies, History, etc.). Open selections may be qualified by course prerequisites.

### Footnotes and Additional Information

*Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 For additional information regarding ARTS 387, see the Opportunities (p. 2102) tab.

2 The Theory/Criticism elective course should be selected in consultation with a Visual and Dramatic Arts faculty advisor. Students must complete 1 course (3 credit hours) in Theory/Criticism of Studio Arts (ARTS), Theatre (THEA), or Film/Media Studies (offered in the departments of Anthropology, English, French Studies, History, etc.). Open selections may be qualified by course prerequisites.
Policies for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Film and Photography

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Film and Photography should be aware of the following program restriction:

• Students pursuing the major in Visual and Dramatic Arts may pursue only one major concentration within the major.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Visual and Dramatic Arts should be aware of the following departmental transfer credit guidelines:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major. The 2 transfer credit courses should be studio, film, photography, or theatre practice courses required for all majors.
• Transfer students who are transferring coursework from another accredited college or university should be allowed to transfer their undergraduate art courses. However, students must speak with the department chair or program advisor immediately upon transferring to Rice.
• Transfer credit received via the articulation of advanced placement (AP) credit, international baccalaureate (IB) credit, or A-level credit will not be considered towards major requirements.
• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Visual and Dramatic Arts (VADA) are accessible to any student, regardless of their previous experience. These courses are devised for the development of students’ artistic skills, creativity, and engagement with art on both a personal and societal level. DI courses are generally 100-level and 200-level introductions to the study of art, theatre, film and photography.

Additional Information

For additional information, please see the Visual and Dramatic Arts website: https://vada.rice.edu/

Opportunities for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Film and Photography

Academic Honors

The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Distinction in Research and Creative Work

Distinction in Research and Creative Work is a university award for select undergraduates, granted at commencement, which appears on the transcript and diploma. Students must apply within their department or program to be considered for the award, and a letter from a faculty member must support the application.

Eligibility for the award extends widely to include a variety of research, design, and other creative projects, as well as persistent dedication to research. Projects completed in part or entirely at other institutions or with community partners will be eligible for consideration.

Applicants must be in good academic standing.

Also, of further note: The award will be granted only to projects that produce a concrete outcome – e.g. an essay, invention, design, art exhibition, project or performance, or musical composition – and demonstrate commitment and/or achievement above and beyond the norm. Students who complete senior theses, senior design projects, or other required senior capstone projects shall not qualify automatically for consideration of this university distinction.

For the Department of Visual and Dramatic Arts, the application for Distinction in Research and Creative Work must include:

1. application form, including portfolio;
2. a written artist statement;
3. letter of support from a Visual and Dramatic Arts faculty member;
4. public exhibition, screening, publication, or performance that includes a lecture or artist talk component by applicant;
5. two-page description of how the project meets the requirements of Distinction.

The department requires exceptional evidence of success, as defined by completion of a project (body of artwork, film, theatrical design work, etc.). Support through the application process is available through the department – e.g. workshops, seminars and individual meetings with faculty mentors.

Contact the department or look online for deadline dates. No electronic submissions accepted. Please note that your project does not have to be already completed to apply for Distinction (all final materials will be due
in the Spring semester). The department selects a very limited number of students for this university academic honor.

Exhibitions, Lectures, and Arts Programs at Rice
The Department of Visual and Dramatic Arts mounts several art and photography exhibitions and stage productions each year. In addition, exhibitions and related activities organized by the Moody Center for the Arts enrich the teaching program of the Visual and Dramatic Arts department, as well as the larger university and Houston communities.

The department enjoys an ongoing close relationship with local theatres, museums, and galleries. The department offers opportunities for students to work and study with local art venues and alternative art spaces by way collaborative events and programs. The collections and exhibitions of local museums are often the subject of course lectures.

Lectures, symposia, and talks are sponsored by the department and are designed to bring local, national, and international scholars, actors, directors, critics, and studio artists to campus to speak on a broad range of topics and current interests.

Junior Professional Practices Seminar and Field Trip (ARTS 387)
ARTS 387 is required for students pursuing the Visual and Dramatic Arts major (all major concentrations). The junior year field trip is designed to help VADA majors focus on the upcoming senior year of intensive studio work, and to get to know the Visual and Dramatic Arts faculty and staff. These are trips to cultural centers nationally and internationally, including visits to museums, galleries, artist studios, theaters, and meetings with creative professionals in the fields of film and photography, studio art, and theatre.

National Theater Institute
The National Theater Institute is the educational arm of the renowned Eugene O’Neill Theater Center. The program is designed to complement a liberal arts education with three distinct study-away programs, all offering rigorous, risk-taking theater exploration. The semester long program at the O’Neill Center in Connecticut, the NTI Moscow Art Theater semester, and the seven-week Theatremakers summer program confront the serious theater student with opportunities to discover new creative possibilities.

The National Theater Institute offers an extensive conservatory-based training program for the dedicated student. Distinguished master teaching artists guide the classes in courses in acting, directing, design, playwriting, stage combat, voice, and movement. The Department of Visual and Dramatic Arts will accept academic work completed at the National Theater Institute as transfer credit to fulfill major requirements (following university transfer credit guidelines).

Rice Cinema
Rice Cinema works in concert with the Visual and Dramatic Arts department’s academic mission to enrich students’ undergraduate experience. Film and media studies students are provided state-of-the-art screening facilities to examine and study the historical and methodological aspects of movies from around the world in celluloid and 4K Digital Cinema Projection with Dolby Digital Sound. Film production students can showcase their work during the academic year on our silver screen in recently renovated projection facilities.

During the academic year, Rice Cinema screens films from around the world—foreign features, shorts, documentaries, and animation—as part of our ongoing partnership with the diverse cultural communities of the City of Houston. Film at Rice reaches beyond the university’s hedges to create, engage, and encourage scholarly thought and dialog on the many issues that impact our world. Internationally known filmmakers who have appeared on our campus over the years include Werner Herzog, Rakhshan Banietemad, Atom Egoyan, Shirin Neshat, Martin Scorsese, Andy Warhol and Dennis Hopper.

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The Rice Theatre Program curriculum offers a solid foundation in all aspects of theatrical production from acting and directing to technology and design for students who wish to pursue a professional career in theatre or continue on to a graduate program. Theatre courses also are open to non-majors who want to gain a greater appreciation for the art of theatre.

There are two main-stage productions (one fall and one spring) and the possibility of two student showcases offered each year in Hamman Hall, a 450-seat proscenium theatre facility. The department invites distinguished guest artists each semester to direct and produce the two main-stage productions. Participation in productions is open to all students.

Theatre Program faculty are actively involved in professional theatre and film locally, nationally, and internationally and actively pursue opportunities to involve advanced students in that work. In addition, advanced students are encouraged to apply for internship positions whenever possible. Rice students have been accepted in competitive internships at theatres such as The Alley Theatre, Houston Shakespeare Festival, Berkeley Repertory Theatre, and Williamstown Theatre Festival. In addition, students are encouraged to study theatre abroad and transfer course credit back to Rice. Approval for transfer credit must be sought prior to enrollment in a study-abroad program by contacting the director of the Theatre Program.

In even numbered years, the Theatre Program, sponsored by the Alan and Shirley Grob Endowment for Shakespeare in Performance, hosts the Actors From the London Stage, one of the oldest established touring Shakespeare theatre companies in the world, for a week-long residency of workshops, performances, and lectures. Each tour presents a full-length play by Shakespeare performed by five classically trained actors who come from such prestigious companies as the Royal Shakespeare Company, the Royal National Theatre of Great Britain, and Shakespeare’s Globe Theatre.

Additional Information
For additional information, please see the Visual and Dramatic Arts website: https://vada.rice.edu/

See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

The Rice Arts portal can be accessed at https://arts.rice.edu
Bachelor of Arts (BA) Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Studio Art

Program Learning Outcomes for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Studio Art

Upon completing the BA degree with a major in Visual and Dramatic Arts and a major concentration in Studio Art, students will be able to:

1. Demonstrate a knowledge and understanding of a variety of processes in a range of two and three-dimensional media as well as the ability to apply these acquired skills to other materials and ways of working. This includes students developing their own artistic vocabularies and independent visions.

2. Demonstrate an understanding of how to make work from observation and invention, developing the ability to articulate content and meaning visually through form.

3. Develop critical and analytical thinking skills including the skill to problem solve uniquely. Students gain proficiency navigating the group critique context, with exposure to different critical discussion formats. They will exit with the capability to critique their own work in addition to the work of their peers and other artists.

4. Demonstrate an understanding of the meaning and potential purpose of the arts, a knowledge of art history, art's role and varied guises in contemporary society, and art's relationship and engagement with other disciplines including literature, music, philosophy, and the sciences.

5. Develop an understanding of self in the larger context of the practice of the arts.

Requirements for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Studio Art

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Visual and Dramatic Arts and a major concentration in Studio Art must complete:

- A minimum of 12 courses (39 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 7 courses (21 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2105) tab.
- The requirements of a major concentration. When students declare the major (p. 17) in Visual and Dramatic Arts, students must additionally identify and declare one of three major concentrations, either in:
  - Film and Photography (p. 2100), or
  - Studio Art (p. 2104), or
  - Theatre (p. 2107).

It is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Students pursuing the major concentration in Studio Art are strongly encouraged to explore art-related courses offered in other departments that may enrich their selected major concentration, such as: philosophy, anthropology, science, history, cultural studies, language, writing, comparative studies, etc. Students should speak with their faculty advisor prior to enrolling.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor, or where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (https://registrar.rice.edu/facstaff/degeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

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<thead>
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<tbody>
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</tr>
<tr>
<td></td>
<td>Total Credit Hours Required for the BA Degree with a Major in Visual and Dramatic Arts</td>
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Degree Requirements

<table>
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<tr>
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<th>Title</th>
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<tr>
<td></td>
<td>Core Requirements</td>
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</tr>
<tr>
<td></td>
<td>Select 1 course from the following:</td>
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</tr>
<tr>
<td>ARTS 103</td>
<td>CREATIVE 2-D DESIGN</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 225</td>
<td>BEGINNING DRAWING</td>
<td></td>
</tr>
<tr>
<td>ARTS 165</td>
<td>BEGINNING SCULPTURE</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 301</td>
<td>BEGINNING PAINTING</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 311</td>
<td>BEGINNING PRINTMAKING</td>
<td>3</td>
</tr>
<tr>
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<td>Select 1 course from the following:</td>
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<td>ARTS 230 / FILM 275</td>
<td>COMICS AND SEQUENTIAL ART</td>
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</tr>
<tr>
<td>ARTS 323</td>
<td>DRAWING STUDIO</td>
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</tr>
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<td>ARTS 325</td>
<td>LIFE DRAWING</td>
<td></td>
</tr>
<tr>
<td>ARTS 388</td>
<td>CRITICAL STUDIES FOR STUDIO PRACTICE</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 499</td>
<td>SENIOR STUDIO (taken in both the fall and spring semesters of the senior year, fall semester)</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 499</td>
<td>SENIOR STUDIO (taken in both the fall and spring semesters of the senior year, spring semester)</td>
<td>3</td>
</tr>
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</table>

Professional Practices Seminar and Field Trip

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 387</td>
<td>JUNIOR PROFESSIONAL PRACTICES SEMINAR AND FIELD TRIP</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Requirements
Electives in Art History (HART)
Select 2 elective courses from Art History (HART) course offerings at the 100-level or above

Electives in Visual Arts, Film, Photography, Theatre
Select 1 elective course from Visual Arts (ARTS), Film (FILM), Photography (FOTO), or Theatre (THEA) course offerings at the 100-level or above

Elective in Visual Arts (ARTS)
Select 1 elective course from the following advanced studio arts elective courses at the 300-level or 400-level:

<table>
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<th>Course Name</th>
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<tbody>
<tr>
<td>ARTS 320</td>
<td>MONOTYPE I</td>
</tr>
<tr>
<td>ARTS 323</td>
<td>DRAWING STUDIO</td>
</tr>
<tr>
<td>ARTS 349</td>
<td>PRINTMAKING STUDIO</td>
</tr>
<tr>
<td>ARTS 366</td>
<td>SCULPTURE STUDIO</td>
</tr>
<tr>
<td>ARCH 367</td>
<td></td>
</tr>
<tr>
<td>ARTS 401</td>
<td>PAINTING STUDIO</td>
</tr>
</tbody>
</table>

Total Credit Hours Required for the Major in Visual and Dramatic Arts and a Major Concentration in Studio Art 39
Total Additional Credit Hours to Complete Degree Requirements 50
University Graduation Requirements (p. 29) 31
Total Credit Hours 120

Footnotes and Additional Information
* Note: University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying major requirements may additionally meet distribution requirements.

Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

1 For additional information regarding ARTS 387, see the Opportunities (p. 2105) tab.

Policies for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Studio Art

Program Restrictions and Exclusions
Students pursuing the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Studio Art should be aware of the following program restrictions:

• No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major. The 2 transfer credit courses should be studio, film, photography, or theatre practice courses required for all majors.
• Transfer students who are transferring coursework from another accredited college or university should be allowed to transfer their undergraduate art courses. However, students must speak with the department chair or program advisor immediately upon transferring to Rice.
• Transfer credit received via the articulation of advanced placement (AP) credit, international baccalaureate (IB) credit, or A-level credit will not be considered towards major requirements.
• Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Distribution Credit Information
The determination of distribution credit eligibility is done initially as part of the new course creation process. Additionally, as part of an annual roll call, coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Distribution courses from Visual and Dramatic Arts (VADA) are accessible to any student, regardless of their previous experience. These courses are designed for the development of students’ artistic skills, creativity, and engagement with art on both a personal and societal level. DI courses are generally 100-level and 200-level introductions to the study of art, theatre, film and photography.

Additional Information
For additional information, please see the Visual and Dramatic Arts website: https://vada.rice.edu/

Opportunities for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Studio Art

Academic Honors
The university recognizes academic excellence achieved over an undergraduate’s academic history at Rice. For information on university honors, please see Latin Honors (p. 51) (summa cum laude, magna cum laude, and cum laude) and Distinction in Research and Creative Work (p. 51). Some departments have department-specific Honors awards or designations.

Distinction in Research and Creative Work
Distinction in Research and Creative Work is a university award for select undergraduates, granted at commencement, which appears on the transcript and diploma. Students must apply within their department
or program to be considered for the award, and a letter from a faculty member must support the application.

Eligibility for the award extends widely to include a variety of research, design, and other creative projects, as well as persistent dedication to research. Projects completed in part or entirely at other institutions or with community partners will be eligible for consideration.

Applicants must be in good academic standing.

Also, of further note: The award will be granted only to projects that produce a concrete outcome – e.g. an essay, invention, design, art exhibition, project or performance, or musical composition – and demonstrate commitment and/or achievement above and beyond the norm. Students who complete senior theses, senior design projects, or other required senior capstone projects shall not qualify automatically for consideration for this university distinction.

For the Department of Visual and Dramatic Arts, the application for Distinction in Research and Creative Work must include:

1. application form, including portfolio;
2. a written artist statement;
3. letter of support from a Visual and Dramatic Arts faculty member;
4. public exhibition, screening, publication, or performance that includes a lecture or artist talk component by applicant;
5. two-page description of how the project meets the requirements of Distinction.

The department requires exceptional evidence of success, as defined by completion of a project (body of artwork, film, theatrical design work, etc.). Support through the application process is available through the department – e.g. workshops, seminars and individual meetings with faculty mentors.

Contact the department or look online for deadline dates. No electronic submissions accepted. Please note that your project does not have to be already completed to apply for Distinction (all final materials will be due in the Spring semester). The department selects a very limited number of students for this university academic honor.

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Additional Information
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See https://humanities.rice.edu/student-life (https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

The Rice Arts portal can be accessed at https://arts.rice.edu (https://arts.rice.edu/)

Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Theatre

Program Learning Outcomes for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Theatre

Upon completing the BA degree with a major in Visual and Dramatic Arts and a major concentration in Theatre, students will be able to:

1. Demonstrate the ability to adapt and apply their foundational skills and knowledge in theatre design, direction, performance, sound, etc. to perform professionally and effectively a range of roles in an actual, hands-on, theatrical production.
2. Demonstrate the ability to use critical thinking and analytical skills to analyze and evaluate a theatrical text, including being able to identify its structure and form, and to understand characters and specific scenes with the depth necessary for effective performance, scene study, and design.
3. Demonstrate the ability to communicate effectively both verbally and in writing in situations of performance, play analysis, and performance direction, which necessitates collaboration and communication amongst many contributing individuals.
4. Understand theatre and performance broadly, and specific theatrical works or performances, within their historical, social, cultural, and political contexts.

Requirements for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Theatre

For general university requirements, see Graduation Requirements (p. 29). Students pursuing the BA degree with a major in Visual and Dramatic Arts and a major concentration in Theatre must complete:

- A minimum of 12 courses (36 credit hours) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 7 courses (21 credit hours) taken at the 300-level or above.
- A maximum of 2 courses (6 credit hours) from study abroad or transfer credit. For additional departmental guidelines regarding transfer credit, see the Policies (p. 2108) tab.
- The requirements of a major concentration. When students declare the major (p. 17) in Visual and Dramatic Arts, students must additionally identify and declare one of three major concentrations, either in:
  - Film and Photography (p. 2100), or
  - Studio Art (p. 2104), or
  - Theatre (p. 2107).

It is possible for students to change their major concentration at any time, even after initially declaring the major. To do so, please contact the Office of the Registrar (registrar@rice.edu).

Students pursuing the major concentration in Theatre are strongly encouraged to explore theatre-related courses offered in other departments that may enrich their selected major concentration, such as: philosophy, anthropology, science, history, cultural studies, language, writing, comparative studies, etc. Students should speak with their faculty advisor prior to enrolling.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major’s academic advisor, or where applicable, the department’s Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major’s Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/).) Students and their academic advisors should identify and clearly document the courses to be taken.

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Degree Requirements

Core Requirements

Select 1 course from the following:

<table>
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<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>THEA 100</td>
<td>STAGE CRAFT</td>
<td>3</td>
</tr>
</tbody>
</table>
Students pursuing the major concentration in Theatre are encouraged to

**Suggested LPAP (Dance) Courses**

Students pursuing the major concentration in Theatre are encouraged to take Lifetime Physical Activity Program (LPAP) courses to supplement and enhance their studies in theatre. Courses include (but not limited to):

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<thead>
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<th>Title</th>
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<tr>
<td>LPAP 130</td>
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<tr>
<td>LPAP 133</td>
<td>CAPOEIRA</td>
<td>1</td>
</tr>
<tr>
<td>LPAP 148</td>
<td>DANCE CHOREOGRAPHY</td>
<td>1</td>
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</table>

**Policies for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Theatre**

**Program Restrictions and Exclusions**

Students pursuing the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Theatre should be aware of the following program restriction:

- Students pursuing the major in Visual and Dramatic Arts may pursue only one major concentration within the major.

**Transfer Credit**

For Rice University’s policy regarding transfer credit, see Transfer Credit (p. 37). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors on their website: https://oaa.rice.edu. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

**Departmental Transfer Credit Guidelines**

Students pursuing the major in Visual and Dramatic Arts should be aware of the following departmental transfer credit guidelines:

- No more than 2 courses (6 credit hours) of transfer credit from U.S. or international universities of similar standing as Rice may apply towards the major. The 2 transfer credit courses should be studio, film, photography, or theatre practice courses required for all majors.
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- Transfer credit received via the articulation of advanced placement (AP) credit, international baccalaureate (IB) credit, or A-level credit will not be considered towards major requirements.
- Requests for transfer credit will be considered by the program director and/or the program’s official transfer credit advisor on an individual case-by-case basis.

**Distribution Credit Information**

The determination of distribution credit eligibility is done initially as part of the new course creation process (https://registrar.rice.edu/facstaff/courseprocess/). Additionally, as part of an annual roll call (https://registrar.rice.edu/facstaff/distribution_credit/) coordinated each Spring by the Office of the Registrar, course distribution credit eligibility is routinely reviewed and reaffirmed by the Dean’s Offices of each of the academic schools.

Faculty and leadership in the academic schools are responsible for ensuring that the courses identified as distribution-credit-eligible meet the criteria as set in the General Announcements (p. 29). Students are
responsible for ensuring that they meet graduation requirements (p. 29) by completing coursework designated as distribution-credit-eligible at the time of course registration.

Distribution courses from Visual and Dramatic Arts (VADA) are accessible to any student, regardless of their previous experience. These courses are devised for the development of students’ artistic skills, creativity, and engagement with art on both a personal and societal level. Distribution courses are generally 100-level and 200-level introductions to the study of art, theatre, film and photography.

Additional Information

For additional information, please see the Visual and Dramatic Arts website: https://vada.rice.edu/.

Opportunities for the BA Degree with a Major in Visual and Dramatic Arts and a Major Concentration in Theatre

Academic Honors
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Eligibility for the award extends widely to include a variety of research, design, and other creative projects, as well as persistent dedication to research. Projects completed in part or entirely at other institutions or with community partners will be eligible for consideration.

Applicants must be in good academic standing.

Also, of further note: The award will be granted only to projects that produce a concrete outcome – e.g., an essay, invention, design, art exhibition, project or performance, or musical composition – and demonstrate commitment and/or achievement above and beyond the norm. Students who complete senior theses, senior design projects, or other required senior capstone projects shall not qualify automatically for consideration for this university distinction.

For the Department of Visual and Dramatic Arts, the application for Distinction in Research and Creative Work must include:

1. application form, including portfolio;
2. a written artist statement;
3. letter of support from a Visual and Dramatic Arts faculty member;
4. public exhibition, screening, publication, or performance that includes a lecture or artist talk component by applicant;
5. two-page description of how the project meets the requirements of Distinction.

The department requires exceptional evidence of success, as defined by completion of a project (body of artwork, film, theatrical design work, etc.). Support through the application process is available through the department – e.g., workshops, seminars and individual meetings with faculty mentors.

Contact the department or look online for deadline dates. No electronic submissions accepted. Please note that your project does not have to be already completed to apply for Distinction (all final materials will be due in the Spring semester). The department selects a very limited number of students for this university academic honor.

Exhibitions, Lectures, and Arts Programs at Rice
The Department of Visual and Dramatic Arts mounts several art and photography exhibitions and stage productions each year. In addition, exhibitions and related activities organized by the Moody Center for the Arts enrich the teaching program of the Visual and Dramatic Arts department, as well as the larger university and Houston communities.

The department enjoys an ongoing close relationship with local theatres, museums, and galleries. The department offers opportunities for students to work and study with local art venues and alternative art spaces by way collaborative events and programs. The collections and exhibitions of local museums are often the subject of course lectures. Lectures, symposia, and talks are sponsored by the department and are designed to bring local, national, and international scholars, actors, directors, critics, and studio artists to campus to speak on a broad range of topics and current interests.

Junior Professional Practices Seminar and Field Trip (ARTS 387)
ARTS 387 is required for students pursuing the Visual and Dramatic Arts major (all major concentrations). The junior year field trip is designed to help VADA majors focus on the upcoming senior year of intensive studio work, and to get to know the Visual and Dramatic Arts faculty and staff. These are trips to cultural centers nationally and internationally, including visits to museums, galleries, artist studios, theaters, and meetings with creative professionals in the fields of film and photography, studio art, and theatre.

National Theater Institute
The National Theater Institute is the educational arm of the renowned Eugene O’Neill Theater Center. The program is designed to complement a liberal arts education with three distinct study-away programs, all offering rigorous, risk-taking theater exploration. The semester long program at the O’Neill Center in Connecticut, the NTI Moscow Art Theater semester, and the seven-week Theatremakers summer program confront the serious theater student with opportunities to discover new creative possibilities.

The National Theater Institute offers an extensive conservatory-based training program for the dedicated student. Distinguished master teaching artists guide the classes in courses in acting, directing, design, playwriting, stage combat, voice, and movement. The Department of Visual and Dramatic Arts will accept academic work completed at the National Theater Institute as transfer credit to fulfill major requirements (following university transfer credit guidelines).

Rice Cinema
Rice Cinema works in concert with the Visual and Dramatic Arts department’s academic mission to enrich students’ undergraduate experience. Film and media studies students are provided state-of-the-art screening facilities to examine and study the historical and
methodological aspects of movies from around the world in celluloid and 4K Digital Cinema Projection with Dolby Digital Sound. Film production students can showcase their work during the academic year on our silver screen in recently renovated projection facilities.

During the academic year, Rice Cinema screens films from around the world—foreign features, shorts, documentaries, and animation—as part of our ongoing partnership with the diverse cultural communities of the City of Houston. Film at Rice reaches beyond the university's hedges to create, engage, and encourage scholarly thought and dialog on the many issues that impact our world. Internationally known filmmakers who have appeared on our campus over the years include Werner Herzog, Rakhshan Banietemad,Atom Egoyan, Shirin Neshat, Martin Scorsese, Andy Warhol and Dennis Hopper.

**Rice Theatre Program**

The Rice Theatre Program curriculum offers a solid foundation in all aspects of theatrical production from acting and directing to technology and design for students who wish to pursue a professional career in theatre or continue on to a graduate program. Theatre courses also are open to non-majors who want to gain a greater appreciation for the art of theatre.

There are two main-stage productions (one fall and one spring) and the possibility of two student showcases offered each year in Hamman Hall, a 450-seat proscenium theatre facility. The department invites distinguished guest artists each semester to direct and produce the two main-stage productions. Participation in productions is open to all students.

Theatre Program faculty are actively involved in professional theatre and film locally, nationally, and internationally and actively pursue opportunities to involve advanced students in that work. In addition, advanced students are encouraged to apply for internship positions whenever possible. Rice students have been accepted in competitive internships at theatres such as The Alley Theatre, Houston Shakespeare Festival, Berkeley Repertory Theatre, and Williamstown Theatre Festival. In addition, students are encouraged to study theatre abroad and transfer course credit back to Rice. Approval for transfer credit must be sought prior to enrollment in a study-abroad program by contacting the director of the Theatre Program.

In even numbered years, the Theatre Program, sponsored by the Alan and Shirley Grob Endowment for Shakespeare in Performance, hosts the Actors From the London Stage, one of the oldest established touring Shakespeare theatre companies in the world, for a week-long residency of workshops, performances, and lectures. Each tour presents a full-length play by Shakespeare performed by five classically trained actors of workshops, performances, and lectures. Each tour presents a full-length play by Shakespeare performed by five classically trained actors. Each tour presents a full-length play by Shakespeare performed by five classically trained actors.

**Additional Information**

For additional information, please see the Visual and Dramatic Arts website: [https://vada.rice.edu/](https://vada.rice.edu/).

See [https://humanities.rice.edu/student-life](https://humanities.rice.edu/student-life/) for tables of fellowships, prizes, and internships/practica that may be relevant to this major.

The Rice Arts portal can be accessed at [https://arts.rice.edu](https://arts.rice.edu/).
<table>
<thead>
<tr>
<th>Alphabet</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F</strong></td>
<td>Film (FILM) (p. 2514)</td>
</tr>
<tr>
<td></td>
<td>First-Yr Writing Intensive Sem (FWIS) (p. 2521)</td>
</tr>
<tr>
<td></td>
<td>French Studies (FREN) (p. 2535)</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>German (GERM) (p. 2544)</td>
</tr>
<tr>
<td></td>
<td>Global Affairs (GLBL) (p. 2553)</td>
</tr>
<tr>
<td></td>
<td>Global Health Technologies (GLHT) (p. 2558)</td>
</tr>
<tr>
<td></td>
<td>Greek (GREE) (p. 2560)</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>Health Sciences (HEAL) (p. 2562)</td>
</tr>
<tr>
<td></td>
<td>Hebrew (HEBR) (p. 2566)</td>
</tr>
<tr>
<td></td>
<td>Hindi (HIND) (p. 2567)</td>
</tr>
<tr>
<td></td>
<td>History (HIST) (p. 2569)</td>
</tr>
<tr>
<td></td>
<td>Honors Program (HONS) (p. 2597)</td>
</tr>
<tr>
<td></td>
<td>Humanities (HUMA) (p. 2598)</td>
</tr>
<tr>
<td></td>
<td>Humanities Research Center (HURC) (p. 2609)</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>Industrial Engineering (INDE) (p. 2610)</td>
</tr>
<tr>
<td></td>
<td>Italian Language and Culture (ITAL) (p. 2612)</td>
</tr>
<tr>
<td><strong>J</strong></td>
<td>Japanese (JAPA) (p. 2613)</td>
</tr>
<tr>
<td></td>
<td>Jewish Studies (JWST) (p. 2615)</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>Keck Center (KECK) (p. 2616)</td>
</tr>
<tr>
<td></td>
<td>Kinesiology (KINE) (p. 2617)</td>
</tr>
<tr>
<td></td>
<td>Korean (KORE) (p. 2620)</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>Latin (LATI) (p. 2622)</td>
</tr>
<tr>
<td></td>
<td>Latin American Studies (LASR) (p. 2626)</td>
</tr>
<tr>
<td></td>
<td>Liberal Studies Core/Capstone (MLSC) (p. 2628)</td>
</tr>
<tr>
<td></td>
<td>Lifetime Phys Activity Credit (LPCR) (p. 2643)</td>
</tr>
<tr>
<td></td>
<td>Lifetime Phys Activity Program (LPAP) (p. 2643)</td>
</tr>
<tr>
<td></td>
<td>Linguistics (LING) (p. 2652)</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>Management (MGMT) (p. 2657)</td>
</tr>
<tr>
<td></td>
<td>Managerial Economics and Organizational Sciences (MEOS) (p. 2699)</td>
</tr>
<tr>
<td></td>
<td>Managerial Studies (MANA) (p. 2700)</td>
</tr>
<tr>
<td></td>
<td>Master Accounting (MACC) (p. 2700)</td>
</tr>
<tr>
<td></td>
<td>Materials Science &amp; NanoEng (MSNE) (p. 2704)</td>
</tr>
<tr>
<td></td>
<td>Mathematics (MATH) (p. 2714)</td>
</tr>
<tr>
<td></td>
<td>MBA for Professionals-Evening (MGMP) (p. 2728)</td>
</tr>
<tr>
<td></td>
<td>MBA for Professionals-Weekend (MGMW) (p. 2734)</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering (MECH) (p. 2738)</td>
</tr>
<tr>
<td></td>
<td>Medieval/Early Modern Studies (MDEM) (p. 2756)</td>
</tr>
<tr>
<td></td>
<td>Mgmt Integrated Crse Offering (MICO) (p. 2764)</td>
</tr>
<tr>
<td></td>
<td>Military Science (MILI) (p. 2765)</td>
</tr>
<tr>
<td></td>
<td>Museums and Cultural Heritage (MUCH) (p. 2768)</td>
</tr>
<tr>
<td></td>
<td>Music (MUSI) (p. 2769)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>Natural Sciences (NSCI) (p. 2799)</td>
</tr>
<tr>
<td></td>
<td>Naval Science (NAVA) (p. 2803)</td>
</tr>
<tr>
<td></td>
<td>Neuroscience (NEUR) (p. 2804)</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td>Philosophy (PHIL) (p. 2815)</td>
</tr>
<tr>
<td></td>
<td>Photography (FOTO) (p. 2826)</td>
</tr>
<tr>
<td></td>
<td>Physics (PHYS) (p. 2829)</td>
</tr>
<tr>
<td></td>
<td>Political Science (POLI) (p. 2839)</td>
</tr>
<tr>
<td></td>
<td>Politics, Law, Social Thought (PLST) (p. 2859)</td>
</tr>
<tr>
<td></td>
<td>Portuguese (PORT) (p. 2860)</td>
</tr>
<tr>
<td></td>
<td>Psychology (PSYC) (p. 2862)</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>Religion (RELI) (p. 2885)</td>
</tr>
<tr>
<td></td>
<td>Rice Center for Engineering Leadership (RCEL) (p. 2881)</td>
</tr>
<tr>
<td></td>
<td>Russian (RUSS) (p. 2915)</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td>Social Policy Evaluation (SOPE) (p. 2917)</td>
</tr>
<tr>
<td></td>
<td>Social Sciences (SOSC) (p. 2919)</td>
</tr>
<tr>
<td></td>
<td>Sociology (SOCI) (p. 2921)</td>
</tr>
<tr>
<td></td>
<td>Spanish &amp; Portuguese (SPPO) (p. 2941)</td>
</tr>
<tr>
<td></td>
<td>Spanish (SPAN) (p. 2949)</td>
</tr>
<tr>
<td></td>
<td>Sport Management (SMGT) (p. 2951)</td>
</tr>
<tr>
<td></td>
<td>Statistics (STAT) (p. 2957)</td>
</tr>
<tr>
<td></td>
<td>Systems/Synthetic/Phys Biology (SSPB) (p. 2971)</td>
</tr>
<tr>
<td><strong>T</strong></td>
<td>Theatre (THEA) (p. 2972)</td>
</tr>
<tr>
<td></td>
<td>Tibetan (TIBT) (p. 2978)</td>
</tr>
<tr>
<td><strong>U</strong></td>
<td>University Courses (UNIV) (p. 2979)</td>
</tr>
<tr>
<td><strong>V</strong></td>
<td>Visual Arts (ARTS) (p. 2985)</td>
</tr>
<tr>
<td><strong>W</strong></td>
<td>Women, Gender, &amp; Sexuality (SWGS) (p. 2993)</td>
</tr>
</tbody>
</table>
African and African American Studies (AAAS)

AAAS 200 - KNOWING BLACKNESS: INTRODUCTION TO AFRICAN AND AFRICAN AMERICAN STUDIES
Short Title: INTRO TO AAAS
Department: African & African Amer Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of the origins and development of African and African American Studies. Through a focus on the articulation and resolution of field-changing debates, the course introduces students to methodologies and practices that have led to and that continue to lead to knowing Africa and African-descendant people with earnest regard for the complexity and subtlety that the subjects require.

AAAS 300 - CONTEMPORARY BLACK FICTION
Short Title: WRITING BLACK LIVES
Department: African & African Amer Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, students will be reading, reflecting, and dissecting short stories, novels, television scripts, and other works of fiction crafted by artists across the Black diaspora. Students will thoroughly discuss process and intent, with an extensive focus on craft.
Course URL: humanities.rice.edu/center-for-african-and-african-american-studies (http://humanities.rice.edu/center-for-african-and-african-american-studies/)

AAAS 510 - INTRODUCTION TO AFRICAN AND AFRICAN AMERICAN STUDIES
Short Title: INTRO TO DIASPORIC STUDIES
Department: African & African Amer Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the core course for the Certificate in African and African American Studies. It will provide an introduction to cross- and multi-disciplinary approaches to the histories, cultures and experiences of African and African Diasporic people, while also introducing students to the work of Rice faculty working in the field.

AAAS 600 - AFRICAN AND AFRICAN AMERICAN STUDIES COLLOQUIUM
Short Title: AF & AFAM STUDIES COLLOQUIUM
Department: African & African Amer Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Through readings and discussions the colloquium highlights key issues related to African and African American studies for graduate students preparing to conduct research in the field.

Air Force Science (AFSC)

AFSC 101 - FOUNDATION OF THE USAF I
Short Title: FOUNDATION OF THE USAF I
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Overall roles and missions of the USAF; career fields available. Emphasis on military customs and courtesies, appearance standards, core values, written and personal communications. Introduction to American military history. Course taught on the University of Houston campus in Garrison Gymnasium, Room 116. This course includes a lab taught on Wednesday from 2:30pm-4:30pm.

AFSC 102 - FOUNDATION OF THE USAF II
Short Title: FOUNDATION OF THE USAF II
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of AFSC 101. Course taught at the University of Houston.

AFSC 201 - EVOLUTION OF AIR POWER I
Short Title: EVOLUTION OF AIR POWER I
Department: Air Force Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Key historical events and milestones in the development of air power as a primary instrument of United States national security. Core values and competencies of leaders in the United States Air Force. Tenets of leadership and ethics. Course taught on the University of Houston campus in Garrison Gymnasium in Room 116. This course also includes a lab taught on Wednesday from 2:30pm-4:30pm.
AFSC 202 - EVOLUTION OF AIR POWER II  
Short Title: EVOLUTION OF AIR POWER II  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Continuation of AFSC 201. Course taught at the University of Houston.

AFSC 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

AFSC 301 - AIR FORCE LEADERSHIP STUDY I  
Short Title: AIR FORCE LEADERSHIP STUDY I  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Leadership, management fundamentals, professional knowledge, Air Force personnel and evaluation systems, and leadership ethics. Case studies of Air Force leadership and management situations. Course taught on the University of Houston campus in Garrison Gymnasium, Room 116. This course includes a lab, taught on Wednesday from 2:30pm-4:30pm.

AFSC 302 - AIR FORCE LEADERSHIP STUDY II  
Short Title: AIR FORCE LEADERSHIP STUDY II  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Continuation of AFSC 301.

AFSC 301 - NATIONAL SECURITY AFFAIRS I  
Short Title: NATIONAL SECURITY AFFAIRS I  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Evolution of the role of national security in a democratic society with emphasis on policy formation, competing values, and organization. Civilian control of the military, roles of the services; functions of the Air Force Commands. Course taught on the University of Houston campus in Garrison Gymnasium, Room 116. This course includes a lab, taught on Wednesday from 2:30pm-4:30pm.

AFSC 402 - NATIONAL SECURITY AFFAIRS II  
Short Title: NATIONAL SECURITY AFFAIRS II  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Continuation of AFSC 401. Course taught at the University of Houston.

AFSC 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Air Force Science  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Americas Research Center (ARCR)

ARCR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Americas Research Center
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARCR 451 - CONTEMPORARY SOCIAL MOVEMENTS
Short Title: CONTEMPORARY SOCIAL MOVEMENTS
Department: Americas Research Center
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: 2011 saw an eruption of worldwide protest. These protests created new forms of mass democracy and popular resistance. This course seeks to engage this contemporary wave of global resistance from a multiplicity of vantage points. Graduate students who enroll are each expected to teach at least one class period. Graduate/Undergraduate Equivalency: ARCR 451. Mutually Exclusive: Cannot register for ARCR 451 if student has credit for ARCR 551. Repeatable for Credit.

ARCR 478 - THE CARIBBEAN IN FRENCH
Short Title: THE CARIBBEAN IN FRENCH
Department: Americas Research Center
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the undergraduate senior version of the graduate level seminar FREN/ARCR 578. Both the course's reading list and the length of the research are adjusted to accommodate undergraduate needs. The seminar examines the history, political writings, literature and the arts of the French Caribbean from the beginning of colonization to the present. It will include figures such as Saint-John Perse, Roumain, Césaire, Fanon, Depestre, Schwarz-Bart, Warner-Vieyra, Glissant, Condé, Chamoiseau, Laferrière, as well as the Caribbean arts and film. Taught in English. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: FREN 478. Mutually Exclusive: Cannot register for ARCR 478 if student has credit for ARCR 578.

ARCR 515 - MAPPING LATINO ART
Short Title: MAPPING LATINO ART
Department: Americas Research Center
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the history of Latino art in the United States since 1945 with emphasis on the artistic cultures of Chicanos, Cuban-Americans and Puerto Ricans. We will also study the problematics of representation via gender, sexuality, race and other identities. Readings include exhibition catalogues, art history, and cultural history.

ARCR 578 - THE CARIBBEAN IN FRENCH
Short Title: THE CARIBBEAN IN FRENCH
Department: Americas Research Center
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the history of the French Caribbean from the beginning of colonization to the present. It will include figures such as Saint-John Perse, Roumain, Césaire, Fanon, Depestre, Schwarz-Bart, Warner-Vieyra, Glissant, Condé, Chamoiseau, Laferrière, as well as the Caribbean arts and film. Taught in English. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: FREN 478. Mutually Exclusive: Cannot register for ARCR 478 if student has credit for ARCR 578. Repeatable for Credit.

ARCR 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Americas Research Center
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
**Ancient Mediterranean Civil (AMCI)**

**AMCI 238 - SPECIAL TOPICS**
Short Title: SPECIAL TOPICS  
Department: Ancient Mediterranean Civil  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**AMCI 400 - DIRECTED HONORS RESEARCH**
Short Title: AMC HONORS THESIS  
Department: Ancient Mediterranean Civil  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: In this two semester course an AMC student will write an honors thesis under the direction of an AMC faculty member. Instructor Permission Required. Repeatable for Credit.

**AMCI 477 - SPECIAL TOPICS**
Short Title: SPECIAL TOPICS  
Department: Ancient Mediterranean Civil  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**Anthropology (ANTH)**

**ANTH 201 - INTRODUCTION TO SOCIAL/CULTURAL ANTHROPOLOGY**
Short Title: INTRO TO SOCIAL/CULTURAL ANTH  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Introduction to the history, methods, and concepts of social/ cultural anthropology, which is devoted to the systematic description and understanding of cultural diversity in human societies.

**ANTH 203 - INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY**
Short Title: INTRO BIOLOGICAL ANTHROPOLOGY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course offers a broad introduction to the human past as revealed by evolutionary studies of both biochemical and fossil evidence, and by archaeological studies of human cultural behavior.

**ANTH 205 - INTRODUCTION TO ARCHAEOLOGY**
Short Title: INTRO TO ARCHAEOLOGY  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: An introduction to the elementary concepts of the discipline through a series of case studies.

**ANTH 212 - PERSPECTIVES ON MODERN ASIA**
Short Title: PERSPECTIVES ON MODERN ASIA  
Department: Anthropology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: A team taught interdisciplinary course focusing on the political, social and economic forces that are shaping the lives of the nearly one-half of the world’s population that lives in Asia. Provides a selective, in-depth look at certain important areas of East, Southeast and South Asia that reflect larger themes and problems. Cross-list: ASIA 212.
ANTH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

ANTH 290 - HISTORY AND ETHNOGRAPHY
Short Title: HISTORY & ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course focuses intensively on the history and ethnography of a single people, the selection of which changes from year to year. Using all available materials, this course provides an introduction to the approaches of the discipline and how they have changed, registered by the different ways anthropologists and others have represented the same subjects over time.

ANTH 299 - EXPERIENTIAL EDUCATION IN ANTHROPOLOGY
Short Title: EXPERIENTIAL EDUCATION IN ANTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Anthropology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides one hour of university credit for faculty-directed and approved internship. Students must obtain approval from a member of the department’s undergraduate committee and must submit a letter from the internship provider indicating completion and satisfactory performance. Department Permission Required. Repeatable for Credit.

ANTH 302 - ANTHROPOLOGICAL THEORY: A SURVEY
Short Title: ANTHROPOLOGICAL THEORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the major theorists and theoretical schools of social-cultural anthropology. Strongly recommended for majors.

ANTH 303 - INTRODUCTION TO ARCHAEOLOGICAL SCIENCE
Short Title: INTRO ARCHAEOLOGY SCIENCE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on methods of scientific analysis applied to archaeological materials, including bone, stone, pottery, glass, and metal. Methods include absolute dating, mineral petrography, experimental archaeology, elemental and isotopic analysis, and ancient DNA. Labs offer hands-on experience with various archaeological materials and analytical methods. Recommended Prerequisite(s): ANTH 205

ANTH 308 - THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION
Short Title: THE HISTORICAL IMAGINATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Cross-list: SWGS 336. Graduate/Undergraduate Equivalency: ANTH 508. Mutually Exclusive: Cannot register for ANTH 308 if student has credit for ANTH 508.

ANTH 309 - GLOBAL CULTURES
Short Title: GLOBAL CULTURES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine specific cultural debates and issues that have "overflowed" national boundaries. Topics will include student movements, democracy and citizenship, and the internationalization of professional and popular culture. Graduate/Undergraduate Equivalency: ANTH 509. Mutually Exclusive: Cannot register for ANTH 309 if student has credit for ANTH 509.
ANTH 310 - CONTEMPORARY CHINESE CULTURE
Short Title: CONTEMPORARY CHINESE CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This introductory course is designed to encourage ways of thinking about: Cultural China—a broad-ranging concept that includes the People's Republic of China, the newly established Special Administrative Region (SAR) of Hong Kong, the Republic of China on Taiwan, and overseas Chinese communities throughout the world.

ANTH 311 - MASCULINITIES
Short Title: MASCULINITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home, and war. Cross-list: SWGS 333. Graduate/Undergraduate Equivalency: ANTH 511. Mutually Exclusive: Cannot register for ANTH 311 if student has credit for ANTH 511.

ANTH 312 - THE ARCHAEOLOGY OF AFRICA
Short Title: THE ARCHAEOLOGY OF AFRICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Cross-list: MDEM 311. Graduate/Undergraduate Equivalency: ANTH 512. Mutually Exclusive: Cannot register for ANTH 312 if student has credit for ANTH 512.

ANTH 314 - SHIPS IN THE ANTHROPOLOGICAL IMAGINATION
Short Title: SHIPS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course interrogates what we can learn about social, political and economic life by examining ships. Ships have long inspired social theory and anthropological thinking. Seen from the shore, ships not only carried commodities, but also signified conquest, disease, and imperial power. They were characterized as instruments of economic development for some and as tools of oppression for others. As shipping and logistics have emerged as defining features of contemporary global exchange, ships have acquired new forms and functions. In addition to analyzing shipyards, ports, and ship-breaking facilities, this course will look at a wide-range of vessels, such as slave ships, spaceships, containerships, pirate ships, and rescue vessels and refugee ships in different parts of the world. Graduate/Undergraduate Equivalency: ANTH 514.

ANTH 315 - ZOOARCHAEOLOGY
Short Title: ZOOARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the study of ancient animal remains. Through laboratory exercises, students learn to identify bones and teeth of diverse animals and to distinguish natural and anthropogenic processes affecting fossil and archaeological bones. Key topics in human-animal relations are addressed, including paleoecology, the food quest, animal domestication, and the roles of animals in ancient culinary, ritual, and other social settings; as well as covering relevance of the past to present-day issues such as conservation biology. Graduate/Undergraduate Equivalency: ANTH 515. Recommended Prerequisite(s): ANTH 205.
ANTH 316 - BLACK DECOLONIAL FEMINISMS IN THE AMERICAS
Short Title: BLACK DECOLONIAL FEMINISMS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will use both historical and contemporary readings focusing on Black and decolonial/anticolonial feminisms as theory and praxis to reflect on the particular experiences of Afro-descendants throughout the Americas. Through a close reading of scholarly and popular texts focusing on the experiences of Black women throughout the Americas (with particular emphasis on Latin America and the Caribbean) we will engage with themes including transnationalism and migration, language, belonging, gender and sexuality, land rights, social inequality and practices of resistance. We will also analyze how art (music, visual and performance art) and activism represent important sites of resistance to contemporary struggles faced by Black communities. Graduate/Undergraduate Equivalency: ANTH 516.

ANTH 317 - REVOLUTIONS AND UTOPIAS
Short Title: REVOLUTIONS AND UTOPIAS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In order to gain a more precise grasp of our contemporary political challenges and possibilities, this course in political anthropology investigates a wide range of historical and contemporary cases of rapid political and social transformation and carefully examines the ideas, desires and utopias that inspired them. Graduate/Undergraduate Equivalency: ANTH 517. Mutually Exclusive: Cannot register for ANTH 317 if student has credit for ANTH 517.

ANTH 319 - SYMBOLISM AND POWER
Short Title: SYMBOLISM AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course considers anthropological theories of the state and examines ethnographic accounts of states in some unexpected places - that is, outside the official realm of government bureaucracies and institutionalized politics. Topics include so-called "stateless societies," planning and bureaucratic rationality, violence and power, and ethnographic methods for studying the state. Graduate/Undergraduate Equivalency: ANTH 519. Mutually Exclusive: Cannot register for ANTH 319 if student has credit for ANTH 519.

ANTH 320 - CLIMATE CHANGE AND SOCIAL INEQUALITY
Short Title: CLIMATE CHANGE SOC. INEQUALITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course uses a social scientific approach to analyze and understand the relationship between climate change and social inequality. Through course readings, discussion and guest speakers, students will examine how the social, political, economic and ecological impacts of climate change exacerbate existing social inequalities and disproportionately affect vulnerable communities. The course will also explore the concept of climate justice as a political and ethical framework for addressing climate change impacts and inequality.

ANTH 321 - SOCIAL LIFE OF DNA
Short Title: SOCIAL LIFE OF DNA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This upper level seminar examines the increasing significance of genetics as a central component of our social, economic, and political life. As the potential applications of DNA to our social life increasingly appear endless, this course asks how is genetic information reshaping our understanding of the value of life itself? In addition to identifying markers, scientific knowledge production around genetic information is reconstituting key ideas of risk, care, capital that impact our ideas of disability, race, kinship, citizenship, nationalism, and justice. In this class, our aim is to ask a) what is historically and materially distinct about genetic information as a metaphor for social processes, b) how is the value of life itself being reproduced and transformed for whom, and c) what are potential consequences we face by relating to one another through the geneticization of social life? Mutually Exclusive: Cannot register for ANTH 321 if student has credit for ANTH 521.

ANTH 322 - GLOBAL IM/MOBILITIES: BORDERS, MIGRATION, AND CITIZENSHIP
Short Title: GLOBAL IM/MOBILITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This upper level seminar examines the increasing significance of genetics as a central component of our social, economic, and political life. As the potential applications of DNA to our social life increasingly appear endless, this course asks how is genetic information reshaping our understanding of the value of life itself? In addition to identifying markers, scientific knowledge production around genetic information is reconstituting key ideas of risk, care, capital that impact our ideas of disability, race, kinship, citizenship, nationalism, and justice. In this class, our aim is to ask a) what is historically and materially distinct about genetic information as a metaphor for social processes, b) how is the value of life itself being reproduced and transformed for whom, and c) what are potential consequences we face by relating to one another through the geneticization of social life? Mutually Exclusive: Cannot register for ANTH 321 if student has credit for ANTH 521.
ANTH 324 - DOCUMENTARY PRODUCTION
Short Title: DOCUMENTARY PRODUCTION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the expressive possibilities of documentary production using digital systems. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ARTS 327, FILM 327.

ANTH 325 - SEX, SELF, AND SOCIETY IN ANCIENT GREECE
Short Title: SOCIETY IN ANCIENT GREECE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introductory venture into conducting fieldwork in the past. The course treats a wide range of artifacts, from philosophical essays to vase paintings. It derives its focus from a rich corpus of recent research into the ancient problemization of desire and self-control. Cross-list: SWGS 332. Mutually Exclusive: Cannot register for ANTH 325 if student has credit for ANTH 525.

ANTH 326 - LAW, POWER AND CULTURE
Short Title: LAW, POWER AND CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of normativity and its different social forms across the world. It combines theoretical and ethnographic analyses of legal institutions and practices as cultural phenomena undergirded by power relations, knowledge forms and historical forces. Graduate/Undergraduate Equivalency: ANTH 526. Mutually Exclusive: Cannot register for ANTH 326 if student has credit for ANTH 526.

ANTH 329 - BODIES, SENSUALITIES, AND ART
Short Title: BODIES, SENSUALITIES, & ART
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cross-cultural approaches to art and the senses. Students may engage any medium. Emphasis to be placed on issues generated from performance in the arts rather than from academia. Contrasts art and academic knowledge to explore alternative epistemologies and aesthetics. Graduate/Undergraduate Equivalency: ANTH 529. Mutually Exclusive: Cannot register for ANTH 329 if student has credit for ANTH 529.

ANTH 330 - GEOARCHAEOLOGY
Short Title: GEOARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Anthropology or Earth Science. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the basics of the analysis of soils and sediments as related to archaeological deposits, and introducing the key concepts of surficial geology, site formation, landscape evolution, and the scope of depositional environments. Includes practical methods for describing stratigraphy, sediments and soil profiles in the field.

ANTH 331 - ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST
Short Title: ANCIENT NEAR EAST
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An in-depth examination of the art and archaeology of ancient Mesopotamia, Syria, Anatolia and Persia. Beginning in The Neolithic period, we will examine the development of Near Eastern art and architecture through the study of ancient sites and their associated material culture. Cross-list: HART 311.
ANTH 332 - THE SOCIAL LIFE OF CLEAN ENERGY
Short Title: SOCIAL LIFE OF CLEAN ENERGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course considers the phenomenon of renewable energy, using a social scientific approach to analyze the various forces and interests involved in the development of renewable energy projects (such as hydropower, solar and wind) in both the global North and South. No prerequisites required. Cross-list: ENST 332. Graduate/Undergraduate Equivalency: ANTH 532. Mutually Exclusive: Cannot register for ANTH 332 if student has credit for ANTH 532.

ANTH 333 - THE MATERIAL WORLD
Short Title: THE MATERIAL WORLD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the mutually constructive relationship between humans and objects; it asks how objects are made meaningful and active by humans, and how, in turn, people acquire meaning, relations, and agency through material culture. Topics include: commoditization, consumption, gift exchange, subjects and objects, identity, fashion, collecting, art, and authenticity. Graduate/Undergraduate Equivalency: ANTH 533. Mutually Exclusive: Cannot register for ANTH 333 if student has credit for ANTH 533.

ANTH 335 - ANTHROPOLOGY AS CULTURAL CRITIQUE
Short Title: ANTHROPOLOGY/CULTURAL CRITIQUE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces such classic anthropological concepts as the rite of passage and the cultural system as frames for the investigation of the professionalization of medicine as a discipline, medical training and the changing epistemologies of medical knowledge and the changing scope and content of the medical cosmos. Graduate/Undergraduate Equivalency: ANTH 536. Mutually Exclusive: Cannot register for ANTH 336 if student has credit for ANTH 536.

ANTH 336 - BECOMING A DOCTOR
Short Title: BECOMING A DOCTOR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces such classic anthropological concepts as the rite of passage and the cultural system as frames for the investigation of the professionalization of medicine as a discipline, medical training and the changing epistemologies of medical knowledge and the changing scope and content of the medical cosmos. Graduate/Undergraduate Equivalency: ANTH 536. Mutually Exclusive: Cannot register for ANTH 336 if student has credit for ANTH 536.

ANTH 337 - JAPANESE POPULAR CULTURE
Short Title: JAPANESE POPULAR CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Japan and the U.S. are connected by a mutual fascination with each other's mass culture, with each country frequently employing the other as inspiration or cautionary tale. We will examine selections from anthropological work, juxtaposing it with theoretical readings on the nature of publics, crowds, and image circulation in general.

ANTH 338 - READING POPULAR CULTURE
Short Title: READING POPULAR CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The critical assessment and interpretation of Euroamerican social institutions and cultural forms have always been an integral part of anthropology's intellectual project. This course will explain the techniques, history, and achievements of such critique. It will also view the purpose in the context of a more generational tradition of critical social thought in the West, especially the U.S. Graduate/Undergraduate Equivalency: ANTH 538. Mutually Exclusive: Cannot register for ANTH 338 if student has credit for ANTH 538.
ANTH 339 - IMAGE, MEDIA, ANTHROPOLOGY
Short Title: IMAGE, MEDIA, ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The intersection of anthropology and aesthetics is making a significant contribution to the discipline. From the modern to the post-modern to the contemporary work of visual anthropology we will examine what it means to take up a philosophy of aesthetics, and consider how we can integrate this genealogy of thought into contemporary anthropological projects.

ANTH 340 - NEOLIBERALISM AND GLOBALIZATION
Short Title: NEOLIBERALISM & GLOBALIZATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the relationship between two of the most powerful forces shaping the world today: economic globalization and political neoliberalism. Using ethnographic, policy and theoretical documentation drawn from a variety of case studies, we will reconstruct the interrelated origins of globalization and neoliberalism and map their social and cultural impacts across the world. Graduate/Undergraduate Equivalency: ANTH 540. Mutually Exclusive: Cannot register for ANTH 340 if student has credit for ANTH 540.

ANTH 341 - MUSEUMS AND HERITAGE: EXHIBITING ART, EXHIBITING CULTURE
Short Title: MUSEUMS AND HERITAGE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A wide-ranging introduction to museum studies with a particular focus on the collection and exhibition of cultural heritage materials. We will examine how heritage objects are displayed and represented in museums of art, natural historical history, and heritage. Topics include looking and ethics of collecting, policies of display, changing roles for museums; exhibition design and curatorial practice. Cross-list: HURC 341. Graduate/Undergraduate Equivalency: ANTH 541. Mutually Exclusive: Cannot register for ANTH 341 if student has credit for ANTH 541.

ANTH 342 - ETHNOGRAPHIES OF CARE
Short Title: ETHNOGRAPHIES OF CARE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course treats both the theorization and the ethnographic exploration of the urban imaginary; urban spaces and practices; urban, suburban, and post-urban planning; city-states, colonial cities, and capital cities; and the late 20th century metropolis. Graduate/Undergraduate Equivalency: ANTH 542. Mutually Exclusive: Cannot register for ANTH 342 if student has credit for ANTH 542.

ANTH 343 - NEW RELIGIOUS MOVEMENTS IN AFRICA
Short Title: NEW RELIG MOVEMENTS IN AFRICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussed new religious movements and the religious, sociological, and political factors leading to their rise, also missionary and colonial reactions to them. Examines their relationship to indigenous religions, political praxis, and their focus on this-worldly salvation in the wake of political and economic marginality. Cross-list: RELI 342.

ANTH 344 - CITY/CULTURE
Short Title: CITY/CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course treats both the theorization and the ethnographic exploration of the urban imaginary; urban spaces and practices; urban, suburban, and post-urban planning; city-states, colonial cities, and capital cities; and the late 20th century metropolis. Graduate/Undergraduate Equivalency: ANTH 544. Mutually Exclusive: Cannot register for ANTH 344 if student has credit for ANTH 544.
ANTH 345 - THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT  
**Short Title:** ARCHAEOLOGY IN SOCIAL CONTEXT  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An examination of the way that archaeological evidence of the past has been used and viewed by particular groups at different times. Using case studies, the course considers issues of gender, race, Eurocentrism, political domination and legitimacy that emerge from critical analysis of representations of the past by archaeologists, museums, and collectors. Graduate/Undergraduate Equivalency: ANTH 545. Mutually Exclusive: Cannot register for ANTH 345 if student has credit for ANTH 545.

ANTH 346 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES  
**Short Title:** VIRTL RECONSTR HISTORCL CITIES  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ARCH 310, COMP 316, HART 316.

ANTH 347 - THE U.S. AS A FOREIGN COUNTRY  
**Short Title:** THE U.S. AS A FOREIGN COUNTRY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The course looks at selected aspects of American culture and society from an anthropological point of view. Readings derive from the works of both foreign and native observers, past and present. Graduate/Undergraduate Equivalency: ANTH 547. Mutually Exclusive: Cannot register for ANTH 347 if student has credit for ANTH 547.

ANTH 348 - ANTHROPOLOGIES OF NATURE  
**Short Title:** ANTHROPOLOGIES OF NATURE  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This class examines the uses and makings of nature in accounts of the human and post-human. It introduces students to nature as an object of study, as an analytic and as a heuristic. Some of the topics the course explores include the nature-culture dyad, nature as resource, science and technology and the remaking of nature, economies of nature, materiality, nature and kinship, and natural ontologies. Graduate/Undergraduate Equivalency: ANTH 548. Mutually Exclusive: Cannot register for ANTH 348 if student has credit for ANTH 548.

ANTH 349 - THE ANTHROPOLOGY OF ETHICS  
**Short Title:** THE ANTHROPOLOGY OF ETHICS  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Philosophical ethics argues over the proper criteria of the definition and the assessment of ethical action. This course focuses on an emerging and increasingly salient anthropological project: empirical inquiry into the themes and variations of ethical systems and the sociocultural rationale for their existence and reproduction. Graduate/Undergraduate Equivalency: ANTH 549. Mutually Exclusive: Cannot register for ANTH 349 if student has credit for ANTH 549.

ANTH 351 - CULTURES OF NATIONALISM  
**Short Title:** CULTURES OF NATIONALISM  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will examine the cultural dimensions of nationalism, particularly around the creation of forms of "peoplehood" that seem to be presupposed by almost all nation-building projects. Texts to be analyzed will include the Declaration of Independence, the United States Constitution, and the Declaration of the Rights of Man. Graduate/Undergraduate Equivalency: ANTH 551. Mutually Exclusive: Cannot register for ANTH 351 if student has credit for ANTH 551.
ANTH 353 - CULTURES OF INDIA
Short Title: CULTURES OF INDIA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Summary of the prehistory, ethnography, and ethnology of the Indian subcontinent. Special emphasis on Hinduism, Buddhism, and Indian philosophy. Graduate/Undergraduate Equivalency: ANTH 553. Mutually Exclusive: Cannot register for ANTH 353 if student has credit for ANTH 553.

ANTH 354 - ILLNESS, DISABILITY, AND THE GENDERED BODY
Short Title: DISABILITY AND GENDERED BODIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or reframe normative arrangements of gender. Cross-list: SWGS 353. Graduate/Undergraduate Equivalency: ANTH 554. Mutually Exclusive: Cannot register for ANTH 354 if student has credit for ANTH 554.

ANTH 355 - SPACE, PLACE, AND LANDSCAPE
Short Title: SPACE, PLACE, LANDSCAPE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of the way archaeologists study space, place and landscape, including studies that emphasize ecological, symbolic, political economic and religious aspects. Recent theoretical work on space, place and landscape will be emphasized, as well as archaeological methods of investigation and interpretation, including remote sensing, surveying, and GIS. Graduate/Undergraduate Equivalency: ANTH 555. Mutually Exclusive: Cannot register for ANTH 355 if student has credit for ANTH 555.

ANTH 358 - THE FOURTH WORLD: ISSUES OF INDIGENOUS PEOPLE
Short Title: FOURTH WORLD:INDIGENOUS PEOPLE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In contrast with people self-identified within political structures of the First, Second and Third Worlds, Fourth World peoples are, generally speaking, "stateless peoples." In this course we will examine both how this "unofficial" status affects their struggle for self-determination and how native peoples engage traditional beliefs and practices for self-empowerment. Through readings, films and speakers we will examine current conflicts facing indigenous people in North and South America, the Soviet Union, Europe, Asia, and Australia. Graduate/Undergraduate Equivalency: ANTH 558. Mutually Exclusive: Cannot register for ANTH 358 if student has credit for ANTH 558.

ANTH 359 - ASIAN TOPICS
Short Title: ASIAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This introductory course covers various topics relating to the ethnography and anthropology of Asian cultures. These may include some or all of the following: popular culture and cultural production, religion, cultural aspects of development and globalization.

ANTH 360 - TOPICS IN AFRICAN CULTURE AND ETHNOGRAPHY
Short Title: AFRICAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This introductory course covers various topics relating to the ethnography and anthropology of African cultures. These may include some or all of the following: popular culture and cultural production, cultural aspects of development and globalization.
ANTH 361 - LATIN AMERICAN TOPICS
Short Title: LATIN AMERICAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines contemporary cultural and political dynamics in Latin America. Topics include: race, ethnicity and indigenousness; borders, migrations and diaspora; genocide and state violence; neo-colonialisms and neo-liberalisms; sexuality, gender and class dynamics; social movements and activism; the politics and practices of medicine and religion; popular culture, media and technology. Graduate/Undergraduate Equivalency: ANTH 561. Mutually Exclusive: Cannot register for ANTH 361 if student has credit for ANTH 561.

ANTH 362 - ARCHAEOLOGICAL FIELD TECHNIQUES
Short Title: ARCHAEOLOGICAL FLD TECHNIQUES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 205
Description: Methods used in fieldwork, laboratory analysis, and interpretation of archaeological data from a local site excavated by the class. Graduate/Undergraduate Equivalency: ANTH 562. Repeatable for Credit.

ANTH 363 - THE ARCHAEOLOGY OF CITIES AND STATES
Short Title: ARCHAEOLOGY CITIES AND STATE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A comparative study of the archaic cities and states of Mesopotamia, Egypt, the Indus, China, and South America, emphasizing the causes and conditions of their origins. Graduate/Undergraduate Equivalency: ANTH 563. Mutually Exclusive: Cannot register for ANTH 363 if student has credit for ANTH 563.

ANTH 364 - AFRICAN ARCHAEOLOGY FIELD TECHNIQUES
Short Title: AFRICAN ARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, basic field archaeology techniques are taught on-site in an archaeological context in Africa with emphasis on excavation methods, artifact recovery, and recording techniques. Students will excavate stone structures and a variety of historical deposits. Fieldwork takes place in Africa, June-July. Graduate/Undergraduate Equivalency: ANTH 564. Mutually Exclusive: Cannot register for ANTH 364 if student has credit for ANTH 564. Repeatable for Credit.
Course URL: www.songomnara.rice.edu/fieldschool.htm (http://www.songomnara.rice.edu/fieldschool.htm)

ANTH 365 - POLITICS OF REPRESENTATION: HOW WE UNDERSTAND "WAR" AND "THE RACIAL OTHER"
Short Title: POLITICS OF REPRESENTATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Does media show how things really are? This class explores the politics of representation, particularly in times of social mayhem, revolution, and war. Although we will focus primarily on cultural and political representations of the Israeli-Palestinian conflict, this class will also put this dispute in comparison with other global events. Cross-list: SOCI 365.

ANTH 366 - SCIENCE, LOCAL AND GLOBAL
Short Title: SCIENCE, LOCAL AND GLOBAL
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores science as a transnational phenomenon, focusing on the pathways along which it flows around the world. Topics include differences in local styles of reasoning, dynamics of international scientific collaborations, transnational migration of knowledge workers, the role of science in nationalist projects, and the commodification of science. Graduate/Undergraduate Equivalency: ANTH 566. Mutually Exclusive: Cannot register for ANTH 366 if student has credit for ANTH 566.
ANTH 370 - ARCHAEOLOGICAL LABORATORY TECHNIQUES AND ANALYSIS
Short Title: ARCHAEOLOGICAL LAB ANALYSIS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Techniques of processing, conserving, and recording archaeological materials are emphasized. Students will become familiar with procedures for pottery, glass, metals, and building materials in addition to plant and animal remains. Course work includes lectures, hands-on lab work, and informal discussion. Graduate/Undergraduate Equivalency: ANTH 570. Repeatable for Credit.

ANTH 371 - MONEY AND EVERYDAY LIFE
Short Title: MONEY AND EVERYDAY LIFE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Money is such a part of everyday modern life that it is hard for us to imagine living without it. Yet in many pre-modern societies, gift-exchange was as important as money is in our own. This course will look at the cultural dimensions of systems of exchange, ranging from gift giving among Northwest Coast Indians to foreign currency exchanges between financial institutions. Along with the classic work of Marx and Simmel on money and capital, we will also cover some of the anthropological work on gifts and exchange, such as that of Mauss, Levi-Strauss, and Bourdieu, as well as some of the contemporary debates initiated by Bataille and Derrida. Graduate/Undergraduate Equivalency: ANTH 571. Mutually Exclusive: Cannot register for ANTH 371 if student has credit for ANTH 571.

ANTH 372 - CULTURES OF CAPITALISM
Short Title: CULTURES OF CAPITALISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of us think of capitalism as primarily an economic phenomenon. Yet, it also has a profoundly cultural dimension. This class will examine how capitalism and related phenomena, such as commodification, markets and marketing, corporate finance and the calculation of risk, both affect and are affected by culture. We will consider the impact of capitalist markets on social relations and gender identities; on ideals of patriotism, responsibility and success; and on popular culture and leisure practices. We will also ask how people resist, appropriate and modify in culturally specific ways the logic and institutions of a global capitalist order. Graduate/Undergraduate Equivalency: ANTH 572. Mutually Exclusive: Cannot register for ANTH 372 if student has credit for ANTH 572.

ANTH 374 - ASIAN PREHISTORY
Short Title: ASIAN PREHISTORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers select topics in the archaeology and paleoanthropology of Asia from the arrival of Homo erectus to the development of the earliest civilizations. Class discussions will focus on the history of exploration in Asia and the main debates that have shaped the study of prehistory in the largest continent on Earth. Graduate/Undergraduate Equivalency: ANTH 574. Mutually Exclusive: Cannot register for ANTH 374 if student has credit for ANTH 574.

ANTH 376 - ART AND ACTIVISM
Short Title: ART AND ACTIVISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores art and social change in times of mass displacement, racial oppression, and war. It surveys the efforts involved in achieving justice and the possible implications of remaining historically mute and hopeless. The class will host contemporary activists and artists concerned with radical visions of hope in Houston. Cross-list: SOCI 376.

ANTH 378 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser - known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: FILM 378, HART 391. Graduate/Undergraduate Equivalency: ANTH 578. Mutually Exclusive: Cannot register for ANTH 378 if student has credit for ANTH 578.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 380</td>
<td>GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS</td>
<td>GLOBAL HEALTH JUSTICE</td>
<td>Anthropology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 580. Mutually Exclusive: Cannot register for ANTH 380 if student has credit for ANTH 580.</td>
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<tr>
<td>ANTH 381</td>
<td>MEDICAL ANTHROPOLOGY</td>
<td>MEDICAL ANTHROPOLOGY</td>
<td>Anthropology</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Cultural, ecological, and biological perspectives on human health and disease throughout the world. Graduate/Undergraduate Equivalency: ANTH 581. Mutually Exclusive: Cannot register for ANTH 381 if student has credit for ANTH 581.</td>
</tr>
<tr>
<td>ANTH 382</td>
<td>BODY, TECHNOLOGY, AND ENHANCEMENT</td>
<td>BODY, TECHNOLOGY, ENHANCEMENT</td>
<td>Anthropology</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Seminar on the body and the various technologies that are used to optimize it. Includes topics such as cosmetic surgery, diet supplementation, pharmaceutical enhancement and body art. Graduate/Undergraduate Equivalency: ANTH 582. Mutually Exclusive: Cannot register for ANTH 382 if student has credit for ANTH 582.</td>
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<tr>
<td>ANTH 384</td>
<td>PALEO-TECHNOLOGY</td>
<td>PALEO-TECHNOLOGY</td>
<td>Anthropology</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This Stone Age semester will immerse students in hunter-gatherer lifeways and the innovations that allowed our ancestors to survive. Student 'bands' will complete cooperative learning tasks to ensure group survival (assessment). Most class meetings will be held in outdoor space on campus. Graduate/Undergraduate Equivalency: ANTH 584. Mutually Exclusive: Cannot register for ANTH 384 if student has credit for ANTH 584.</td>
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<td>ANTH 385</td>
<td>MEDIA, CULTURE, AND SOCIETY</td>
<td>MEDIA, CULTURE, AND SOCIETY</td>
<td>Anthropology</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and news-making, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 585. Mutually Exclusive: Cannot register for ANTH 385 if student has credit for ANTH 585.</td>
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<td>ANTH 386</td>
<td>MEDICAL ANTHROPOLOGY OF FOOD AND HEALTH</td>
<td>MEDICINE, FOOD, AND HEALTH</td>
<td>Anthropology</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Food is increasingly understood and manipulated at the molecular level and used in therapy or disease prevention. This course focuses on the fluid intersection of biomedicine and nutrition as changes in agriculture, food safety, and research into the physiological and genetic effects of food alter how Western cultures eat. Graduate/Undergraduate Equivalency: ANTH 586. Mutually Exclusive: Cannot register for ANTH 386 if student has credit for ANTH 586.</td>
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ANTH 387 - ASIAN AMERICAN CONTEMPORARY COMMUNITIES
Short Title: ASIAN AMERICAN COMMUNITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course will investigate the diverse cultural traditions and shared experiences of Asian Americans in the United States. By analyzing historical works, literary texts, and films, we will explore a range of topics including Asian immigration, gender roles, identity formation, and ethnic media. Cross-list: ASIA 387.

ANTH 389 - THE ARCHAEOLOGY OF FOOD
Short Title: ARCHAEOLOGY OF FOOD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers a broad anthropological perspective on food and culture, as well as the way that archaeologists attempt to reconstruct the subsistence technologies and diets of ancient peoples. Topics include forager and agricultural subsistence technologies, the origins of food production, feasting, food and identity, and gender and food. Graduate/Undergraduate Equivalency: ANTH 589. Mutually Exclusive: Cannot register for ANTH 389 if student has credit for ANTH 589.

ANTH 390 - CULTURE, NARRATION, AND SUBJECTIVITY
Short Title: CULTURE, NARRATION, SUBJECCTIVITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how linguistic and narrative structures interact to produce specific cultures of interpretation. The focus will be on linguistic and literary representations of subjectivity. This course will use novels by Western authors, such as Virginia Woolf and Dostoevsky, and some Chinese materials as comparison. Graduate/Undergraduate Equivalency: ANTH 590. Mutually Exclusive: Cannot register for ANTH 390 if student has credit for ANTH 590.

ANTH 391 - SPECULATIVE FUTURES
Short Title: SPECULATIVE FUTURES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Drawing from “CIFI,” “Speculative Fiction,” and global anthropological case studies, this course analyzes a series of potential futures as earthly conditions continue to be altered by human activity. Students will develop speculative future models through assessing climate conditions, population displacement, ethics, ecological transformations and human practices and values. Cross-list: ENST 391. Graduate/Undergraduate Equivalency: ANTH 591. Mutually Exclusive: Cannot register for ANTH 391 if student has credit for ANTH 591.

ANTH 392 - KINGS, QUEENS, AND COMMONERS: THE ARCHAEOLOGY OF ANCIENT MESOAMERICA
Short Title: ANCIENT MESOAMERICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: With an approach in archaeological methods and theories, Ancient Mesoamerica investigates the lives of ancient kings, queens, and commoners of pre-Columbian Central America. The course includes an overview of the culture history of indigenous cultures in this study area, with emphasis on topics of social archaeology that hold relevance to today’s world.

ANTH 393 - THE ANTHROPOLOGY OF TOXICITY: RETHINKING HEALTH AND SOVEREIGNTY
Short Title: THE ANTHROPOLOGY OF TOXICITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through ethnographic, scientific, and personal accounts of toxicity in a range of sites—from warzones to office buildings—this course explores toxicity as an analytic that helps us think critically about health and sovereignty. We explore the way that colonial geographies imprint geographies of toxicity and the ways that capitalism and consumption produce and distribute toxicity. In relation to health, we explore the ways that the materiality and biology of toxic exposure are embodied in specific ways that undermine singular or universalizable concepts and measures of human and environmental health and require us to think about the health in relation to the specificities of race, class, gender, disability, and intimacy in particular places and times. In relation to sovereignty, we explore the ways that the promiscuous movement of toxicants provokes but also eludes regulations that hew to the ridged boundaries of law and territory and raise new questions of accountability and evidence. Graduate/Undergraduate Equivalency: ANTH 593. Mutually Exclusive: Cannot register for ANTH 393 if student has credit for ANTH 593.
ANTH 394 - THE ARCHAEOLOGY OF SLAVERY AND THE AFRICAN DIASPORA
Short Title: THE ARCHAEOLOGY OF SLAVERY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers methodological and thematic approaches employed in the historical archaeology of slavery and the African diaspora in the Americas from the fifteenth to the nineteenth centuries. Archaeologists are uniquely positioned to study enslaved people through their material culture, and in this case especially, archaeologists have the opportunity to apply their particular approaches since written documents relating to the African diaspora are overwhelmingly written by the enslavers, not the enslaved. In this class emphasis is placed on what the archaeological analyses of the material record reveal about slavery and the everyday lives of enslaved individuals, including plantation life, labor management of the planters, work habits of the enslaved, leisure time, economic networks, kinship, religious practices, retentions, and resistance, to name but a few. Students interested in African and African diaspora studies, archaeology, slavery, and race should find this course useful. Graduate/Undergraduate Equivalency: ANTH 594.
Mutually Exclusive: Cannot register for ANTH 394 if student has credit for ANTH 594.

ANTH 395 - CULTURES AND COMMUNICATION
Short Title: CULTURES AND COMMUNICATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Investigates the relations between different forms of communication - speech, print, film, and cultural constructions such as audiences, publics, and communities. Graduate/Undergraduate Equivalency: ANTH 595. Mutually Exclusive: Cannot register for ANTH 395 if student has credit for ANTH 595.

ANTH 396 - LAW AND RESISTANCE IN THE EVERYDAY
Short Title: LAW AND RESISTANCE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore how people interact with the law in their everyday lives – in the U.S. and elsewhere. Examples will include how individuals experience and respond to policing, examining the effects of immigration and border security policies, and tracing how people and groups mobilize to challenges laws perceived as unjust. Cross-list: SOCI 396. Graduate/Undergraduate Equivalency: ANTH 596.
Mutually Exclusive: Cannot register for ANTH 396 if student has credit for ANTH 596.

ANTH 397 - ANTHROPOLOGY JOURNAL CLUB
Short Title: ANTHROPOLOGY JOURNAL CLUB
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students select, read, and discuss current articles from leading journals in sociocultural anthropology and related fields. Department Permission Required. Graduate/Undergraduate Equivalency: ANTH 597. Repeatable for Credit.

ANTH 398 - ETHNOGRAPHIC RESEARCH METHODS
Short Title: ETHNOGRAPHIC RESEARCH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course considers the practice of ethnographic research (design, data collection and analysis). Topics include the contentious canonization of fieldwork & the ethnographic method, ethics & human subjects, rethinking the field & collaboration. Projects include participant observation, field notes, interviewing, and analysis of archival, ephemeral & audio/visual materials. Graduate/Undergraduate Equivalency: ANTH 598. Mutually Exclusive: Cannot register for ANTH 398 if student has credit for ANTH 598.

ANTH 399 - ANTHROPOLOGY OF REPRODUCTION
Short Title: ANTHROPOLOGY OF REPRODUCTION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines a variety of issues related to reproduction. Using a cross-cultural and critical approach, we will analyze how social negotiations over biological processes bring reproduction to the center of social theory. We will explore a variety of topics, such as pregnancy, prenatal testing and childbirth, reproductive rights, kinship and belonging, the use of new reproductive technologies, and the politics of the nation-state as they affect women's and men's reproductive lives. Ethnographic readings and examples from around the world will illustrate our discussions and enable students to gain an understanding of the complex intersection of local and global politics regarding reproductive experiences and choices. Recommended Prerequisite(s): ANTH 381
ANTH 400 - GLOBAL URBAN LAB
Short Title: GLOBAL URBAN LAB
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Guided independent research with lab component to study questions under the topics of sports, healthcare, transportation, immigration, and urban development in Houston and other global cities covered in the Global Urban Lab program. Instructor Permission Required. Mutually Exclusive: Cannot register for ANTH 400 if student has credit for POST 400/SOSC 400.

ANTH 403 - ANALYZING PRACTICE
Short Title: ANALYZING PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A critical review of work informed by what has sometimes been deemed the "key concept" of anthropological theory and research since the 1960s. Special attention will be devoted to the analytics of practice developed by Foucault, by Bourdieu, and by de Certeau. Graduate/Undergraduate Equivalency: ANTH 603. Mutually Exclusive: Cannot register for ANTH 403 if student has credit for ANTH 603.

ANTH 404 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Directed reading and preparation of written papers on anthropological subjects not offered in the curriculum and advanced study of subjects on which courses are offered. Instructor Permission Required. Repeatable for Credit.

ANTH 405 - MUSEUM INTERNSHIP AND DIRECTED READING
Short Title: MUSEUM INTERNSHIP
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines a research-oriented internship at a local museum with directed readings in preparation for the specific focus of the internship. Instructor Permission Required. Recommended Prerequisite(s): ANTH 341.

ANTH 409 - SLOW READING SEMINAR
Short Title: SLOW READING SEM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to develop "slow reading" techniques that allow students to carefully pursue lines of thought that emerge from a text. It is anchored in ethnographic texts and will require students to identify and explore the conceptual genealogies and intellectual conversations in which a text participates. We will explore the required texts and complement them with collectively defined thematics. The seminar will train student in different reading approaches all characterized by slow engagement. Graduate/Undergraduate Equivalency: ANTH 609. Repeatable for Credit.

ANTH 410 - THE ETHNOGRAPHY OF DEVELOPMENT
Short Title: THE ETHNOGRAPHY OF DEVELOPMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course suggests the necessity of a solid ethnographic grounding for both practical development work and for further intellectual growth of the discipline. Graduate/Undergraduate Equivalency: ANTH 610. Mutually Exclusive: Cannot register for ANTH 410 if student has credit for ANTH 610.

ANTH 413 - CULTURE AFTER COMMUNISM
Short Title: CULTURE AFTER COMMUNISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines cultural transformations in the late- and post-socialist societies of East-Central Europe, the former Soviet Union, and Asia. Explores everyday discourses and practices through which new forms of property, selfhood, nationalism, and the state are emerging, and the legacy of cold war politics for ethnographic representation of these societies. Graduate/Undergraduate Equivalency: ANTH 613. Mutually Exclusive: Cannot register for ANTH 413 if student has credit for ANTH 613.
ANTH 417 - ONTOLOGIES, VITALITIES, THINGS
Short Title: ONTOLOGIES, VITALITIES, THINGS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course focuses on emerging and established thematics of ethnography as a form of writing. Readings from classic theorists: Durkheim, Levi-Strauss, Edmond Leach, Comaroff, and Ray. Cross-list: RELI 423.

ANTH 418 - WRITING ETHNOGRAPHY
Short Title: WRITING ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar course asks why “infrastructure” – that which enables other things to happen – has recently become such an important concept in the human sciences. After reviewing recent classic theoretical approaches we explore recent anthropological studies of infrastructures-in-action ranging from information and media infrastructures to environmental and biotic infrastructures to infrastructures of governance and power. Graduate/Undergraduate Equivalency: ANTH 622. Mutually Exclusive: Cannot register for ANTH 417 if student has credit for ANTH 617.

ANTH 419 - ETHNOGRAPHY STUDIO
Short Title: ETHNOGRAPHY STUDIO
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and that serve as a basis for the negotiation of power and ideology for members within that community. Readings from classic theorists: Durkheim, Levi-Strauss, Edmond Leach, Gennap and Turner, and contemporary theorists: Werbner, Heusch, Comaroff, and Ray. Cross-list: RELI 423.

ANTH 420 - ETHNOGRAPHY STUDIO
Short Title: ETHNOGRAPHY STUDIO
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will read a selection of contemporary ethnographies deemed “exemplary” by diverse audiences paired with theoretical works that the authors claim in their arguments. The course will focus on how ethnographies are structured, the central issues they investigate, and how they go about doing this. The central task of the class is to analyze, critically but also productively, what rigor and creativity mean in the ethnographic investigation of contemporary and recurring questions and problems, relations between questions, theory and ethnography will also be explored through students’ own ethnographic writing. Graduate/Undergraduate Equivalency: ANTH 620. Mutually Exclusive: Cannot register for ANTH 420 if student has credit for ANTH 620.

ANTH 421 - ETHNOGRAPHY STUDIO
Short Title: ETHNOGRAPHY STUDIO
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course comprises an in–depth examination of the career and major works of a scholar of significant influence within and beyond anthropology. In Fall 2018, the course will focus on anthropologist Mary Douglas. Graduate/Undergraduate Equivalency: ANTH 624. Mutually Exclusive: Cannot register for ANTH 424 if student has credit for ANTH 624. Repeatable for Credit.
ANTH 425 - ADVANCED TOPICS IN ARCHAEOLOGY
Short Title: ADVANCED TOPICS IN ARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 205 and ANTH 362
Description: Seminar on selected topics in archaeological analysis and theory. The course will variously focus on ceramic analysis and classification, archaeological sampling in regional survey and excavation, and statistical approaches to data analysis and presentation. Please consult with the department for additional information. Graduate/Undergraduate Equivalency: ANTH 625. Mutually Exclusive: Cannot register for ANTH 425 if student has credit for ANTH 625. Repeatable for Credit.

ANTH 426 - UNDERGROUND SPATIALITIES STUDIO
Short Title: UNDERGROUND SPATIALITIES STUDI
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces students to thinking about space volumetrically and kinesthetically. It builds on scholarship that calls our attention to the geopolitics of volumetric space using underground water movement as a case study. It is a hands on studio that combines anthropology, arts, and architecture. Graduate/Undergraduate Equivalency: ANTH 626. Mutually Exclusive: Cannot register for ANTH 426 if student has credit for ANTH 626.

ANTH 428 - FEMINIST SCIENCE AND TECHNOLOGY STUDIES
Short Title: FEMINIST STS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will survey the field of Social Studies of Science and Technology (STS) emphasizing the contributions made by feminist and queer scholarship. It will combine foundational theoretical works with contemporary ethnographies. Graduate/Undergraduate Equivalency: ANTH 628. Mutually Exclusive: Cannot register for ANTH 428 if student has credit for ANTH 628.

ANTH 429 - ACTIVISM AND SOCIAL MOVEMENTS
Short Title: ACTIVISM AND SOCIAL MOVEMENTS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Movements to alleviate inequalities constitute important cultural and political interventions globally. This course examines advocacy practices to create and sustain social movements and political struggles. Cases included grassroots advocacy, NGOs, transnational and technological activism; environmental justice; human rights; gender, ethnic and sexual rights; consumption and globalization; democratization and neoliberalism. Graduate/Undergraduate Equivalency: ANTH 629. Mutually Exclusive: Cannot register for ANTH 429 if student has credit for ANTH 629.

ANTH 440 - REGULATORY TRANSLATIONS LAB
Short Title: REGULATORY TRANSLATIONS LAB
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how the concept of "translation" can be used to understand the movement of regulations around our globalized world. It is designed as a research experience that will give students the opportunity to conduct archival research, produce annotated bibliographies, and conduct a literature review with an interdisciplinary approach that combines the social sciences and humanities. This is a hands on lab that will benefit students who are interested in the law from a social perspective and interdisciplinary thinking and research methods. Instructor Permission Required.

ANTH 441 - EXPLORING THE UNDERGROUND THROUGH ETHNOGRAPHY
Short Title: EXPLORING THE UNDERGROUND
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will be a hands-on research experience to explore the meaning and uses of "the underground and the subterranean" across diverse communities. Students will review existing academic literature and artistic forms of expression that explore the meaning of the underground of r scientists, activists, artists, and everyday citizens. Students will also conduct fieldwork (interviews and participant observation) with Houston communities to understand what practices bring people close to that which is not immediately visible. Instructor Permission Required.
ANTH 442 - MUSEUMS: THEORY AND PRACTICE
Short Title: MUSEUMS: THEORY & PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines readings and lectures exploring the representation of anthropological and archaeological materials in Museum exhibits with an internship at the Houston Museum of Natural Science. Graduate/Undergraduate Equivalency: ANTH 642.
Mutually Exclusive: Cannot register for ANTH 442 if student has credit for ANTH 642.

ANTH 443 - ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
Short Title: RACE ETHNICITY AND HEALTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores how human bodies and biomedical facts are culturally constructed with respect to race and ethnicity, and examines how these constructs variably impact experiences of health, well-being and illness. Graduate/Undergraduate Equivalency: ANTH 643.
Mutually Exclusive: Cannot register for ANTH 443 if student has credit for ANTH 643.

ANTH 444 - CULTURE, PSYCHIATRY, AND MENTAL ILLNESS
Short Title: CULTURE AND MENTAL ILLNESS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar takes psychiatric practice as an object of anthropological investigation. It explores the ways in which emotional suffering and therapeutic systems are constituted within various social, cultural, and historical contexts. Topics include affect, anxiety, psychosis, and somatization in cross-cultural perspective; diagnostic standardization; the cultural history of psychiatry; institutionalization and deinstitutionalization; psychiatric professionalization; the globalization of Western psychiatric practice; and critical anti-psychiatry movements. Graduate/Undergraduate Equivalency: ANTH 644.
Mutually Exclusive: Cannot register for ANTH 444 if student has credit for ANTH 644.

ANTH 445 - EXPERTS AND CULTURES OF EXPERTISE
Short Title: EXPERTS/EXPERTISE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Studies of experts and expert knowledge have recently become one of the most vibrant and promising areas of research in social-cultural anthropology today. This seminar reviews recent anthropological research on experts and their cultures of expertise and situates it in comparison to theoretical, sociological and historical engagements of expert cultures. Graduate/Undergraduate Equivalency: ANTH 645.
Mutually Exclusive: Cannot register for ANTH 445 if student has credit for ANTH 645.

ANTH 446 - ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY
Short Title: ADV BIOMEDICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 381
Description: Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Graduate/Undergraduate Equivalency: ANTH 646.
Mutually Exclusive: Cannot register for ANTH 446 if student has credit for ANTH 646.

ANTH 447 - MODERN ETHNOGRAPHY AND THE ETHNOGRAPHY OF MODERNITY
Short Title: MODERN ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores the strategies of representation, the methodologies, and the diagnostic categories to which anthropologists have resorted in coming to terms with such phenomena as rationalization, economic and informational globalization, and the commodification of culture. Graduate/Undergraduate Equivalency: ANTH 647.
Mutually Exclusive: Cannot register for ANTH 447 if student has credit for ANTH 647.
ANTH 448 - PHENOMENOLOGICAL ANTHROPOLOGY
Short Title: PHENOMENOLOGICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar explores phenomenological theory in the human sciences beginning with Hegel and Marx and examines its uptake in recent works of anthropological ethnography and theory. The course will focus especially upon questions of selfhood and alterity, affect and emotion, and the senses and knowledge. Graduate/Undergraduate Equivalency: ANTH 648. Mutually Exclusive: Cannot register for ANTH 448 if student has credit for ANTH 648.

ANTH 449 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is “sexuality” across cultural milieux? This course analyzes understandings and practices of sexuality from a global, comparative perspective, including different social configurations of gender and intimacy, reproduction, sensuality and the erotic. Case studies explore the complex relationships between sexuality and gender, ethnicity, nationalism, globalization, commodification, politics, media, health and medicine. Cross-list: SWGS 449. Graduate/Undergraduate Equivalency: ANTH 649. Mutually Exclusive: Cannot register for ANTH 449 if student has credit for ANTH 649.

ANTH 451 - THE ANTHROPOLOGY OF WATER
Short Title: THE ANTHROPOLOGY OF WATER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will offer students concepts and methodological resources to conduct their own research projects on water related issues from an anthropological perspective. It will include reading materials and fieldwork according to each student's project specificities. Graduate/Undergraduate Equivalency: ANTH 651. Mutually Exclusive: Cannot register for ANTH 451 if student has credit for ANTH 651.

ANTH 453 - COLLATERAL AFTERWORLDS
Short Title: COLLATERAL AFTERWORLDS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Drawing on ethnography and social theory, this course develops analytics attuned to the socialities, intimacies, temporalities, and forms of ethic that emerge in the precarious spaces of liberal and democratic violence and failure. In refugee camps or climate catastrophes, in a queer present or under enduring legacies, what happens if we think the social with hope and futurity in abeyance? Graduate/Undergraduate Equivalency: ANTH 653. Repeatable for Credit.

ANTH 456 - HERITAGE MANAGEMENT
Short Title: HERITAGE MANAGEMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the policies and politics of heritage management from a global perspective. We examine how different nations define, protect, and manage heritage resources. Case studies will present debates over the meaning and interpretation of cultural heritage and illustrate connections between heritage and such issues as nationalism and identity. The graduate level course will engage students at a more advanced theoretical level through additional reading assignments and an additional paper. Graduate/Undergraduate Equivalency: ANTH 656. Mutually Exclusive: Cannot register for ANTH 456 if student has credit for ANTH 656.

ANTH 458 - HUMAN OSTEOLOGY
Short Title: HUMAN OSTEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the analysis of human skeletal material from archaeological sites. Graduate/Undergraduate Equivalency: ANTH 658. Mutually Exclusive: Cannot register for ANTH 458 if student has credit for ANTH 658.
ANTH 460 - ADVANCED ARCHAEOLOGICAL THEORY
Short Title: ADVANCED ARCHAEOLOGICAL THEORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 205
Description: History and analysis of the major currents of archaeological theory from the Encyclopaedist origins of positivism, through cultural evolutionism and historical particularism, to the New Archaeology and current trends. Graduate/Undergraduate Equivalency: ANTH 660. Mutually Exclusive: Cannot register for ANTH 460 if student has credit for ANTH 660.

ANTH 463 - WEST AFRICAN PREHISTORY
Short Title: WEST AFRICAN PREHISTORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar providing in-depth consideration of the later prehistoric archaeology (late Stone Age and Iron Age) of the West African subcontinent. Graduate/Undergraduate Equivalency: ANTH 663. Mutually Exclusive: Cannot register for ANTH 463 if student has credit for ANTH 663.

ANTH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture, Seminar, Lecture/Laboratory, Independent Study, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ANTH 483 - SEMINAR ON DOCUMENTARY AND ETHNOGRAPHIC FILM
Short Title: DOCUM & ETHNOGRAPH FILM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the history of documentary and ethnographic cinema from a worldwide perspective. Includes both canonical and alternative films and film movements, with emphasis on the shifting and overlapping of boundaries of fiction and nonfiction genres. Graduate/Undergraduate Equivalency: ANTH 683. Mutually Exclusive: Cannot register for ANTH 483 if student has credit for ANTH 683.

ANTH 490 - DIRECTED HONORS RESEARCH
Short Title: DIRECTED HONORS RESEARCH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A two-semester sequence of independent research culminating in the preparation and defense of an honors thesis. Open only to candidates formally accepted into the honors program. Instructor Permission Required.

ANTH 491 - DIRECTED HONORS RESEARCH
Short Title: DIRECTED HONORS RESEARCH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A two-semester sequence of independent research culminating in the preparation and defense of an honors thesis. Open only to candidates formally accepted into the honors program. Instructor Permission Required.

ANTH 493 - SENIOR RESEARCH PREPARATION
Short Title: SENIOR RESEARCH PREPARATION
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through this required course for Anthropology majors in their final year of the program, students will cultivate skills in research design and preparation, complete training in research ethics, prepare research ethics protocols, connect with faculty advisors for their senior research project, and connect with other students in their cohort.

ANTH 495 - ANTHROPOLOGY CAPSTONE
Short Title: ANTHROPOLOGY CAPSTONE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Required of all anthropology majors who do not enroll in ANTH 490 and ANTH 491. Each student formulates and completes an advanced research project guided by a faculty supervisor and evaluated by a faculty panel.
ANTH 506 - HISTORY OF ANTHROPOLOGICAL IDEAS
Short Title: HIST OF ANTHROPOLOGICAL IDEAS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: An introduction to the history of anthropology and its theories and methods. The emphasis is upon social and cultural anthropology.

ANTH 507 - ANTHROPOLOGICAL DIRECTIONS FROM SECOND WORLD WAR TO PRESENT
Short Title: ANTHRO FROM 2ND WW-PRESENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: A sequel to ANTH 306/506, the course explores turns and trends in sociocultural research and critique during the past half-century. Special attention is paid to the rise and fall of structuralism, the problematization of "the primitive" and the proliferation of theories of "practice."

ANTH 508 - THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION
Short Title: THE HISTORICAL IMAGINATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students.
Description: Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Graduate/Undergraduate Equivalency: ANTH 308. Mutually Exclusive: Cannot register for ANTH 508 if student has credit for ANTH 308.

ANTH 509 - GLOBAL CULTURES
Short Title: GLOBAL CULTURES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course will examine specific cultural debates and issues that have overflowed national boundaries. Topics will include student movements, democracy and citizenship, and the internationalization of professional and popular culture. Graduate/Undergraduate Equivalency: ANTH 309. Mutually Exclusive: Cannot register for ANTH 509 if student has credit for ANTH 309.

ANTH 510 - MASCULINITIES
Short Title: MASCULINITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home and war. Graduate/Undergraduate Equivalency: ANTH 311. Mutually Exclusive: Cannot register for ANTH 511 if student has credit for ANTH 311.

ANTH 511 - MASCULINITIES
Short Title: MASCULINITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home and war. Graduate/Undergraduate Equivalency: ANTH 311. Mutually Exclusive: Cannot register for ANTH 511 if student has credit for ANTH 311.

ANTH 512 - THE ARCHAEOLOGY OF AFRICA
Short Title: THE ARCHAEOLOGY OF AFRICA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Graduate/Undergraduate Equivalency: ANTH 312. Mutually Exclusive: Cannot register for ANTH 512 if student has credit for ANTH 312. Repeatable for Credit.

ANTH 514 - SHIPS IN THE ANTHROPOLOGICAL IMAGINATION
Short Title: SHIPS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course interrogates what we can learn about social, political and economic life by examining ships. Ships have long inspired social theory and anthropological thinking. Seen from the shore, ships not only carried commodities, but also signified conquest, disease, and imperial power. They were characterized as instruments of economic development for some and as tools of oppression for others. As shipping and logistics have emerged as defining features of contemporary global exchange, ships have acquired new forms and functions. In addition to analyzing shipyards, ports, and ship-breaking facilities, this course will look at a wide-range of vessels, such as slave ships, spaceships, containerships, pirate ships, and rescue vessels and refugee ships in different parts of the world. Graduate/Undergraduate Equivalency: ANTH 314.
ANTH 515 - ZOOARCHAEOLOGY
Short Title: ZOOARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to the study of ancient animal remains. Through laboratory exercises, students learn to identify bones and teeth of diverse animals and to distinguish natural and anthropogenic processes affecting fossil and archaeological bones. Key topics in human-animal relations are addressed, including paleoecology, the food quest, animal domestication, and the roles of animals in ancient culinary, ritual, and other social settings; as well as covering relevance of the past to present-day issues such as conservation biology. Graduate/Undergraduate Equivalency: ANTH 315.

ANTH 516 - BLACK DECOLONIAL FEMINISMS IN THE AMERICAS
Short Title: BLACK DECOLONIAL FEMINISMS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will use both historical and contemporary readings focusing on Black and decolonial/anticolonial feminisms as theory and praxis to reflect on the particular experiences of Afro-descendants throughout the Americas. Through a close reading of scholarly and popular texts focusing on the experiences of Black women throughout the Americas (with particular emphasis on Latin America and the Caribbean) we will engage with themes including transnationalism and migration, language, belonging, gender and sexuality, land rights, social inequality and practices of resistance. We will also analyze how art (music, visual and performance art) and activism represent important sites of resistance to contemporary struggles faced by Black communities. Graduate/Undergraduate Equivalency: ANTH 316.

ANTH 517 - REVOLUTIONS AND UTOPIAS
Short Title: REVOLUTIONS AND UTOPIAS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In order to gain a more precise grasp of our contemporary political challenges and possibilities, this course in political anthropology investigates a wide range of historical and contemporary cases of rapid political and social transformation and carefully examines the ideas, desires and utopias that inspired them. Graduate/Undergraduate Equivalency: ANTH 317. Mutually Exclusive: Cannot register for ANTH 517 if student has credit for ANTH 317.

ANTH 519 - SYMBOLISM AND POWER
Short Title: SYMBOLISM AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course considers anthropological theories of the state and examines ethnographic accounts of states in some unexpected places - that is, outside the official realm of government bureaucracies and institutionalized politics. Topics include so-called "stateless societies," planning and bureaucratic rationality, violence and power, and ethnographic methods for studying the state. Graduate/Undergraduate Equivalency: ANTH 319. Mutually Exclusive: Cannot register for ANTH 519 if student has credit for ANTH 319.

ANTH 521 - SOCIAL LIFE OF DNA
Short Title: SOCIAL LIFE OF DNA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This upper level seminar examines the increasing significance of genetics as a central component of our social, economic, and political life. As the potential applications of DNA to our social life increasingly appear endless, this course asks how is genetic information reshaping our understanding of the value of life itself? In addition to identifying markers, scientific knowledge production around genetic information is reconstituting key ideas of risk, care, capital that impact our ideas of disability, race, kinship, citizenship, nationalism, and justice. In this class, our aim is to ask a) what is historically and materially distinct about genetic information as a metaphor for social processes, b) how is the value of life itself being reproduced and transformed for whom, and c) what are potential consequences we face by relating to one another through the geneticization of social life? Mutually Exclusive: Cannot register for ANTH 521 if student has credit for ANTH 321.

ANTH 522 - GLOBAL IM/MOBILITIES: BORDERS, MIGRATION, AND CITIZENSHIP
Short Title: GLOBAL IM/MOBILITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How do cultural conceptions of race, ethnicity, and nationalism shape who we think we are? How are these ideas related to Western views of the relations between nature and society, and how do these differ from those in other cultures? Graduate/Undergraduate Equivalency: ANTH 322. Mutually Exclusive: Cannot register for ANTH 522 if student has credit for ANTH 322.
ANTH 526 - LAW, POWER AND CULTURE
Short Title: LAW, POWER AND CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of normativity and its different social forms across the world. It combines theoretical and ethnographic analyses of legal institutions and practices as cultural phenomena undergirded by power relations, knowledge forms and historical forces. Graduate/Undergraduate Equivalency: ANTH 326. Mutually Exclusive: Cannot register for ANTH 526 if student has credit for ANTH 326.

ANTH 527 - GENDER AND SYMBOLISM
Short Title: GENDER AND SYMBOLISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examinations of beliefs concerning men, women, and gender in different cultures, including the West, relating to issues of symbolism, power, and the distribution of cultural models. Mutually Exclusive: Cannot register for ANTH 527 if student has credit for ANTH 327.

ANTH 529 - BODIES, SENSUALITIES, AND ART
Short Title: BODIES, SENSUALITIES, & ART
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cross-cultural approaches to art and the senses. Students may engage any medium. Emphasis to be placed on issues generated from performance in the arts rather than from academia. Contrasts art and academic knowledge to explore alternative epistemologies and aesthetics. Graduate/Undergraduate Equivalency: ANTH 329. Mutually Exclusive: Cannot register for ANTH 529 if student has credit for ANTH 327.

ANTH 532 - THE SOCIAL LIFE OF CLEAN ENERGY
Short Title: SOCIAL LIFE OF CLEAN ENERGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course considers the phenomenon of renewable energy using a social scientific approach to analyze the various forces and interests involved in the development of renewable energy projects (such as hydropower, solar and wind) in both the global North and South. No prerequisites required. GR/UG Equivalency: ANTH 332. Graduate/Undergraduate Equivalency: ANTH 332. Mutually Exclusive: Cannot register for ANTH 532 if student has credit for ANTH 332.

ANTH 533 - THE MATERIAL WORLD
Short Title: THE MATERIAL WORLD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the mutually constructive relationship between humans and objects; it asks how objects are made meaningful and active by humans, and how, in turn, people acquire meaning, relations, and agency through material culture. Topics include: commoditization, consumption, gift exchange, subjects and objects, identity, fashion, collecting, art, and authenticity. Graduate/Undergraduate Equivalency: ANTH 333. Mutually Exclusive: Cannot register for ANTH 533 if student has credit for ANTH 333.

ANTH 535 - ANTHROPOLOGY AS CULTURAL CRITIQUE
Short Title: ANTHROPOLOGY/CULTURAL CRITIQUE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The critical assessment and interpretation of Euro American social institutions and cultural forms have always been an integral part of anthropology's intellectual project. This course will explain the techniques, history, and achievements of such critique. It will also view the purpose in the context of a more generational tradition of critical social thought in the West, especially the U.S. Graduate/Undergraduate Equivalency: ANTH 335. Mutually Exclusive: Cannot register for ANTH 535 if student has credit for ANTH 335.

ANTH 536 - BECOMING A DOCTOR
Short Title: BECOMING A DOCTOR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The critical assessment and interpretation of Euro American social institutions and cultural forms have always been an integral part of anthropology's intellectual project. This course will explain the techniques, history, and achievements of such critique. It will also view the purpose in the context of a more generational tradition of critical social thought in the West, especially the U.S. Graduate/Undergraduate Equivalency: ANTH 336. Mutually Exclusive: Cannot register for ANTH 536 if student has credit for ANTH 336.
ANTH 538 - READING POPULAR CULTURE
Short Title: READING POPULAR CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: The course examines a number of cases from popular genres-romance novels, television sit-coms, tourist sites, movies, rock music and submits them to a variety of theoretical approaches from disciplines such as anthropology, sociology, literary studies, and philosophy. Graduate/Undergraduate Equivalency: ANTH 338. Mutually Exclusive: Cannot register for ANTH 538 if student has credit for ANTH 338.

ANTH 540 - NEOLIBERALISM AND GLOBALIZATION
Short Title: NEOLIBERALISM & GLOBALIZATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the relationship between two of the most powerful forces shaping the world today: economic globalization and political neoliberalism. Using ethnographic, policy and theoretical documentation drawn from a variety of case studies, we will reconstruct the interrelated origins of globalization and neoliberalism and map their social and cultural impacts across the world. Graduate/Undergraduate Equivalency: ANTH 340. Mutually Exclusive: Cannot register for ANTH 540 if student has credit for ANTH 340.

ANTH 541 - MUSEUMS AND HERITAGE: EXHIBITING ART, EXHIBITING CULTURE
Short Title: MUSEUMS AND HERITAGE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A wide-ranging introduction to museum studies with a particular focus on the collection and exhibition of cultural heritage materials. We will examine how heritage objects are displayed and represented in museums of art, natural historical history, and heritage. Topics include looking and ethics of collecting, policies of display, changing roles for museums; exhibition design and curatorial practice. Instructor Permission Required. Graduate/Undergraduate Equivalency: ANTH 341. Mutually Exclusive: Cannot register for ANTH 541 if student has credit for ANTH 341.

ANTH 542 - ETHNOGRAPHIES OF CARE
Short Title: ETHNOGRAPHIES OF CARE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An ethnographically grounded exploration of the political, social, and intimate relations that constitute care in various situations of life and death. We ask how particular populations come to be understood as requiring, receiving, or being entitled to care? Who becomes obliged to provide care? And what are care's collateral effects? Graduate/Undergraduate Equivalency: ANTH 342. Mutually Exclusive: Cannot register for ANTH 542 if student has credit for ANTH 342.

ANTH 544 - CITY/CULTURE
Short Title: CITY/CULTURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course treats both the theorization and the ethnographic exploration of the urban imaginary; urban spaces and practices; urban, suburban, and post-urban planning; city-states, colonial cities, and capital cities; and the late 20th century metropolis. Graduate/Undergraduate Equivalency: ANTH 344. Mutually Exclusive: Cannot register for ANTH 544 if student has credit for ANTH 344.

ANTH 545 - THE POLITICS OF THE PAST: ARCHAEOLOGY IN SOCIAL CONTEXT
Short Title: ARCHAEOLOGY IN SOCIAL CONTEXT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the way that archaeological evidence of the past has been used and viewed by particular groups at different times. Using case studies, the course considers issues of gender, race, Eurocentrism, political domination and legitimacy that emerge from critical analysis of representations of the past by archaeologists, museums, and collectors. Graduate/Undergraduate Equivalency: ANTH 345. Mutually Exclusive: Cannot register for ANTH 545 if student has credit for ANTH 345.

ANTH 547 - THE U.S. AS A FOREIGN COUNTRY
Short Title: THE U.S. AS A FOREIGN COUNTRY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course looks at selected aspects of American culture and society from an anthropological point of view. Readings derive from the works of both foreign and native observers, past and present. Graduate/Undergraduate Equivalency: ANTH 347. Mutually Exclusive: Cannot register for ANTH 547 if student has credit for ANTH 347.
ANTH 548 - ANTHROPOLOGIES OF NATURE
Short Title: ANTHROPOLOGIES OF NATURE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class examines the uses and makings of nature in accounts of the human and post-human. It introduces students to nature as an object of study, as an analytic and as a heuristic. Some of the topics the course explores include the nature-culture dyad, nature as resource, science and technology and the remaking of nature, economies of nature, materiality, nature and kinship, and natural ontologies. Graduate/Undergraduate Equivalency: ANTH 355. Mutually Exclusive: Cannot register for ANTH 548 if student has credit for ANTH 348.

ANTH 549 - THE ANTHROPOLOGY OF ETHICS
Short Title: THE ANTHROPOLOGY OF ETHICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Philosophical ethics argues over the proper criteria of the definition and the assessment of ethical action. This course focuses on an emerging and increasingly salient anthropological project: empirical inquiry into the themes and variations of ethical systems and the sociocultural rationale for their existence and reproduction. Graduate/Undergraduate Equivalency: ANTH 349. Mutually Exclusive: Cannot register for ANTH 549 if student has credit for ANTH 349.

ANTH 550 - HISTORICAL ANTHROPOLOGIES OF RELIGION
Short Title: HISTORICAL ANTHROPOLOGIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the study of the religious past through conjunctions of anthropology and history. Readings will include books and selections by Max Weber, Marshall Sahlins, Victor Turner, Jacques Le Goff, Aron Gurevich, and others. Cross-list: RELI 555.

ANTH 551 - CULTURES OF NATIONALISM
Short Title: CULTURES OF NATIONALISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the cultural dimensions of nationalism, particularly around the creation of forms of “peoplehood” that seem to be presupposed by almost all nation-building projects. Texts to be analyzed will include the Declaration of Independence, the United States Constitution, and the Declaration of the Rights of Man. Graduate/Undergraduate Equivalency: ANTH 351. Mutually Exclusive: Cannot register for ANTH 551 if student has credit for ANTH 351.

ANTH 553 - CULTURES OF INDIA
Short Title: CULTURES OF INDIA
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retrench normative arrangements of gender. Cross-list: SWGS 554. Graduate/Undergraduate Equivalency: ANTH 354. Mutually Exclusive: Cannot register for ANTH 553 if student has credit for ANTH 353. Repeatable for Credit.

ANTH 554 - ILLNESS, DISABILITY, AND THE GENDERED BODY
Short Title: DISABILITY AND GENDERED BODIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retrench normative arrangements of gender. Cross-list: SWGS 554. Graduate/Undergraduate Equivalency: ANTH 354. Mutually Exclusive: Cannot register for ANTH 554 if student has credit for ANTH 354.

ANTH 555 - SPACE, PLACE, AND LANDSCAPE
Short Title: SPACE, PLACE, AND LANDSCAPE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of the way archaeologists study space, place and landscape, including studies that emphasize ecological, symbolic, political economic and religious aspects. Recent theoretical work on space, place, and landscape will be emphasized, as well as archaeological methods of investigation and interpretation, including remote sensing, surveying, and GIS. Graduate/Undergraduate Equivalency: ANTH 355. Mutually Exclusive: Cannot register for ANTH 555 if student has credit for ANTH 355.
ANTH 558 - THE FOURTH WORLD: ISSUES OF INDIGENOUS PEOPLES
Short Title: FOURTH WORLD: INDIGENOUS PEOPLE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In contrast with people self-identified within political structures of the First, Second and Third Worlds, Fourth World peoples are, generally speaking, "stateless peoples." In this course we will examine both how this "unofficial" status affects their struggle for self-determination and how native peoples engage traditional beliefs and practices for self-empowerment. Through readings, films and speakers we will examine current conflicts facing indigenous people in North and South America, the Soviet Union, Europe, Asia, and Australia. Graduate/Undergraduate Equivalency: ANTH 358. Mutually Exclusive: Cannot register for ANTH 558 if student has credit for ANTH 358.

ANTH 561 - LATIN AMERICAN TOPICS
Short Title: LATIN AMERICAN TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines contemporary cultural and political dynamics in Latin America. Topics include: race, ethnicity and indigenousness; borders, migrations and diaspora; genocide and state violence; neo-colonialisms and neo-liberalisms; sexuality, gender and class dynamics; social movements and activism; the politics and practices of medicine and religion; popular culture, media and technology. Graduate/Undergraduate Equivalency: ANTH 361. Mutually Exclusive: Cannot register for ANTH 561 if student has credit for ANTH 361.

ANTH 564 - AFRICAN ARCHAEOLOGY FIELD TECHNIQUES
Short Title: AFRICAN ARCHAEOLOGY FLD TECHNIQUES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, basic field archaeology techniques are taught on-site in an archaeological context in Africa with emphasis on excavation methods, artifact recovery, and recording techniques. Students will excavate stone structures and a variety of historical deposits. Fieldwork takes place in Africa, June-July. Graduate/Undergraduate Equivalency: ANTH 364. Mutually Exclusive: Cannot register for ANTH 564 if student has credit for ANTH 364. Repeatable for Credit.
Course URL: www.songomnara.rice.edu/fieldschool.htm (http://www.songomnara.rice.edu/fieldschool.htm)

ANTH 566 - SCIENCE, LOCAL AND GLOBAL
Short Title: SCIENCE, LOCAL AND GLOBAL
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores science as a transnational phenomenon, focusing on the pathways along which it flows around the world. Topics include differences in local styles of reasoning, dynamics of international scientific collaborations, transnational migration of knowledge workers, the role of science in nationalist projects, and the commodification of science. Graduate/Undergraduate Equivalency: ANTH 366. Mutually Exclusive: Cannot register for ANTH 566 if student has credit for ANTH 366.

ANTH 570 - ARCHAEOLOGICAL LABORATORY TECHNIQUES AND ANALYSIS
Short Title: ARCHAEOLOGICAL LAB ANALYSIS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Techniques of processing, conserving, and recording archaeological materials are emphasized. Students will become familiar with procedures for pottery, glass, metals, and building materials, in addition to plant and animal remains. Course work includes lectures, hands-on lab work, and informal discussion. Graduate/Undergraduate Equivalency: ANTH 370. Repeatable for Credit.
ANTH 571 - MONEY AND EVERYDAY LIFE  
**Short Title:** MONEY AND EVERYDAY LIFE  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Money is such a part of everyday modern life that it is hard for us to imagine living without it. Yet in many pre-modern societies, gift-exchange was as important as money is in our own. This course will look at the cultural dimensions of systems of exchange, ranging from gift giving among Northwest Coast Indians to foreign currency exchanges between financial institutions. Along with the classic work of Marx and Simmel on money and capital, we will also cover some of the anthropological work on gifts and exchange, such as that of Mauss, Levi-Strauss, and Bourdieu, as well as some of the contemporary debates initiated by Bataille and Derrida. Graduate/Undergraduate Equivalency: ANTH 371. Mutually Exclusive: Cannot register for ANTH 571 if student has credit for ANTH 371.

ANTH 572 - CULTURES OF CAPITALISM  
**Short Title:** CULTURES OF CAPITALISM  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Most of us think of capitalism as primarily an economic phenomenon. Yet, it also has a profoundly cultural dimension. This class will examine how capitalism and related phenomena, such as commodification, markets and marketing, corporate finance and the calculation of risk, both affect and are affected by culture. We will consider the impact of capitalist markets on social relations and gender identities; on ideals of patriotism, responsibility and success; and on popular culture and leisure practices. We will also ask how people resist, appropriate and modify in culturally specific ways the logic and institutions of a global capitalist order. Graduate/Undergraduate Equivalency: ANTH 372. Mutually Exclusive: Cannot register for ANTH 572 if student has credit for ANTH 372.

ANTH 574 - ASIAN PREHISTORY  
**Short Title:** ASIAN PREHISTORY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course covers select topics in the archaeology and paleoanthropology of Asia from the arrival of Homo erectus to the development of the earliest civilizations. Class discussions will focus on the history of exploration in Asia and the main debates that have shaped the study of prehistory in the largest continent on Earth. Graduate/Undergraduate Equivalency: ANTH 374. Mutually Exclusive: Cannot register for ANTH 574 if student has credit for ANTH 374.

ANTH 577 - CULTURAL, ECOLOGICAL, AND BIOLOGICAL PERSPECTIVES ON HUMAN HEALTH AND DISEASE  
**Short Title:** CULTURAL, ECOLOGICAL, AND BIOLOGICAL PERSPECTIVES ON HUMAN HEALTH AND DISEASE  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Cultural, ecological, and biological perspectives on human health and disease throughout the world. Graduate/Undergraduate Equivalency: ANTH 381. Mutually Exclusive: Cannot register for ANTH 577 if student has credit for ANTH 577.

ANTH 578 - PLACE AND MEMORY IN ASIAN AND EUROPEAN CINEMA  
**Short Title:** PLACE AND MEMORY IN ASIAN AND EUROPEAN CINEMA  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser-known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: HART 691. Graduate/Undergraduate Equivalency: ANTH 378. Mutually Exclusive: Cannot register for ANTH 578 if student has credit for ANTH 378.

ANTH 579 - MEDICAL ANTHROPOLOGY  
**Short Title:** MEDICAL ANTHROPOLOGY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 379. Mutually Exclusive: Cannot register for ANTH 579 if student has credit for ANTH 379.

ANTH 580 - GLOBAL HEALTH JUSTICE: HEALTHCARE INEQUALITIES IN CONFLICTS  
**Short Title:** GLOBAL HEALTH JUSTICE  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 380. Mutually Exclusive: Cannot register for ANTH 580 if student has credit for ANTH 380.

ANTH 581 - MEDICAL ANTHROPOLOGY  
**Short Title:** MEDICAL ANTHROPOLOGY  
**Department:** Anthropology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will explore in-depth case studies of transnational health justice movement in order to address critical themes of health inequalities in the context of conflict. We will attend to topical themes including gender inequality, class struggle, healthcare systems and their variations, childhood and chronic illness, the intersection between environment and health, and the role of scientific knowledge in claims for health justice. Graduate/Undergraduate Equivalency: ANTH 378. Mutually Exclusive: Cannot register for ANTH 578 if student has credit for ANTH 378.
ANTH 582 - BODY, TECHNOLOGY, ENHANCEMENT
Short Title: BODY, TECHNOLOGY, ENHANCEMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on the body and the various technologies that are used to optimize it. Includes topics such as cosmetic surgery, diet supplementation, pharmaceutical enhancement and body art. Graduate/Undergraduate Equivalency: ANTH 382. Mutually Exclusive: Cannot register for ANTH 582 if student has credit for ANTH 382. Repeatable for Credit.

ANTH 584 - PALEO-TECHNOLOGY
Short Title: PALEO-TECHNOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This Stone Age semester will immerse students in hunter-gatherer lifeways and the innovations that allowed our ancestors to survive. Student 'bands' will complete cooperative learning tasks to ensure group survival (assessment). Most class meetings will be held in outdoor space on campus. Graduate/Undergraduate Equivalency: ANTH 384. Mutually Exclusive: Cannot register for ANTH 584 if student has credit for ANTH 384.

ANTH 585 - MEDIA, CULTURE, AND SOCIETY
Short Title: MEDIA, CULTURE, AND SOCIETY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers a theoretical and ethnographic overview of past, current, and future anthropological research on media. Topics rotate but can include: cultural conservation among indigenous peoples, spectacle and sexuality, nationalism, advertising, journalism, and news-making, political communication and activism, technology and social change. Graduate/Undergraduate Equivalency: ANTH 385. Mutually Exclusive: Cannot register for ANTH 585 if student has credit for ANTH 385.

ANTH 586 - MEDICAL ANTHROPOLOGY OF FOOD AND HEALTH
Short Title: MEDICINE, FOOD, AND HEALTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Food is increasingly understood and manipulated at the molecular level, and used in therapy or disease-prevention. This course focuses on the fluid intersection of biomedicine and nutrition as changes in agriculture, food safety, and research into the physiological and genetic effects of food alter how Western cultures eat. Graduate/Undergraduate Equivalency: ANTH 386. Mutually Exclusive: Cannot register for ANTH 586 if student has credit for ANTH 386.

ANTH 589 - THE ARCHAEOLOGY OF FOOD
Short Title: ARCHAEOLOGY OF FOOD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers a broad anthropological perspective on food and culture, as well as the way that archaeologists attempt to reconstruct the subsistence technologies and diets of ancient peoples. Topics include forager and agricultural subsistence technologies, the origins of food production, feasting, food and identity, and gender and food. Graduate/Undergraduate Equivalency: ANTH 389. Mutually Exclusive: Cannot register for ANTH 589 if student has credit for ANTH 389.

ANTH 590 - CULTURE, NARRATION, AND SUBJECTIVITY
Short Title: CULTURE, NARRATION, AND SUBJECTIVITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines how linguistic and narrative structures interact to produce specific cultures of interpretation. The focus will be on linguistic and literary representations of subjectivity. This course will use novels by Western authors, such as Virginia Woolf and Dostoevsky, and some Chinese materials as comparison. Graduate/Undergraduate Equivalency: ANTH 390. Mutually Exclusive: Cannot register for ANTH 590 if student has credit for ANTH 390.

ANTH 591 - SPECULATIVE FUTURES
Short Title: SPECULATIVE FUTURES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Drawing from "CliFi," "Speculative Fiction," and global anthropological case studies, this course analyzes a series of potential futures as earthly conditions continue to be altered by human activity. Students will develop speculative future models through assessing climate conditions, population displacement, ethics, ecological transformations and human practices and values. Graduate/Undergraduate Equivalency: ANTH 391. Mutually Exclusive: Cannot register for ANTH 591 if student has credit for ANTH 391.
ANTH 593 - THE ANTHROPOLOGY OF TOXICITY: RETHINKING HEALTH AND SOVEREIGNTY
Short Title: ANTHROPOLOGY OF TOXICITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers methodological and thematic approaches employed in the historical archaeology of slavery and the African diaspora in the Americas from the fifteenth to the nineteenth centuries. Archaeologists are uniquely positioned to study enslaved people through their material culture, and in this case especially, archaeologists have the opportunity to apply their particular approaches since written documents relating to the African diaspora are overwhelmingly written by the enslavers, not the enslaved. In this class emphasis is placed on what the archaeological analyses of the material record reveal about slavery and the everyday lives of enslaved individuals, including plantation life, labor management of the planters, work habits of the enslaved, leisure time, economic networks, kinship, religious practices, retentions, and resistance, to name but a few. Students interested in African and African diaspora studies, archaeology, slavery, and race should find this course useful. Graduate/Undergraduate Equivalency: ANTH 394. Mutually Exclusive: Cannot register for ANTH 594 if student has credit for ANTH 394.

ANTH 595 - CULTURES AND COMMUNICATION
Short Title: CULTURES AND COMMUNICATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigates the relations between different forms of communication - speech, print, film, and cultural constructions such as audiences, publics, and communities. Graduate/Undergraduate Equivalency: ANTH 395. Mutually Exclusive: Cannot register for ANTH 595 if student has credit for ANTH 395.

ANTH 596 - LAW AND RESISTANCE IN THE EVERYDAY
Short Title: LAW AND RESISTANCE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore how people interact with the law in their everyday lives — in the U.S. and elsewhere. Examples will include how individuals experience and respond to policing, examining the effects of immigration and border security policies, and tracing how people and groups mobilize to challenges laws perceived as unjust. Graduate/Undergraduate Equivalency: ANTH 396. Mutually Exclusive: Cannot register for ANTH 596 if student has credit for ANTH 396.

ANTH 597 - ANTHROPOLOGY JOURNAL CLUB
Short Title: ANTHROPOLOGY JOURNAL CLUB
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students select, read, and discuss current articles from leading journals in sociocultural anthropology and related fields. Department Permission Required. Graduate/Undergraduate Equivalency: ANTH 397. Repeatable for Credit.

ANTH 598 - ETHNOGRAPHIC RESEARCH METHODS
Short Title: ETHNOGRAPHIC RESEARCH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course considers the practice of ethnographic research (design, data collection and analysis). Topics include the contentious canonization of fieldwork & the ethnographic method, ethics & human subjects, rethinking the field & collaboration. Projects include participant observation, field notes, interviewing, and analysis of archival, ephemeral & audio/visual materials. Graduate/Undergraduate Equivalency: ANTH 398. Mutually Exclusive: Cannot register for ANTH 598 if student has credit for ANTH 398.
ANTH 600 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

ANTH 601 - GRADUATE PROSEMINAR IN ANTHROPOLOGY: THEORY, METHOD, AND PROFESSIONALIZATION
Short Title: GR PROSEMINAR IN ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course combines an introduction to classic and contemporary social theory with an overview of the evolving research foci of anthropology today and with detailed discussion of the process of anthropological professionalization. The course is designed for graduate students in anthropology but is open to others with advance permission. Repeatable for Credit.

ANTH 602 - ANTHROPOLOGY PROPOSAL WRITING SEMINAR
Short Title: PROPOSAL WRITING SEMINAR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar prepares anthropology graduate students to write a successful grant proposal. Basic elements of proposal writing, including problem conceptualization, literature reviews, and methods will be covered.

ANTH 603 - ANALYZING PRACTICE
Short Title: ANALYZING PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A critical review of work informed by what has sometimes been deemed the "key concept" of anthropological theory and research since the 1960s. Special attention will be devoted to the analytics of practice developed by Foucault, by Bourdieu, and by de Certeau. Graduate/Undergraduate Equivalency: ANTH 403. Mutually Exclusive: Cannot register for ANTH 603 if student has credit for ANTH 403.

ANTH 604 - METHOD, AND PROFESSIONALIZATION
Short Title: METHOD, AND PROFESSIONALIZATION
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course combines an introduction to classic and contemporary social theory with an overview of the evolving research foci of anthropology today and with detailed discussion of the process of anthropological professionalization. The course is designed for graduate students in anthropology but is open to others with advance permission. Repeatable for Credit.

ANTH 606 - COGNITIVE STUDIES
Short Title: COGNITIVE STUDIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Relations between thought, language, and culture. Special emphasis given to natural systems of classification and the logical principles underlying them. Mutually Exclusive: Cannot register for ANTH 606 if student has credit for ANTH 406. Repeatable for Credit.

ANTH 609 - SLOW READING SEMINAR
Short Title: SLOW READING SEMINAR
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to develop "slow reading" techniques that allow students to carefully pursue lines of thought that emerge from a text. It is anchored in ethnographic texts and will require students to identify and explore the conceptual genealogies and intellectual conversations in which a text participates. We will explore the required texts and complement them with collectively defined thematics. The seminar will train student in different reading approaches all characterized by slow engagement. Graduate/Undergraduate Equivalency: ANTH 409. Repeatable for Credit.

ANTH 610 - THE ETHNOGRAPHY OF DEVELOPMENT
Short Title: THE ETHNOGRAPHY OF DEVELOPMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course suggests the necessity of a solid ethnographic grounding for both practical development work and for further intellectual growth of the discipline. Graduate/Undergraduate Equivalency: ANTH 410. Mutually Exclusive: Cannot register for ANTH 610 if student has credit for ANTH 410.

ANTH 612 - RHETORIC
Short Title: RHETORIC
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of classical theories. Intensive discussion of contemporary theories and applications in a wide variety of disciplines. Mutually Exclusive: Cannot register for ANTH 612 if student has credit for ANTH 412. Repeatable for Credit.
ANTH 613 - CULTURE AFTER COMMUNISM
Short Title: CULTURE AFTER COMMUNISM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines cultural transformations in the late- and post-socialist societies of East-Central Europe, the former Soviet Union, and Asia. Explores everyday discourses and practices through which new forms of property, selfhood, nationalism, and the state are emerging, and the legacy of cold war politics for ethnographic representation of these societies. Graduate/Undergraduate Equivalency: ANTH 413. Mutually Exclusive: Cannot register for ANTH 613 if student has credit for ANTH 413.

ANTH 614 - HERMENEUTICS AND LINGUISTIC ANTHROPOLOGY
Short Title: HERMENEUTICS &LINGUISTIC ANTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Application of linguistic theory and method in the analysis of cultural materials. Includes discourse analysis and the structure and interpretation of texts and conversation. Mutually Exclusive: Cannot register for ANTH 614 if student has credit for ANTH 414. Repeatable for Credit.

ANTH 615 - THEORIES OF MODERNITY/POSTMODERNITY
Short Title: THEORIES OF MODERNITY/POSTMOD
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced course for graduate students and undergraduate majors with interests in the interdisciplinary field of cultural studies. Readings in the work of Marx, Weber, Durkheim, Saussure, Gadamer, Derrida, Balitktn, Foucault, and others. Mutually Exclusive: Cannot register for ANTH 615 if student has credit for ANTH 415.

ANTH 616 - CLASSICAL SOCIAL THEORY
Short Title: CLASSICAL SOCIAL THEORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the foundations of social and cultural analysis. It will address precursors, but will focus primarily on works that introduce and develop the concepts and epistemic apparatuses that inaugurated such disciplines as sociology, anthropology, religious studies, and political theory as we know them today.

ANTH 617 - ONTOLOGIES, VITALITIES, THINGS
Short Title: ONTOLOGIES, VITALITIES, THINGS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course focuses on emerging and established thematics in cultural anthropology that have been drawn from philosophical (and other) interventions concerning being, matter, vibrancy, vitality and objects and considers how these conceptual domains can be productively engaged in the empirical work of anthropology. Graduate/Undergraduate Equivalency: ANTH 417. Mutually Exclusive: Cannot register for ANTH 617 if student has credit for ANTH 417.

ANTH 618 - WRITING ETHNOGRAPHY
Short Title: WRITING ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In the 1980s and 1990s, an experimental turn in Anthropology brought literary theory to the analysis and understanding of ethnography as a form of writing. Critiques of the (1986) text, Writing Culture, resulted in a return to the monograph, but in alternate forms, opening a space for post-humanist and interdisciplinary engagements with ethnography. This course explores the different forms and possibilities for writing ethnography. Graduate/Undergraduate Equivalency: ANTH 418. Recommended Prerequisite(s): Upper division coursework in English and/or Anthropology.

ANTH 620 - ETHNOGRAPHY STUDIO
Short Title: ETHNOGRAPHY STUDIO
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will read a selection of contemporary ethnographies deemed "exemplary" by diverse audiences paired with theoretical works that the authors claim in their arguments. The course will focus on how ethnographies are structured, the central issues they investigate, and how they go about doing this. The central task of the class is to analyze, critically but also productively, what rigor and creativity mean in the ethnographic investigation of contemporary and recurring questions and problems, relations between questions, theory and ethnography will also be explored through students' own ethnographic writing. Graduate/Undergraduate Equivalency: ANTH 420. Mutually Exclusive: Cannot register for ANTH 620 if student has credit for ANTH 420.
ANTH 622 - INFRASTRUCTURES AND POWER
Short Title: INFRASTRUCTURES AND POWER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course asks why “infrastructure” – that which enables other things to happen – has recently become such an important concept in the human sciences. After reviewing recent and classic theoretical approaches we explore recent anthropological studies of infrastructures-in-action ranging from information and media infrastructures to environmental and biotic infrastructures to infrastructures of governance and power. Graduate/Undergraduate Equivalency: ANTH 422. Mutually Exclusive: Cannot register for ANTH 622 if student has credit for ANTH 422.

ANTH 623 - VALUES AND VALUABLES
Short Title: VALUES AND VALUABLES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Conceptually and ethnographically explores different value regimes and the objects and subjects that help define them. Reviews theories of value and explores the creative configurations that people around the world make of them. Some of the topics include: capitalism and financial capitalism, the materialization of value, affective attachments to valuables, and the social life of valuables.

ANTH 624 - MAJOR FIGURES IN CULTURAL AND SOCIAL THOUGHT
Short Title: CULTURAL AND SOCIAL THOUGHT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course comprises an in–depth examination of the career and major works of a scholar of significant influence within and beyond anthropology. In Fall 2018, the course will focus on anthropologist Mary Douglas. Graduate/Undergraduate Equivalency: ANTH 424. Mutually Exclusive: Cannot register for ANTH 624 if student has credit for ANTH 424. Repeatable for Credit.

ANTH 625 - ADVANCED TOPICS IN ARCHAEOLOGY
Short Title: ADVANCED TOPICS IN ARCHAEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on selected topics in archaeological analysis and theory. The course will variously focus on ceramic analysis and classification, archaeological sampling in regional survey and excavation, and statistical approaches to data analysis and presentation. Please consult with the department for additional information. Graduate/Undergraduate Equivalency: ANTH 425. Mutually Exclusive: Cannot register for ANTH 625 if student has credit for ANTH 425. Repeatable for Credit.

ANTH 626 - UNDERGROUND SPATIALITIES STUDIO
Short Title: UNDERGROUND SPATIALITIES
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class introduces students to thinking about space volumetrically and kinesthetically. It builds on scholarship that calls our attention to the geopolitics of volumetric space using underground water movement as a case study. It is a hands on studio that combines anthropology, arts, and architecture. Graduate/Undergraduate Equivalency: ANTH 426. Mutually Exclusive: Cannot register for ANTH 626 if student has credit for ANTH 426.

ANTH 628 - FEMINIST SCIENCE AND TECHNOLOGY STUDIES
Short Title: FEMINIST STS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will survey the field of Social Studies of Science and Technology (STS) emphasizing the contributions made by feminist and queer scholarship. It will combine foundational theoretical works with contemporary ethnographies. Graduate/Undergraduate Equivalency: ANTH 428. Mutually Exclusive: Cannot register for ANTH 628 if student has credit for ANTH 428.
ANTH 629 - ACTIVISM AND SOCIAL MOVEMENTS
Short Title: ACTIVISM AND SOCIAL MOVEMENTS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Movements to alleviate inequalities constitute important cultural and political interventions globally. This course examines advocacy practices to create and sustain social movements and political struggles. Cases included grassroots advocacy, NGOs, transnational and technological activism; environmental justice; human rights; gender, ethnic and sexual rights; consumption and globalization; democratization and neoliberalism. Graduate/Undergraduate Equivalency: ANTH 429. Mutually Exclusive: Cannot register for ANTH 629 if student has credit for ANTH 429.

ANTH 642 - MUSEUMS: THEORY AND PRACTICE
Short Title: MUSEUMS: THEORY & PRACTICE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course combines readings and lectures exploring the representation of anthropological and archaeological materials in museum exhibits with an internship at the Houston Museum of Natural Science. The Graduate-Level course will engage students at a more advanced theoretical level through additional reading assignments and an additional paper. Graduate/Undergraduate Equivalency: ANTH 442. Mutually Exclusive: Cannot register for ANTH 642 if student has credit for ANTH 442.

ANTH 643 - ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH
Short Title: RACE ETHNICITY AND HEALTH
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores how human bodies and biomedical ‘facts’ are culturally constructed with respect to race and ethnicity, and examines how these constructs variably impact experiences of health, well-being and illness. Instructor Permission Required. Graduate/Undergraduate Equivalency: ANTH 443. Mutually Exclusive: Cannot register for ANTH 643 if student has credit for ANTH 443.

ANTH 644 - CULTURE, PSYCHIATRY, AND MENTAL ILLNESS
Short Title: CULTURE AND MENTAL ILLNESS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar takes psychiatric practice as an object of anthropological investigation. It explores the ways in which emotional suffering and therapeutic systems are constituted within various social, cultural, and historical contexts. Topics include affect, anxiety, psychosis, and somatization in cross-cultural perspective; diagnostic standardization; the cultural history of psychiatry; institutionalization and deinstitutionalization; psychiatric professionalization; the globalization of Western psychiatric practice; and critical anti-psychiatry movements. Graduate/Undergraduate Equivalency: ANTH 444. Mutually Exclusive: Cannot register for ANTH 644 if student has credit for ANTH 444.

ANTH 645 - EXPERTS AND CULTURES OF EXPERTISE
Short Title: EXPERTS/EXPERTISE
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Studies of experts and expert knowledge have recently become one of the most vibrant and promising areas of research in social-cultural anthropology today. This seminar reviews recent anthropological research on experts and their cultures of expertise and situates it in comparison to theoretical, sociological and historical engagements of expert cultures. Graduate/Undergraduate Equivalency: ANTH 445. Mutually Exclusive: Cannot register for ANTH 645 if student has credit for ANTH 445.

ANTH 646 - ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY
Short Title: ADV BIOMEDICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Cross-list: ENST 646. Graduate/Undergraduate Equivalency: ANTH 446. Recommended Prerequisite(s): ANTH 381 or ANTH 581. Mutually Exclusive: Cannot register for ANTH 646 if student has credit for ANTH 446.
ANTH 647 - MODERN ETHNOGRAPHY AND THE ETHNOGRAPHY OF MODERNITY
Short Title: MODERN ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the strategies of representation, the methodologies, and the diagnostic categories to which anthropologists have resorted in coming to terms with such phenomena as rationalization, economic and informational globalization, and the commodification of culture. Graduate/Undergraduate Equivalency: ANTH 447. Mutually Exclusive: Cannot register for ANTH 647 if student has credit for ANTH 447.

ANTH 648 - PHENOMENOLOGICAL ANTHROPOLOGY
Short Title: PHENOMENOLOGICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar explores phenomenological theory in the human sciences beginning with Hegel and Marx and examines its uptake in recent works of anthropological ethnography and theory. The course will focus especially upon questions of selfhood and alterity, affect and emotion, and the senses and knowledge. Graduate/Undergraduate Equivalency: ANTH 448. Mutually Exclusive: Cannot register for ANTH 648 if student has credit for ANTH 448.

ANTH 649 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is "sexuality" across cultural milieux? This course analyzes understandings and practices of sexuality from a global, comparative perspective, including different social configurations of gender and intimacy, reproduction, sensuality and the erotic. Case studies explore the complex relationships between sexuality and gender, ethnicity, nationalism, globalization, commodification, politics, media, health and medicine. Graduate/Undergraduate Equivalency: ANTH 449. Mutually Exclusive: Cannot register for ANTH 649 if student has credit for ANTH 449.

ANTH 650 - PEDAGOGY
Short Title: PEDAGOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Training in the basic elements of teaching for anthropology graduate students with 18 credit hours of graduate coursework. Recommended Prerequisite(s): Third year and above graduate students. Repeatable for Credit.

ANTH 651 - THE ANTHROPOLOGY OF WATER
Short Title: THE ANTHROPOLOGY OF WATER
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will offer students concepts and methodological resources to conduct their own research projects on water related issues from an anthropological perspective. It will include reading materials and fieldwork according to each student's project specificities. Graduate/Undergraduate Equivalency: ANTH 451. Mutually Exclusive: Cannot register for ANTH 651 if student has credit for ANTH 451.

ANTH 652 - RESEARCH DESIGN
Short Title: RESEARCH DESIGN
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of the process of conceptualization and concrete design of dissertation-linked research. Recommended for third- or fourth-year graduate students.

ANTH 653 - COLLATERAL AFTERWORLDS
Short Title: COLLATERAL AFTERWORLDS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Drawing on ethnography and social theory, this course develops analytics attuned to the socialities, intimacies, temporalities, and forms of ethic that emerge in the precarious spaces of liberal and democratic violence and failure. In refugee camps or climate catastrophes, in a queer present or under enduring legacies, what happens if we think the social with hope and futurity in abeyance? Graduate/Undergraduate Equivalency: ANTH 453. Repeatable for Credit.

ANTH 656 - HERITAGE MANAGEMENT
Short Title: HERITAGE MANAGEMENT
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of the process of conceptualization and concrete design of dissertation-linked research. Recommended for third- or fourth-year graduate students.

ANTH 657 - MODERN ETHNOGRAPHY AND THE ETHNOGRAPHY OF MODERNITY
Short Title: MODERN ETHNOGRAPHY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the strategies of representation, the methodologies, and the diagnostic categories to which anthropologists have resorted in coming to terms with such phenomena as rationalization, economic and informational globalization, and the commodification of culture. Graduate/Undergraduate Equivalency: ANTH 447. Mutually Exclusive: Cannot register for ANTH 657 if student has credit for ANTH 447.

ANTH 658 - PHENOMENOLOGICAL ANTHROPOLOGY
Short Title: PHENOMENOLOGICAL ANTHROPOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar explores phenomenological theory in the human sciences beginning with Hegel and Marx and examines its uptake in recent works of anthropological ethnography and theory. The course will focus especially upon questions of selfhood and alterity, affect and emotion, and the senses and knowledge. Graduate/Undergraduate Equivalency: ANTH 448. Mutually Exclusive: Cannot register for ANTH 658 if student has credit for ANTH 448.

ANTH 659 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is "sexuality" across cultural milieux? This course analyzes understandings and practices of sexuality from a global, comparative perspective, including different social configurations of gender and intimacy, reproduction, sensuality and the erotic. Case studies explore the complex relationships between sexuality and gender, ethnicity, nationalism, globalization, commodification, politics, media, health and medicine. Graduate/Undergraduate Equivalency: ANTH 449. Mutually Exclusive: Cannot register for ANTH 659 if student has credit for ANTH 449.
ANTH 658 - HUMAN OSTEOLOGY
Short Title: HUMAN OSTEOLOGY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the analysis of human skeletal material from archaeological sites. Instructor Permission Required. Graduate/Undergraduate Equivalency: ANTH 458. Mutually Exclusive: Cannot register for ANTH 658 if student has credit for ANTH 458.

ANTH 660 - ADVANCED ARCHAEOLOGICAL THEORY
Short Title: ADVANCED ARCHAEOLOGICAL THEORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ANTH 205
Description: History and analysis of the major currents of archaeological theory from the Encyclopaedist origins of positivism, through cultural evolutionism and historical particularism, to the New Archaeology and current trends. Graduate/Undergraduate Equivalency: ANTH 460. Mutually Exclusive: Cannot register for ANTH 660 if student has credit for ANTH 460. Repeatable for Credit.

ANTH 663 - WEST AFRICAN PREHISTORY
Short Title: WEST AFRICAN PREHISTORY
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar providing in-depth consideration of the later prehistoric archaeology (late Stone Age and Iron Age) of the West African subcontinent. Graduate/Undergraduate Equivalency: ANTH 463. Mutually Exclusive: Cannot register for ANTH 663 if student has credit for ANTH 463.

ANTH 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

ANTH 683 - DOCUMENTARY AND ETHNOGRAPHIC FILM
Short Title: DOCUMENTARY AND ETHNOGRAPHIC FILM
Department: Anthropology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the history of documentary and ethnographic cinema from a worldwide perspective. Includes both canonical and alternative films and film movements, with emphasis on the shifting and overlapping boundaries of fiction and nonfiction genres. Graduate/Undergraduate Equivalency: ANTH 483. Mutually Exclusive: Cannot register for ANTH 683 if student has credit for ANTH 483.

ANTH 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Anthropology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Applied Physics (APPL)

APPL 490 - RQI - REU SUMMER RESEARCH PROGRAM
Short Title: UNDERGRAD SUMMER RESEARCH-REU
Department: Applied Physics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research experience under supervision of graduate students and faculty. Summer semester only. Department Permission Required.

APPL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Applied Physics
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

APPL 750 - INTERNATIONAL RESEARCH INTERNSHIP
Short Title: INTERNATIONAL RESEARCH INTERN
Department: Applied Physics
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research internship in a foreign laboratory at institutes and universities in Mainz, Germany and Toulouse, France. Department Permission Required.
APPL 800 - RESEARCH AND THESIS  
**Short Title:** RESEARCH AND THESIS  
**Department:** Applied Physics  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Thesis research under the supervision of faculty. Repeatable for Credit.

**Arabic (ARAB)**

ARAB 141 - FIRST YEAR ARABIC I  
**Short Title:** FIRST YEAR ARABIC I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Development of interactional competence in Arabic (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ARAB 141 if student has credit for ARAB 161.

ARAB 142 - FIRST YEAR ARABIC II  
**Short Title:** FIRST YEAR ARABIC II  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ARAB 141  
**Description:** Continuation of ARAB 141. Development of interactional competence in Arabic (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ARAB 142 if student has credit for ARAB 262.

ARAB 222 - AP CREDIT IN ARABIC LANGUAGE  
**Short Title:** AP/OTH CREDIT ARABIC LANGUAGE  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Transfer Courses  
**Course Type:** Transfer  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement and International Baccalaureate exams. This credit counts toward the total credit hours required for graduation. Credit may not be received for both ARAB 222 and ARAB 141. Does not receive distribution credit.

ARAB 238 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARAB 263 - SECOND YEAR ARABIC I  
**Short Title:** SECOND YEAR ARABIC I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ARAB 142  
**Description:** Continuation of ARAB 142. Development of interactional competence in Arabic (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ARAB 263 if student has credit for ARAB 201.
ARAB 264 - SECOND YEAR ARABIC II
Short Title: SECOND YEAR ARABIC II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARAB 263
Description: Continuation of ARAB 263. Development of interactional competence in Arabic (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Arabic. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for ARAB 264 if student has credit for ARAB 202.

ARAB 301 - THIRD YEAR ARABIC I
Short Title: THIRD YEAR ARABIC I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARAB 264
Description: Continuation of ARAB 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

ARAB 302 - THIRD YEAR ARABIC II
Short Title: THIRD YEAR ARABIC II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARAB 301
Description: Continuation of ARAB 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

ARAB 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Architecture (ARCH)

ARCH 101 - PRINCIPLES OF ARCHITECTURE I - ORDER
Short Title: PRINCIPLES OF ARCHITECTURE I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARCH 101
Description: This introductory studio frames architecture as a discipline through a set of short problems that examine the relationship between formal and spatial ordering, technical and material concepts, and issues of use and program, culminating in a small synthetic project. Permission Required by Director of Undergraduate Studies, Rice School of Architecture. Department Permission Required.

ARCH 102 - PRINCIPLES OF ARCHITECTURE II - REPRESENTATION
Short Title: PRINCIPLES OF ARCHITECTURE II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARCH 101
Description: What is the role of information and representation within the design process? This studio introduces and explores the tools and concepts of notation and representation in architecture and how they serve as instruments of inquiry in a design processes. The use of precedents is a focus early in the semester, in which students analyze a project and its formal concepts that inform the design of a small architectural project in the second part of the course.

ARCH 105 - ENVIRONMENT, CULTURE AND SOCIETY
Short Title: ENVIRONMENT, CULTURE & SOCIETY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This introductory course in environmental studies helps students to better understand the complex interrelationship between human cultures and their social and physical environments. Lectures and assignments draw upon the methods and expertise of architecture, the humanities and the social sciences. This is a core course of Rice’s Environmental Studies minor. Cross-list: ENST 100.
ARCH 201 - PRINCIPLES OF ARCHITECTURE III - ORGANIZATION
Short Title: PRINCIPLES OF ARCHITECTURE III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARCH 102
Description: What is the relationship between the internal organization of a building's program and its immediate external context? The potentials of different structural systems in relationship to programmatic diagrams are foregrounded to develop an architectural proposal for a public program of medium size.

ARCH 202 - PRINCIPLES OF ARCHITECTURE IV - EFFECTS
Short Title: PRINCIPLES OF ARCHITECTURE IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ARCH 201
Description: What is the relationship between material, technique and spatial or formal effects? This studio focuses on developing a student's understanding and experimentation with material and tectonic systems, building envelopes, and issues of sustainability.

ARCH 207 - TECHNOLOGY I
Short Title: TECHNOLOGY I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course will introduce students to historical and contemporary structures through multi-media presentations, computer-based visualizations, field trips, and hands-on experiments with materials of construction and physical models of structures. This course also addresses sustainability issues specific to structural systems such as embodied energy, life-cycle cost, and material recycling. This is the introductory course on the art and science of designing engineered structures and is the first of four required courses in the architectural technology sequence. It is intended for first or second year students interested in both civil engineering and architecture. Graduate/Undergraduate Equivalency: ARCH 507. Mutually Exclusive: Cannot register for ARCH 207 if student has credit for ARCH 507.
Course URL: [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses)

ARCH 225 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: HART 225. Graduate/Undergraduate Equivalency: ARCH 525. Mutually Exclusive: Cannot register for ARCH 225 if student has credit for ARCH 525.
Course URL: [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses)

ARCH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARCH 301 - INTERMEDIATE PROBLEMS IN ARCHITECTURE I - SITUATION
Short Title: INTERMEDIATE PROBLEMS ARCH I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 202
Description: What is the relationship between the building and larger systems of the environment, constructed and natural, in which it sits and affects? This studio focuses on issues of architecture's relationship to site and landscape environmental considerations and the relationship between systems and processes across the scales of architecture, urban and infrastructure.

Course URL: [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses)
ARCH 302 - INTERMEDIATE PROBLEMS IN ARCHITECTURE II - LEGIBILITY
Short Title: INTERMEDIATE PROBLEMS ARCH II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 301
Description: How do questions of legibility in architecture engage a global milieu? This typically travel focused studio develops a large and complex architectural project in an urban context, examining through design the relationship between a specific locale and culture on the one hand and on the other a global economy and discipline.

ARCH 305 - ARCHITECTURE FOR NON-ARCHITECTS
Short Title: ARCH FOR NON-ARCHITECTS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to increase awareness and appreciation of broad range of architectural issues through lectures, comparative building studies, design exercises, readings, and discussion. Intended for non-majors in architecture, the course will provide students the opportunity to understand the architectural design process through hands-on experience. Enrollment limited to 15 and requires instructor permission. Instructor Permission Required.

ARCH 309 - TECHNOLOGY II
Short Title: TECHNOLOGY II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is the second part of the introduction to contemporary building structures. The topics covered are the design of concrete structures and design of specialized structures including tilt wall, long span, and high rise. Each structural type is explored in terms of overall performance, design of individual components, and the relation of structure to other building subsystems such as foundations, enclosure, and interiors. This course also addresses sustainability issues specific to structural systems and is the second of four required courses in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 509. Recommended Prerequisite(s): Prior completion of Technology I. Mutually Exclusive: Cannot register for ARCH 309 if student has credit for ARCH 509.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 310 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES
Short Title: VIRTL RECONSTR HISTORCL CITIES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ANTH 346, COMP 316, HART 316.

ARCH 311 - HOUSTON ARCHITECTURE
Short Title: HOUSTON ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course consists of a series of illustrated lectures and walking tours that describe and analyze the architecture of Houston from the city's founding in 1836 to the present. Characteristic building types and exceptional works of architecture are identified; tours stimulate an awareness of the historical dimension of urban sites. Mutually Exclusive: Cannot register for ARCH 311 if student has credit for ARCH 611.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 313 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: CASE STUDIES IN SUSTAIN DESIGN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore sustainable design from initial sustainable facility concepts and team organizations, to enlisting community support and process assessment. The course will develop into details about sustainable design, lessons learned, processes and outcomes. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: ENST 313. Graduate/Undergraduate Equivalency: ARCH 613. Mutually Exclusive: Cannot register for ARCH 313 if student has credit for ARCH 613.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
ARCH 314 - TECHNOLOGY III
Short Title: TECHNOLOGY III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The building envelope is the collection of material assemblies that separate a building's interior from the exterior environment. This course examines the interaction of those assemblies with natural forces such as temperature, moisture, and solar radiation and the details of construction which have evolved to mitigate them. The subject matter includes both traditional building exterior wall and roof construction and newer technologies such as rainscreen, green roof, and building surface media systems. This course addresses sustainability issues related to enclosure systems through energy cost and carbon footprint analysis. It is the third of four required courses in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 514. Mutually Exclusive: Cannot register for ARCH 314 if student has credit for ARCH 514.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

Short Title: BRAZIL BUILT
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From Brazil Builds, MOMA's 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today's worldwide attention on Brazil, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: HART 310. Graduate/Undergraduate Equivalency: ARCH 515. Mutually Exclusive: Cannot register for ARCH 315 if student has credit for ARCH 515.

ARCH 316 - TECHNOLOGY IV
Short Title: TECHNOLOGY IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course addresses building environmental systems including power, water, and wastewater with an emphasis on air condition systems. Through multimedia presentations and fieldtrips, students are taught to analyze the thermal environment in a variety of building types and select equipment to meet these needs. Sustainability issues related to environmental systems such as energy conservational and life cycle costs are also addressed. This is the fourth required course in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 516. Mutually Exclusive: Cannot register for ARCH 316 if student has credit for ARCH 516.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 318 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and /or Turkish helpful but not necessary. Cross-list: HART 308. Graduate/Undergraduate Equivalency: ARCH 518. Mutually Exclusive: Cannot register for ARCH 318 if student has credit for ARCH 518.
ARCH 321 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via "repositioning" or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufactures, contractors, developers, owners, and Rice campus facility managers Cross-list: ENST 321. Graduate/Undergraduate Equivalency: ARCH 621. Mutually Exclusive: Cannot register for ARCH 321 if student has credit for ARCH 621.

ARCH 322 - CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS
Short Title: CASE STUDIES IN SUSTAINABILITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This course will explore application of high performance, sustainable design to specific Rice University campus and facility targets. In partnership with Rice University leadership, the team effort will develop "regenerative redesign" approaches based on investigation of other campuses’ case study. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Cross-list: ENST 322. Mutually Exclusive: Cannot register for ARCH 322 if student has credit for ARCH 622.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 323 - SEMINAR IN ARCHITECTURE
Short Title: SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Small, focused, discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. Each section is a different seminar topic. This seminar series is open to RSA undergraduate and graduate students. Students from other departments may enroll in the course with instructor permission. See our website for more information: arch.rice.edu/courses. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Graduate/Undergraduate Equivalency: ARCH 523. Repeatable for Credit.

ARCH 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: CLAS 326, HART 326. Graduate/Undergraduate Equivalency: ARCH 626. Mutually Exclusive: Cannot register for ARCH 326 if student has credit for ARCH 626.

ARCH 327 - CONSTRUCT
Short Title: CONSTRUCT
Department: Architecture
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3,4
Course Level: Undergraduate Upper-Level
Description: Construct involves graduate and undergraduate students in the design and construction of real projects at various scales. Elective courses and course sequences will be formatted to address the specific requirements of each project as required. Please consult postings for further information. Space is limited, and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 327 if student has credit for ARCH 627. Repeatable for Credit.

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
ARCH 329 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the street as a focus of urban life in 18th and 19th century. We will look at ways streets functioned as spaces of livelihood, sociability, and transgression in cities such as London, Paris, Istanbul, Amsterdam & Cairo. Cross-list: HART 329, HIST 329. Graduate/Undergraduate Equivalency: ARCH 529. Mutually Exclusive: Cannot register for ARCH 329 if student has credit for ARCH 529.

ARCH 330 - CONSTRUCT II
Short Title: CONSTRUCT II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3,4
Course Level: Undergraduate Upper-Level
Description: Construct involves graduate and undergraduate students in the design and construction of real projects at various scales. Elective courses and course sequences will be formatted to address the specific requirements of each project as required. Please consult postings for further information. Space is limited, and registration does not guarantee a space in this course. The final roster is formulated on the first day of class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 330 if student has credit for ARCH 630. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 331 - IMPERIAL CITY: ISTANBUL 1453-1922
Short Title: ISTANBUL IMPERIAL CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. Cross-list: HART 321. Graduate/Undergraduate Equivalency: ARCH 521. Mutually Exclusive: Cannot register for ARCH 331 if student has credit for ARCH 521.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 332 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. Cross-list: HART 322. Graduate/Undergraduate Equivalency: ARCH 522. Mutually Exclusive: Cannot register for ARCH 332 if student has credit for ARCH 522.

ARCH 340 - LECTURE IN ARCHITECTURE
Short Title: LECTURE IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Large, introductory-level course in lecture/discussion format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: www.arch.rice.edu. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 345 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: HART 345. Graduate/Undergraduate Equivalency: ARCH 645. Mutually Exclusive: Cannot register for ARCH 345 if student has credit for ARCH 235/ARCH 535.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
ARCH 346 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE II (1850-1950)
Short Title: FOUNDATIONS IN ARCH II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 345 or ARCH 645 or HART 345 or HART 645
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated be 1850 and 1950. Graduate/Undergraduate Equivalency: ARCH 646. Mutually Exclusive: Cannot register for ARCH 346 if student has credit for ARCH 336/ARCH 536.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 350 - INTRODUCTORY ARCHITECTURE SEMINAR
Short Title: INTRODUCTORY ARCHITECTURE SEM
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Small, focused, introductory-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses

Short Title: FOUNDATIONS IN ARCH III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ARCH 225 or ARCH 525) and (ARCH 345 or ARCH 645) and (ARCH 346 or ARCH 646)
Description: Lectures and discussions focusing on significant architectural and urban practices between 1950 and 2000. Graduate/Undergraduate Equivalency: ARCH 652. Mutually Exclusive: Cannot register for ARCH 352 if student has credit for ARCH 337/ARCH 537.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 353 - PHOTOGRAPHY FOR ARCHITECTS
Short Title: PHOTO FOR ARCHITECTS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: Exploration of a variety of photographic techniques for architectural research, design, and presentation. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 353 if student has credit for ARCH 653.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 359 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: FILM 359, HART 359. Graduate/Undergraduate Equivalency: ARCH 654. Mutually Exclusive: Cannot register for ARCH 359 if student has credit for ARCH 654.

ARCH 363 - ARCHITECTURAL FREEHAND DRAWING WORKSHOP
Short Title: ARCH FREEHAND DRAWING WKSHOP
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The object of this workshop is to explore, practice and develop a series of drawing methods and techniques in the context of the architectural design process. Emphasis will be on the development of free-hand drawing skills that will enhance the ability the ability of the design in communicating conceptual ideas. The course will consist of a combination of lectures/demonstrations, in-class drawing exercises, and out-of-class assignments. Two sketch books (one at mid-term and one at the end of the semester) will also be required. Attendance is critical. Please come to the first class prepared to draw with pen and an 8 1/2 x 11 or 9 x 12 sketch pad. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Mutually Exclusive: Cannot register for ARCH 363 if student has credit for ARCH 663. Repeatable for Credit.
ARCH 366 - RIO DE JANEIRO: A SOCIAL AND ARCHITECTURAL HISTORY

**Short Title:** RIO DE JANEIRO  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The development of Rio de Janeiro from a colonial capital to an Olympic host with emphasis on the peoples of the city and evolution of the urban panorama. Cross-list: HIST 366. Mutually Exclusive: Cannot register for ARCH 366 if student has credit for ARCH 666.

ARCH 367 - SCULPTURE STUDIO  
**Short Title:** SCULPTURE STUDIO  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ARTS 165  
**Description:** Study of advanced problems in various sculptural media. Limited enrollment. The roster is formulated on the first day of class by the instructor, who may allow additional registration for majors and under-classmen. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARTS 366.

ARCH 375 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES  
**Short Title:** LATIN-EUROPE/LATIN-AMERICA  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course challenges our pre-conceived maps of the world, highlighting Latin America's place within our understanding of modernity as a product of transnational interconnections. Transversing the Atlantic, this course traces the interactions of capitalism and culture, science and aesthetics, and the ideologies that informed and formed the urban fabric and spatial politics of important cities in the modern Latin world - Paris, Rio de Janeiro, Rome, Buenos Aires, Barcelona, Havana, and Brasilia. Cross-list: HART 375. Graduate/Undergraduate Equivalency: ARCH 675. Mutually Exclusive: Cannot register for ARCH 375 if student has credit for ARCH 675.

ARCH 376 - THE ARCHITECTURE OF BOOKS  
**Short Title:** THE ARCHITECTURE OF BOOKS  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Over the past decades, the conception of books has become an integral part of any architectural practice. This seminar aims to introduce students to the book as a means to think about the production of space, and as a critical vessel to discuss and disseminate architectural ideas. In the first part of the seminar students will engage in an in-depth analysis of seminal architectural publications, considering their historical background, conceptual background and introducing such topics as typography and layout- and in-class discussions of relevant literature. The second part will be dedicated to the actual "building" of a small architectural publication, which will reflect critical and editorial skills as well as the craft of bookmaking. Graduate/Undergraduate Equivalency: ARCH 676. Mutually Exclusive: Cannot register for ARCH 376 if student has credit for ARCH 676.

ARCH 400 - ARCHITECTURE UNDERGRADUATE INTERNSHIP  
**Short Title:** ARCH UNDERGRAD INTERNSHIP  
**Department:** Architecture  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours vary each semester. Subject to approval of faculty advisor and director or undergraduate studies. Instructor Permission Required. Repeatable for Credit. Department Permission Required. Repeatable for Credit.

ARCH 401 - ADVANCED TOPICS IN ARCHITECTURE - THE METROPOLIS  
**Short Title:** ADVANCED TOPICS ARCHITECTURE  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 6  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ARCH 302  
**Description:** What is the agency of the architect as a public figure and the contributions of architecture to the emerging and existing public realms? This studio focuses on a very large building program or urban scaled design, engaging the complexity of the communities and shared spaces of the emerging metropolis/megalopolis.
ARCH 423 - PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE
Short Title: PROF&MGMT IN ARCH PRACTICE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 302
Description: This course is required for the completion of the Bachelor of Architecture professional degree; students may take the course in their fourth year of architectural study in the BA program or in their final year of study in the BArch program. Graduate/Undergraduate Equivalency: ARCH 623. Mutually Exclusive: Cannot register for ARCH 423 if student has credit for ARCH 623.
Course URL: www.arch.rice.edu/academics/current-courses/ (http://www.arch.rice.edu/academics/current-courses/)

ARCH 431 - URBANISM: ARCHITECTURE AND THE CITY
Short Title: URBANISM: ARCH & THE CITY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The intention of a course on urbanism is to view architecture in light of the city. An assembly of theoretical considerations serves to construct a perspective that allows us to critically assess modern urbanization. The goal is to help students form their own perspective on the practice of architecture and to broaden their understanding of the relentless urbanization that dominates the modern world. Students are expected to read extensively, to be prepared to discuss topics of urbanism in class, to form two-person teams to read selected texts to be presented in class and to shape a term project that may take the form of a final paper or a design proposal dealing with suburban issues. Grades are expected to be based on class participation, the reading project and the term project. Graduate/Undergraduate Equivalency: ARCH 631. Mutually Exclusive: Cannot register for ARCH 431 if student has credit for ARCH 631.

ARCH 433 - THE CULLINAN SEMINAR
Short Title: THE CULLINAN SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar for advanced undergraduate students and graduate students will focus on the writings and practice of the semester’s four RSA Cullinan visitors: art historian David Joselit (Yale), architect Michael Maltzan (L.A.), architect Alejandro Zaera-Polo (London), and art historian Neil Levine (Harvard). The seminar will be a platform for researching these four topics, including additional background references, other writings by these four figures as well as writings about them and their own work. Additionally, the seminar will feature one studio session each with the four speakers. Graduate/Undergraduate Equivalency: ARCH 633. Mutually Exclusive: Cannot register for ARCH 433 if student has credit for ARCH 633. Repeatable for Credit.

ARCH 403 - DEGREE PROJECT SEMINAR
Short Title: DEGREE PROJECT SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A special-topics seminar establishing the intellectual/design foundation for the spring Watkin Studio (ARCH 402). Texts, case studies, and design methods will be used to investigate focused subjects of particular contemporary relevance as established by the instructor. Assignments can consist of written papers, analytical projects, elaborations of design techniques, and other forms of investigation. Students are approved for section and topic, taking their preference into account. Students enrolled in each section will continue to work with the same instructor in the spring studio. Instructor Permission Required.

ARCH 402 - ADVANCED TOPICS IN ARCHITECTURE - WILLIAM WARD WATKIN
Short Title: ADVANCED TOPICS ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARCH 401 and ARCH 403
Description: The final design studio of the four year BA in Architecture is conducted as design research studio in which students pursue a topic and develop a brief under a conceptual umbrella provided by the instructor. The studio is linked to the ARCH 403 design research seminar taken the semester prior to the studio.

ARCH 412 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Cross-list: HART 412. Graduate/Undergraduate Equivalency: ARCH 612. Mutually Exclusive: Cannot register for ARCH 412 if student has credit for ARCH 612. Repeatable for Credit.
ARCH 450 - INTERMEDIATE ARCHITECTURE SEMINAR
Short Title: INTERMEDIATE ARCH SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This course will explore current issues in the formulation and implementation of housing and urban development programs in the U.S. An oral presentation and written paper on a specific topic within a general policy area required.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 452 - PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY
Short Title: PRACTICING UTOPIA
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will explore the alliance between aesthetics, science, and ideology at the core of French and Latin American modernism. Focusing on early twentieth-century scientific and cultural dialogues between France and Latin America, this seminar will have as main territories of exploration: Paris, Rio de Janeiro, Buenos Aires, Havana, and Caracas. Cross-list: HART 463.

ARCH 455 - HOUSING AND URBAN PROGRAMS: ISSUES IN POLICY
Short Title: HOUSE&URBAN PROG:ISSUES POLICY
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This course will explore current issues in the formulation and implementation of housing and urban development programs in the U.S. An oral presentation and written paper on a specific topic within a general policy area required.
Course URL: www.arch.rice.edu/academics/current-courses

ARCH 456 - FUTURES OF THE BOOK
Short Title: FUTURES OF THE BOOK
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From an ongoing interest in the book as a physical object, to the exploration of its potentials expanding into a four-dimensional digital realm, to rapidly changing demands for the storage and retrieval of knowledge, this master class will provide a platform to engage experts from various disciplines in a debate on the shifting futures of the book. Instructor Permission Required. Graduate/Undergraduate Equivalency: ARCH 656. Mutually Exclusive: Cannot register for ARCH 456 if student has credit for ARCH 656.

ARCH 461 - SPECIAL PROJECTS
Short Title: SPECIAL PROJECTS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research or design arranged in consultation with a faculty member. Subject to approval of faculty advisor and director or undergraduate studies. Instructor Permission Required. Repeatable for Credit.

ARCH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Internship/Practicum, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARCH 491 - REAL ESTATE LAB: DEVELOP, DESIGN AND CONSTRUCTION
Short Title: RE LAB:DEVELOP DESIGN CONSTR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Graduate/Undergraduate Equivalency: ARCH 691. Mutually Exclusive: Cannot register for ARCH 491 if student has credit for ARCH 691. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses
ARCH 500 - PRECEPTORSHIP PROGRAM
Short Title: PRECEPTORSHIP PROGRAM
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Full time internship for nine to twelve months under
guidance of appointed preceptor. Required for all students enrolled in the
Bachelor or Architecture degree program. Repeatable for Credit.

ARCH 501 - CORE DESIGN STUDIO I
Short Title: CORE DESIGN STUDIO I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The first in a sequence of four studios that foregrounds the
relationship between form and program. By underscoring this pairing, the
studio suggests that program and form amplify one another (rather than
one superseding the other). The studio establishes a foundation in visual
culture through examples in architecture and other design disciplines,
art, and art history, as well as exercises in visual/spatial discrimination.
The studio stresses the importance of iteration throughout the semester:
individual projects emphasize a production/critique/refinement cycle, as
does the overall sequence of projects that make up the entire studio.

ARCH 502 - CORE DESIGN STUDIO II
Short Title: CORE DESIGN STUDIO II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The second in a sequence of four studios that foregrounds the
relationship between form, program, and technology.

ARCH 503 - CORE DESIGN STUDIO III
Short Title: CORE DESIGN STUDIO III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The third in a sequence of four studios that foregrounds the
relationship between form, program, and technology.

ARCH 504 - CORE DESIGN STUDIO IV
Short Title: CORE DESIGN STUDIO IV
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The fourth in a sequence of four studios that foregrounds
the relationship between form, program, and technology.

ARCH 505 - TECHNOLOGY I
Short Title: TECHNOLOGY I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course will introduce students to historical and
contemporary structures through multi-media presentations, computer-
related visualizations, field trips, and hands-on experiments with materials
of construction and physical models of structures. This course also
addresses sustainability issues specific to structural systems such as
embodied energy, life-cycle cost, and material recycling. This is the
introductory course on the art and science of designing engineered
structures and is the first of four required courses in the architectural
technology sequence. It is intended for first year graduate students
in architecture. Graduate/Undergraduate Equivalency: ARCH 207.
Mutually Exclusive: Cannot register for ARCH 505 if student has credit for
ARCH 207.
Course URL: www.arch.rice.edu/academics/current-courses (http://
www.arch.rice.edu/academics/current-courses/)

ARCH 506 - TECHNOLOGY II
Short Title: TECHNOLOGY II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course will introduce students to historical and
contemporary building structures. The topics covered are the design
of concrete structures and design of specialized structures including
tilt wall, long span, and high rise. Each structural type is explored in
terms of overall performance, design of individual components, and the
relation of structure to other building subsystems such as foundations,
enclosure, and interiors. This course also addresses sustainability issues
specific to structural systems and is the second of four required courses
in the architectural technology sequence. Graduate/Undergraduate
Equivalency: ARCH 309. Recommended Prerequisite(s): Prior completion
of Technology I. Mutually Exclusive: Cannot register for ARCH 506 if student has credit for ARCH 309.
Course URL: www.arch.rice.edu/academics/current-courses (http://
www.arch.rice.edu/academics/current-courses/)
ARCH 514 - TECHNOLOGY III  
**Short Title:** TECHNOLOGY III  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Undergraduate level students may not enroll.  
**Course Level:** Graduate  
**Description:** The building envelope is the collection of material assemblies that separate a building's interior from the exterior environment. This course examines the interaction of those assemblies with natural forces such as temperature, moisture, and solar radiation and the details of construction which have evolved to mitigate them. The subject matter includes both traditional building exterior wall and roof construction and newer technologies such as rainscreen, green roof, and building surface media systems. This course addresses sustainability issues related to enclosure systems through energy cost and carbon footprint analysis. It is the third of four required courses in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 314. Mutually Exclusive: Cannot register for ARCH 514 if student has credit for ARCH 314.  
**Course URL:** [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses)  

ARCH 515 - BRAZIL BUILT: THE CLINIC, THE TROPICAL AND THE AESTHETIC  
**Short Title:** BRAZIL BUILT  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Undergraduate level students may not enroll.  
**Course Level:** Graduate  
**Description:** From Brazil Builds, MOMA’s 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today’s worldwide attention on Brail, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: HART 526. Graduate/Undergraduate Equivalency: ARCH 315. Mutually Exclusive: Cannot register for ARCH 515 if student has credit for ARCH 315.  

ARCH 516 - TECHNOLOGY IV  
**Short Title:** TECHNOLOGY IV  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Undergraduate level students may not enroll.  
**Course Level:** Graduate  
**Description:** This course addresses building environmental systems including power, water, and wastewater with an emphasis on air condition systems. Through multimedia presentations and fieldtrips, students are taught to analyze the thermal environment in a variety of building types and select equipment to meet these needs. Sustainability issues related to environmental systems such as energy conservational and life cycle costs are also addressed. This is the fourth required course in the architectural technology sequence. Graduate/Undergraduate Equivalency: ARCH 316. Mutually Exclusive: Cannot register for ARCH 516 if student has credit for ARCH 316.  
**Course URL:** [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses)  

ARCH 518 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE  
**Short Title:** LIVING IN THE CITY  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Undergraduate level students may not enroll.  
**Course Level:** Graduate  
**Description:** Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and/or Turkish helpful but not necessary. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 508. Graduate/Undergraduate Equivalency: ARCH 318. Mutually Exclusive: Cannot register for ARCH 518 if student has credit for ARCH 318.  

ARCH 521 - IMPERIAL CITY: ISTANBUL 1453-1922  
**Short Title:** IMPERIAL CITY  
**Department:** Architecture  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Undergraduate level students may not enroll.  
**Course Level:** Graduate  
**Description:** This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman Empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 521. Graduate/Undergraduate Equivalency: ARCH 331. Mutually Exclusive: Cannot register for ARCH 521 if student has credit for ARCH 331.
ARCH 522 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 522. Graduate/Undergraduate Equivalency: ARCH 322. Mutually Exclusive: Cannot register for ARCH 522 if student has credit for ARCH 322.

ARCH 523 - SEMINAR IN ARCHITECTURE
Short Title: SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Small, focused, discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar series is open to RSA undergraduate and graduate students. Students from other departments may enroll in the course with instructor permission. "See our website for more information: arch.rice.edu/courses". Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Graduate/Undergraduate Equivalency: ARCH 323. Repeatable for Credit.

ARCH 525 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: HART 545. Graduate/Undergraduate Equivalency: ARCH 225. Mutually Exclusive: Cannot register for ARCH 525 if student has credit for ARCH 225.

ARCH 529 - STREETS AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREETS AND URBAN LIFE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 529. Graduate/Undergraduate Equivalency: ARCH 329. Mutually Exclusive: Cannot register for ARCH 529 if student has credit for ARCH 329.

ARCH 550 - INTERMEDIATE/ADVANCED ARCHITECTURE SEMINAR
Short Title: INTER/ADVANCED ARCH SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: Small, focused, intermediate/advanced-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.

ARCH 601 - ARCHITECTURAL PROBLEMS: STUDIO
Short Title: ARCHITECTURAL PROBLEMS:STUDIO
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Practical work experience for students who have completed at least four semesters in the Option I Program prior to their entrance into the regular Master of Architecture studio sequence. Instructor Permission Required. Repeatable for Credit.

ARCH 602 - M. ARCH. I INTERNSHIP
Short Title: M. ARCH. I INTERNSHIP
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Practical work experience in professional architecture for students who are 1st-year Master of Architecture students. Instructor Permission Required. Repeatable for Credit.

ARCH 603 - M. ARCH. II INTERNSHIP
Short Title: M. ARCH. II INTERNSHIP
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Practical work experience in professional architecture for students who are 2nd-year Master of Architecture students. Instructor Permission Required. Repeatable for Credit.

ARCH 604 - M. ARCH. III INTERNSHIP
Short Title: M. ARCH. III INTERNSHIP
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Practical work experience in professional architecture for students who are 3rd-year Master of Architecture students. Instructor Permission Required. Repeatable for Credit.

ARCH 605 - M. ARCH. IV INTERNSHIP
Short Title: M. ARCH. IV INTERNSHIP
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Practical work experience in professional architecture for students who are 4th-year Master of Architecture students. Instructor Permission Required. Repeatable for Credit.
ARCH 602 - ARCHITECTURAL PROBLEMS
Short Title: ARCHITECTURAL PROBLEMS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 10,12
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific buildings and facilities. Repeatable for Credit.

ARCH 605 - ARCHITECTURE FOR NON-ARCHITECTS INSTRUCTION
Short Title: NON-ARCHITECTS INSTRUCTION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: For selected graduate students only, this course will provide the opportunity for hands-on teaching experience by involvement in syllabus design and preparation of lectures, discussions, design exercises and other teaching methods, under the supervision of the course instructors. Enrollment limited to 6 and by permission only. Instructor Permission Required. Repeatable for Credit.

ARCH 610 - HISTORY, THEORY AND STRUCTURE/ PARIS PROGRAM (RSAP)
Short Title: HIST, THEORY & STRUCTR: PARIS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 6
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Seminar, comprised of separate modules, each addressing different issues of urban theory, historical evolution and structure of greater Paris, through lectures, discussions, research and site visits.

ARCH 612 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: HART 612. Graduate/Undergraduate Equivalency: ARCH 412. Mutually Exclusive: Cannot register for ARCH 612 if student has credit for ARCH 412. Repeatable for Credit.

ARCH 613 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Cross-list: ENST 613. Graduate/Undergraduate Equivalency: ARCH 313. Mutually Exclusive: Cannot register for ARCH 613 if student has credit for ARCH 313.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 615 - WOODSHOP SAFETY
Short Title: WOODSHOP SAFETY
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hour: 1
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course will cover all safety concerns in the model shop. Students will learn the proper set up and maintenance of the stationary tools as well as how to do basic fabrication. Students will learn basic material layout and produce objects using the tools as we cover them. Repeatable for Credit.

ARCH 620 - ARCHITECTURAL PROBLEMS: STUDIO/PARIS PROGRAM (RSAP)
Short Title: ARCHITECTURAL PROBLEMS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Advanced issues in building design and urban infrastructure using greater Paris as context. Emphasis on abstract thought and design capabilities relevant to systematic processes of designing specific architectural interventions in the urban context.
ARCH 621 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via "repositioning" or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufactures, contractors, developers, owners, and Rice campus facility managers. Cross-list: ENST 621. Graduate/Undergraduate Equivalency: ARCH 321. Mutually Exclusive: Cannot register for ARCH 621 if student has credit for ARCH 321.

ARCH 623 - PROFESSIONALISM AND MANAGEMENT IN ARCHITECTURAL PRACTICE
Short Title: PROF&MGMT IN ARCH PRACTICE
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: ARCH 423. Mutually Exclusive: Cannot register for ARCH 623 if student has credit for ARCH 423.

Course URL: [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses/)

ARCH 626 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: HART 626. Graduate/Undergraduate Equivalency: ARCH 326. Mutually Exclusive: Cannot register for ARCH 626 if student has credit for ARCH 326.

ARCH 631 - URBANISM I: THE CITY THEORETICALLY CONSIDERED
Short Title: URBANISM I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The intention of a course on urbanism is to view architecture in light of the city. An assembly of theoretical considerations serves to construct a perspective that allows us to critically assess modern urbanization. The goal is to help students form their own perspective on the practice of architecture and to broaden their understanding of the relentless urbanization that dominates the modern world. Students are expected to read extensively, to be prepared to discuss topics of urbanism in class, to form two-person teams to read selected texts to be presented in class and to shape a term project that may take the form of a final paper or a design proposal dealing with suburban issues. Grades are based on class participation, the reading project and the term project. Graduate/Undergraduate Equivalency: ARCH 431. Mutually Exclusive: Cannot register for ARCH 631 if student has credit for ARCH 431.

ARCH 633 - THE CULLINAN SEMINAR
Short Title: THE CULLINAN SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This seminar for advanced undergraduate students and graduate students will focus on the writings and practice of the semester's four RSA Cullinan visitors: art historian David Joselit (Yale), architect Michael Maltzan (L.A.), architect Alejandro Zaera-Polo (London), and art historian Neil Levine (Harvard). The seminar will be a platform for researching these four topics, including additional background references, other writings by these four figures as well as writings about them and their own work. Additionally, the seminar will feature one seminar session each with the four speakers. Graduate/Undergraduate Equivalency: ARCH 433. Mutually Exclusive: Cannot register for ARCH 633 if student has credit for ARCH 433. Repeatable for Credit.

ARCH 645 - FOUNDATIONS AND THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: HART 645. Graduate/Undergraduate Equivalency: ARCH 345. Mutually Exclusive: Cannot register for ARCH 645 if student has credit for ARCH 235/ARCH 535.

Course URL: [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses/)
ARCH 646 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE II (1850-1950)
Short Title: FOUNDATIONS IN ARCH II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Prerequisite(s): ARCH 345 or ARCH 645 or HART 345 or HART 645
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated between 1850 and 1950. Cross-list: HART 506. Graduate/Undergraduate Equivalency: ARCH 346. Mutually Exclusive: Cannot register for ARCH 646 if student has credit for ARCH 336/ARCH 536.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 650 - ADVANCED ARCHITECTURE SEMINAR
Short Title: ADVANCED ARCH SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: Small, focused, advanced-level course in discussion, workshop and/or design-based format on topics related to current research in architecture. Current offerings and enrollment eligibility are listed on the Rice Architecture website: arch.rice.edu. Space is limited and registration does not guarantee a space in this course. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 651 - PRESENT FUTURE SEMINAR
Short Title: PRESENT FUTURE SEMINAR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: The Present Future seminar will examine the history of future projection as it came to dominate modern architecture and urbanism in the period of 1914-2014. The realization of such a large number of future projections over the preceding century allows us to examine their effects as they have now come to constitute our present. Focusing on modern urbanism, will trace both the historical and the contemporary effects of the future as it was imagined so long ago. Given the volatile historical moment that we are presently passing through, an effort will be made to understand the logic as well as the remaining potential of future projection as a design strategy today.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

Short Title: FOUNDATIONS IN ARCH III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Prerequisite(s): (ARCH 225 or ARCH 525) and (ARCH 345 or ARCH 645) and (ARCH 346 or ARCH 646)
Description: Lectures and discussions focusing on significant architectural and urban practices between 1950 and 2000. Graduate/Undergraduate Equivalency: ARCH 352. Mutually Exclusive: Cannot register for ARCH 652 if student has credit for ARCH 537.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 654 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities’ histories and theories of space and film. Cross-list: HART 659. Graduate/Undergraduate Equivalency: ARCH 359. Mutually Exclusive: Cannot register for ARCH 654 if student has credit for ARCH 359.

ARCH 655 - CONTEMPORARY PRACTICES IN ARCHITECTURE
Short Title: CONTEMPORARY PRACTICES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures and discussions focusing on issues and approaches central to current architectural discourse and practice. M.Archs take this course in their penultimate semester. Also open to undergraduates, seniors and above.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 656 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE III (1950-2000)
Short Title: FOUNDATIONS IN ARCH III
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Prerequisite(s): (ARCH 225 or ARCH 525) and (ARCH 345 or ARCH 645) and (ARCH 346 or ARCH 646)
Description: Lectures and discussions focusing on significant architectural and urban practices between 1950 and 2000. Graduate/Undergraduate Equivalency: ARCH 352. Mutually Exclusive: Cannot register for ARCH 652 if student has credit for ARCH 537.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 657 - CONTEMPORARY PRACTICES IN ARCHITECTURE
Short Title: CONTEMPORARY PRACTICES
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures and discussions focusing on issues and approaches central to current architectural discourse and practice. M.Archs take this course in their penultimate semester. Also open to undergraduates, seniors and above.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)
ARCH 676 - THE ARCHITECTURE OF BOOKS
Short Title: THE ARCHITECTURE OF BOOKS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Over the past decades, the conception of books has become an integral part of any architectural practice. This seminar aims to introduce students to the book as a means to think about the production of space, and as a critical vessel to discuss and disseminate architectural ideas. In the first part of the seminar students will engage in an in-depth analysis of seminal architectural publications, considering their historical background, conceptual background and introducing such topics as typography and layout and in-class discussions of relevant literature. The second part will be dedicated to the actual "building" of a small architectural publication, which will reflect critical and editorial skills as well as the craft of bookmaking. Graduate/Undergraduate Equivalency: ARCH 376. Mutually Exclusive: Cannot register for ARCH 676 if student has credit for ARCH 376.

ARCH 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Architecture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ARCH 690 - PEDAGOGY PRACTICUM
Short Title: PEDAGOGY PRACTICUM
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: This course addresses the development of skills for the teaching of History & Technology core courses. Weekly meetings will be held and supervised by faculty in the teaching of whose courses practicum students are involved. Department Permission Required. Repeatable for Credit.

ARCH 691 - REAL ESTATE LAB: DEVELOP DESIGN AND CONSTRUCTION
Short Title: RE LAB:DEVELOP DESIGN CONSTR
Department: Architecture
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Cross-list: MGMT 757. Graduate/Undergraduate Equivalency: ARCH 491. Mutually Exclusive: Cannot register for ARCH 691 if student has credit for ARCH 491. Repeatable for Credit.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ARCH 700 - PRACTICUM
Short Title: PRACTICUM
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Full-time internship service in approved local offices under interdisciplinary supervision. Emphasis on real world design, planning, or research experiences. Special tuition. May be taken in any semester or in summer. Instructor Permission Required. Repeatable for Credit.
ARCH 701 - THESIS PROPOSAL
Short Title: THESIS PROPOSAL
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course provides a structure in which the independent conceptual formulation, articulation, and critical evaluation of thesis proposals can take place. By the end of the semester, each student is expected to clearly outline a thesis focus, its architectural implications, contemporary relevance, and projected material results.

ARCH 702 - PRE-THESIS PREPARATION
Short Title: PRE-THESIS PREPARATION
Department: Architecture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: The aim of this course is to locate potential thesis topics and hone those topics by situating them within a lineage of architectural and urban paradigms. The aim is also to develop and rehearse a focused argument for your particular approach to the topic. The thesis design project tests this approach in a project, the underpinnings of which seek a synthesis of intellectual and design objectives. Thesis concludes with a public final review, where the project is evaluated both on its own terms and within the broader field of contemporary architectural discourse. Mutually Exclusive: Cannot register for ARCH 702 if student has credit for ARCH 638.

ARCH 703 - DESIGN THESIS STUDIO
Short Title: DESIGN THESIS STUDIO
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 10
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate

ARCH 711 - SPECIAL PROJECTS
Short Title: SPECIAL PROJECTS
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: Independent research or design arranged in consultation with a faculty member subject to approval of the student's faculty advisor and director. Repeatable for Credit.

ARCH 704 - DESIGN THESIS STUDIO (SPRING)
Short Title: DESIGN THESIS STUDIO (SPRING)
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: All architecture thesis students are required to provide a written document to the university on completion of their thesis as a requirement for graduation. This document, prepared in consultation with the thesis director and the director of the thesis program, should include a written and graphic description of the project and conform to the university requirements for thesis documents.

ARCH 705 - PRESENT FUTURE II
Short Title: PRESENT FUTURE II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: All architecture thesis students are required to provide a written document to the university on completion of their thesis as a requirement for graduation. This document, prepared in consultation with the thesis director and the director of the thesis program, should include a written and graphic description of the project and conform to the university requirements for thesis documents.

ARCH 706 - FUTURE ONE
Short Title: FUTURE ONE
Department: Architecture
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: ARCH 706 is the third core course of the Master of Arts degree program. It is the concluding semester of the three semester research project, the subject of which changes with each class. The purpose of the semester is to draw the conclusions of the project and produce and package the results. The formats vary with each project.

ARCH 729 - THESIS WRITTEN DOCUMENT (FALL)
Short Title: THESIS WRITTEN DOCUMENT (FALL)
Department: Architecture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: All architecture thesis students are required to provide a written document to the university on completion of their thesis as a requirement for graduation. This document, prepared in consultation with the thesis director and the director of the thesis program, should include a written and graphic description of the project and conform to the university requirements for thesis documents.

ARCH 730 - THESIS WRITTEN DOCUMENT (SPRING)
Short Title: THESIS WRITTEN DOCUMENT (SPRING)
Department: Architecture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: All architecture thesis students are required to provide a written document to the university on completion of their thesis as a requirement for graduation. This document, prepared in consultation with the thesis director and the director of the thesis program, should include a written and graphic description of the project and conform to the university requirements for thesis documents.

ARCH 751 - PRESENT FUTURE II
Short Title: PRESENT FUTURE II
Department: Architecture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Undergraduate level students may not enroll.
Course Level: Graduate
Description: ARCH 751 is the third core course of the Master of Arts degree program. It is the concluding semester of the three semester research project, the subject of which changes with each class. The purpose of the semester is to draw the conclusions of the project and produce and package the results. The formats vary with each project.

Art History (HART)

HART 100 - AP/OTH CREDIT IN ART HISTORY
Short Title: AP/OTH CREDIT IN ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement Exams. This credit counts toward the total credit hours required for graduation, but does not count toward total credit hours required for the Art History Major.
HART 101 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: CLAS 102, MDEM 111. Mutually Exclusive: Cannot register for HART 101 if student has credit for HART 220.

HART 102 - INTRODUCTION TO THE HISTORY OF WESTERN ART II: RENAISSANCE TO PRESENT
Short Title: INTRO HIST OF WESTERN ART II
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from the Renaissance through the 20th century.

HART 105 - KEY MONUMENTS AND ARTISTS OF WESTERN ART
Short Title: KEY MONUMENTS & ARTISTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An in-depth look at important moments in the history of European and American art, from the Renaissance to the 20th century. Rather than being a comprehensive survey, the course will focus on a limited number of works by leading artists in the fields of painting, sculpture, and architecture.

HART 115 - MONUMENTS AND METHODS OF ART HISTORY
Short Title: MONUMENTS AND METHODS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Focusing on a range of topics—from Greek temples to Chinese painting, Michelangelo to Andy Warhol—this class introduces students to a selection of primary monuments and figures from art history, as well as to some of the questions art historians have asked about them. Guest lecturers and visits to local museums are planned.

HART 125 - GREAT ARTISTS AND FILMS ABOUT THEM
Short Title: GREAT ARTISTS AND FILMS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will introduce the works of fourteen great artists from the Renaissance to modern times. We will learn about the artists through readings, images shown in class, trips to Houston’s museums, and by viewing feature-length films that dramatize the lives of the artists.

HART 180 - 14 FILMS YOU SHOULD SEE BEFORE YOU GRADUATE FROM RICE UNIVERSITY
Short Title: 14 FILMS BEFORE YOU GRADUATE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Featuring the important, but less familiar works of American and European directors from the 1930s - 1960s. This class represents an ideal mixture of modernist auteur cinema and shameless viewing pleasure. Cross-list: FILM 180.

HART 201 - ART AND ARCHITECTURE OF ANCIENT ROME
Short Title: ART AND ARCH OF ANCIENT ROME
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course tracks Rome's rise from a small village to a massive empire, through the lens of the art and architecture that the ancient Romans left behind. We'll examine the physical remains of this remarkable civilization, looking at famous monuments like the Colosseum and the Pantheon as well as lesser-known temples, houses, mosaics, wall-paintings, and sculptures that revolutionized the ancient world and helped to shape our own. Some course meetings will be held at area museums.
HART 202 - AVANT-GARDE AND AFTER: MODERN ART IN EUROPE, 1900-1945
Short Title: MODERN ART IN EUROPE, 1900-1945
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class surveys European art from roughly 1900-1945, paying particular attention to the social contexts in which this work emerged and the interpretive strategies that have been used to understand it. Among the topics to be considered are Cubism, Futurism, Constructivism, Dada, and Surrealism, as well as the reaction against these by emergent authoritarian regimes of the 1930s. Students cannot receive credit for HART 202 and HART 305.

HART 205 - ART SINCE 1945
Short Title: ART SINCE 1945
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the major developments, figures, and works of late modernism beginning with the shift, during the 1940s, from Paris to New York as the cultural center of avant-garde. The class charts the rise of Abstract Expressionism in the 1940s and 50s and follows its divided legacies in the 1960s and 70s. We will examine the post-modern debates of the 1980s and the 90s and conclude with a look at trends in contemporary art.

HART 207 - FOURTEEN ARTWORKS AT THE MFAH
Short Title: FOURTEEN ARTWORKS AT THE MFAH
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to provide students with no previous background in art history with an introduction to the discipline through the "in situ" study of 14 works from the permanent collection of The Museum of Fine Arts, Houston. Some of the topics to be addressed include British aristocratic portraiture, French Impressionist painting, the aesthetic dialogues of Matisse and Picasso, the abstracted sculptures of Brancusi and Calder, and the site-specific installation of Turrell's light tunnel.

HART 209 - BEGINNING DIGITAL PHOTOGRAPHY
Short Title: BEGINNING DIGITAL PHOTOGRAPHY
Department: Art History
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to digital photography through exploration of light, camera, and computer. Assignments include looking, taking, discussing, adjusting, printing and writing about photographs. The class is a balance of visual awareness, technical skills and meaning in the context of photography's continuing history. Cross-list: FOTO 210.

HART 216 - CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY
Short Title: GREEK ART AND ARCHAEOLOGY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art and archaeology of the ancient Greek world. Artistic media, such as sculpture and vase painting will be examined in a broad range of the material culture ancient Greeks created and used. Consideration of these materials within their cultural, social and religious contexts will be discussed. Cross-list: CLAS 218.

HART 220 - INTRODUCTION TO MEDIEVAL ART AND ARCHITECTURE OF WESTERN EUROPE
Short Title: INTRODUCTION TO MEDIEVAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will focus on art and architecture produced in Western Europe from the 4th to the 15th centuries. The broad survey of material will be covered chronologically and by geographic region. Mutually Exclusive: Cannot register for HART 220 if student has credit for CLAS 102/HART 101/MDEM 111.
HART 221 - INTRODUCTION TO ISLAMIC ART AND ARCHITECTURE
Short Title: INTRO TO ISLAMIC ART AND ARCH
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is an introduction to the monuments and masterpieces of Islamic art and architecture. Proceeding chronologically, we will examine building types such as mosques, tombs, and palaces, along with examples of pottery, calligraphy, and contemporary art. Special emphasis will be placed on the global context and cross-cultural dimensions of Islamic art. The course will have some meetings at the Museum of Fine Arts, Houston.

HART 225 - INTRODUCTION TO ARCHITECTURAL THINKING
Short Title: INTRO ARCHITECTURAL THINKING
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: ARCH 225. Graduate/Undergraduate Equivalency: HART 545. Mutually Exclusive: Cannot register for HART 225 if student has credit for HART 545.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 228 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HART 250 - CONTEMPORARY EUROPEAN CINEMA
Short Title: CONTEMPORARY EUROPEAN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class examines trends in European cinema of the last fifteen years. Particular attention will be given to the issues of history, memory and national identity in Europe's shifting geopolitical climate, and to the formal and aesthetic concerns with which filmmakers responded to these shifts. The discussion will include films by Michael Haneke, Fatih Akin, Christian Mingiu and others. Cross-list: FILM 250.

HART 257 - ART AND ART HISTORY OF THE LONG NINETEENTH CENTURY
Short Title: NINETEENTH-CENTURY ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the histories and methodologies of art from the long nineteenth century. Students will be introduced to major movements and artistic styles including Neoclassicism, Romanticism, Realism, Impressionism, and Post-Impressionism. Between a combination of lecture and discussion we will explore a variety of mediums across multiple countries. We will also consider these objects, artists, and periods within larger socio-political frameworks such as class, gender, and the rise of industrial modernity.

HART 263 - EPISODES IN THE HISTORY OF PHOTOGRAPHY: FROM INVENTION TO THE PRESENT
Short Title: HISTORY OF PHOTOGRAPHY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class examines the history of both artistic and non-artistic uses of photography from its origins in the nineteenth century, across the 20th century and into the present. In so doing we will pay close attention to a number of specific thematics, from the medium's conception in the late eighteenth century, through avant-garde and institutional debates in the twentieth and twenty-first centuries concerning photography's relationship to artistic and social issues, to questions of gender, race, class, and global politics. Cross-list: FOTO 263. Mutually Exclusive: Cannot register for HART 263 if student has credit for HART 363.
HART 265 - A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA
Short Title: ART/ POLITICS MOD LATIN AMER
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Providing an alternative understanding of modernity and its artistic partner, modernism, this survey course traverses the political, social and cultural landscapes that informed and formed the art and architecture of Latin America, from the early twentieth century to the present. Graduate/Undergraduate Equivalency: HART 665. Mutually Exclusive: Cannot register for HART 265 if student has credit for HART 665.

HART 280 - HISTORY & AESTHETICS OF FILM
Short Title: HISTORY & AESTHETICS OF FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narration, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, nonfiction, and Third World cinemas. Cross-list: ARTS 280, FILM 280.

HART 281 - THE BEGINNINGS OF CINEMA
Short Title: THE BEGINNINGS OF CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class studies the emergence of cinema in the context of cultural developments at the turn of the 20th century. Early films will be examined together with such contemporaneous issues as technologies of vision, modern mass culture, urban expansion and consumerism. Cross-list: FILM 281.

HART 283 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours ) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: FILM 285. Equivalency: HART 481. Mutually Exclusive: Cannot register for HART 283 if student has credit for HART 481.

HART 284 - NONFICTION FILM
Short Title: NONFICTION FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the history and aesthetics of nonfiction film as both a social artifact and as a work of art. Includes discussions of actualities, the city film, the social documentary, surrealist cinema, propaganda, ethnography, the essay film, and the contemporary nonfiction film from around the world. Cross-list: FILM 284.

HART 286 - CLASSICAL AND CONTEMPORARY FILM AND THEORY
Short Title: CLASSICAL & CONTEMPORARY FILM AND THEORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course focusing on contexts such as movies and ads, familiar plots and conventions define their significance. Cross-list: ENGL 286.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
HART 297 - SPECIAL TOPICS IN MUSEUM CURATORIAL STUDIES
Short Title: SPECIAL TOPICS: MUSEUM STUDIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Special Topics class taught by visiting Curators from the MFAH. FA 2016: Intro to Islamic Art at the MFAH: This course explores the dynamic, multifaceted character of Islamic art and architecture across the globe. Travel from Spain to India studying original art at the Museum of Fine Arts. Gain understanding of the historical, religious, social, craft, and visual contexts of the art. Graduate/Undergraduate Equivalency: HART 597. Mutually Exclusive: Cannot register for HART 297 if student has credit for HART 597.

HART 299 - INDEPENDENT STUDY IN ART THEORY AND CRITICISM
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Independent study, reading, or special research in art history. Instructor Permission Required. Repeatable for Credit.

HART 300 - MUSEUM INTERNSHIP I
Short Title: MUSEUM INTERNSHIP I
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The aim of this course is to provide select students a practicum in museum work accompanied by an introduction to a history of museums, including the varieties of museums, their role in society and significant issues in museums today. Instructor Permission Required.

HART 301 - MUSEUM INTERNSHIP II
Short Title: MUSEUM INTERNSHIP II
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This internship provides select students with a practicum in museum work, in coordination with a Houston-area museum. A HART faculty member will supervise the internship. Students will work directly with the museum to gain hands-on experience in curatorial practice and collection, exhibition and archive management, while also learning about the role of museums in society and significant issues in museums today. Instructor Permission Required. Repeatable for Credit.

HART 302 - FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE
Short Title: ART, ARCHITECTURE AND NATURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar considers theories and narratives of nature in the crafting of modern and contemporary art and architecture in the Americas. Artists and architects will include Maria Fernanda Cardoso, Rogelio Salmona (Colombia); Ana Mendieta, Ricardo Porro (Cuba); Ana Maria Tavares, Lina Bo Bardi (Brazil); Mark Dion and Buckminster Fuller (USA). Graduate/Undergraduate Equivalency: HART 568. Mutually Exclusive: Cannot register for HART 302 if student has credit for HART 568.

HART 303 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent Study in Art History. Instructor Permission Required.

HART 304 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. (The trip is optional. There is a course fee.) Course taught in Spanish. Instructor Permission Required. Cross-list: FILM 339, SPPO 375. Graduate/Undergraduate Equivalency: HART 565. Mutually Exclusive: Cannot register for HART 304 if student has credit for HART 565.
HART 305 - POST WAR: ART IN EUROPE, 1945-2000
Short Title: ART IN EUROPE, 1945-2000
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the heterodox individual artistic practices and movements in post-World-War Two Europe. Focusing on the countries of France, Belgium, The Netherlands, Germany, Italy, England, and the Soviet Union, particular attention will be given to the post-war reconstruction of the Marshall Plan, economic austerity and recovery, the French colonial war in Algeria, the legacy of the German occupation, the rise of the student movement and the protests of May '68, Stalinism and the cold war, and the national guilt of the Holocaust. In addition to weekly readings, each student will be responsible for a 20-minute presentation and a 10-15 page final paper. Graduate/Undergraduate Equivalency: HART 505. Mutually Exclusive: Cannot register for HART 305 if student has credit for HART 505.

HART 307 - TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING, 13TH-20TH CENTURIES
Short Title: TECHNICAL ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Art historians, especially in the United States, tend to rely on photographs, but a study of the actual object is invaluable in studying works of art. This course aims to inform students about the technical study of art, which in the last fifty years has become a major field of research. Most classes will be held at the Museum of Fine Arts, Houston, or other Houston collections. Graduate/Undergraduate Equivalency: HART 549. Mutually Exclusive: Cannot register for HART 307 if student has credit for HART 549.

HART 308 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and/or Turkish helpful but not necessary. Cross-list: ARCH 318. Graduate/Undergraduate Equivalency: HART 508. Mutually Exclusive: Cannot register for HART 308 if student has credit for HART 508.

Short Title: THE DAWN OF ROME
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture that reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Cross-list: CLAS 309. Graduate/Undergraduate Equivalency: HART 509. Mutually Exclusive: Cannot register for HART 309 if student has credit for HART 509.

HART 310 - BRAZIL BUILT: THE CLINIC, THE TROPICAL, AND THE AESTHETIC
Short Title: BRAZIL BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From Brazil Builds, MOMA’s 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today’s worldwide attention on Brasilia, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: ARCH 315. Graduate/Undergraduate Equivalency: HART 526. Mutually Exclusive: Cannot register for HART 310 if student has credit for HART 526.

HART 311 - ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST
Short Title: ANCIENT NEAR EAST
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An in-depth examination of the art and archaeology of ancient Mesopotamia, Syria, Anatolia and Persia. Beginning in The Neolithic period, we will examine the development of Near Eastern art and architecture through the study of ancient sites and their associated material culture. Cross-list: ANTH 331. Graduate/Undergraduate Equivalency: HART 511. Mutually Exclusive: Cannot register for HART 311 if student has credit for HART 511.
HART 312 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Cross-list: MUCH 308. Graduate/Undergraduate Equivalency: HART 540. Mutually Exclusive: Cannot register for HART 312 if student has credit for MUCH 508.

HART 314 - POLITICS OF CULTURAL HERITAGE IN THE MODERN MIDDLE EAST, 1800 TO THE PRESENT
Short Title: POLITICS OF CULTURAL HERITAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine the history of the concept of "cultural heritage" in the modern Middle East. We will explore the emergence of concerns for archaeological sites and architectural monuments, and the ability of cultural heritage to shore up contested claims of identity, ideology, and political legitimacy.

HART 315 - ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS
Short Title: ART AND ACTIVISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How have art and activism in the Americas from the early 20th century to today informed and fed one another? Moving between South and North America, this seminar studies artists and collectives that have confronted, in isolation or with intersectionality in mind, indigenous rights, gender equality, LGBT+ rights, and systemic racism. The course is organized around artwork and activism grouped within three loose themes: race and disenfranchisement; gender and sexuality; and ecology and capitalism. From graphic art employed by the Black Panthers to photographic essays in defense of ways of life in the Amazon Basin of northern Brazil, "Art and Activism" will offer a chance to contemplate, study, and debate visual and performative projects that have endeavored (or continue to try) to effect social change. Some class meetings may be held at area cultural spaces. Graduate/Undergraduate Equivalency: HART 514.

HART 316 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES
Short Title: VIRTL RECONSTR HISTORCL CITIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ANTH 346, ARCH 310, COMP 316.

HART 317 - MODERN ART AND MONSTROSITY
Short Title: MODERN ART AND MONSTROSITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Why is it that in the modern era, beginning around the middle of the eighteenth century, artists begin to see various forms of monstrosity in aesthetic terms, as something beautiful? What is it about the modern period that accounts for this shift in how monstrosity is represented and understood and how does it differ from earlier historical images of the monster. This class will examine the modernist fascination with monstrosity, asking not only why it became a topic of such particular and widespread interest to artists, writers, and filmmakers during this time, but also what it can tell us about modernist aesthetics more broadly. Examining a range of representations from the 18th century on, we will look at a variety of visual artists, filmmakers, and novelists who depict various forms of monsters, be they human (Jack the Ripper) or non-human (the Golem). From Mary Shelley's Frankenstein and the myth of the vampire, to Picasso's monstrous images of 1920s, to the distinctly modern phenomenon of serial killing, this course will chart the dark monstrous underside to modern art. Graduate/Undergraduate Equivalency: HART 517. Mutually Exclusive: Cannot register for HART 317 if student has credit for HART 517.

HART 318 - SPECIAL TOPICS IN ANCIENT ART
Short Title: ROME: THE ETERNAL CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to the major monuments of Rome, Pompeii, and Herculaneum. We will focus not only on the history and functions of these monuments in antiquity but also on how their meaning and representation has changed and evolved in the post-classical world. Instructor Permission Required. Cross-list: CLAS 321. Repeatable for Credit.
HART 319 - ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES
Short Title: ARCHITECTURE ISLAMIC EMPIRES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: During the early modern period, ca. 1500-1800, around one-third of the earth's human population inhabited territories that were ruled by three empires: the Ottomans in the eastern Mediterranean, the Safavids in the Iranian plateau, and the Mughals in South Asia. This period saw a surge in production of architectural monuments (such as the Taj Mahal), the emergence of cosmopolitan cities (such as Istanbul and Isfahan), and the expansion of the public sphere in gardens, promenades, and coffeehouses. This course examines the architecture, urbanism, and material culture of these three empires in the context of global trade, representations of power, and urban life in the capital cities of Istanbul, Isfahan, and Delhi. Graduate/Undergraduate Equivalency: HART 519.

HART 321 - IMPERIAL CITY: ISTANBUL 1453-1922
Short Title: ISTANBUL IMPERIAL CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. Cross-list: ARCH 331. Graduate/Undergraduate Equivalency: HART 521. Mutually Exclusive: Cannot register for HART 321 if student has credit for HART 521.

HART 322 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, "ornament" and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. Cross-list: ARCH 332. Graduate/Undergraduate Equivalency: HART 522. Mutually Exclusive: Cannot register for HART 322 if student has credit for HART 522.

HART 323 - BUDDHIST AND DAOIST ART IN CHINA
Short Title: BUDDHIST & DAOIST ART IN CHINA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This course explores the visual materials that shed light on pre-modern China's Buddhist, Daoist, and other diverse religious and ritual practices. We will examine the range of social and ethnic backgrounds that participated in the making, spreading, and use of religious visual culture in traditional China. Topics may include: funeral art and ritual; images of heaven, hell, and rebirth; and representations of gender, among others. Students will develop analytical skills, critical thinking skills, and holistic views regarding the meaning, function, and style of the arts of diverse religious traditions in China. Cross-list: ASIA 323, MDEM 323. Mutually Exclusive: Cannot register for HART 323 if student has credit for HART 623.

HART 324 - PERSIANATE ARTS OF THE BOOK
Short Title: PERSIANATE BOOK ARTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This seminar explores figural painting and arts of the book in the Persianate cultural sphere, ca. 1300s-1800s. We will study concepts of the book in Islamic civilization, illustrated narratives of Persian literature, word/image relationship, albums, and single-page portraits. The class also examines artistic interactions with East Asia and Europe, and concludes with the advent of lithography in the nineteenth century. Some course meetings will take place at Houston-area museums. Graduate/Undergraduate Equivalency: HART 524. Mutually Exclusive: Cannot register for HART 324 if student has credit for HART 524.

HART 325 - COFFEEHOUSES AND TEAHOUSES: A GLOBAL HISTORY
Short Title: COFFEEHOUSE TEAHOUSE HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: From Ottoman coffeehouses to Japanese teahouses to Parisian cafes, the collective consumption of substances such as coffee, tea, and tobacco has long created distinctive material cultures, artworks, and architectural spaces. In this course, we trace the dissemination of these stimulants across the globe from the sixteenth century onward. We will examine the material context of the substances in different scales, ranging from utensils to interior spaces and broader urban landscapes. Routes of transfer will be explored along with the development of new forms of sociability, material objects, and architectural types such as coffeehouses, teahouses, and smoking rooms. This course occasionally meets at an area museum during the semester.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART 326</td>
<td>MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME</td>
<td>MATERIAL, FORM, SPACE, TIME</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>“Architectural Revolution” has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 326, CLAS 326. Graduate/Undergraduate Equivalency: HART 626. Mutually Exclusive: Cannot register for HART 326 if student has credit for HART 626.</td>
<td>Explore the evolution of architectural styles from Antiquity to Early Modern Europe. Understand the role of material and form in shaping architectural expression.</td>
</tr>
<tr>
<td>HART 327</td>
<td>THE GENESIS OF ROMAN ART</td>
<td>THE GENESIS OF ROMAN ART</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Cross-list: CLAS 324. Graduate/Undergraduate Equivalency: HART 627. Mutually Exclusive: Cannot register for HART 327 if student has credit for HART 627.</td>
<td>Trace the development of Roman art and architecture from its origins to the early Empire. Understand the influence of cultural and political factors.</td>
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<tr>
<td>HART 328</td>
<td>EPIPHANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE</td>
<td>EPIPHANIES</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Epiphanies are events or objects that can note a striking appearance or manifestation, just as an epiphanic experience contains a significant moment of revelation. This course examines expressions of epiphanies in modernist art, literature, film, sacred experience, and in the mundane details of life itself. Cross-list: RELI 375.</td>
<td>Identify epiphanies across various cultural and historical contexts. Analyze the impact of epiphanies on artistic and cultural expression.</td>
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<tr>
<td>HART 329</td>
<td>STREETS AND URBAN LIFE: PARIS TO ISTANBUL</td>
<td>STREETS AND URBAN LIFE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Exploration of the street as a focus of urban life in 18th and 19th century. We will look at ways streets functioned as spaces of livelihood, sociability, and transgression in cities such as London, Paris, Istanbul, Amsterdam and Cairo. Cross-list: ARCH 329, HIST 329. Graduate/Undergraduate Equivalency: HART 529. Mutually Exclusive: Cannot register for HART 329 if student has credit for HART 529.</td>
<td>Trace the evolution of urban spaces from their role in ancient times to the modern city. Understand the social and cultural significance of streets in shaping city life.</td>
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<tr>
<td>HART 330</td>
<td>EARLY MEDIEVAL ART</td>
<td>EARLY MEDIEVAL ART</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Early Medieval Art from the 5th Century to the Romanesque period. This course begins with a study of the art and architecture of the Ostrogoths, Visigoths, Lombards, Celts, Anglo-Saxons, Franks, and Merovingians, and the transformation of the Roman World through new Germanic, Barbarian, and Christian forces. The second part of the course considers the cultural Renaissance of the Carolingian and Ottonian Periods under rulers such as Charlemagne and Otto III. The last third of the course focuses on themes of pilgrimage, relics, crusades and the emergence of new monumental tradition in art and architecture during the Romanesque Period. Cross-list: MDEM 330. Graduate/Undergraduate Equivalency: HART 530. Mutually Exclusive: Cannot register for HART 330 if student has credit for HART 530.</td>
<td>Study the development of medieval art and architecture in Europe. Understand the cultural and political influences on medieval art.</td>
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<tr>
<td>HART 331</td>
<td>GOTHIC ART</td>
<td>GOTHIC ART</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Examination of the full array of sacred art and architecture produced in the early and high gothic periods in northern Europe. Includes cathedral architecture, sculpture, stained glass, manuscripts, and metalwork studies in relationship to the expansion of royal and Episcopal power. Cross-list: MDEM 331. Graduate/Undergraduate Equivalency: HART 531. Mutually Exclusive: Cannot register for HART 331 if student has credit for HART 531.</td>
<td>Explore the development of Gothic art and architecture in medieval Europe. Understand the role of royal, ecclesiastical, and lay patronage in shaping Gothic art and architecture.</td>
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HART 332 - ART OF THE COURTS  
Short Title: ART OF THE COURTS  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Examination of art and architecture produced in the late gothic period within three distinct settings—the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, the city hall and hospital, and the chapel and parish church. Cross-list: MDEM 332. Graduate/Undergraduate Equivalency: HART 532. Mutually Exclusive: Cannot register for HART 332 if student has credit for HART 532.

HART 333 - LOOKING AT EUROPEAN PRINTS 1400-1700  
Short Title: LOOKING AT PRINTS 1400-1700  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The class has several goals: to gain a thorough historical understanding of prints by major masters as Schongauer, Mantegna, Düer, and Rembrandt as well as more popular prints, explore key issues in the study of prints, such as how they revolutionized European culture, their patronage, markets, functions, and techniques; and to examine the prints first-hand. Graduate/Undergraduate Equivalency: HART 525. Mutually Exclusive: Cannot register for HART 333 if student has credit for HART 525.

HART 334 - PICASSO, POLLOCK, WARHOL  
Short Title: PICASSO, POLLOCK, WARHOL  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar will look in detail at three of the twentieth century's most important artists: Pablo Picasso, Jackson Pollock, and Andy Warhol. Our central focus in doing so will be painting, in particular, the means by which these three artists tested, expanded or even "destroyed" the medium. What did it mean to make (or reject) painting in 1910, 1950, and 1965? Special attention will be paid to recent scholarly literature and close looking at works in local collections. Graduate/Undergraduate Equivalency: HART 546. Mutually Exclusive: Cannot register for HART 334 if student has credit for HART 546.

HART 336 - CINEMA AND THE CITY  
Short Title: CINEMA AND THE CITY  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This class explores representations of the city in 20th and 21st century world cinema. Central concerns will include the city as cinematic protagonist, parallels between urban and cinematic space and the intertwined histories of both film and urban design over the last century. Cross-list: ASIA 355, FILM 336. Graduate/Undergraduate Equivalency: HART 536. Mutually Exclusive: Cannot register for HART 336 if student has credit for HART 536.

HART 338 - HART IN THE WORLD SPRING SEMINAR  
Short Title: HART IN THE WORLD SEM  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar serves as required preparation for the planned "HART in the World" research travel course (HART 397) offered in the immediately following summer session. Students will study a range of materials—including works of art, literature, films, and historical studies—related to the planned destination city. To be offered every other year. Graduating students are not eligible. More information available at: https://arthistory.rice.edu/opportunities/hart-world Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 638. Mutually Exclusive: Cannot register for HART 338 if student has credit for HART 638. Repeatable for Credit.  
Course URL: www.arthistory.rice.edu/opportunities/hart-world (http://www.arthistory.rice.edu/opportunities/hart-world/)

HART 339 - AMERICAN ART AND ARCHITECTURE I: 1620-1800  
Short Title: AMERICAN ART: 1620-1800  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Painting, architecture, urban design, and the decorative arts in the colonies and early United States. Highlights will include design at Monticello and Mount Vernon; the portraiture of John Singleton Copley; Georgian and Federal-period architecture in Boston, New York, Williamsburg, and Philadelphia; and Spanish and Dutch colonial art and architecture. Graduate/Undergraduate Equivalency: HART 539. Mutually Exclusive: Cannot register for HART 339 if student has credit for HART 539.
HART 340 - NORTHERN RENAISSANCE ART
Short Title: NORTHERN RENAISSANCE ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of art in northern Europe from Jan van Eyck to Peter Bruegel. Cross-list: MDEM 340. Graduate/Undergraduate Equivalency: HART 553. Mutually Exclusive: Cannot register for HART 340 if student has credit for HART 553.

HART 341 - EARLY RENAISSANCE ART IN ITALY
Short Title: EARLY RENAISSANCE ART IN ITALY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of Italian art and architecture from Giotto to Botticelli, with emphasis on painting and sculpture in the 15th century. Graduate/Undergraduate Equivalency: HART 541. Mutually Exclusive: Cannot register for HART 341 if student has credit for HART 541.

HART 342 - THE HIGH RENAISSANCE AND MANNERISM IN ITALY
Short Title: HIGH RENAISSANCE&MANNERISM ITALY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the High Renaissance, with emphasis on its leading masters (e.g., Leonardo, Raphael, Bramante, Michelangelo, and Titian). Includes a study of mannerism, the stylish art produced after the first quarter of the 16th century. Graduate/Undergraduate Equivalency: HART 542. Mutually Exclusive: Cannot register for HART 342 if student has credit for HART 542.

HART 343 - MASTERS OF THE BAROQUE ERA
Short Title: MASTERS OF THE BAROQUE ERA
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. Cross-list: MDEM 343. Graduate/Undergraduate Equivalency: HART 543. Mutually Exclusive: Cannot register for HART 343 if student has credit for HART 543.

HART 344 - CAPITALISM AND CULTURE
Short Title: CAPITALISM AND CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine the way European culture, especially art, was shaped by the rise of the monetary economy and capitalism, beginning in the late Middle Ages and continuing into modern times. Graduate/Undergraduate Equivalency: HART 544. Mutually Exclusive: Cannot register for HART 344 if student has credit for HART 544.

HART 345 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: ARCH 345.
Course URL: www.arch.rice.edu/academics/current-courses

HART 346 - SEMINAR ON LOVE: MAKING LOVE IN MODERN ART AND THOUGHT
Short Title: MAKING LOVE IN MODERN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores various conceptions of love from the classical era to our postmodern age. Ranging from eros to philia to agape, we will examine literary, philosophical, and artistic expressions of love in painting, cinema, literature, psychoanalysis, philosophy, religion, and culture. Cross-list: SWGS 346.
HART 347 - SEMINAR ON LOVE
Short Title: SEMINAR ON LOVE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the themes of love, sex, and spirit from the classical era through the postmodern age. We will examine literary, philosophical, and artistic expressions in painting, sculpture, cinema, novels, poetry, psychoanalysis, religion, and culture. Cross-list: RELI 343.

HART 348 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. This course is taught in Spanish. Graduate students will be required to complete all the requirements for the course in addition to writing a substantial research paper at the end of the semester. This is the credit for the actual trip to Cuba. Graduate/Undergraduate Equivalency: HART 548. Mutually Exclusive: Cannot register for HART 348 if student has credit for HART 548.

HART 349 - TRENDS IN CONTEMPORARY ART
Short Title: TRENDS IN CONTEMPORARY ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will map the terrain of contemporary art as it has developed in the wake of political and theoretical engagements of the 1990's. For many critics, Contemporary Art practice has given way to the worst aspects of spectacular culture losing sight of the political, theoretical, and artistic rigor that characterized the historical and neo-avant-garde. Graduate/Undergraduate Equivalency: HART 570. Mutually Exclusive: Cannot register for HART 349 if student has credit for HART 570.

HART 351 - ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES
Short Title: ART, REVOLUTION, WAR
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines the ambition (or lack thereof) of modern art to play an active role during periods of violent conflict. From the French Revolution to the recent disastrous American engagements in the Middle East wars to the never-ending war on terror, artists have produced images that attempt to actively engage in these conflicts. This class will examine the relative successes and failures of art during times of violent revolution and war within the modern era. Graduate/Undergraduate Equivalency: HART 651. Mutually Exclusive: Cannot register for HART 351 if student has credit for HART 651.

HART 352 - BLACK CONTEMPORARY ART
Short Title: BLACK CONTEMPORARY ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the speculative and dynamic field of black contemporary visual and performance art by joining visual analysis with the critical application of race, gender, sexuality, and disability theory. This class centers application over memorization. By the end of the semester, students will demonstrate an in-depth knowledge of contemporary trends in black art production and circulation, be able to identify the work of formative black modern and contemporary artists and contextualize art objects across theories of blackness and the social process of representation. This course occasionally meets at an area museum during the semester. By the end of the semester, students will be equipped with a set of skills--reading, writing, and analysis--that will set a foundation for the creative development of a 10-to-12-page analytical essay on an art object of their choice. This assignment is methodically organized over the course of the semester to encourage each student to develop an argument that arises from their own close reading, application of theory, and lived experiences. Distribution 1 credit effective Fall 2021.

HART 351 - ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES
Short Title: ART, REVOLUTION, WAR
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines the ambition (or lack thereof) of modern art to play an active role during periods of violent conflict. From the French Revolution to the recent disastrous American engagements in the Middle East wars to the never-ending war on terror, artists have produced images that attempt to actively engage in these conflicts. This class will examine the relative successes and failures of art during times of violent revolution and war within the modern era. Graduate/Undergraduate Equivalency: HART 651. Mutually Exclusive: Cannot register for HART 351 if student has credit for HART 651.
HART 353 - ART AND EMOTION
Short Title: ART AND EMOTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine the role played by emotion in our response to works of art. What is the relationship of emotion to the specific formal properties of a given work of art, such as color, texture, shape, line quality, sound, and so on? What role does our cognitive faculties play in determining our emotional response to art? Are there political stakes to emotional affect? These and other questions will be examined. Graduate/Undergraduate Equivalency: HART 653. Mutually Exclusive: Cannot register for HART 353 if student has credit for HART 653.

HART 354 - AGE OF ROMANTICISM IN EUROPE
Short Title: AGE OF ROMANTICISM IN EUROPE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will consider the emergence and flourishing of Romanticism in the visual arts in Europe. We will consider artists from France, Germany and Britain, including Eugene Delacroix, J.M.W. Turner, John Constable and Caspar David Friedrich. We will combine study of paintings with readings of contemporaneous philosophers and writers, including Hegel and Byron. Graduate/Undergraduate Equivalency: HART 554. Mutually Exclusive: Cannot register for HART 354 if student has credit for HART 554.

HART 355 - JACQUES-LOUIS DAVID: REVOLUTION
Short Title: JACQUES-LOUIS DAVID: REVOLUTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will consider the painting of Jacques-Louis David with particular reference to the ideas of revolution. This seminar will combine close reading and looking, using primary and secondary readings to explore issues of classicism, politics, eroticism, and aesthetics in the work of this central figure in art history. Graduate/Undergraduate Equivalency: HART 555. Mutually Exclusive: Cannot register for HART 355 if student has credit for HART 555.

HART 356 - SEX AND MONEY: THE SPECIES DIVIDE
Short Title: SEX & MONEY: THE SPECIES DIVIDE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore critical issues surrounding the visual representations of lust and greed, both human and non-human. It will introduce students to such theories as feminism and posthumanism as well as medieval beliefs about the Seven Deadly Sins and demons. Graduate/Undergraduate Equivalency: HART 556.

HART 357 - CONSTABLE AND TURNER
Short Title: CONSTABLE AND TURNER
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will explore critical issues surrounding the careers of John Constable and J.M.W. Turner, arguably the greatest landscape painters of the early 19th century. We will look at both similarities and differences in the work of these two rivals, while considering their work in the context of great historical change in England. Graduate/Undergraduate Equivalency: HART 547. Mutually Exclusive: Cannot register for HART 357 if student has credit for HART 547.

HART 358 - IMPRESSIONISM AND POST-IMPRESSIONISM
Short Title: IMPRESSIONISM/POST-IMP
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will explore painting in France from approximately 1865 to 1900. Mixing lectures and classroom discussion, we will focus on individual artists including Claude Monet, Edgar Degas, Mary Cassatt, Georges Seurat, Vincent van Gogh, and Paul Czanne. We will also consider and discuss a set of critical issues surrounding these painters, including the politics of gender and class within the changing urban setting of Paris. Graduate/Undergraduate Equivalency: HART 558. Mutually Exclusive: Cannot register for HART 358 if student has credit for HART 558.
HART 359 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: ARCH 359, FILM 359. Graduate/Undergraduate Equivalency: HART 659. Mutually Exclusive: Cannot register for HART 359 if student has credit for HART 659.

HART 361 - WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS
Short Title: WHAT IS CINEMA?
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using a variety of readings now considered classics as our guide, this class will look closely at a broad range of films and film movements discussed by critics and theorists such as Rudolf Amheim, Jean Epstein, Sergei Fisenstein, Walter Benjamin and Andre Bazin. Cross-list: FILM 361. Graduate/Undergraduate Equivalency: HART 561. Mutually Exclusive: Cannot register for HART 361 if student has credit for HART 561.

HART 362 - UPCYCLING: MEANINGFUL REUSE IN ART AND MONUMENTS FROM ANTIQUITY TO TODAY
Short Title: UPCYCLING
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this seminar, we will explore the phenomenon of upcycling - intentionally meaningful reuse - by investigating the intersection of reuse and memory in the art and monuments of many different times, places, and people, from prehistory to the modern art that surrounds us on the Rice campus. Graduate/Undergraduate Equivalency: HART 562. Mutually Exclusive: Cannot register for HART 362 if student has credit for HART 562.

HART 364 - GENDER AND SEXUALITY IN FILM
Short Title: GENDER AND SEXUALITY IN FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how cinema has reflected, shaped and critiqued cultural understandings of gender and sexuality over the last 100 years. By pairing film analysis with critical readings in gender and sexuality studies, we will explore the development of sexual and gender conventions--as well as their transgressions--on screen across diverse historical periods and cultures. Graduate/Undergraduate Equivalency: HART 564. Mutually Exclusive: Cannot register for HART 364 if student has credit for HART 584.

HART 365 - ART BETWEEN THE WARS: EUROPEAN MODERNISM, 1918-1940
Short Title: ART BETWEEN THE WARS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Beginning in the aftermath of the First World War, a conflict that devastated the physical and psychological landscape of Europe, and ending with the rise of various totalitarian regimes (Fascism, Stalinism) this seminar will examine European art of the interwar period, from 1918-1940. Potential topics will include Surrealism, The Russian avant-garde, the return to order, Esprit-Nouveau, the machine aesthetic, De Stijl, avant-garde cinema, etc. Graduate/Undergraduate Equivalency: HART 575. Mutually Exclusive: Cannot register for HART 365 if student has credit for HART 575.
HART 367 - ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE
Short Title: ARCHITECTURES POWER RESISTANCE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar adopts a global approach to examine architecture and the built environment as sites of power, resistance, and coexistence. Through a series of case studies spanning the globe, from Central Asia to the Mediterranean to the Americas, we will explore how architectural works—monuments, buildings, urban plans, indigenous settlements, refugee camps—exercised authority, resisted domination, and/or created settings for coexistence. Topics to discuss include cross-cultural interactions in medieval Iberia (Spain/Portugal); Nineteenth-century Orientalist architecture and its discontents; the interwoven complexity of infrastructures, race, and gender in early twentieth century South America; the spaces and politics of U.S. assistance programs during the era of “development” across the Global South; and environmental diasporas and indigenous reclamations from the Amazon to Sub-Saharan Africa in present days. This course occasionally meets at an area museum during the semester. Graduate/Undergraduate Equivalency: HART 567.

HART 369 - STATE OF THE ART
Short Title: STATE OF THE ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is the current state of the art historical field? Looking at contemporary scholarship across a range of historical periods, the class will introduce students to a selection of some of the most important, ground-breaking, and/or influential writings in art history produced in the last 25 years or so. Paying particular attention to an array of recent trends, methodologies, and political interventions, this class will examine some of the most pressing questions, debates, and advanced interdisciplinary theories within current art historical practice. Graduate/Undergraduate Equivalency: HART 569. Mutually Exclusive: Cannot register for HART 369 if student has credit for HART 569.

HART 371 - CHINESE PAINTING
Short Title: CHINESE PAINTING
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines Chinese painting from ancient times to the early twentieth century. Issues of examination include themes, styles, and functions of Chinese painting; the interrelationship between paintings and the intended viewers; regionalism; images and words; foreign elements in Chinese painting. Cross-list: ASIA 371. Graduate/Undergraduate Equivalency: HART 571. Mutually Exclusive: Cannot register for HART 371 if student has credit for HART 571.

HART 372 - CHINESE ART AND VISUAL CULTURE
Short Title: CHINESE ART AND VISUAL CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Chinese Art and Visual Culture is an introductory seminar studying the history of traditional Chinese art and visual culture from ancient times to the nineteenth century. This course draws upon masterpieces and monuments from both archaeological finds and museum collections, including bronze vessels, funeral objects, paintings, calligraphy, sculptures, architecture, ceramics, and so on. Designed for students who have no background in Chinese art, Chinese history, or art history, the seminar uses diverse teaching materials in multiple media beyond traditional textbook-based readings to achieve four main goals: 1) Develop visual literacy through a direct encounter with objects. The development of specialized vocabulary to describe, analyze, and communicate function, composition, and meaning in art. 2) Understand major artistic movements of art and architecture within historical, social, political contexts. 3) Develop specialized knowledge in art from specific geographical locations (e.g. China), time periods, artists or artistic movements. 4) Evaluate and use primary and secondary source materials. Cross-list: ASIA 372, MDEM 373. Mutually Exclusive: Cannot register for HART 372 if student has credit for HART 572.
HART 374 - THE VISUAL CULTURE OF THE FRENCH REVOLUTION  
Short Title: ART OF THE FRENCH REVOLUTION  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will address the central role that art and visual culture played in the French Revolution. While engaging in a detailed study of the causes, progress and outcome of the Revolution we will pay attention to painting, prints, festivals and the wide range of visual culture that not only reflected the Revolution but helped fuel it. Graduate/Undergraduate Equivalency: HART 574. Mutually Exclusive: Cannot register for HART 374 if student has credit for HART 574.

HART 375 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES  
Short Title: LATIN-EUROPE/LATIN-AMERICA  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course challenges our pre-conceived maps of the world, highlighting Latin America’s place within our understanding of modernity as a product of transnational interconnections. Transversing the Atlantic, this course traces the interactions of capitalism and culture, science and aesthetics, and the ideologies that informed and formed the urban fabric and spatial politics of important cities in the modern Latin world - Paris, Rio de Janeiro, Rome, Buenos Aires, Barcelona, Havana, and Brasilia. Cross-list: ARCH 375. Graduate/Undergraduate Equivalency: HART 675. Mutually Exclusive: Cannot register for HART 375 if student has credit for HART 675.

HART 376 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE  
Short Title: EAST AND WEST  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: ASIA 376, MDEM 376. Graduate/Undergraduate Equivalency: HART 576. Mutually Exclusive: Cannot register for HART 376 if student has credit for HART 576.

HART 377 - MEDIEVAL MANUSCRIPTS  
Short Title: MEDIEVAL MANUSCRIPTS  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar explores illuminated European manuscripts from late antiquity through the early sixteenth century. It examines manuscripts’ functions, patrons, makers, and materials and technique, as well as such issues as the relationship between text and image and the manuscript’s ideological stance. Students have the opportunity to study original medieval illuminations. Cross-list: MDEM 377. Graduate/Undergraduate Equivalency: HART 577. Mutually Exclusive: Cannot register for HART 377 if student has credit for HART 577.

HART 378 - DUTCH ART IN THE AGE OF REMBRANDT  
Short Title: DUTCH ART IN AGE OF REMBRANDT  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will examine Dutch and Flemish seventeenth-century art, including major masters, such as Rembrandt, Rubens, and Vermeer, and major developments, such as the rise of still life, genre, and landscape painting. Cross-list: MDEM 378. Graduate/Undergraduate Equivalency: HART 578. Mutually Exclusive: Cannot register for HART 378 if student has credit for HART 578.

HART 379 - THE AESTHETICS OF REALISM: FROM COURBET TO THE WIRE  
Short Title: THE AESTHETICS OF REALISM  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This seminar will consider both the historical roots and contemporary manifestations of an aesthetics of realism. As a form of art concerned with the world as it is, in all its imperfection, realism is often assumed to ignore ideas of beauty, and even to court harsh, rough or ugly appearances. But as we will see there is both theoretical basis for an aesthetics of realism and a long history of its visual development. Graduate/Undergraduate Equivalency: HART 579.
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<th>Department</th>
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<td>HART 381</td>
<td>COLLAGE AND ITS HISTORIES</td>
<td>COLLAGE AND ITS HISTORIES</td>
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<td>HART 382</td>
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<td>HART 385</td>
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<td>Standard Letter</td>
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<td>HART 387</td>
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In this course we will survey the range of organizing principles in cinema - the differing and combative ways cinema arranges its images and sounds. We will look at classicism, modernism, postmodernism and many other modes. The films will range from early silent pictures, to experimental shorts, to commercial blockbusters. Cross-list: FILM 382.

This course introduces students to cinema as a global enterprise. It explores the relationship between nations, identities, races, concepts, and genres. It inquires into the question of globalization as it relates to the motion picture audience, corporations, and the commerce of ideas. Cross-list: FILM 383.

This seminar will examine the aesthetics and functional aspects. Graduate/Undergraduate Equivalency: HART 581. Mutually Exclusive: Cannot register for HART 381 if student has credit for HART 581.

This class will explore the centrality of collage to the development of the 20th century art and film. Beginning with the seminal achievements of Picasso and Braque, we will examine works across geographical and medium boundaries, including Dada photomontage, early avant-garde film, 1960s happenings, and the reformulation of collage aesthetics in 1980s postmodernism. Graduate/Undergraduate Equivalency. HART 581. Mutually Exclusive: Cannot register for HART 381 if student has credit for HART 581.

Inaugurated against the calamitous backdrop of the First World War, “Dada,” the artist Francis Picabia claimed, “smells of nothing, it is nothing, nothing, nothing.” This seminar will examine the aesthetics of shock and nihilism (literally, ‘nothingness’), developed by Dada in six cities: Zurich, Berlin, Colgne, Hannover, New York, and Paris. Graduate/Undergraduate Equivalency: HART 586. Mutually Exclusive: Cannot register for HART 386 if student has credit for HART 586.
HART 387 - HOLOCAUST MEMORY IN MODERN GERMANY
Short Title: HOLOCAUST MEMORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course traces and examines forms of Holocaust memory and memorialization in film, literature, art, architecture, city planning, museums, and memorials in Germany. For an additional credit hour, students will participate in a week-long trip to Berlin. Instructor Permission Required. Cross-list: GERM 351.

HART 388 - POST WAR EUROPEAN CINEMA
Short Title: POST WAR EUROPEAN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class surveys major developments in European cinema from the late 1940s to the late 1960s. Our study will include such movements as Italian Neorealism, German Rubble Films, French New Wave, and Soviet cinema in the Thaw. Particular attention will be paid to such issues as cinema and post-war reconstruction, memory and nation, and body and space. Cross-list: FILM 388. Graduate/Undergraduate Equivalency: HART 588. Mutually Exclusive: Cannot register for HART 388 if student has credit for HART 588.

HART 389 - JUSTICE AND CINEMA
Short Title: JUSTICE AND CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Why have film directors been drawn to criminal investigations and the search for justice since cinema’s early years? This course examines films that represent court trials, investigate crimes and seek truth across different cultures over the last 100 years. Graduate/Undergraduate Equivalency: HART 589.

HART 391 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser-known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: ANTH 378, FILM 378. Graduate/Undergraduate Equivalency: HART 691. Mutually Exclusive: Cannot register for HART 391 if student has credit for HART 691.

HART 395 - ROMAN ARCHAEOLOGY: FIELD SCHOOL
Short Title: ROMAN ARCHAEOLOGY FIELD SCHOOL
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a traditional archaeological field course, taught in the Roman Forum. Techniques and advanced technologies for processing, conserving, and recording archeological materials are emphasized. Students will become familiar with procedures for ceramics, metals, plant and animal remains and building materials. Course work include lectures, hands-on excavation, and informal discussion. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 695. Recommended Prerequisite(s): HART 201 or ANTH 205 or ANTH 303. Mutually Exclusive: Cannot register for HART 395 if student has credit for HART 695.

HART 396 - MEDICAL HUMANITIES VISUAL CULTURE
Short Title: MED HUMANITIES VISUAL CULTURES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will examine literal and symbolic representations of the human body in order to explore the relations between the visuality of medicine, corporeality, subjectivity, and healing. Repeatable for Credit.
HART 397 - HART IN THE WORLD FIELD STUDY
Short Title: FIELD STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through on-site lectures, seminar discussions, museum visits, architectural itineraries, and field trips, this course will explore the complex political, social, and cultural histories of a major international metropolis. The city visited changes each time the course is offered; past locations have included Istanbul, Rome, and Rio de Janeiro. More information on upcoming locations is available at https://arthistory.rice.edu/opportunities/hart-world. Graduating students are not eligible. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 697. Mutually Exclusive: Cannot register for HART 397 if student has credit for HART 697. Repeatable for Credit.
Course URL: www.arthistory.rice.edu/opportunities/hart-world (http://www.arthistory.rice.edu/opportunities/hart-world/)

HART 398 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY
Short Title: FROM EXPRESSIONISM TO FASCISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. Cross-list: GERM 339. Graduate/Undergraduate Equivalency: HART 596. Mutually Exclusive: Cannot register for HART 398 if student has credit for HART 596.

HART 399 - EXHIBITING SEXUALITIES
Short Title: EXHIBITING SEXUALITIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class investigates how sexuality has been constructed, avoided, celebrated, and suppressed in museums. In addition to studying a genealogy of sexual display and spectatorship in museums, students will also do the work of collectors, curators, and critics of artistic, historical, and scientific displays of sex and sexuality. Cross-list: SWGS 321.

HART 400 - BAYOU BEND UNDERGRADUATE INTERNSHIP I
Short Title: BAYOU BEND UG INTERNSHIP I
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Undergraduate Internship at Bayou Bend, the American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 603. Mutually Exclusive: Cannot register for HART 400 if student has credit for HART 603.

HART 401 - BAYOU BEND UNDERGRADUATE INTERNSHIP II
Short Title: BAYOU BEND UG INTERNSHIP II
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Undergraduate Internship at Bayou Bend and The American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 604. Mutually Exclusive: Cannot register for HART 401 if student has credit for HART 604.

HART 402 - HONORS THESIS
Short Title: HONORS THESIS
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Honors thesis project in art history. Students must receive permission of the department faculty prior to enrolling. For additional information, please see Honors Program in the Rice University General Announcements. Department Permission Required.

HART 403 - HONORS THESIS
Short Title: HONORS THESIS
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Honors thesis project in art history. Students must receive permission of the department faculty prior to enrolling. For additional information, please see Honors Program in the Rice University General Announcements. Instructor Permission Required.
<table>
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<th>Credit Hours</th>
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<tr>
<td>HART 406</td>
<td>ICONOCLASMS: THE DESTRUCTION OF IMAGES</td>
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<td>Art History</td>
<td>Standard Letter</td>
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<td>Art History</td>
<td>Standard Letter</td>
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<td>MURDER AND MODERNISM</td>
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<td>Standard Letter</td>
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<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>HART 427</td>
<td>VISUAL CULATURE OF MEDIEVAL PILGRIMAGE</td>
<td>MEDIEVAL PILGRIMAGE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
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<td>HART 430</td>
<td>THE GROTESQUE</td>
<td>THE GROTESQUE</td>
<td>Art History</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
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HART 431 - ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH CENTURY
Short Title: ARCH OF GOTHIC CATHEDRAL
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on one of the most important contributions to the history of western architecture— the Gothic cathedral. The course will approach the material from a number of different perspectives—the formal and technical development of Gothic architecture; the Medieval architect and the design of Gothic buildings, the social, economic, and political history of "big church" building in the Middle Ages; Gothic architecture as experience and metaphor; and the afterlife of the Gothic cathedral from Vasari to the National Cathedral in Washington, D.C. Cross-list: MDEM 431.

HART 433 - THE BAYEUX TAPESTRY AND THE ANGLO-NORMAN WORLD
Short Title: THE BAYEUX TAPESTRY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the most important secular work from the middle ages—a 230-foot long embroidery depicting the Battle of Hastings. We will consider the relationship between the textual and visual narratives of the historical events; the tapestry as an artifact and its history; its origin, date, purpose and patronage of the tapestry; the artistic context of the tapestry in the eleventh century; issues of narratology; and reception and visuality in the century. Several eleventh- and twelfth-century texts such as the "Chanson de Roland," the "Lais" and the "Fables" of Marie de France, "Le Jeu d'Adam" and "La Vie de Saint Alexis" will be examined with particular attention to the authors' desire to create a visual experience for the audience. Graduate/Undergraduate Equivalency: HART 533. Mutually Exclusive: Cannot register for HART 433 if student has credit for HART 533.

HART 434 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: MDEM 434, SWGS 434. Graduate/Undergraduate Equivalency: HART 534. Mutually Exclusive: Cannot register for HART 434 if student has credit for HART 534.

HART 435 - MULTICULTURAL EUROPE, 1400-1700
Short Title: MULTICULTURAL EUROPE, 1400-1700
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on one of the most important contributions to the history of western architecture— the Gothic cathedral. The course will approach the material from a number of different perspectives—the formal and technical development of Gothic architecture; the Medieval architect and the design of Gothic buildings, the social, economic, and political history of "big church" building in the Middle Ages; Gothic architecture as experience and metaphor; and the afterlife of the Gothic cathedral from Vasari to the National Cathedral in Washington, D.C. Cross-list: MDEM 431.

HART 440 - ISSUES IN THE HISTORY OF PRINTS, PRE-MODERN TO PRESENT
Short Title: ISSUES IN HISTORY OF PRINTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: With their distinctive technical, social, and commercial associations, prints are often sidelined in traditional art histories. This course will introduce recent scholarship on the multiple image from the late middle ages to the present, with stress on the transformations of printmaking from the development of photography into our digital age. Graduate/Undergraduate Equivalency: HART 640. Mutually Exclusive: Cannot register for HART 440 if student has credit for HART 640.

HART 451 - MODELS OF ABSTRACTION
Short Title: MODELS OF ABSTRACTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: MDEM 434, SWGS 434. Graduate/Undergraduate Equivalency: HART 534. Mutually Exclusive: Cannot register for HART 434 if student has credit for HART 534.

HART 455 - MODELS OF ABSTRACTION
Short Title: MODELS OF ABSTRACTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: MDEM 434, SWGS 434. Graduate/Undergraduate Equivalency: HART 534. Mutually Exclusive: Cannot register for HART 434 if student has credit for HART 534.
HART 452 - MANET(S) AND MODERNISM(S)
Short Title: MANET(S) AND MODERNISM(S)
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar considers the pivotal figure of Edouard Manet. Combining a study of paintings from throughout his career, with close readings of primary sources, we will assess the key aspects of his style and subject matter. We will also consider art historical to his work and relationship to modernity. Graduate/Undergraduate Equivalency: HART 552. Mutually Exclusive: Cannot register for HART 452 if student has credit for HART 552.

HART 457 - VIDEO AND EXPANDED CINEMA
Short Title: VIDEO AND EXPANDED CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the emergence of video and "expanded cinema" as a primary field of artistic practice over the course of the 1960s and 1970s. We will examine seminal works by artists including Andy Warhol, Dan Graham, and Robert Whitman as well as the shifting aesthetic, political, and media landscapes in which this work emerged. Cross-list: FILM 455. Graduate/Undergraduate Equivalency: HART 557. Mutually Exclusive: Cannot register for HART 457 if student has credit for HART 557.

HART 460 - CHINESE BUDDHIST WOODCUTS 850-1450
Short Title: CHINESE BUDDHIST WOODCUTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will study woodblock print illustrations in the context of cultural change. Buddhism and printing have been closely related since the dawn of the age of print. Many scriptures reproduced by woodblock printing were imbedded with illustrations, which themselves offer an effective tool to study cultural transformation. The seminar draws sources from both images and texts. Its cross-cultural perspective highlights nomads and non-Chinese peoples as agents of cultural transformation, with additional visual comparisons from Korean, Japanese, and Islamic traditions. In addition to weekly discussions, the final evaluation includes a research paper and a 30-minute presentation. Students should have an advanced background in Chinese art to take this seminar. Readings will include both Chinese and English sources. Some classes will meet at area museums. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 661. Recommended Prerequisite(s): HART 372 or ASIA 372; students should have Chinese reading skills
Mutually Exclusive: Cannot register for HART 460 if student has credit for HART 661.

HART 461 - ART OF THE 60s AND 70s
Short Title: ART OF THE 60s AND 70s
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: By all accounts the 1960s and 1970s marked one of the most vibrant, experimental, audacious, and - above all - contentious periods in the history of avant-garde modernism. This seminar will examine the momentous shift from the international dominance of American Abstract Expressionism in the 1950s to a wide array of global counter-movements in the 1960s and 70s. Possible topics include: Happenings, Minimalism, Fluxus, Conceptualism, Nouveau Realisme, Body Art, Structuralist Film, Gutai, Light and Space, Noeconretism, Arte Povera, The Situationist International, etc. Graduate/Undergraduate Equivalency: HART 559. Mutually Exclusive: Cannot register for HART 461 if student has credit for HART 559.

HART 463 - PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY
Short Title: PRACTICING UTOPIA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will explore the alliance between aesthetics, science, and ideology at the core of French and Latin American modernism. Focusing on early twentieth-century scientific and cultural dialogues between France and Latin America, this seminar will have as main territories of exploration: Paris, Rio de Janeiro, Buenos Aires, Havana, and Caracas. Cross-list: ARCH 452. Graduate/Undergraduate Equivalency: HART 563. Mutually Exclusive: Cannot register for HART 463 if student has credit for HART 563.

HART 465 - LATIN AMERICAN BODIES: ON MODERNISM
Short Title: LATIN AMER BODIES:ON MODERNISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will study woodblock print illustrations in the context of cultural change. Buddhism and printing have been closely related since the dawn of the age of print. Many scriptures reproduced by woodblock printing were imbedded with illustrations, which themselves offer an effective tool to study cultural transformation. The seminar draws sources from both images and texts. Its cross-cultural perspective highlights nomads and non-Chinese peoples as agents of cultural transformation, with additional visual comparisons from Korean, Japanese, and Islamic traditions. In addition to weekly discussions, the final evaluation includes a research paper and a 30-minute presentation. Students should have an advanced background in Chinese art to take this seminar. Readings will include both Chinese and English sources. Some classes will meet at area museums. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 661. Recommended Prerequisite(s): HART 372 or ASIA 372; students should have Chinese reading skills
Mutually Exclusive: Cannot register for HART 460 if student has credit for HART 661.
HART 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Art History
Grade Mode: Standard Letter
Course Type: Internship/Pacticum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HART 480 - SEMINAR ON FILM AUTHORSHIP: THE NEW HOLLYWOOD
Short Title: SEMINAR ON FILM AUTHORSHIP
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. Cross-list: ARTS 435, FILM 435.

HART 481 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: FILM 485. Equivalency: HART 283. Mutually Exclusive: Cannot register for HART 481 if student has credit for HART 283.

HART 482 - CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE
Short Title: CAESAR'S PALACE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Described as both a “Hall of Despotism” and a “Citadel of Majesty,” the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperorship. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Cross-list: CLAS 482. Graduate/Undergraduate Equivalency: HART 582. Mutually Exclusive: Cannot register for HART 482 if student has credit for HART 582.

HART 493 - WALTER BENJAMIN, MEDIA & MODERNITY
Short Title: WALTER BENJAMIN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will examine the key theoretical writings on media and modernity by Walter Benjamin, one of the first twentieth-century critics to place new forms of visual experience and technology at the center of his understanding of modern life. The course will pay particular attention to Benjamin's writings on urbanism, film and photography, and the ways in which these relate to avant-garde practices such as Dada, Surrealism, and New Objectivity (Neue Sachlichkeit). Graduate/Undergraduate Equivalency: HART 593. Mutually Exclusive: Cannot register for HART 493 if student has credit for HART 593.
HART 495 - READINGS IN MEDIA HISTORY AND THEORY  
**Short Title:** READINGS IN MEDIA HISTORY  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Understanding "media" broadly, this class explores a range of historical and theoretical readings around the term. Typewriters, photography and television will be among our topics, guided by two primary questions: how have developments in media affected, even determined, human perception and communication, and how have artists and critics responded to such changes? Graduate/Undergraduate Equivalency: HART 595. Mutually Exclusive: Cannot register for HART 495 if student has credit for HART 595.

HART 501 - INTERNSHIP PROGRAM II  
**Short Title:** MUSEUM INTERNSHIP  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate credit for work as museum intern at a variety of museums. Instructor Permission Required. Repeatable for Credit.

HART 503 - GRADUATE RESEARCH PAPER  
**Short Title:** GRADUATE RESEARCH PAPER  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate research paper.

HART 504 - INDEPENDENT STUDY  
**Short Title:** INDEPENDENT STUDY  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 3-6  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate independent study, reading and research on variable topics. Instructor Permission Required. Repeatable for Credit.

HART 505 - POST WAR: ART IN EUROPE, 1945-2000  
**Short Title:** ART IN EUROPE, 1945-2000  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will examine the heterodox individual artistic practices and movements in post-World-War Two Europe. Focusing on the countries of France, Belgium, The Netherlands, Germany, Italy, England, and the Soviet Union, particular attention will be given to the post-war reconstruction of the Marshall Plan, economic austerity and recovery, the French colonial war in Algeria, the legacy of the German occupation, the rise of the student movement and the protests of May '68, Stalinism and the cold war, and the national guilt of the Holocaust. In addition to weekly readings, each graduate student will be responsible for an 18-25 page paper and a 30 minute presentation. Graduate/Undergraduate Equivalency: HART 305. Mutually Exclusive: Cannot register for HART 505 if student has credit for HART 305.

HART 506 - FOUNDATIONS IN THE HISTORY AND THEORY OF ARCHITECTURE II (1850-1950)  
**Short Title:** FOUNDATIONS IN ARCH II  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** ARCH 345 or ARCH 645 or HART 345 or HART 645  
**Description:** Lectures and discussions focusing on significant architectural and urban practices and ideas formulated be 1850 and 1950. Cross-list: ARCH 646.  
**Course URL:** [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses/)  

HART 507 - MURDER AND MODERNISM  
**Short Title:** MURDER AND MODERNISM  
**Department:** Art History  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** ARCH 345 or ARCH 645 or HART 345 or HART 645  
**Description:** Lectures and discussions focusing on significant architectural and urban practices and ideas formulated be 1850 and 1950. Cross-list: ARCH 646.  
**Course URL:** [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses/)  

**Course URL:** [www.arch.rice.edu/academics/current-courses](http://www.arch.rice.edu/academics/current-courses/)
HART 508 - LIVING IN THE CITY IN THE OTTOMAN EMPIRE
Short Title: LIVING IN THE CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar combines primary and secondary sources to explore the urban experiences of Ottoman men and women in the 18th and early 19th centuries. Looking at several cities including Istanbul, Izmir, Salonika, Damascus, Aleppo and Alexandria, we will discuss such issues as neighborhood and community life, public spaces and recreational culture perceptions of space, urban institutions, Muslim and non-Muslim relations, migration and marginality, violence and death. Reading knowledge of French and/or Turkish helpful but not necessary. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: ARCH 518. Graduate/Undergraduate Equivalency: HART 308.

HART 509 - THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETERNAL CITY
Short Title: THE DAWN OF ROME
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture the reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Graduate Students will be expected to complete all the requirements of this class in addition to writing a substantial research paper at the end of the semester. Graduate/Undergraduate Equivalency: HART 309. Mutually Exclusive: Cannot register for HART 508 if student has credit for HART 308.

HART 510 - ARCHITECTURE AND DYNASTIC ASPIRATION IN THE EARLY ROMAN EMPIRE
Short Title: ARCH AND DYNASTIC ASPIRATIONS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Nero is often remembered as the tyrannical emperor who let the city burn and gorged on ill-gotten luxury; his successors conceived as good emperors who built the Coliseum, Imperial Palace and the vast majority of Rome's remaining monuments. In this course you will question whether things were so straightforward. Graduate students will be expected to complete additional readings and write a substantial research paper, due at the end of the semester. Mutually Exclusive: Cannot register for HART 510 if student has credit for HART 410.

HART 511 - ART AND ARCHAEOLOGY OF THE ANCIENT NEAR EAST
Short Title: ANCIENT NEAR EAST
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An in-depth examination of the art and archaeology of ancient Mesopotamia, Syria, Anatolia and Persia. Beginning in The Neolithic period, we will examine the development of Near Eastern architecture through the study of ancient sites and their associated material culture. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 311. Mutually Exclusive: Cannot register for HART 511 if student has credit for HART 311.
HART 512 - PLATFORMS OF KNOWLEDGE IN A WIDE WEB OF WORLDS  
Short Title: PLATFORMS OF KNOWLEDGE  
Department: Art History  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The goal of this seminar is to explore, critique, and experience online platforms in the field of Digital Art History (e.g., image repositories, e-learning, publishing, collaborative research, crowd-sourced, etc.) that uphold the academic mission to disseminate knowledge by enabling teachers, students and researchers to discover, analyze, share information without regard to barriers of space and time, and publish work widely. Advanced digital technologies, after all, do allow researchers to handle large volumes of digitized images and texts, trace patterns and connections formerly hidden from view, recover the past in virtual environments, and bring the complex intricacies of works of art to light as never before. The latest tools and techniques, however, raise questions about what counts as expertise, who controls access to information, what gets lost in translation, what power is likely to shift from educational institutions to profit-seeking companies, how the privileging of quantification and metrics affects humanistic wisdom, and how academic autonomy and diversity can ultimately be disrupted. A final presentation is required.

HART 514 - ART AND ACTIVISM: CREATIVE PROTESTS IN THE 20TH CENTURY AMERICAS  
Short Title: ART AND ACTIVISM  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: How have art and activism in the Americas from the early 20th century to today informed and fed one another? Moving between South and North America, this seminar study artists and collectives that have confronted, in isolation or with intersectionality in mind, indigenous rights, gender equality, LGBT+ rights, and systemic racism. The course is organized around artwork and activism grouped within three loose themes: race and disenfranchisement; gender and sexuality; and ecology and capitalism. From graphic art employed by the Black Panthers to photographic essays in defense of ways of life in the Amazon Basin of northern Brazil, "Art and Activism" will offer a chance to contemplate, study, and debate visual and performative projects that have endeavored (or continue to try) to effect social change. Graduate Students will write a 20-25 page (not counting bibliography and illustrations) final research paper; undergraduate students will submit a paper 10-12 pages in length. Some class meetings may be held at area cultural spaces. Graduate/Undergraduate Equivalency: HART 315.

HART 515 - OTTOMAN EMPIRE  
Short Title: OTTOMAN EMPIRE  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This graduate seminar examines different approaches to study of modernity and modernization in the Ottoman Empire from the onset of the Tanzimat reforms in 1839 until after WWI and the empire's demise. By engaging equally the social and spatial dimensions of the major societies, including Istanbul, Damascus, Beirut, Cairo, and Izmir we will explore the various meanings of modernity and modernization as these reflect at the urban architectural scales, in urban life, in localized discourses on the city, through such emerging institutions as the museum, and the context of expanding migration and global works.

HART 516 - CITY & FESTIVAL: CULT PRACTICES & THE ARCHITECTURAL PRODUCTION IN THE ANCIENT GREECO-ROMAN WORLD  
Short Title: CITY AND FESTIVAL  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: How do social events, festivals, cult practices, public spectacles shape a city? The course will explore what makes a city in the first place, and attempt to make sense of the fragmentary archaeological evidence from the ancient Greco-Roman world in understanding, reconstructing cities. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester.
HART 517 - MODERN ART AND MONSTROSITY
Short Title: MODERN ART AND MONSTROSITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Why is it that in the modern era, beginning around the middle of the eighteenth century, artists begin to see various forms of monstrosity in aesthetic terms -- as something beautiful? What is it about the modern period that accounts for this shift in how monstrosity is represented and understood and how does it differ from earlier historical images of the monster? This class will examine the modernist fascination with monstrosity, asking why it became a topic of such interest to artists, writers, and filmmakers during this time, and what it can tell us about modernist aesthetics more broadly. Examining a range of representations from the 18th century on, we will look at visual artists, filmmakers, and novelists who depict various forms of monsters, be they human (Jack the Ripper) or non-human (the Golem). From Mary Shelley's Frankenstein and the myth of the vampire, to Picasso's monstrous images of 1920s, to the distinctly modern phenomenon of serial killing, this course will chart the dark monstrous underside to modern art. Graduate students will be required to give two twenty-minute presentations in class, and write two papers, one short (10-12 pages) and one long (20-30 pages). Graduate/Undergraduate Equivalency: HART 317. Mutually Exclusive: Cannot register for HART 517 if student has credit for HART 317.

HART 518 - LITERATURE AND VISUAL ART
Short Title: LITERATURE AND VISUAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the relationship between literature and visual art. It covers a variety of textual and visual sources; theoretical materials will include works from literary studies, visual culture, art history, critical theory and aesthetics. Cross-list: ENGL 525. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

HART 519 - ARCHITECTURE, TRADE, AND POWER IN EARLY MODERN ISLAMIC EMPIRES
Short Title: ARCHITECTURE ISLAMIC EMPIRES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: During the early modern period, ca. 1500-1800, around one-third of the earth's human population inhabited territories that were ruled by three empires: the Ottomans in the eastern Mediterranean, the Safavids in the Iranian plateau, and the Mughals in South Asia. This period saw a surge in production of architectural monuments (such as the Taj Mahal), the emergence of cosmopolitan cities (such as Istanbul and Isfahan), and the expansion of the public sphere in gardens, promenades, and coffeehouses. This course examines the architecture, urbanism, and material culture of these three empires in the context of global trade, representations of power, and urban life in the capital cities of Istanbul, Isfahan, and Delhi. Graduate students will be expected to write short paper during the semester as well as a 20-page research paper at the end of the semester. Graduate/Undergraduate Equivalency: HART 319.

HART 521 - IMPERIAL CITY: ISTANBUL 1453-1922
Short Title: ISTANBUL IMPERIAL CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This thematic seminar examines significant historical moments in the architectural and urban cultural of the Ottoman imperial capital from the moment it was conquered until the demise of the Ottoman Empire. Weekly readings and discussions will cover a range of topics including building patronage, architectural decorum, the Byzantine legacy, artistic relations with Persia, India and Europe, cultural pluralism, neighborhood and public life, law and urban order, modernity and modernization. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: ARCH 521. Graduate/Undergraduate Equivalency: HART 321. Mutually Exclusive: Cannot register for HART 521 if student has credit for HART 321.
HART 522 - JERUSALEM TO ISFAHAN
Short Title: JERUSALEM TO ISFAHAN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on key topics of the study of visual cultures in the medieval and early modern Muslim world focused on specific works of art. Politics of architectural patronage, dissemination of visual languages, calligraphy, “ornament” and figural representation in Islam, cross-cultural exchanges and trans-religious iconographies are among the topics discussed. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these reading to be turned in at the end of the semester. We will meet at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: ARCH 522. Graduate/Undergraduate Equivalency: HART 322. Mutually Exclusive: Cannot register for HART 522 if student has credit for HART 322.

HART 523 - THE MEDITERRANEAN WORLD
Short Title: THE MEDITERRANEAN WORLD
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar focused on significant moments of the history of cultural exchanges around the Mediterranean. Explores questions of reception, adoption and adaptation of artistic and architectural vocabularies, shifting secular and religious iconographic meanings, circulation of aesthetics and channels of exchange form the vantage point of medieval and early modern Muslim empires.

HART 524 - PERSIANATE ARTS OF THE BOOK
Short Title: PERSIANATE BOOK ARTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores figural painting and arts of the book in the Persianate cultural sphere, ca. 1300s-1800s. We will study concepts of the book in Islamic civilization, illustrated narratives of Persian literature, word/image relationship, albums, and single-page portraits. The class also examines artistic interactions with East Asia and Europe, and concludes with the advent of lithography in the nineteenth century. Some course meetings will take place at Houston-area museums. Graduate students are required to submit a research paper (15-20 pages). Graduate/Undergraduate Equivalency: HART 324. Mutually Exclusive: Cannot register for HART 524 if student has credit for HART 324.

HART 525 - LOOKING AT PRINTS 1400-1700
Short Title: LOOKING AT PRINTS 1400-1700
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The class has several goals: to gain a thorough historical understanding of prints by major masters as Schongauer, Mantegna, Durer, and Rembrandt as well as more popular prints, explore key issues in the study of prints, such as how they revolutionized European culture, their patronage, markets, functions, and techniques; and to examine the prints first-hand. Graduate students are expected to complete all the requirements in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 333. Mutually Exclusive: Cannot register for HART 525 if student has credit for HART 333.

HART 526 - BRAZIL BUILT: THE CLINIC, THE TROPICAL AND THE AESTHETIC
Short Title: BRAZIL BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: From Brazil Builds, MOMA’s 1943 celebrated exhibition to Brasilia, the supermodern capital created ex-nihilo in the middle of nowhere, to today’s worldwide attention on Braf, this seminar examines the built environment - natural and architectural - as the main transmitter of modernism in Brazil. This is a seminar on Brazilian modernism and its discontents. Cross-list: ARCH 515. Graduate/Undergraduate Equivalency: HART 310. Mutually Exclusive: Cannot register for HART 526 if student has credit for HART 310.

HART 527 - VISUAL CULTURE OF MEDIEVAL PILGRIMAGE
Short Title: MEDIEVAL PILGRIMAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the rich visual culture associated with Medieval pilgrimage between the fourth and fifteenth centuries. The experience of pilgrimage was shaped by symbols, images, and places encountered along the routes to sites of sacred significance, especially the roads to Jerusalem, Rome, Santiago, and Canterbury. We will examine the theological, practical, visual, and experiential aspects of pilgrimage in Western Europe and the Holy Land as understood through visual culture and contemporary texts. Graduate students will meet with the professor every other week to discuss 16 additional recommended readings - beyond those assigned to the undergraduates - and to discuss the progress of their 20-25 page research paper. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 427. Mutually Exclusive: Cannot register for HART 527 if student has credit for HART 427.
HART 529 - STREET AND URBAN LIFE: PARIS TO ISTANBUL
Short Title: STREET AND URBAN LIFE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 329. Cross-list: ARCH 529. Graduate/Undergraduate Equivalency: HART 329. Mutually Exclusive: Cannot register for HART 529 if student has credit for HART 329.

HART 530 - EARLY MEDIEVAL ART
Short Title: EARLY MEDIEVAL ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 330. Mutually Exclusive: Cannot register for HART 530 if student has credit for HART 330.

HART 531 - GOTHIC ART
Short Title: GOTHIC ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 331. Mutually Exclusive: Cannot register for HART 531 if student has credit for HART 331.

HART 532 - ART OF THE COURTS
Short Title: ART OF THE COURTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 332. Mutually Exclusive: Cannot register for HART 532 if student has credit for HART 332.

HART 533 - THE BAYEUX TAPESTRY AND THE ANGLO-NORMAN WORLD
Short Title: THE BAYEUX TAPESTRY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on the most important secular work from the Middle Ages—a 230-foot long embroidery depicting the Battle of Hastings. We will consider the relationship between the textual and visual narratives of the historical events; the tapestry as an artifact and its history; its origin, date, purpose and patronage; the artistic context of the tapestry in the eleventh century; issues of narratology; and reception and visuality. Several eleventh- and twelfth-century texts such as the "Chanson de Roland," the "Lais" and the "Fables" of Marie de France, "Le Jeu d'Adam" and "La Vie de Saint Alexis" will be examined with particular attention to the authors' desire to create a visual experience for the audience. Graduate students will work on a more advanced level than undergraduate students with higher expectations and additional readings. They will meet on a regular basis outside of the weekly class to advance discussion of issues brought up in the class. Research projects undertaken by graduate students are expected to be done in multiple languages (especially French and German), and in addition to demonstrating a knowledge of the subject matter as it appears in the scholarship, they will be expected to critically evaluate this scholarship and begin to draw their own conclusions. Graduate/Undergraduate Equivalency: HART 433. Mutually Exclusive: Cannot register for HART 533 if student has credit for HART 433.
HART 534 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: SWGS 534. Graduate/Undergraduate Equivalency: HART 434. Mutually Exclusive: Cannot register for HART 534 if student has credit for HART 434.

HART 535 - MULTICULTURAL EUROPE, 1400-1700
Short Title: MULTICULTURAL EUROPE, 1400-1700
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The art of Europe was never the product of a single culture working in isolation. This seminar will explore the multicultural aspects of medieval and early modern Europe by focusing on the visual culture of groups who defined themselves or are today defined by nationality, race, or religion. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all the readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 435. Mutually Exclusive: Cannot register for HART 535 if student has credit for HART 435.

HART 536 - CINEMA AND THE CITY
Short Title: CINEMA AND THE CITY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 336. Mutually Exclusive: Cannot register for HART 536 if student has credit for HART 336.

HART 538 - RENAISSANCE GOTHIC ARCHITECTURE
Short Title: RENAISSANCE GOTHIC ARCHITECTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the architecture constructed in northern Europe between 1450 and 1550 bridging the gap between the end of the Middle Ages and the Early Modern Period. The ambiguous term of “Renaissance Gothic” has been coined to describe a form of architecture that straddles two fundamentally different periods with radically different approaches to the meaning, function and form of architecture. We will explore why and how Gothic architecture, the dominant style of church building for almost 350 years, was abandoned in favor of a new imported form.

HART 539 - AMERICAN ART AND ARCHITECTURE I: 1620-1800
Short Title: AMERICAN ART: 1620-1800
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Painting, architecture, urban design, and the decorative arts in the colonies and early United States. Highlights will include design at Monticello and Mount Vernon; the portraiture of John Singleton Copley; Georgian and Federal-period architecture in Boston, New York, Williamsburg, and Philadelphia; and Spanish and Dutch colonial art and architecture. Graduate/Undergraduate Equivalency: HART 339. Mutually Exclusive: Cannot register for HART 539 if student has credit for HART 339.

HART 540 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Cross-list: MUCH 508. Graduate/Undergraduate Equivalency: HART 312. Mutually Exclusive: Cannot register for HART 540 if student has credit for MUCH 508.
HART 541 - EARLY RENAISSANCE ART IN ITALY  
Short Title: EARLY RENAISSANCE ART IN ITALY  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of Italian art and architecture from Giotto to Botticelli, with emphasis on painting and sculpture in the 15th century. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 341. Mutually Exclusive: Cannot register for HART 541 if student has credit for HART 341.

HART 542 - THE HIGH RENAISSANCE AND MANNERISM IN ITALY  
Short Title: HIGH RENAISSANCE&MANNERISM ITALY  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of the High Renaissance, with emphasis on its leading masters (e.g., Leonardo, Raphael, Bramante, Michelangelo, and Titian). Includes a study of mannerism, the stylish art produced after the first quarter of the 16th century. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 342. Mutually Exclusive: Cannot register for HART 542 if student has credit for HART 342.

HART 543 - MASTERS OF THE BAROQUE ERA  
Short Title: MASTERS OF THE BAROQUE ERA  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 343. Mutually Exclusive: Cannot register for HART 543 if student has credit for HART 343.

HART 544 - CAPITALISM AND CULTURE  
Short Title: CAPITALISM AND CULTURE  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar will examine the way European culture, especially art, was shaped by the rise of the monetary economy and capitalism, beginning in the late Middle Ages and continuing into modern times. Faculty will meet separately on a bi-weekly basis with graduate students in the class who will also be assigned extra readings. Graduate work will be evaluated on a more challenging scale, with particular attention to methodological and interpretive rigor. Graduate/Undergraduate Equivalency: HART 344. Mutually Exclusive: Cannot register for HART 544 if student has credit for HART 344.

HART 545 - INTRODUCTION TO ARCHITECTURAL THINKING  
Short Title: INTRO ARCHITECTURAL THINKING  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to architectural thought. Lectures and discussions focusing on practice and ideas that have exercised a significant influence on the discourse and production of architecture and urbanism. Cross-list: ARCH 525. Graduate/Undergraduate Equivalency: HART 225. Mutually Exclusive: Cannot register for HART 545 if student has credit for HART 225.  
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 546 - PICASSO, POLLOCK, WARHOL  
Short Title: PICASSO, POLLOCK, WARHOL  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar will look in detail at three of the twentieth century's most important artists: Pablo Picasso, Jackson Pollock, and Andy Warhol. Our central focus in doing so will be painting, in particular, the means by which these three artists tested, expanded or even "destroyed" the medium. What did it mean to make (or reject) painting in 1910, 1950, and 1965? Special attention will be paid to recent scholarly literature and close looking at works in local collections. Graduate/Undergraduate Equivalency: HART 334. Mutually Exclusive: Cannot register for HART 546 if student has credit for HART 334.
HART 547 - CONSTABLE AND TURNER
Short Title: CONSTABLE AND TURNER
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will explore critical issues surrounding the careers of John Constable and J.M.W. Turner, arguably the greatest landscape painters of the early 19th century. We will look at both similarities and differences in the work of these two rivals, while considering their work in the context of great historical change in England. Graduate students will be required to do additional reading in addition to those already assigned. Graduate/Undergraduate Equivalency: HART 357. Mutually Exclusive: Cannot register for HART 547 if student has credit for HART 357.

HART 548 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. This course is taught in Spanish. Graduate students will be required to complete all the requirements for the course in addition to writing a substantial research paper at the end of the semester. This is the credit for the actual trip to Cuba. Graduate/Undergraduate Equivalency: HART 348. Mutually Exclusive: Cannot register for HART 548 if student has credit for HART 348.

HART 549 - TECHNICAL ART HISTORY: STUDYING THE TECHNIQUES OF WESTERN PAINTING, 13TH-20TH CENTURIES
Short Title: TECHNICAL ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Art historians, especially in the United States, tend to rely on photographs, but a study of the actual object is invaluable in studying works of art. This course aims to inform students about the technical study of art, which in the last fifty years has become a major field of research. Most classes will be held at the Museum of Fine Arts, Houston, or other Houston collections. Graduate/Undergraduate Equivalency: HART 307. Mutually Exclusive: Cannot register for HART 549 if student has credit for HART 307.

HART 551 - MODELS OF ABstraction
Short Title: MODELS OF ABSTRACTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine a range of different models of abstract painting and sculpture as they appear throughout the twentieth century. Looking closely at the historical contexts that gave rise to abstraction particular attention will be paid to how apparently similar forms of abstraction can denote very different kinds of meaning. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 451. Mutually Exclusive: Cannot register for HART 551 if student has credit for HART 451.

HART 552 - MANET(S) AND MODERNISM(S)
Short Title: MANET(S) AND MODERNISM(S)
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar considers the pivotal figure of Edouard Manet. Combining a study of paintings from throughout his career, with close readings of primary sources, we will assess the key aspects of his style and subject matter. We will also consider art historical to his work and relationship to modernity. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideals associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 452. Mutually Exclusive: Cannot register for HART 552 if student has credit for HART 452.

HART 553 - NORTHERN RENAISSANCE ART
Short Title: NORTHERN RENAISSANCE ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine a range of different models of abstract painting and sculpture as they appear throughout the twentieth century. Looking closely at the historical contexts that gave rise to abstraction particular attention will be paid to how apparently similar forms of abstraction can denote very different kinds of meaning. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 340. Mutually Exclusive: Cannot register for HART 553 if student has credit for HART 340.
HART 554 - AGE OF ROMANTICISM IN EUROPE
Short Title: AGE OF ROMANTICISM IN EUROPE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will consider the emergence and flourishing of Romanticism in the visual arts in Europe. We will consider artists from France, Germany and Britain, including Eugene Delacroix, J.M.W. Turner, John Constable and Caspar David Friedrich. We will combine study of paintings with readings of contemporaneous philosophers and writers, including Hegel and Byron. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 354.
Mutually Exclusive: Cannot register for HART 554 if student has credit for HART 354.

HART 555 - JACQUES-LOUIS DAVID: REVOLUTION
Short Title: JACQUES-LOUIS DAVID:REVOLUTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 355.
Mutually Exclusive: Cannot register for HART 555 if student has credit for HART 355.

HART 556 - SEX AND MONEY: THE SPECIES DIVIDE
Short Title: SEX & MONEY:THE SPECIES DIVIDE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore issues surrounding sex and money in medieval and early modern Europe and their impact on visual representations of both humans and non-humans. It will introduce students to such theories as feminism, Marxism, and posthumanism as well as medieval beliefs about the Seven Deadly Sins. Some course meetings will take place at Houston-area museums where students will engage with artworks in person. Graduate students will work on a more advanced level than undergraduate students with higher expectations and additional readings. Graduate students will be expected to complete all requirements of the class and will meet an additional seven times to discuss the interpretive and methodological ideas associated with the readings and their research papers. Graduate/Undergraduate Equivalency: HART 356.

HART 557 - VIDEO AND EXPANDED CINEMA
Short Title: VIDEO AND EXPANDED CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the emergence of video and "expanded cinema" as a primary field of artistic practice over the course of the 1960s and 1970s. We will examine seminal works by artists including Andy Warhol, Dan Graham, and Robert Whitman as well as the shifting aesthetic, political, and media landscapes in which this work emerged. For each lecture, Graduate students will be assigned readings. They will write an annotated bibliography of all the readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss the interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 457. Mutually Exclusive: Cannot register for HART 557 if student has credit for HART 457.
HART 558 - IMPRESSIONISM AND POST-IMPRESSIONISM
Short Title: IMPRESSIONISM/POST-IMP
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will explore painting in France from approximately 1865 to 1900. Mixing lectures and classroom discussion, we will focus on individual artists including Claude Monet, Edgar Degas, Mary Cassatt, Georges Seurat, Vincent van Gogh, and Paul Czanne. We will also consider and discuss a set of critical issues surrounding these painters, including the politics of gender and class within the changing urban setting of Paris. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 358. Mutually Exclusive: Cannot register for HART 558 if student has credit for HART 358.

HART 559 - ART OF THE 60s AND 70s
Short Title: ART OF THE 60s AND 70s
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: By all accounts the 1960s and 1970s marked one of the most vibrant, experimental, audacious, and above all - contentious periods in the history of avant-garde modernism. This seminar will examine the momentous shift from the international dominance of American Abstract Expressionism in the 1950s to a wide array of global counter-movements in the 1960s and 70s. Possible topics include: Happenings, Minimalism, Fluxus, Conceptualism, Nouveau Realisme, Body Art, Structuralist Film, Gutai, Light and Space, Néoconcretism, Arte Povera, The Situationist International, etc. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper. Graduate/Undergraduate Equivalency: HART 461. Mutually Exclusive: Cannot register for HART 559 if student has credit for HART 461.

HART 560 - WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS
Short Title: WHAT IS CINEMA?
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Using a variety of readings now considered classics as our guide, this class will look closely at a broad range of films and film movements discussed by critics and theorists such as Rudolf Amheim, Jean Epstein, Sergei Eisenstein, Walter Benjamin and Andre Bazin. Graduate students will be assigned additional readings and will be required to write a substantial research paper (20-25 pages). Graduate/Undergraduate Equivalency: HART 361. Mutually Exclusive: Cannot register for HART 560 if student has credit for HART 361.

HART 561 - WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS
Short Title: WHAT IS CINEMA?
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines how cinema has reflected, shaped and produced historical periods and cultures. Each graduate student will be required to submit a final 20-25 pp. paper. Graduate/Undergraduate Equivalency: HART 364.

HART 562 - UPCYCLING: MEANINGFUL REUSE IN ART AND MONUMENTS FROM ANTIQUITY TO TODAY
Short Title: UPCYCLING
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this seminar, we will explore the phenomenon of upcycling - intentionally meaningful reuse - by investigating the intersection of reuse and memory in the art and monuments of many different times, places, and people, from prehistory to the modern art that surrounds us on the Rice campus. Graduate students will be assigned up to 10 additional readings over the semester and complete a 15-20 page final paper. Graduate/Undergraduate Equivalency: HART 362. Mutually Exclusive: Cannot register for HART 562 if student has credit for HART 362.

HART 563 - PRACTICING UTOPIA: ARCHITECTURE, EUGENICS AND THE MODERN LATIN CITY
Short Title: PRACTICING UTOPIA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will explore the alliance between aesthetics, science, and ideology at the core of French and Latin American modernism. Focusing on early twentieth-century scientific and cultural dialogues between France and Latin America, this seminar will have as main territories of exploration: Paris, Rio de Janeiro, Buenos Aires, Havana, and Caracas. Graduate/Undergraduate Equivalency: HART 463. Mutually Exclusive: Cannot register for HART 563 if student has credit for HART 463.

HART 564 - GENDER AND SEXUALITY IN FILM
Short Title: GENDER AND SEXUALITY IN FILM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines how cinema has reflected, shaped and critiqued cultural understandings of gender and sexuality over the last 100 years. By pairing film analysis with critical readings in gender and sexuality studies, we will explore the development of sexual and gender conventions—as well as their transgressions—on screen across diverse historical periods and cultures. Each graduate student will be required to submit a final 20-25 pp. paper. Graduate/Undergraduate Equivalency: HART 364.
HART 565 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. Course taught in Spanish. Graduate students will be expected to complete all the requirements of the course in addition to writing a research paper at the end of the semester. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 304. Mutually Exclusive: Cannot register for HART 565 if student has credit for HART 304.

HART 566 - LATIN AMERICAN BODIES: ON MODERNISM
Short Title: LATIN AMER BODIES: ON MODERNISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine theories and practices of modernism and modernization within Latin America-Europe Dialogues. Designed as a laboratory of ideas and forms, this seminar will probe critical perspectives on art and architecture’s relation to society and science. Each week, we will examine a theorist, an artist, and an architect. Graduate students will be expected to complete all the requirements in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 465. Mutually Exclusive: Cannot register for HART 566 if student has credit for HART 465.

HART 567 - ARCHITECTURES OF POWER, RESISTANCE, AND COEXISTENCE: A GLOBAL PERSPECTIVE
Short Title: ARCHITECTURES POWER RESISTANCE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar adopts a global approach to examine architecture and the built environment as sites of power, resistance, and coexistence. Through a series of case studies spanning the globe, from Central Asia to the Mediterranean to the Americas, we will explore how architectural works-monuments, buildings, urban plans, indigenous settlements, refugee camps-exercised authority, resisted domination, and/or created settings for coexistence. Topics to discuss include cross-cultural interactions in medieval Iberia (Spain/Portugal); Nineteenth-century Orientalist architecture and its discontents; the interwoven complexity of infrastructures, race, and gender in early twentieth century South America; the spaces and politics of U.S. assistance programs during the era of “development” across the Global South; and environmental diasporas and indigenous reclamations from the Amazon to Sub-Saharan Africa in present days. Graduate students will submit an in-depth research proposal and paper and will give a formal presentation on their research paper in the seminar. This course occasionally meets at an area museum during the semester. Graduate/Undergraduate Equivalency: HART 367. Mutually Exclusive: Cannot register for HART 567 if student has credit for HART 467.

HART 568 - FROM THE SUBLIME TO THE SUSTAINABLE: ART, ARCHITECTURE AND NATURE
Short Title: ART, ARCHITECTURE AND NATURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar considers theories and narratives of nature in the crafting of modern and contemporary art and architecture in the Americas. Artists and architects will include Maria Fernanda Cardoso, Rogelio Salmona (Colombia); Ana Mendieta, Ricardo Porro (Cuba); Ana Maria Tavares, Lina Bo Bardi (Brazil); Mark Dion and Buckminster Fuller (USA). For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 302. Mutually Exclusive: Cannot register for HART 568 if student has credit for HART 302.
HART 569 - STATE OF THE ART
Short Title: STATE OF THE ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is the current state of the art historical field? Looking at contemporary scholarship across a range of historical periods, the class will introduce students to a selection of some of the most important, ground-breaking, and/or influential writings in art history produced in the last 25 years or so. Paying particular attention to an array of recent trends, methodologies, and political interventions, this class will examine some of the most pressing questions, debates, and advanced interdisciplinary theories within current art historical practice. In addition to the presentations and short-analysis paper (4-5 pages) required for the undergraduate-level course, the graduate-level course requires a final paper of 20-25 pages. Graduate/Undergraduate Equivalency: HART 369. Mutually Exclusive: Cannot register for HART 569 if student has credit for HART 369. Repeatable for Credit.

HART 570 - TRENDS IN CONTEMPORARY ART
Short Title: TRENDS IN CONTEMPORARY ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will map the terrain of contemporary art as it has developed in the wake of political and theoretical engagements of the 1990's. For many critics, Contemporary Art practice has given way to the worst aspects of spectacular culture losing sight of the political, theoretical, and artistic rigor that characterized the historical and neo-avant-garde. Graduate students will be assigned 1-2 additional readings each week and prepare a final seminar paper of 20-30 pages. Graduate/Undergraduate Equivalency: HART 349. Mutually Exclusive: Cannot register for HART 570 if student has credit for HART 349.

HART 571 - CHINESE PAINTING
Short Title: CHINESE PAINTING
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines Chinese painting from ancient times to the early twentieth century. Issues of examination include themes, styles, and functions of Chinese painting; the interrelationship between paintings and the intended viewers; regionalism; images and words; foreign elements in Chinese painting. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 371. Mutually Exclusive: Cannot register for HART 571 if student has credit for HART 371.

HART 573 - EVOLUTION CUSTOM BUILT: ARCHITECTURE, GENETICS, AND THE ANTHROPOCENE
Short Title: EVOLUTION CUSTOM BUILT
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In the twentieth century, architects, scientists, engineers and technocrats attempted to free humanity from the constraints of nature... and were met with developments in science and technology sufficient to do so. Tracking the late nineteenth- and twentieth-century techno-scientific impetus to redesign the shape of the future, from the level of genes to the scale of the built environment, this seminar combines investigations and theories of landscape, object-oriented ontology, architecture and ecocriticism. In the first part of the course, we'll unpack the history of modern agrilogistic thought, which projected empty, unoccupied space for opportunity and development onto otherwise occupied chromosomes, cultures and landscapes. The second section of this seminar traces the drive to order the biological world, using logics of efficiency and accountability, by rereading developments in energy, industry and resource development through the lens of object oriented ontology. Finally, we'll reconsider developments in the plant, animal and human sciences that bolstered humanity's twentieth-century hubris, from the birth of genetics to the role radiation played in liberating plant breeding from the confines of Mendelian crosses. Graduate students will have six additional readings and extra presentations of the landscape and architecture projects. Graduate/Undergraduate Equivalency: HART 473. Mutually Exclusive: Cannot register for HART 573 if student has credit for HART 473.

HART 574 - THE VISUAL CULTURE OF THE FRENCH REVOLUTION
Short Title: ART OF THE FRENCH REVOLUTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the central role that art and visual culture played in the French Revolution. While engaging in a detailed study of the causes, progress and outcome of the Revolution we will pay attention to painting, prints, festivals and the wide range of visual culture that not only reflected the Revolution but helped fuel it. Graduate students will have extensive readings, a graduate discussion section in addition to the usual class meeting times. Three short reaction papers and a final original research seminar paper (15-20 pages) will also be required. Graduate/Undergraduate Equivalency: HART 374. Mutually Exclusive: Cannot register for HART 574 if student has credit for HART 374.
HART 575 - ART BETWEEN THE WARS: EUROPEAN MODERNISM, 1918-1940
Short Title: ART BETWEEN WARS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Beginning in the aftermath of the First World War, a conflict that devastated the physical and psychological landscape of Europe, and ending with the rise of various totalitarian regimes (Fascism, Stalinism) this seminar will examine European art of the interwar period, from 1918-1940. Potential topics will include Surrealism, The Russian avant-garde, the return to order, Esprit-Nouveau, the machine aesthetic, De Stijl, avant-garde cinema, etc. Graduate/Undergraduate Equivalency: HART 365. Mutually Exclusive: Cannot register for HART 575 if student has credit for HART 365.

HART 576 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE
Short Title: EAST AND WEST
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 376. Mutually Exclusive: Cannot register for HART 576 if student has credit for HART 376.

HART 577 - MEDIEVAL MANUSCRIPTS
Short Title: MEDIEVAL MANUSCRIPTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores illuminated European manuscripts from late antiquity through the early sixteenth century. It examines manuscripts’ functions, patrons, makers, and materials and technique, as well as such issues as the relationship between text and image and the manuscript's ideological stance. Students have the opportunity to study original medieval illuminations. Graduate/Undergraduate Equivalency: HART 377. Mutually Exclusive: Cannot register for HART 577 if student has credit for HART 377.

HART 578 - DUTCH ART IN THE AGE OF REMBRANDT
Short Title: DUTCH ART IN AGE OF REMBRANDT
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine Dutch and Flemish seventeenth-century art, including major masters, such as Rembrandt, Rubens, and Vermeer, and major developments, such as the rise of still life, genre, and landscape painting. It will also explore women artists, Delft tiles, doll’s houses, and multicultural aspects of art production. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 378. Mutually Exclusive: Cannot register for HART 578 if student has credit for HART 378.

HART 579 - THE AESTHETICS OF REALISM: FROM COURBET TO THE WIRE
Short Title: THE AESTHETICS OF REALISM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will consider both the historical roots and contemporary manifestations of an aesthetics of realism. As a form of art concerned with the world as it is, in all its imperfection, realism is often assumed to ignore ideas of beauty, and even to court harsh, rough or ugly appearances. But as we will see there is both theoretical basis for an aesthetics of realism and a long history of its visual development. Graduate students will read approximately 200-250 pages per week, which will be discussed in an additional hour-long session each week. Graduate students will write two 5-7 page short papers and one 18-20 page final term paper. Graduate/Undergraduate Equivalency: HART 379.
HART 581 - COLLAGE AND ITS HISTORIES
Short Title: COLLAGE AND ITS HISTORIES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will explore the centrality of collage to the development of the 20th century art and film. Beginning with the seminal achievements of Picasso and Braque, we will examine works across geographical and medium boundaries, including Dada photomontage, early avant-garde film, 1960s happenings, and the reformulation of collage aesthetics in 1980s postmodernism. For each lecture, Graduate students will be assigned additional readings. They will write an annotated bibliography of all the readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss the interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 381. Mutually Exclusive: Cannot register for HART 581 if student has credit for HART 381.

HART 582 - CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE
Short Title: CAESAR'S PALACE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Described as both a “Hall of Despotism” and a “Citadel of Majesty” the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperorship. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Graduate students will have additional readings. Graduate/Undergraduate Equivalency: HART 482. Mutually Exclusive: Cannot register for HART 582 if student has credit for HART 482.

HART 586 - DADA
Short Title: DADA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Inaugurated against the calamitous backdrop of the First World War, "Dada," the artist Francis Picabia claimed, "smells of nothing, it is nothing, nothing, nothing." This seminar will examine the aesthetics of shock and nihilism (literally, 'nothingness'), developed by Dada in six cities: Zurich, Berlin, Cologne, Hannover, New York, and Paris. For each lecture Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 386. Mutually Exclusive: Cannot register for HART 586 if student has credit for HART 386.

HART 587 - ARCHITECTURE, ART, AND LITERATURE IN ISLAMIC CULTURES
Short Title: ARCH AND LIT ISLAMIC CULTURES
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Buildings, objects, and texts are all cultural artifacts. When they intersect—when a building is inscribed with a poem or a literary text engages with a spatial reality—the result is a sophisticated product that combines visual and verbal modes of communication. Visual cultures of the Islamic lands abound with such examples, ranging from poetic epigraphy on buildings (as in the Alhambra) to versified descriptions of cities and monuments. This seminar will examine select works of Islamic art and architecture in relation to literary texts that engage with their aesthetic and functional aspects. Graduate students will submit a research paper that is 20-25 pages; undergraduate students will submit a 15-page research paper. Graduate/Undergraduate Equivalency: HART 385. Mutually Exclusive: Cannot register for HART 587 if student has credit for HART 385.
HART 588 - POST WAR EUROPEAN CINEMA
Short Title: POST WAR EUROPEAN CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class surveys major developments in European cinema from the late 1940s to the late 1960s. Our study will include such movements as Italian Neorealism, German Rubble Films, French New Wave, and Soviet cinema in the Thaw. Particular attention will be paid to such issues as cinema and post-war reconstruction, memory and nation, and body and space. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional hour every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 388. Mutually Exclusive: Cannot register for HART 588 if student has credit for HART 388.

HART 589 - JUSTICE AND CINEMA
Short Title: JUSTICE AND CINEMA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Why have film directors been drawn to criminal investigations and the search for justice since cinema’s early years? This course examines films that represent court trials, investigate crimes and seek truth across different cultures over the last 100 years. Graduate students will write a 20-page research paper. Graduate/Undergraduate Equivalency: HART 389.

HART 590 - METHODS OF ART HISTORY
Short Title: METHODS OF ART HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar surveys approaches the study of art and visual culture from art history’s origins as a discipline to the present day. We will study a range of works of art and interrogate many of the essential terms of art historical study. Frequent guest lectures will be featured. Instructor Permission Required.

HART 593 - WALTER BENJAMIN
Short Title: WALTER BENJAMIN
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the key theoretical writings on media and modernity by Walter Benjamin, one of the first twentieth-century critics to place new forms of visual experience and technology at the center of his understanding of modern life. The course will pay particular attention to Benjamin’s writings on urbanism, film and photography, and the ways in which these relate to avant-garde practices such as Dada, Surrealism, and New Objectivity (Neue Sachlichkeit). For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional hour every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 493. Mutually Exclusive: Cannot register for HART 593 if student has credit for HART 493.

HART 594 - STUDIES IN CONTEMPORARY LITERATURE AND CULTURE
Short Title: CONTEMP. LIT AND CULTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Global English; Globalization and its Discontents; and Critical Regionalisms. Cross-list: ENGL 594. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

HART 595 - READINGS IN MEDIA HISTORY AND THEORY
Short Title: READINGS IN MEDIA HISTORY
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Understanding “media” broadly, this class explores a range of historical and theoretical readings around the term. Typewriters, photography and television will be among our topics, guided by two primary questions: how have developments in media affected, even determined, human perception and communication, and how have artists and critics responded to such changes? In addition to all undergraduate requirements, graduate students will be assigned additional weekly readings and asked to write a final research paper of 20-30 pages. Graduate/Undergraduate Equivalency: HART 495. Mutually Exclusive: Cannot register for HART 595 if student has credit for HART 495.
HART 596 - FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY  
Short Title: FROM EXPRESSIONISM TO FASCISM  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Graduate/Undergraduate Equivalency: HART 297. Mutually Exclusive: Cannot register for HART 596 if student has credit for HART 398.

HART 597 - SPECIAL TOPICS IN MUSEUM CURATORIAL STUDIES  
Short Title: SPECIAL TOPICS: MUSEUM STUDIES  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Special Topics class taught by visiting Curators from the MFAH. FA 2016: Intro to Islamic Art at the MFAH: This course explores the dynamic, multifaceted character of Islamic art and architecture across the globe. Travel from Spain to India studying original art at the Museum of Fine Arts. Gain understanding of the historical, religious, social, craft, and visual contexts of the art. Graduate/Undergraduate Equivalency: HART 297. Mutually Exclusive: Cannot register for HART 597 if student has credit for HART 297.

HART 600 - PREPARATION FOR CANDIDACY I  
Short Title: PREPARATION FOR CANDIDACY I  
Department: Art History  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Independent Study  
Credit Hours: 3-9  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Preparation for qualifying exams.

HART 601 - PREPARATION FOR CANDIDACY II  
Short Title: PREPARATION FOR CANDIDACY II  
Department: Art History  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Independent Study  
Credit Hours: 3-9  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Preparation for qualifying exams and dissertation prospectus.

HART 603 - BAYOU BEND GRADUATE INTERNSHIP I  
Short Title: BAYOU BEND GRAD INTERNSHIP I  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Graduate Internship at Bayou Bend, the American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 400. Mutually Exclusive: Cannot register for HART 603 if student has credit for HART 400. Repeatable for Credit.

HART 604 - BAYOU BEND GRADUATE INTERNSHIP II  
Short Title: BAYOU BEND GRAD INTERNSHIP II  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Graduate Internship at Bayou Bend and The American Decorative Arts Center of the Museum of Fine Arts, Houston. Must be a Jameson Fellowship recipient to enroll. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 401. Mutually Exclusive: Cannot register for HART 604 if student has credit for HART 401. Repeatable for Credit.

HART 606 - ICONOCLASMS: THE DESTRUCTION OF IMAGES  
Short Title: ICONOCLASMS  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: With a focus on the modern period, this seminar will examine iconoclastic theory and practice from antiquity to the present. Why, we will ask, have people so incessantly felt compelled to ban or destroy images, and what can this compulsion tell us about the nature of visual representation itself? Graduate/Undergraduate Equivalency: HART 406. Mutually Exclusive: Cannot register for HART 606 if student has credit for HART 406.

HART 607 - POP ART  
Short Title: POP ART  
Department: Art History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This seminar will examine the history and significance of Pop art by looking in detail at three or four primary figures associated with the term; likely subjects include Andy Warhol, Gerhard Richter, Ed Ruscha, Richard Hamilton, and others. Visits to local museum collections and attention to theoretical writings on art and mass culture are planned. Graduate/Undergraduate Equivalency: HART 407. Mutually Exclusive: Cannot register for HART 607 if student has credit for HART 407.
HART 612 - ADVANCED SEMINAR IN ARCHITECTURE
Short Title: ADV SEMINAR IN ARCHITECTURE
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Small, focused, advanced discussion, workshop and/or design based courses on topics of recent research in architecture, delivered by RSA full time or visiting faculty. This seminar is open to RSA undergraduate students junior-level and above, and RSA graduate students. Students from other departments may enroll in the course with instructor permission. See the RSA website for more information: arch.rice.edu/courses. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: ARCH 612. Graduate/Undergraduate Equivalency: HART 412. Mutually Exclusive: Cannot register for HART 612 if student has credit for HART 412. Repeatable for Credit.

HART 626 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 626. Graduate/Undergraduate Equivalency: HART 326. Mutually Exclusive: Cannot register for HART 626 if student has credit for HART 326.

HART 627 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Graduate/Undergraduate Equivalency: HART 327. Mutually Exclusive: Cannot register for HART 627 if student has credit for HART 327.

HART 630 - INDEPENDENT STUDY - FOURTEENTH CENTURY GOTHIC ARCHITECTURE
Short Title: INDEPENDENT STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual readings in 14th century gothic art and architecture. Instructor Permission Required.

HART 638 - HART IN THE WORLD SPRING SEMINAR
Short Title: HART IN THE WORLD SEM
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar serves as required preparation for the planned “HART in the World” research travel course (HART 697) offered in the immediately following summer session. Students will study a range of materials—including works of art, literature, films, and historical studies—related to the planned destination city. Graduate students will be required to do additional reading, give two presentations, and submit a 25-35 page paper. To be offered every other year. Graduating students are not eligible. More information available at: https://arthistory.rice.edu/opportunities/hart-world Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 338. Mutually Exclusive: Cannot register for HART 638 if student has credit for HART 338. Repeatable for Credit.

HART 640 - ISSUES IN THE HISTORY OF PRINTS, PRE-MODERN TO PRESENT
Short Title: ISSUES IN HISTORY OF PRINTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: With their distinctive technical, social, and commercial associations, prints are often sidelined in traditional art histories. This course will introduce recent scholarship on the multiple image from the late middle ages to the present, with stress on the transformations of printmaking from the development of photography into our digital age. Graduate/Undergraduate Equivalency: HART 440. Mutually Exclusive: Cannot register for HART 640 if student has credit for HART 440.
HART 645 - FOUNDATIONS AND THE HISTORY AND THEORY OF ARCHITECTURE I (1450-1850)
Short Title: FOUNDATIONS IN ARCH I
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures and discussions focusing on significant architectural and urban practices and ideas formulated before 1850. Cross-list: ARCH 645.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

HART 651 - ART, REVOLUTION, WAR: MODERN ART IN VIOLENT TIMES
Short Title: ART, REVOLUTION, WAR
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar examines the ambition (or lack thereof) of modern art to play an active role during periods of violent conflict. From the French Revolution to the recent disastrous American engagements in the Middle East wars to the never-ending war on terror, artists have produced images that attempt to actively engage in these conflicts. This class will examine the relative successes and failures of art during times of violent revolution and war within the modern era. Graduate/Undergraduate Equivalency: HART 351. Mutually Exclusive: Cannot register for HART 651 if student has credit for HART 351.

HART 653 - ART AND EMOTION
Short Title: ART AND EMOTION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will examine the role played by emotion in our response to works of art. What is the relationship of emotion to the specific formal properties of a given work of art, such as color, texture, shape, line quality, sound, and so on? What role does our cognitive faculties play in determining our emotional response to art? Are there political stakes to emotional affect? These and other questions will be examined. Graduate/Undergraduate Equivalency: HART 353. Mutually Exclusive: Cannot register for HART 653 if student has credit for HART 353.

HART 658 - SPECIAL TOPICS: THE POLITICAL HISTORY OF ART BETWEEN THE WORLD WARS
Short Title: SPECIAL TOPIC: ART BETWEEN WARS
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on art and architecture that intersected with the struggles between democracy, communism, and fascism. It will deal with prominent architects and artists who worked for or critiqued specific regimes. We will engage with fundamental political events in modern society - such as the Soviet Revolution, the rise of fascism in Italy, Hitler and the Jewish genocide, and democratic struggles of the Popular Front in France. Graduate students will be expected to complete all the requirements for the class in addition to writing a substantial research paper at the end of the semester.

HART 659 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: ARCH 654. Graduate/Undergraduate Equivalency: HART 359. Mutually Exclusive: Cannot register for HART 659 if student has credit for HART 359.

HART 661 - CHINESE BUDDHIST WOODCUTS 850-1450
Short Title: CHINESE BUDDHIST WOODCUTS
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): HART 571 or HART 623
Description: This course will study woodblock print illustrations in the context of cultural change. Buddhism and printing have been closely related since the dawn of the age of print. Many scriptures reproduced by woodblock printing were imbedded with illustrations, which themselves offer an effective tool to study cultural transformation. The seminar draws sources from both images and texts. Its cross-cultural perspective highlights nomads and non-Chinese peoples as agents of cultural transformation, with additional visual comparisons from Korean, Japanese, and Islamic traditions. In addition to weekly discussions, the final evaluation includes a 25-page research paper and a 30-minute presentation. Students should have an advanced background in Chinese art to take this seminar. Course will be taught in English and Chinese. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 460. Mutually Exclusive: Cannot register for HART 661 if student has credit for HART 460.
HART 665 - A VISUAL CULTURE TRAVELOGUE: ART AND POLITICS IN MODERN LATIN AMERICA
Short Title: ART/ POLITICS MOD LATIN AMER
Department: Art History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Providing an alternative understanding of modernity and its artistic partner, modernism, this survey course traverses the political, social and cultural landscapes that informed and formed the art and architecture of Latin America, from the early twentieth century to the present. Graduate students will be expected to write a more extensive research paper (20-25 page-long paper rather than the 8-10 page - paper required to undergraduate students. The use of primary sources is mandatory. Graduate/Undergraduate Equivalency: HART 265. Mutually Exclusive: Cannot register for HART 665 if student has credit for HART 265.

HART 675 - LATIN-EUROPE/LATIN-AMERICA: THE AESTHETICS AND POLITICS OF MODERN CITIES
Short Title: LATIN-EUROPE/LATIN-AMERICA
Department: Art History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course challenges our pre-conceived maps of the world, highlighting Latin America’s place within our understanding of modernity as a product of transnational interconnections. Transversing the Atlantic, this course traces the interactions of capitalism and culture, science and aesthetics, and the ideologies that informed and formed the urban fabric and spatial politics of important cities in the modern Latin world - Paris, Rio de Janeiro, Rome, Buenos Aires, Barcelona, Havana, and Brasilia. Cross-list: ARCH 675. Graduate/Undergraduate Equivalency: HART 375. Mutually Exclusive: Cannot register for HART 675 if student has credit for HART 375.

HART 697 - HART IN THE WORLD FIELD STUDY
Short Title: FIELD STUDY
Department: Art History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Through on-site lectures, seminar discussions, museum visits, architectural itineraries, and field trips, this course will explore the complex political, social, and cultural histories of a major international metropolis. The city visited changes each time the course is offered; past locations have included Istanbul, Rome, and Rio de Janeiro. More information on upcoming locations is available at http://arthistory.rice.edu/opportunities/hart-world. Graduate students are not eligible. Instructor Permission Required. Graduate/Undergraduate Equivalency: HART 397. Mutually Exclusive: Cannot register for HART 697 if student has credit for HART 397.
HART 700 - SUMMER RESEARCH FOR PH.D.
Short Title: SUMMER RESEARCH FOR PH.D.
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Description: Summer Research of Ph.D. Repeatable for Credit.

HART 800 - PH.D. RESEARCH
Short Title: DISSERTATION RESEARCH
Department: Art History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Description: Dissertation Research for Ph.D. candidates. Repeatable for Credit.

Asian Studies (ASIA)

ASIA 201 - UNDERSTANDING GANDHIAN NONVIOLENCE: AN EXPLORATION OF HINDUISM, JAINISM, AND CHRISTIANITY
Short Title: GANDHIAN NONVIOLENCE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: The doctrine of nonviolence affirms that humanity is more united than conflicted. This is not true for just South Asian traditions. The course examines Mahatma Gandhi’s nonviolence in light of three world traditions: Hinduism, Jainism, and Christianity. Along with theory, the course delves into the application of nonviolent principles. Distribution 1 credit effective Fall 2021.

ASIA 202 - RACE, NATION, AND EMPIRE IN MODERN ASIA
Short Title: RACE IN MODERN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: This course examines histories of racial thinking (since the mid-19th century) in contemporary Asia. It draws on interdisciplinary scholarship, as well as film, television, and literary texts. This course asks how is race produced, perceived, and experienced in relation to imperialism, nationalism, revolution, war, and globalization in the region?

ASIA 212 - PERSPECTIVES ON MODERN ASIA
Short Title: PERSPECTIVES ON MODERN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: A team-taught interdisciplinary course focusing on the political, social and economic forces that are shaping the lives of the nearly one half of the world's population that lives in Asia. Provides a selective, in-depth look at certain important areas of East, Southeast and South Asia that reflect larger themes and problems. Cross-list: ANTH 212.

ASIA 213 - TRANSNATIONAL ART AND CULTURE IN ASIA BEFORE THE TWENTIETH CENTURY
Short Title: TRANSNATIONAL ART AND CULTURE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: This introductory course to art and culture in Asia explores transnational connections and exchanges before the twentieth century. Major topics include the Silk Road, Buddhist grottoes, maritime trade routes and shipwrecks, cosmopolis and urban lives, court art, literati culture, ink painting, gardens, the Mongol Empire, Jesuit influence, and East-West connections.

ASIA 218 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA
Short Title: EAST/NORTHEAST ASIA FILM HIST
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

ASIA 221 - THE LIFE OF THE PROPHET MUHAMMAD
Short Title: LIFE OF PROPHET MUHAMMAD
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur’an, Ibn Hisham, and Haykal. Cross-list: RELI 221.
ASIA 222 - THE WORLD AND SOUTH ASIA
Short Title: WORLD AND SOUTH ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to important 20th and 21st-century writers in English from South Asia - the region that includes India, Pakistan, Bangladesh and Sri Lanka. Readings include award-winning and bestselling works (fiction and non-fiction) by writers who address a wide range of issues including national and cultural identity, colonialism, sexuality, religion, globalization and political violence. Cross-list: ENGL 222.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ASIA 230 - ASIAN RELIGIONS IN AMERICA
Short Title: ASIAN RELIGIONS IN AMERICA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey course on Hinduism, Buddhism, Taoism, and Jainism in America, from the colonial period to the present, with a special focus on American metaphysical religion, the counterculture, the New Age, and the history of Western Colonialism, transcultural encounter, translation and immigration. Cross-list: RELI 230.

ASIA 231 - AMERICAN METAPHYSICAL RELIGION
Short Title: AMERICAN METAPHYSICAL RELIGION
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Beginning with a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, California, as a unique window into some of the different ways the tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Cross-list: RELI 231.

ASIA 232 - RELIGIONS FROM INDIA
Short Title: RELIGIONS FROM INDIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Cross-list: RELI 232.

ASIA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory, Lecture/Laboratory, Independent Study, Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASIA 251 - SEX, MONEY, AND POWER AROUND THE WORLD
Short Title: SEX, MONEY, AND POWER
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An interdisciplinary course exploring lives and well-being in the context of gendered international and domestic politics and economic processes. Emphasis on the implications of power relations at levels from the household to the global for women and men around the world (with particular attention to Asia). Cross-list: POLI 250, SWGS 250.

ASIA 282 - TRANSNATIONAL ASIAN FOOD: DIVERSITY AND AUTHENTICITY
Short Title: TRANSNATIONAL ASIAN FOOD
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Can food be both authentic and transnational at the same time? By looking into diverse Asian food items, their traditions, changing recipes and consumption, and the meanings attached to them in diaspora, this class invites students to inquire into the concepts of authenticity and diversity.
ASIA 295 - INTRODUCTION TO TRANSNATIONAL ASIAN STUDIES  
Short Title: INTRO TO TRANSNATIONAL ASIA  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: As a gateway course for the Asian Studies major, Introduction to Transnational Asia is designed to give students diverse perspectives of learning about Asia. The course combines lecture, historical and contemporary textual analysis, group study, mini research project, and presentation.

ASIA 299 - DISCOVER ASIA IN HOUSTON  
Short Title: DISCOVER ASIA IN HOUSTON  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: The goal of this course is to help students learn about others’ cultures, leading them to critically reflect on their own culture. Through readings, audio-visual and hands-on materials, guest lectures, and field trips, students are exposed to diverse cultures of Asia in Houston. International students and domestic students are paired to form a team for the final presentation. Department Permission Required.

ASIA 301 - EXPLORE & EXPERIENCE HISTORY, CULTURE, RITUALS, DEVOTION, AND MEDITATION THROUGH THE JAIN TRADITION  
Short Title: THE JAIN WORLDVIEW  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Beginning with Jainism's roots in India, we will understand the rich and diverse beliefs and practices of Jainism and then reflect upon its transnational form. Students will further inquire into the dichotomy of tradition and modernity, preservation and transformation to argue how religions migrate, as a result of their adherents. Distribution 1 credit effective Fall 2021.

ASIA 302 - STUDIES IN ASIAN PHILOSOPHY  
Short Title: STUDIES IN ASIAN PHILOSOPHY  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores key themes of philosophy, such as the nature of existence, analysis of language and cognition, and social and ecological ethics, in traditions such as Buddhism, Hinduism, Jainism, Daoism, and Confucianism. Emphasis is placed on how philosophy changes over time and is applied to diverse real-world agendas.

ASIA 304 - HUMAN MOBILITY IN THE ASIA-PACIFIC  
Short Title: HUMAN MOBILITY IN ASIA-PACIFIC  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course introduces students to the cross-disciplinary study of human mobility in the Asia-Pacific. Intra-Asia flows of people will be examined in order to trace their multifaceted implications. On completing the course, students should be able to present their own thinking on complex issues related to global migration.

ASIA 305 - ETHNOGRAPHIC RESEARCH IN/OF HOUSTON ASIA  
Short Title: ETHNOGRAPHY IN/OF HOUSTON ASIA  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores key themes of philosophy, such as the nature of existence, analysis of language and cognition, and social and ecological ethics, in traditions such as Buddhism, Hinduism, Jainism, Daoism, and Confucianism. Emphasis is placed on how philosophy changes over time and is applied to diverse real-world agendas.

ASIA 315 - GENDER AND ISLAM  
Short Title: GENDER AND ISLAM  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course offers comprehensive training to students interested in learning about ethnographic research, analysis, and writing in/of the contemporary Asia in a global context, with a special focus on Houston. Seminar-style discussion on ethnographic research methods and hands-on field research on several Asian-American communities will comprise the major course activities.

ASIA 350 - INTRODUCTION TO ASIAN STUDIES  
Short Title: INTRO TO ASIAN STUDIES  
Department: Asian Studies  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Explores the lives of Muslim women in Asia, the Middle East, Europe, and North America; analyzes constructions of gender in the Islamic world overtime; the challenges faced from such diverse quarters as colonial administrators, Western feminists, and states; as well as movements and individuals within the Muslim world. Cross-list: RELI 315, SWGS 315.
ASIA 322 - INTRODUCTION TO BUDDHISM: ARTS FOR LIFE
Short Title: INTRODUCTION TO BUDDHISM
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Under-Level
Description: Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Cross-list: RELI 322.

ASIA 323 - BUDDHIST AND DAOIST ART IN CHINA
Short Title: BUDDHIST & DAOIST ART IN CHINA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual materials that shed light on pre-modern China's Buddhist, Daoist, and other diverse religious and ritual practices. We will examine the range of social and ethnic backgrounds that participated in the making, spreading, and use of religious visual culture in traditional China. Topics may include: funeral art and ritual; images of heaven, hell, and rebirth; and representations of gender, among others. Students will develop analytical skills, critical thinking skills, and holistic views regarding the meaning, function, and style of the arts of diverse religious traditions in China. Cross-list: HART 323, MDEM 323.

ASIA 328 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook "The Modern Girl Around the World," this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: HIST 384, SWGS 384.

ASIA 330 - INTRODUCTION TO TRADITIONAL CHINESE POETRY
Short Title: INTRO TO TRAD CHINESE POETRY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation. Cross-list: CHIN 330, MDEM 370.

ASIA 332 - MODERN CHINESE LITERATURE AND ITS MOVIE ADAPTATIONS
Short Title: FILM & MODERN CHINESE LIT
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of modern Chinese literature through the visual imagery of Chinese films to show how and why different time periods and different media affect the theme of a story. One third covers movie adaptations of classical Chinese literature. Films subtitled in English, shown outside of class. All readings in English translation. Cross-list: CHIN 332.

ASIA 334 - TRADITIONAL CHINESE TALES AND SHORT STORIES
Short Title: TRADITIONAL CHINESE TALES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Learning Chinese literature and culture through reading vernacular stories, fantastic tales, biographies, and philosophical parables. Discussion topics: literature and Confucianism, Taoism and Buddhism; literature and history; self and other; fantastic world and reality; women as domestic aliens and aliens portrayed as women, etc. Readings are in English translation. Cross-list: CHIN 334.
ASIA 335 - INTRODUCTION TO CLASSICAL CHINESE NOVELS
Short Title: CLASSICAL CHINESE NOVELS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings in English translation. Cross-list: CHIN 335, MDEM 375.

ASIA 337 - GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Short Title: GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines fundamental concepts of South Asian religious geography in a variety of historical periods and from diverse theoretical approaches. Using early texts, contemporary ethnographies, and numerous objects of visual and material culture, we explore diverse religious experiences of landscape in Buddhism, Hinduism, and Jainism. Graduate/Undergraduate Equivalency: ASIA 537. Mutually Exclusive: Cannot register for ASIA 337 if student has credit for ASIA 537.

ASIA 349 - URBAN LAB ISTANBUL
Short Title: URBAN LAB ISTANBUL
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 355 (may be taken concurrently) or POLI 362 (may be taken concurrently) or POLI 464 (may be taken concurrently) or POLI 562 (may be taken concurrently)
Description: This course examines the dynamics of urban politics and policy in an emerging global city - Istanbul. In addition to social, political and economic issues, we will also focus on history, culture, language, architecture and the arts. Weekly class sessions will include lectures, case studies, guest lecturers, and group work on research projects. The lab also features an 8-day field research trip to Istanbul. Prerequisites may be taken the same semester as POLI 349/ASIA 349. Instructor Permission Required. Cross-list: POLI 349.

ASIA 353 - EAST ASIAN DEMOCRACIES
Short Title: EAST ASIAN DEMOCRACIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the functioning of the political system in the three principal East Asian democracies: Japan, South Korea, and Taiwan. Particular focus is paid to each country's democratic institutions, electoral politics, and political party system. Cross-list: POLI 353.

ASIA 355 - CINEMA AND THE CITY
Short Title: CINEMA AND THE CITY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class explores representations of the city in 20th and 21st century world cinema. Central concerns will include the city as cinematic protagonist, parallels between urban and cinematic space and the intertwined histories of both film and urban design over the last century. Cross-list: FILM 336, HART 336.

ASIA 356 - GENOMIC GOVERNANCE IN ASIA
Short Title: GENOMIC GOVERNANCE IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What are the genomic sciences and what impact are they having upon society? This course explores the impact of genomics—the study of genes and their functions—on society with a particular emphasis on India, China, and the U.S. where technological advances have outpaced regulatory oversight and social debate. The course develops skills to think critically about how genomics is reshaping the relationship between self and society, and the very nature of the social itself. The equivalent graduate course requires the final research paper to be about twice as long as the final research paper in this undergraduate course (10,000 vs. 5,000 words). Graduate/Undergraduate Equivalency: ASIA 556.
### ASIA 357 - ALGORITHMIC CULTURES IN ASIA
- **Short Title:** ALGORITHMIC CULTURES IN ASIA
- **Department:** Asian Studies
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Algorithms are a series of step-by-step instructions in a procedure that finishes and which is shown to work in all cases. This course addresses the formation of algorithmic cultures through the domains of digitality and ontology in South Asia and the Middle East. It introduces students to the concepts of algorithmic neutrality, discrimination, management and governance. The course explores how deep-learning algorithms may undergird an intensification of surveillance and securitization technologies with profound effects on human and post-human futures. Graduate/Undergraduate Equivalency: ASIA 557.

### ASIA 371 - CHINESE PAINTING
- **Short Title:** CHINESE PAINTING
- **Department:** Asian Studies
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This course examines Chinese painting from ancient times to the early twentieth century. Issues of examination include themes, styles, and functions of Chinese painting; the interrelationship between paintings and the intended viewers; nationalism; images and words; foreign elements in Chinese painting. Cross-list: HART 371.

### ASIA 372 - CHINESE ART AND VISUAL CULTURE
- **Short Title:** CHINESE ART AND VISUAL CULTURE
- **Department:** Asian Studies
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** Chinese Art and Visual Culture is an introductory seminar studying the history of traditional Chinese art and visual culture from ancient times to the nineteenth century. This course draws upon masterpieces and monuments from both archaeological finds and museum collections, including bronze vessels, funeral objects, painting, calligraphy, sculptures, architecture, ceramics, and so on. Designed for students who have no background in Chinese art, Chinese history, or art history, the seminar uses diverse teaching materials in multiple media beyond traditional textbook-based readings to achieve four main goals: 1) Develop visual literacy through a direct encounter with objects. The development of specialized vocabulary to describe, analyze, and communicate function, composition, and meaning in art. 2) Understand major artistic movements of art and architecture within historical, social, political contexts. 3) Develop specialized knowledge in art from specific geographical locations (e.g., China), time periods, artists or artistic movements. 4) Evaluate and use primary and secondary source materials. Cross-list: HART 372, MDEM 373.

### ASIA 376 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE
- **Short Title:** EAST & WEST
- **Department:** Asian Studies
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: HART 376, MDEM 376.

### ASIA 377 - CHINESE POLITICS IN COMPARATIVE PERSPECTIVE
- **Short Title:** CHINESE POLITICS
- **Department:** Asian Studies
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This course explores the range of theories and empirical research methodologies from comparative political science, political-economy, and Asian studies commonly applied to understanding Chinese politics: political participation, political organizations, collective action and popular protest, political culture, and political institutional change. This course will be a seminar requiring weekly presentations, extensive readings at the graduate level in social science, and an original research paper. There is no prerequisite for this course, but participants are assumed to already possess extensive knowledge of Chinese history, culture, and society. Cross-list: POLI 377. Mutually Exclusive: Cannot register for ASIA 377 if student has credit for ASIA 489/POLI 489.

### ASIA 378 - CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC
- **Short Title:** CROSS-CULTURAL ASIAN MUSIC
- **Department:** Asian Studies
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Distribution Group:** Distribution Group I
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
- **Course Level:** Undergraduate Upper-Level
- **Description:** This course will focus on traditional and contemporary art music from Asia. The classroom lectures are designed to introduce and accompany one or two events which will include live performances, workshops, lectures by invited performers and scholars. This course may be repeated since each year the countries and invited guest performers/scholars will represent different geographical areas. Cross-list: MUSI 378. Repeatable for Credit.
ASIA 381 - SOUTH ASIAN DIASPORAS
Short Title: SOUTH ASIAN DIASPORAS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: People of South Asian heritage constitute one of the largest, and most religiously, culturally, linguistically diverse diasporas in the world. This upper-division seminar examines the historical and contemporary experiences of South Asian men and women who established communities in Africa, the Americas, Australia, Europe, the Middle East, and Southeast Asia.

ASIA 382 - RUTH BENEDICT AND JAPAN: THE TEXT THAT SHAPED POSTWAR JAPANESE CULTURE
Short Title: RUTH BENEDICT AND JAPAN
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Written during WWII as part of enemy studies, Ruth Benedict’s Chrysanthemum and the Sword guided the postwar US occupation of Japan. Since its 1948 translation into Japanese, the book has remained one of the longest-selling titles in Japan. This course examines the historical influence of this book in (re)building postwar Japanese cultural identity against the backdrop of the changing US-Japan relations, focusing on the dramatic shift in Japan’s position from existential enemy of the US to staunch ally in the Cold War in East Asia.

ASIA 383 - SOUTH ASIAN CONTEMPORARY COMMUNITIES
Short Title: SOUTH ASIAN CONTEMPORARY COMMUNITIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course will investigate the diverse cultural traditions and shared experiences of Asian Americans in the United States. By analyzing historical works, literary texts, and films, we will explore a range of topics including Asian immigration, gender roles, identity formation, and ethnic media. Cross-list: ANTH 387.

ASIA 387 - ASIAN AMERICAN CONTEMPORARY COMMUNITIES
Short Title: ASIAN AMERICAN CONTEMPORARY COMMUNITIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This upper-division seminar examines the historical influence of Ruth Benedict’s Chrysanthemum and the Sword on Chinese women’s incorporation of the Western Tradition. Cross-list: MDEM 379, SWGS 399.

ASIA 389 - INDIAN OCEAN WORLD HISTORY
Short Title: INDIAN OCEAN WORLD HISTORY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Indian Ocean World presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. Course introduces the region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Cross-list: HIST 389.

ASIA 399 - WOMEN IN CHINESE LITERATURE
Short Title: WOMEN IN CHINESE LITERATURE
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women’s roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women’s lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women’s incorporation of the Western Tradition. Cross-list: MDEM 379, SWGS 399.

ASIA 401 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading or research project to be determined by discussions between student(s) and faculty member(s). Department Permission Required.

ASIA 402 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading or research project to be determined by discussions between student(s) and faculty member(s). Department Permission Required.
ASIA 422 - THE ORIGINAL BEAUTY OF CHINESE LITERATURE
Short Title: ORIGINAL BEAUTY OF CHINESE LIT
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar course explores various cultural topics, not covered in other Asia courses, in Asian studies. The fields may include history, film, linguistics, sociology as well as other fields in the humanities and social sciences. Department Permission Required. Repeatable for Credit.

ASIA 441 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will expose students to the best literary works created in the Chinese tradition, both classical and modern, and give them a general introduction to different genres, including poetry, fiction, drama, and philosophical essays. It will improve their language proficiency through reading original texts of Chinese literature. Cross-list: CHIN 422.

ASIA 447 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASIA 488 - ASIA AND ENERGY
Short Title: ASIA AND ENERGY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multi-disciplinary study of Asian countries and cultures as to a way to explain production, exchange, consumption and influence of energy on political, economic and social/cultural institutions, including energy security and energy policy formation and resource use theories. Assumes basic knowledge of history and politics of Asian societies and economies.

ASIA 494 - SPECIAL TOPICS IN ASIAN STUDIES
Short Title: SPECIAL TOPICS ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism, and Christianity. Cross-list: RELI 441.

ASIA 511 - PRO-SEMINAR ON ADVANCED TRANSNATIONAL ASIAN STUDIES
Short Title: PROSEMINAR ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar course explores various cultural topics, not covered in other Asia courses, in Asian studies. The fields may include history, film, linguistics, sociology as well as other fields in the humanities and social sciences. Department Permission Required. Repeatable for Credit.

ASIA 501 - ASIAN STUDIES ADVANCED FIELD RESEARCH
Short Title: ADVANCED FIELD RESEARCH
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will learn to gather data first hand either by ethnographic fieldwork or by primary archival source research. Department Permission Required.

ASIA 511 - PRO-SEMINAR ON ADVANCED TRANSNATIONAL ASIAN STUDIES
Short Title: PROSEMINAR ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Targeted to be the MA gateway course. This course covers a broad range of topics and debates which have marked the tradition of Asian Studies as well as contemporary scholarship. As the course will cover areas and topics beyond students' immediate thesis subjects, it will equip students with the breath of reference points befitting a graduate degree holder in Asian Studies. Instructor Permission Required. Repeatable for Credit.
ASIA 521 - ADVANCED READING AND WRITING IN ASIAN STUDIES
Short Title: ADV ASIAN READING & WRITING
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course requires students to closely read and thoroughly comprehend a substantial amount of text written in Asian language(s). By so doing, the course will help students to: 1) refine translation and comprehension skills and 2) understand how to select and logically reference Asian-language texts for their research. Instructor Permission Required. Repeatable for Credit.

ASIA 531 - ASIAN STUDIES METHODOLOGY SEMINAR I
Short Title: METHODOLOGY SEMINAR I
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to 1) introduce students to a wide range of humanistic and social scientific research methods and their theoretical implications, and 2) offer students practice in a method of their own choice on a mini-research practicum. Department Permission Required. Repeatable for Credit.

ASIA 532 - ASIAN STUDIES METHODOLOGY SEMINAR II
Short Title: METHODOLOGY SEMINAR II
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to 1) introduce students to a wide range of humanistic and social scientific research methods and their theoretical implications, and 2) offer students practice in a method of their own choice on a mini-research practicum. Department Permission Required. Repeatable for Credit.

ASIA 537 - GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Short Title: GEOGRAPHIES OF RELIGION IN SOUTH ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines fundamental concepts of South Asian religious geography in a variety of historical periods and from diverse theoretical approaches. Using early texts, contemporary ethnographies, and numerous objects of visual and material culture, we explore diverse religious experiences of landscape in Buddhism, Hinduism, and Jainism. The graduate course requires the final research paper to be about twice as long as the final research paper in the undergraduate course (5,000 vs. 2,100-2,700 words). Graduate/Undergraduate Equivalency: ASIA 337. Mutually Exclusive: Cannot register for ASIA 537 if student has credit for ASIA 337.

ASIA 541 - THESIS RESEARCH IN ASIAN STUDIES
Short Title: THESIS RESEARCH: ASIAN STUDIES
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to guide students to identify the most optimal topic of research/thesis proportionate to their interest as well as ability, Department Permission Required. Repeatable for Credit.

ASIA 551 - ASIAN STUDIES GRADUATE SEMINAR
Short Title: ASIAN STUDIES GRADUATE SEMINAR
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will learn to present their research in an exciting broadly persuasive manner to a mixed audience. Department Permission Required. Repeatable for Credit.

ASIA 556 - GENOMIC GOVERNANCE IN ASIA
Short Title: GENOMIC GOVERNANCE IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What are the genomic sciences and what impact are they having upon society? This course explores the impact of genomics—the study of genes and their functions—on society with a particular emphasis on India, China, and the U.S. where technological advances have outpaced regulatory oversight and social debate. The course develops skills to think critically about how genomics is reshaping the relationship between self and society, and the very nature of the social itself. This graduate course requires the final research paper to be about twice as long as the final research paper in the equivalent undergraduate course (10,000 vs. 5,000 words). Graduate/Undergraduate Equivalency: ASIA 356.
ASIA 557 - ALGORITHMIC CULTURES IN ASIA
Short Title: ALGORITHMIC CULTURES IN ASIA
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Algorithms are a series of step by step instructions in a procedure that finishes and which is shown to work in all cases. This course addresses the formation of algorithmic cultures through the domains of digitality and ontology in South Asia and the Middle East. It introduces students to the concepts of algorithmic neutrality, discrimination, management and governance. The course explores how deep-learning algorithms may undergird an intensification of surveillance and securitization technologies with profound effects on human and post-human futures. The graduate course requires the final research paper to be about twice as long as the final research paper in the undergraduate course (10,000 vs. 5,000 words). Graduate/Undergraduate Equivalency: ASIA 357.

ASIA 561 - THESIS WRITING: INDEPENDENT STUDY IN ASIAN STUDIES
Short Title: THESIS WRITINGS: IND STUDY
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A continuation of ASIA 541, this course is designed to guide students in writing a complete thesis on their chosen topic proportionate to their interest as well as ability. Department Permission Required. Repeatable for Credit.

ASIA 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory, Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASIA 695 - ASIAN STUDIES RESEARCH SEMINAR
Short Title: ASIAN STUDIES RESEARCH SEM
Department: Asian Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: To elevate the knowledge on Asia acquired by AS majors in their undergraduate years to a graduate level with more depth and focus, and to train AS majors in designing and executing their original research and offer them an opportunity to produce a substantial research paper based on bibliographic research and other forms of data-gathering. In 695 (vs. 495), students will be assigned one additional reading per week throughout the semester. Department Permission Required. Graduate/Undergraduate Equivalency: ASIA 495. Mutually Exclusive: Cannot register for ASIA 695 if student has credit for ASIA 495. Repeatable for Credit.

Astronomy (ASTR)

ASTR 100 - EXPLORING THE COSMOS
Short Title: EXPLORING THE COSMOS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to concepts, methods and discoveries of astronomy and astrophysics, with a theme to be chosen from the frontier topics of modern astrophysics. Will emphasize student presentations. Designed for first year students interested in science or engineering, but other majors are welcome.

ASTR 101 - STARS, GALAXIES, AND THE UNIVERSE
Short Title: STARS, GALAXIES & THE UNIVERSE
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introductory course for students in academic programs. The formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe.
Astronomy (ASTR)

ASTR 102 - EXPLORATION OF THE SOLAR SYSTEM
Short Title: EXPLORATN OF THE SOLAR SYSTEM
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The physical processes governing the nature and behavior of the various Solar System bodies are discussed with a focus on the origins, evolution and fate of the Solar System and its parts. This broader context leads to a deeper understanding of the Earth as a life-supporting planet.

ASTR 230 - ASTRONOMY LAB
Short Title: ASTRONOMY LAB
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A hands-on introduction to modern techniques of observational astronomy. Students use telescopes, CCDs, and computers to obtain and analyze their own images and spectra of solar system, galactic, and extragalactic objects. The course employs the campus observatory, dark sky observing sites, and state of the art data analysis software. Instructor Permission Required.

ASTR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ASTR 243 - LIVING WITH A STAR: THE PHYSICS OF THE SUN-EARTH CONNECTION
Short Title: LIVING WITH A STAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 102 or MATH 106) and (PHYS 102 or PHYS 126)
Description: Introduction to astrophysical processes, particularly the effect of the Sun on the Earth. Possible effects of solar variability will be considered, especially global warming. The observational and theoretical basis of our current understanding will be presented.

ASTR 350 - INTRODUCTION TO ASTROPHYSICS-STARS
Short Title: INTRO ASTROPHYSICS-STARS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and PHYS 202
Description: Introduction to celestial mechanics, radiative transfer, stellar structure, and stellar remnants (including black holes and neutron stars). Aspects of stellar atmospheres may also be explored. Together, ASTR 350 and ASTR 360 provide a comprehensive survey of modern astrophysics needed for senior research and graduate study in astronomy. Either ASTR 350 or 360 may be taken first. Recommended Prerequisite(s): MATH 212

ASTR 360 - INTRODUCTION TO ASTROPHYSICS-GALAXY AND COSMO
Short Title: INTRO ASTROPHYSIC-GALAXY&COSMO
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and PHYS 202 (may be taken concurrently)
Description: Morphology, kinematics, and dynamics of the Milky Way and external galaxies, including interstellar matter and evidence for dark matter. Peculiar and active galaxies, including interacting systems and evidence for super massive black holes in active galactic nuclei such as quasars. Large-scale structure and expansion of the universe, including various cosmologies ranging from the inflationary big bang theory to steady state and anthropic concepts. Either ASTR 350 or 360 may be taken first. PHYS 202 may be taken as a prereq or concurrently with ASTR 360.

ASTR 400 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on current research topics in astronomy, astrophysics, and space physics for juniors and seniors. Students will be expected to give one oral presentation each semester. Graduate/Undergraduate Equivalency: ASTR 500. Repeatable for Credit.
ASTR 452 - ASTROPHYSICS II: GALAXIES AND COSMOLOGY
Short Title: ASTROPHYSICS II: GALAXIES & COSMOLOGY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate lower level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 350 or PHYS 360) and (PHYS 301 and PHYS 302)
Description: Study of galactic and cosmological phenomena. The topics include the evolution of the universe, including nucleosynthesis, cosmic background radiation, large-scale structure, galaxy formation and evolution, and high redshift phenomena.

ASTR 451 - ASTROPHYSICS I: SUN AND STARS
Short Title: ASTROPHYSICS I: SUN AND STARS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate lower level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 101 or PHYS 111) and (PHYS 102 or PHYS 112) and MATH 212
Description: Physics of stellar atmospheres, interiors and evolution. Polytropes, nucleosynthesis, radiative transfer, convection, oscillations, opacities, curves of growth, spectral line theory and observation.

ASTR 450 - GRADUATE RESEARCH SEMINAR
Short Title: GRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A presentation of current research programs in the department. Graduate/Undergraduate Equivalency: ASTR 400. Repeatable for Credit.

ASTR 408 - STATISTICAL METHODS IN PHYSICS AND ASTRONOMY
Short Title: STATISTICS IN PHYS AND ASTR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate lower level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 101 or PHYS 111) and (PHYS 102 or PHYS 112)
Description: Statistical methods commonly used in the analysis of astronomical, laboratory, and survey data. Topics include curve fitting, parametric and non-parametric hypothesis testing, cluster analysis, principal component analysis, time-series data, and truncated data. Fundamentals of statistics, including probability distributions, means, variances, the Central Limit Theorem, hypothesis testing, error propagation, Bayesian analysis, jackknife, and bootstrap are covered. The class introduces students to the R programming language. Graduate/Undergraduate Equivalency: ASTR 508. Mutually Exclusive: Cannot register for ASTR 408 if student has credit for ASTR 508.

ASTR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate lower level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 301 and PHYS 302
Description: Overview of the Earth and the solar system: structure, evolution, and dynamics. Includes non-calculus mathematics: algebra, logarithms and simple trigonometry, including Kepler’s laws. Observing sessions at campus observatory and George Observatory TBD. Designed for inservice and preservice science teachers (grades 4-12), but open to undergraduates considering a teaching career. Mutually Exclusive: Cannot register for ASTR 470 if student has credit for ASTR 570.

ASTR 470 - SOLAR SYSTEM PHYSICS
Short Title: SOLAR SYSTEM PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 301 and PHYS 302
Description: The Sun, solar-terrestrial relationships, solar wind; planetary atmospheres, ionospheres and magnetospheres. Graduate/Undergraduate Equivalency: ASTR 570. Mutually Exclusive: Cannot register for ASTR 470 if student has credit for ASTR 570.

ASTR 400 - RESEARCH SEMINAR IN PHYSICS AND ASTRONOMY
Short Title: RESEARCH SEMINAR IN PHYSICS AND ASTRONOMY
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A presentation of current research programs in the department. Graduate/Undergraduate Equivalency: ASTR 450. Repeatable for Credit.

ASTR 402 - SOLAR SYSTEM RESEARCH SEMINAR
Short Title: SOLAR SYSTEM RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A presentation of current research programs in the department. Graduate/Undergraduate Equivalency: ASTR 400. Repeatable for Credit.

ASTR 404 - TEACHING EARTH AND SPACE SCIENCE
Short Title: TEACHING EARTH & SPACE SCIENCE
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the Earth and the solar system: structure, evolution, and dynamics. Includes non-calculus mathematics: algebra, logarithms and simple trigonometry, including Kepler’s laws. Observing sessions at campus observatory and George Observatory TBD. Designed for inservice and preservice science teachers (grades 4-12), but open to undergraduates considering a teaching career. Mutually Exclusive: Cannot register for ASTR 402 if student has credit for ASTR 402.

ASTR 406 - STATISTICS IN PHYS AND ASTR
Short Title: STATISTICS IN PHYSICS & ASTRONOMY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 101 and PHYS 111 and MATH 212
Description: Fundamentals of statistics, including probability distributions, means, variances, the Central Limit Theorem, hypothesis testing, error propagation, Bayesian analysis, jackknife, and bootstrap are covered. The class introduces students to the R programming language. Graduate/Undergraduate Equivalency: ASTR 508. Mutually Exclusive: Cannot register for ASTR 406 if student has credit for ASTR 506.
ASTR 503 - ASTRONOMY FOR TEACHERS
Short Title: ASTRONOMY FOR TEACHERS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the Sun, stars, galaxies, and the Universe at a non-calculus level. Methods to help students master content, including lab activities suitable for K-12. Observing sessions at Rice campus observatory and George Observatory TBD. Designed for inservice and preservice teachers (grades 5-12), but open to undergraduates considering a teaching career.

ASTR 505 - PROCESSES IN COSMIC PLASMAS
Short Title: PROCESSES IN COSMIC PLASMAS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 470 and PHYS 480
Description: Study of plasma phenomena that occur widely in nature. May include quasi-static equilibrium, magnetic equilibrium, magnetic reconnection, particle acceleration, plasma winds and jets, and interchange instabilities.

ASTR 508 - STATISTICAL METHODS IN PHYSICS AND ASTRONOMY
Short Title: STATISTICS IN PHYS AND ASTR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 430.
Description: Statistical methods commonly used in the analysis of astronomical, laboratory, and survey data. Topics include curve fitting, parametric and non-parametric hypothesis testing, cluster analysis, principal component analysis, time-series data, and truncated data. Fundamentals of statistics, including probability distributions, means, variances, the Central Limit Theorem, hypothesis testing, error propagation, Bayesian analysis, jackknife, and bootstrap are covered. The class introduces students to the R programming language. Graduate/Undergraduate Equivalency: ASTR 408. Mutually Exclusive: Cannot register for ASTR 508 if student has credit for ASTR 408.
Course URL: [www.sparky.rice.edu/~hartigan/astr600/astr600.html](http://www.sparky.rice.edu/~hartigan/astr600/astr600.html)

ASTR 530 - TEACHING ASTRONOMY LABORATORY
Short Title: TEACHING ASTRONOMY LABORATORY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 230 or ASTR 350 or ASTR 360 or ASTR 402 or ASTR 403 or ASTR 502 or ASTR 503
Description: Methods of observational astronomy for public education: telescopes, astronomical binoculars, portable planetariums, digital cameras, and photography (still, 3D, and time lapse). Students will train beginners in the use of telescopes and carry out a modest observational program. The course requires one public presentation. Topics vary with each offering. Mutually Exclusive: Cannot register for ASTR 530 if student has credit for ASTR 430.

ASTR 542 - NEBULAR ASTROPHYSICS
Short Title: NEBULAR ASTROPHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 451
Description: The physics of emission nebulae, including radiative transfer, photo ionization and thermal equilibria, and internal gaseous dynamics. Physical processes in the interstellar medium. Recommended Prerequisite(s): PHYS 541.

ASTR 554 - ASTROPHYSICS OF THE SUN
Short Title: ASTROPHYSICS OF THE SUN
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analysis of physical processes at work in the sun, such as helioseismology, solar variability, solar activity, magnetic reconnection, heliosphere interactions and modern observational techniques.

ASTR 555 - PROTOSTARS AND PLANETS
Short Title: PROTOSTARS AND PLANETS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ASTR 451
Description: Physics of star and planet information, including molecular cloud dynamics and chemistry, circumstellar accretion disks, jets, dust, debris disks, atmospheres rotation, and magnetic fields of young stars, binaries, brown dwarfs, comets, Kuiper belt objects, giant planet formation and discoveries of extra solar planets.
**ASTR 565 - COMPACT OBJECTS**  
*Short Title:* COMPACT OBJECTS  
*Department:* Physics and Astronomy  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* Selected topics involving white dwarfs, neutron stars, black holes and their environments, e.g., pulsars, supernova remnants, and accretion disks.

**ASTR 570 - SOLAR SYSTEM PHYSICS**  
*Short Title:* SOLAR SYSTEM PHYSICS  
*Department:* Physics and Astronomy  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* The Sun, solar-terrestrial relationships, solar wind; planetary atmospheres, ionospheres and magnetospheres. Includes a research paper and presentation on a physical process in the solar system.  
*Graduate/Undergraduate Equivalency:* ASTR 470.  
*Mutually Exclusive:* Cannot register for ASTR 570 if student has credit for ASTR 470.

**ASTR 600 - ADVANCED TOPICS IN ASTROPHYSICS**  
*Short Title:* ADV TOPICS IN ASTROPHYSICS  
*Department:* Physics and Astronomy  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* Lecture/seminars which treat topics of departmental interest. Not offered every year. Repeatable for Credit.

**ASTR 677 - SPECIAL TOPICS**  
*Short Title:* SPECIAL TOPICS  
*Department:* Physics and Astronomy  
*Grade Mode:* Standard Letter  
*Course Type:* Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**Bioengineering (BIOE)**

**BIOE 202 - CAREERS IN BIOENGINEERING**  
*Short Title:* CAREERS IN BIOENGINEERING  
*Department:* Bioengineering  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* This seminar is suitable for freshman, sophomores, and non-majors. A series of guest lectures will introduce students to a variety of career options in bioengineering. Students will participate in at least one field trip to an industry partner or hospital to learn more about careers in bioengineering.

**BIOE 238 - SPECIAL TOPICS**  
*Short Title:* SPECIAL TOPICS  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Description:* Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

**BIOE 252 - BIOENGINEERING FUNDAMENTALS**  
*Short Title:* BIOENGINEERING FUNDAMENTALS  
*Department:* Bioengineering  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 4  
*Restrictions:* Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
*Course Level:* Undergraduate Lower-Level  
*Prerequisite(s):* (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and MATH 211 (may be taken concurrently) and (CHEM 112 or CHEM 122) and CAAM 210 and (PHYS 101 or PHYS 125 or PHYS 111) and (PHYS 102 or PHYS 126 or PHYS 112)  
*Description:* Introduction to material, energy, charge and momentum balances in biological systems. Steady state and transient conservation equations for mass, energy, charge and momentum will be derived and applied using basic mathematical principles, physical laws, stoichiometry, and thermodynamic properties. Problem based learning groups will solve open-ended problems. Required for students intending to major in bioengineering. MATH 211 is a concurrent prerequisite and may be taken the same semester.
BIOE 302 - SYSTEMS PHYSIOLOGY
Short Title: SYSTEMS PHYSIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (PHYS 101 and PHYS 102) or (PHYS 125 and PHYS 126)
Description: This course will teach the fundamentals of human physiology with a specific focus on the nervous, cardiovascular, respiratory, and urinary systems. Basic introductory engineering principles will be applied to the study of physiological systems. The course is aimed to be accessible to students with non-engineering backgrounds. Students may receive credit for only one of BIOE 302, BIOE 322, and BIOC 332. Mutually Exclusive: Cannot register for BIOE 302 if student has credit for BIOE 322.

BIOE 320 - SYSTEMS PHYSIOLOGY LAB MODULE
Short Title: SYSTEMS PHYSIOLOGY LAB MODULE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOS 332 or BIOE 322 (may be taken concurrently) or BIOC 332 (may be taken concurrently))
Description: Exploration of physiologic systems through measurement of biologic signals. EEG, ECG, EMG pulmonary function tests, etc. are performed and analyzed. Students will explore physiologic concepts through computer simulations, data collection, and analysis. Enrollment in or completion of BIOE 322/BIOC 332 is expected and maybe taken the same semester as BIOE 320. For students intending to major in Bioengineering. Instructor Permission Required.

BIOE 321 - CELLULAR ENGINEERING
Short Title: CELLULAR ENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252
Description: Introduction to engineering principles and modeling regulation and circuitry at the cellular level. Topics include genetic metabolic networks and cell surface interactions.

BIOE 322 - FUNDAMENTALS OF SYSTEMS PHYSIOLOGY
Short Title: FUND OF SYSTEMS PHYSIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and MATH 211
Description: This course will teach the fundamentals of human physiology from an engineering perspective, with specific focus on the nervous, cardiovascular, respiratory and urinary systems. Lectures, assignments and exams will be quantitative and will introduce engineering principles, such as conservation of mass and energy, controls and system analysis, thermodynamics and mass transport, and apply them to the study of physiologic systems. This course is limited to undergraduates. Students may receive credit for only one of BIOE 302, BIOE 322, and BIOC 332 Mutually Exclusive: Cannot register for BIOE 322 if student has credit for BIOC 332/BIOE 302.

BIOE 330 - BIOREACTION ENGINEERING
Short Title: BIOREACTION ENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOC 201 or BIOS 201)
Description: Application of engineering principles to biological processes. Mathematical and experimental techniques for quantitative descriptions of enzyme kinetics, metabolic and genetic networks, cell growth kinetics, bioreactor design and operation.

BIOE 332 - BIOENGINEERING THERMODYNAMICS
Short Title: BIOENGINEERING THERMODYNAMICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and MATH 212
Description: This course provides a mathematically rigorous and quantitative coverage of the fundamentals of thermodynamics with applications drawn from contemporary bioengineering problems. Fundamental topics will include the Zeroth, First and Second Law, Entropy Inequality, Gibbs and Helmholtz Free Energies, The Third Law, Maxwell Relations, chemical potential, equilibrium, phase transitions, solution thermodynamics, protein-ligand binding and statistical mechanics. Advanced topics will include transcription factor-DNA binding, nucleic acid hybridization, translation initiation and genetic circuits. The course will cover the role that thermodynamics plays in molecular engineering and synthetic biology.
BIOE 333 - MOLECULAR BIOTECHNOLOGY
Short Title: MOLECULAR BIOTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 201 and BIO 252
Description: This course will introduce the students to modern biotechnology. The course will cover fundamental technologies with emphasis on modern genome engineering, sequencing and bioinformatics, molecular diagnostics, design of therapeutics, and recombinant microorganisms for industrial and environmental applications. The course includes discussion of bioethical issues, societal impact, and intellectual properties.

BIOE 341 - CELL AND MOLECULAR BIOLOGY FOR ENGINEERS
Short Title: CELL & MOL BIOL FOR ENGINEERS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and (BIOC 201 or BIOS 201)
Description: Understanding the behaviors of cells and biomolecules in health and disease is a prerequisite to appropriately applying modern bioengineering principles. In this course, students will learn the fundamentals of cell and molecular biology and how transformative new technologies permit measuring and engineering these alterations to improve human health and uncover biological insights. Graduate/Undergraduate Equivalency: BIOE 541. Mutually Exclusive: Cannot register for BIOE 341 if student has credit for BIOE 541.

BIOE 342 - LABORATORY IN TISSUE CULTURE
Short Title: LABORATORY IN TISSUE CULTURE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 440 or STAT 440 or BIOC 311
Description: Introduction to tissue culture techniques, including cell passage, cell viability, and cell attachment and proliferation assays. Students complete quantitative analysis of their data. Engineering design and applications are featured in graded work. Sections 1 and 2 are taught during the first half of the semester. Sections 3 and 4 are taught during the second half of the semester. Students may be required to attend lab on a university holiday. Instructor Permission Required.

BIOE 348 - MOLECULAR TECHNIQUES IN BIOENGINEERING
Short Title: MOLECULAR TECHNIQUES IN BIOE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 341 or BIOE 341) and (BIOE 342 (may be taken concurrently) or BIOC 320 (may be taken concurrently))
Description: Introduction to the fundamental physical principles of light interaction with matter, separation (by charge, size, confirmation) and detection techniques utilized in the field of bioengineering. These include absorbance and fluorescence spectroscopy, light and fluorescence microscopy, flow cytometry, electrophoresis, PCR, Blotting, and ELISA. BIOE 342/BIOC 320 may be taken concurrently with BIOE 348. Graduate/Undergraduate Equivalency: BIOE 648. Mutually Exclusive: Cannot register for BIOE 348 if student has credit for BIOE 648.

BIOE 360 - APPROPRIATE DESIGN FOR GLOBAL HEALTH
Short Title: APPROP DESIGN FOR GLOBAL HEALTH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 201
Description: Seminar-style introductory design course covering epidemiology, pathophysiology, health systems, health economics, medical ethics, humanitarian emergencies, scientific and engineering design methods, and appropriate health technology case studies. To register, you must be enrolled in the GLHT minor and submit a 250 statement to beyondtraditionalborders@rice.edu by Monday of preregistration. The minor and course prerequisite is waived for students majoring in Bioengineering. Instructor Permission Required. Cross-list: GLHT 360.

BIOE 365 - SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
Short Title: SUST WTR PURIF FOR DEV WORLD
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an overview of sustainable strategies for safe water supply in off-the-grid, low-income regions. Topics covered include water quality and treatment, sustainability and WASH (water, sanitation and hygiene). A major element of the course is a project to solve a water-related issue in a real-world context. Cross-list: CEVE 314, GLHT 314. Repeatable for Credit.
BIOE 370 - BIOMATERIALS
Short Title: BIOMATERIALS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and CHEM 211 and (MECH 202 (may be taken concurrently) or MECH 211 (may be taken concurrently) or CEVE 211 (may be taken concurrently))
Description: This course will introduce both basic materials science and biological concepts with an emphasis on application of basic quantitative engineering principles to understanding the interactions between materials and biological systems. Topics covered include chemical structure of biomaterials, physical, mechanical, and surface properties of biomaterials, biomaterial degradation, and biomaterial processing. Additional topics include protein and cell interactions with biomaterials, biomaterial implantation, and acute inflammation, wound healing, and calcification of biomaterials that can collectively apply to design of biomaterials for myriad applications. MECH 211 or CEVE 211 or MECH 202 may be taken concurrently with BIOE 370.

BIOE 372 - BIOMECHANICS
Short Title: BIOMECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and MATH 212 and (MECH 202 or MECH 211 or CEVE 211)
Description: This course introduces the fundamental principles of mechanics applied to the analysis and characterization of biological systems. Topics covered include normal and shear stresses, normal and shear strains, mechanical properties of materials, load, deformation, elasticity and elastoplastic behavior. Quantitative analysis of statically determinate and indeterminate structures subjected to tension, compression, torsion and bending will be covered. Additionally, aspects of blood rheology, viscoelasticity, and musculoskeletal mechanics will be addressed. Graduate/Undergraduate Equivalency: BIOE 572. Mutually Exclusive: Cannot register for BIOE 372 if student has credit for BIOE 572.

BIOE 375 - BIOMEDICAL INSTRUMENTATION LAB
Short Title: BIOMEDICAL INSTRUMENTATION LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: BIOE 385
Description: Students will gain hands on experience with building biomedical instrumentation circuits and systems. Students will learn the basics of lab view programming and signal analysis. Instructor Permission Required.
BIOE 391 - NUMERICAL METHODS
Short Title: NUMERICAL METHODS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 and CAAM 210 and MATH 211 and MATH 212 (may be taken concurrently)
Description: Introduction to numerical approximation techniques with bioengineering applications. Topics include error propagation, Taylor's Series expansions curve fitting, roots of equations, optimization numerical differentiation and integration, ordinary differential equations, and partial differential equations. Matlab and other software will be used for solving equations. MATH 212 may be taken concurrently with BIOE 391.

BIOE 392 - NEEDS FINDING AND DEVELOPMENT IN BIOENGINEERING
Short Title: NEEDS FINDING & DEV IN BIOE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will learn and develop the engineering skill of needs finding in the field of bioengineering focused on designing for disabilities. Students will work in groups with patients with disabilities to identify daily needs and develop design criteria to meet those needs including preliminary prototype development. Instructor Permission Required. Cross-list: GLHT 392.

BIOE 400 - ENGINEERING UNDERGRADUATE RESEARCH
Short Title: ENGINEERING UG RESEARCH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern bioengineering research under the direction of a selected faculty member. Research project has a strong engineering component. Repeatable for Credit.

BIOE 401 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern bioengineering research under the direction of a selected faculty member. Department Permission Required. Repeatable for Credit.

BIOE 403 - ADVANCES IN BIONANOTECHNOLOGY
Short Title: ADVANCES IN BIONANOTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 370 (may be taken concurrently)
Description: This course covers nanotechnology applications in bioengineering. Students learn about cutting edge research that uses the tools of nanotechnology to tackle medical problems. Topics include bionanotechnology - related research for diagnosis, detection, and treatment of disease; cell targeting; drug design and delivery; gene therapy; prostheses and implants and tissue regeneration. (REGISTRATION NOTE: The prerequisite BIOE 370 can also be taken concurrently with BIOE 403)

BIOE 408 - SYNTHETIC BIOLOGY
Short Title: SYNTHETIC BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 332
Description: Design of biology at scales from molecules to multicellular organisms will be covered by lecture, primary literature, and student presentations. Students will execute a team based design challenge. Graduate/Undergraduate Equivalency: BIOE 508. Mutually Exclusive: Cannot register for BIOE 408 if student has credit for BIOE 508.

BIOE 419 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Cross-list: ELEC 419. Graduate/Undergraduate Equivalency: BIOE 534. Mutually Exclusive: Cannot register for BIOE 419 if student has credit for BIOE 534. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)
**BIOE 420 - TRANSPORT PHENOMENA IN BIOENGINEERING**

**Short Title:** TRANSPORT PHENOMENA IN BIOE  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MATH 211 and MATH 212 and BIOE 391 and (BIOE 332 or CHBE 411)  
**Description:** BIOE/CHBE 420 covers transport phenomena as applied to biological systems and biomedical devices. Conservation of momentum and mass equations are first derived and then used to analyze transport of momentum and mass in biology, physiology, and in biomedical devices. This course is designed for senior bioengineering students. Cross-list: CHBE 420.

**BIOE 421 - MICROCONTROLLER APPLICATIONS**

**Short Title:** MICROCONTROLLER APPLICATIONS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 385  
**Description:** This class covers the usage of microcontrollers in a laboratory setting. We will start with basic electronics and, in the lab component, design, program, and build systems utilizing widely-available microcontrollers (e.g. Arduino, Raspberry Pi). Units in motion control, sensors (light, temperature, humidity, UV/Vis absorbance), and actuation (pneumatics, gears, and motors) will provide students with functional knowledge to design and prototype their own experimental systems for laboratory-scale automation. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 521. Mutually Exclusive: Cannot register for BIOE 421 if student has credit for BIOE 521.

**BIOE 422 - GENE THERAPY**

**Short Title:** GENE THERAPY  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CHEM 211 and (BIOS 201 or BIOC 201)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

**BIOE 423 - BIOMATERIALS APPLICATIONS**

**Short Title:** BIOMATERIALS APPLICATIONS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (CHEM 211 or CHEM 251) and BIOE 370  
**Description:** Emphasis will be placed on issues regarding the design, synthesis, evaluation, regulation and clinical translation of biomaterials for specific applications. An overview of significant biomaterials engineering applications will be given, including topics such as ophthalmologic, orthopedic, cardiovascular and drug delivery applications, with attention to specific case studies. Regulatory issues concerning biomaterial will also be addressed. Assignments for this class will include frequent readings of the scientific literature with occasional homework questions, one midterm and cumulative final, a group project, a seminar report and individual presentations. Graduate/Undergraduate Equivalency: BIOE 631. Mutually Exclusive: Cannot register for BIOE 431 if student has credit for BIOE 631.

**BIOE 430 - BIOTECHNOLOGY**

**Short Title:** BIOTECHNOLOGY  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will cover fundamentals of probability and statistics with emphasis on application to biomedical problems and experimental design. Recommended for students pursuing careers in medicine or biotechnology. BIOE 439 and BIOE 440/STAT 440 cannot both be taken for credit. Prerequisite BIOE 252 may be taken concurrently. Graduate/Undergraduate Equivalency: BIOE 539. Mutually Exclusive: Cannot register for BIOE 439 if student has credit for BIOE 440/BIOE 539/STAT 440.

**BIOE 431 - BIOMATERIALS APPLICATIONS**

**Short Title:** BIOMATERIALS APPLICATIONS  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

**BIOE 432 - BIOMATERIALS DESIGN**

**Short Title:** BIOMATERIALS DESIGN  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

**BIOE 433 - BIOMATERIALS DESIGN**

**Short Title:** BIOMATERIALS DESIGN  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

**BIOE 434 - BIOMATERIALS DESIGN**

**Short Title:** BIOMATERIALS DESIGN  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

**BIOE 435 - BIOMATERIALS DESIGN**

**Short Title:** BIOMATERIALS DESIGN  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.

**BIOE 436 - BIOMATERIALS DESIGN**

**Short Title:** BIOMATERIALS DESIGN  
**Department:** Bioengineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOE 252 (may be taken concurrently)  
**Description:** This course will examine the gene therapy field, with topics ranging from gene delivery to vectors to ethics of gene therapy. The design principles for engineering improved gene delivery vectors, both viral and nonviral, will be discussed. The course will culminate in a design project focused on engineering a gene delivery device for a specific therapeutic application. Graduate/Undergraduate Equivalency: BIOE 522. Mutually Exclusive: Cannot register for BIOE 422 if student has credit for BIOE 522.
BIOE 442 - TISSUE ENGINEERING LAB MODULE
Short Title: TISSUE ENGINEERING LAB MODULE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOE 342 or BIOC 320 or BIOS 320) and (BIOE 440 or STAT 440)
Description: Students design and conduct a series of tests to synthesize PLLA, characterize PLLA and PLGA, monitor PLLA and PLGA degradation, and assess the viability, attachment, and proliferation of HDF cells on PLLA films. The experiments include many of the basic types of experiments that would be required to do a preliminary investigation of a tissue engineered product. Sections 1 and 2 will be taught during the first half of the semester and sections 3 and 4 will be taught during the second half of the semester. In addition sections 1 and 3 will need to come into lab on 2-3 Fridays and sections 2 and 4 will need to come into lab on 2-3 Saturdays. Section sign-up is required by the instructor in Keck 108 during preregistration week.

BIOE 443 - BIOPROCESSING LAB MODULE
Short Title: BIOPROCESSING LAB MODULE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOE 342 or BIOC 320 or BIOS 320) and (BIOE 440 or STAT 440)
Description: Students design and conduct a series of experiments to observe the growth of E. coli under different conditions, including agar plates, shake flasks, and a small-scale bioreactor. The E. coli has been transformed with a plasmid that produces beta-galactosidase. Engineering applications are emphasized. Some work “off hours” (early evening) is required. Sections 1 and 2 are taught in the first half of the semester and Sections 3 and 4 are taught in the second half of the semester. Section sign-up is required by the instructor in Keck 108 during preregistration week.

BIOE 444 - MECHANICAL TESTING LAB MODULE
Short Title: MECHANICAL TESTING LAB MODULE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 372 (may be taken concurrently) and (BIOE 440 or STAT 440)
Description: Students design and conduct a series of tests to elucidate the mechanical and material properties of animal tissue using the Instron. BIOE 372 may be taken concurrently with BIOE 444.
BIOE 449 - TROUBLESHOOTING WORKSHOP FOR CLINICALLY-RELEVANT BIOMEDICAL EQUIPMENT
Short Title: MED BIOENGINEERING WORKSHOP
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 383 and BIOE 385 and (BIOE 332 or BIOE 372)
Description: Bioengineering course in the troubleshooting, repair, and maintenance of standard biomedical equipment used in hospitals in the developed and developing worlds. Cross-list: GLHT 449. Repeatable for Credit.

BIOE 451 - BIOENGINEERING DESIGN I
Short Title: BIOENGINEERING DESIGN I
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 451 and 452 must be taken the same academic year. Instructor Permission Required.

BIOE 452 - BIOENGINEERING DESIGN II
Short Title: BIOENGINEERING DESIGN II
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 451 and 452 must be taken the same academic year. Instructor Permission Required.

BIOE 454 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: CEVE 454, MECH 454. Graduate/Undergraduate Equivalency: BIOE 554. Mutually Exclusive: Cannot register for BIOE 454 if student has credit for BIOE 554.

BIOE 464 - EXTRACELLULAR MATRIX
Short Title: EXTRACELLULAR MATRIX
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 341 or BIOC 341
Description: This course will address the biology, organization, mechanics, and turnover of extracellular matrix. There will be an emphasis on cells and cell-matrix interactions, matrix distribution within and design of connective tissues and organs techniques for quantitative analysis of matrix, techniques for measurement and modeling of connective tissue biomechanics, changes with growth and aging and tissue/matrix degradation. Graduate/Undergraduate Equivalency: BIOE 524. Recommended Prerequisite(s): BIOE 372, BIOC/BIOE 341. Mutually Exclusive: Cannot register for BIOE 464 if student has credit for BIOE 524.

BIOE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
BIOTECHNOLOGY INSTRUMENTATION AND APPLICATIONS
Short Title: BIOPHOTONICS INSTRUMENTATION
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 383
Description: This course is an introduction to the fundamentals of Biophotonics instrumentation related to coherent light generation, transmission by optical components such as lenses and fibers, and modulation and detection. Interference and polarization concepts and light theories including ray and wave optics will be covered. A broad variety of optical imaging and detection techniques including numerous microscopy techniques, spectral imaging, polarimetry, OCT and others will be covered. The course will guide through the principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point to special requirements for biomedical applications in optical sensing, diagnosis, and biomedical applications. Graduate/Undergraduate Equivalency: BIOE 512. Mutually Exclusive: Cannot register for BIOE 484 if student has credit for BIOE 512.

FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 485 or BIOE 485 or COMP 485
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Cross-list: COMP 485, ELEC 485. Graduate/Undergraduate Equivalency: BIOE 512. Mutually Exclusive: Cannot register for BIOE 484 if student has credit for BIOE 512.

FUNDAMENTALS OF MEDICAL IMAGING II
Short Title: FUND MEDICAL IMAGING II
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 485 or BIOE 485 or COMP 485
Description: This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site in also planned to gain experience with nuclear medicine imaging. Cross-list: COMP 486, ELEC 486. Graduate/Undergraduate Equivalency: BIOE 596. Mutually Exclusive: Cannot register for BIOE 486 if student has credit for BIOE 596.

INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS
Short Title: INTRO SYSTEMS BIOLOGY MODELING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 212 or MATH 213) and (BIOE 252 or CHBE 310) and BIOC 341 and CAAM 210
Description: The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. Graduate/Undergraduate Equivalency: BIOE 552. Mutually Exclusive: Cannot register for BIOE 490 if student has credit for BIOE 552.
BIOE 492 - SENSORY NEUROENGINEERING
Short Title: SENSORY NEUROENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 332
Description: This course will explore how bioengineering techniques and principles are applied to understand and model sensory systems, with a focus on the auditory, vestibular, and visual systems. The interaction between the electrical, mechanical and optical aspects of these systems, and ways to modulate these interactions, will be explored. The course will also cover the design of current auditory, visual and somato-sensory neuroprosthetics (i.e. cochlear implants, retinal implants and brain-machine interfaces), as well as emerging technologies for neural stimulation. Graduate/Undergraduate Equivalency: BIOE 592. Mutually Exclusive: Cannot register for BIOE 492 if student has credit for BIOE 592.

BIOE 493 - BUILDING LIFE SCIENCES, BIOMEDICAL AND BIOTECHNOLOGY STARTUPS
Short Title: BIOTECH STARTUP
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This semester-long course aims to provide entrepreneurial students with a hands-on experience in building a high-tech company based on novel biomedical technologies being developed at Rice University and in the Texas Medical Center. Students will form teams of 2-4, and identify a promising biomedical technology, perform intellectual property landscape analysis, identify a minimum viable product, build a business plan, construct 1 year and 5 year financial projections, conduct voice of customer interviews, and present a fundraising “pitch.” Students are expected to spend 8-10 hours per week outside the classroom to complete tasks assigned during lectures, and will summarize their findings every 2 weeks in a 7-minute presentation. Graduate/Undergraduate Equivalency: BIOE 593. Mutually Exclusive: Cannot register for BIOE 493 if student has credit for BIOE 593.

BIOE 500 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BIOE 502 - PHYSICAL BIOLOGY
Short Title: PHYSICAL BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic introduction to a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Cross-list: BIOS 505, SSPB 501.

BIOE 504 - FIRST YEAR GRADUATE STUDENT LAB ROTATION
Short Title: GRADUATE LAB ROTATION
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides students the opportunity to experience different research projects and assists first-year students in choosing an advisor and a lab for conduction thesis research. Students must successfully complete rotations in three labs to receive a satisfactory grade. All new BIOE PhD students must take this course during their first semester.

BIOE 505 - MACROMOLECULAR ASSEMBLIES
Short Title: MACROMOLECULAR ASSEMBLIES
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There is increasing attention on the biological phenomena and engineering opportunities at the mesoscopic scale, which is between the size of a single protein and that of the large organelles. This course will cover a range of these phenomena, such as viral particles, ribosomes, bacterial microcompartments, amyloid fibrils, gas vesicles, and membraneless condensates. Additionally, the course will aim to formulate physical principles behind these phenomena, describe the experimental and computational approaches to study them, and discuss how to engineer these assemblies.
BIOE 507 - GRADUATE RESEARCH COMPONENTS I
Short Title: GRADUATE RESEARCH COMPONENTS I
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students take BIOE 507 as a Component I of research concentration of the MBE program. The class is 3 credit hours counting toward MBE degree. The project may vary depending on the mentor's group focus and range from lab assay work, material studies, design and assembly of biomedical devices, simulations and many other. Instructor Permission Required. Mutually Exclusive: Cannot register for BIOE 507 if student has credit for BIOE 307.

BIOE 508 - SYNTHETIC BIOLOGY
Short Title: SYNTHETIC BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of biology at scales from molecules to multicellular organisms will be covered by lecture, primary literature, and student presentations. Students will write a research proposal at the end of the course. Cross-list: SSPB 503. Graduate/Undergraduate Equivalency: BIOE 408. Mutually Exclusive: Cannot register for BIOE 508 if student has credit for BIOE 408.

BIOE 509 - POINT-OF-CARE DIAGNOSTICS
Short Title: POINT-OF-CARE DIAGNOSTICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of diagnostic technologies that can be used at the point-of-care, including lateral flow assays, 2- and 3-D paper-based assays, and imaging based assays. Topics include the principles of assay design, validation and commercial development, with a focus on diagnostics for low-resource settings. The course includes a lecture and laboratory component, along with a team-based design project. Only graduate students may register for this course.

BIOE 510 - SEMINAR IN TROPICAL MEDICINE
Short Title: SEMINAR IN TROPICAL MEDICINE
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 8 week lecture series on topics in global health. The theme for this offering is one health; integrating efforts to obtain optimal health for humans, animals, and the environment. Offered in conjunction with the new National School of Tropical Medicine, the course will feature lectures by various experts on the public health issues most pressing in poor populations in the world today. Course open to all undergraduates and graduate students. Cross-list: GLHT 510. Repeatable for Credit.

BIOE 511 - BIOPHOTONICS INSTRUMENTATION AND APPLICATIONS
Short Title: BIOPHOTONICS INSTRUMENTATION
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to the fundamentals of Biophotonics instrumentation related to coherent light generation, transmission by optical components such as lenses and fibers, and modulation and detection. Interference and polarization concepts and light theories including ray and wave optics will be covered. A broad variety of optical imaging and detection techniques including numerous microscopy techniques, spectral imaging, polarimetry, OCT and others will be covered. The course will guide through the principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point to special requirements for Biomedical applications with emphasis on principles and concepts used in a variety of optical instruments and point out special requirements for bio-medical applications in optical sensing, diagnosis, and biomedical applications. In addition to the undergraduate requirements in BIOE 484, graduate students will be required to complete more complex problems on both homework and tests. Graduate students will also be required to submit a research paper with oral presentations. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 484. Mutually Exclusive: Cannot register for BIOE 512 if student has credit for BIOE 484.

BIOE 512 - STRATEGIC CAREER PREPAREDNESS FOR INDUSTRY JOBS
Short Title: CAREER PREP FOR INDUSTRY
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for MBE candidates and PhD students planning to graduate within the year who are interested in industry careers. The course will help students design a resume, cover letter, and other career development tools to strategically identify and market their skills to bioengineering industry partners.

BIOE 513 - INTRODUCTION TO BIOSTATISTICS
Short Title: INTRODUCTION TO BIOSTATISTICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presents basic and advanced methods of statistics as applied to problems in bioengineering. Demonstrates techniques for data organization, exploration, and presentation. Foundations of statistical estimation, inference, and testing are reviewed. Optimal planning of experiments is explored. Advanced techniques include multiple regression, variable selection, logistic regression, analysis of variance, survival analysis, multiple measurements and measurements over time. Additional topics, such as Bayesian methods, will be discussed as time allows. Labs will use the statistical software JMP and/or R. Cross-list: STAT 514.
BIOE 515 - ENGINEERING DRUG DELIVERY SYSTEMS
Short Title: ENGINEERING DRUG DELIVERY SYS.
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the application of innovative engineering approaches to enhance drug efficacy and/or reduce toxicity. Topics of emphasis include, but are not limited to, routes of administration, bioavailability, biodistribution, pharmacokinetics, pharmacodynamics, therapeutic drug windows, patient compliance, immunogenicity, the foreign body reaction, and solubility enhancement. A wide array of device types will be discussed, such as biodegradable microspheres, self-assembled lipid nanoparticles, microneedles, and osmotic pumps. Students will be expected to quantitatively evaluate drug release from complex devices and determine drug distribution and clearance using multi-compartment models. An additional project will be required of graduate level students.

BIOE 516 - MECHANICS, TRANSPORT, AND CELLULAR SIGNALING
Short Title: MECHANICS/TRANSPORT/SIGNALING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the fundamental principles of mechanics, thermodynamics, and transport in the context of classical and contemporary bioengineering problems. An overall goal will be to expose students to the integrated approaches that are necessary to solve complex research problems. Topics covered will include membrane transport, cell signaling, and mechanotransduction. This course is intended for first year BIOE PhD students only.

BIOE 517 - INSTRUMENTATION AND MOLECULAR ANALYSIS
Short Title: INSTRUMENT/MOLECULAR ANALYSIS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the basic principles of optics, optical instrumentation, microscopy and molecular detection technologies. Emphasis will be placed on the application of advance microscopy techniques to imaging problems in biology and medicine. This course is intended for first year BIOE PhD students only.

BIOE 518 - INTRODUCTION TO COMPUTATIONAL BIOLOGY
Short Title: INTRO TO COMPUTATION BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides students with the ability to use computational methods to understand and analyze biological data. This course will introduce students to advances in computational cell biology from an engineering perspective, and equip them with a suite of tools emerging from systems biology. Topics covered include computational cell engineering, high-throughput analysis, modeling of signaling pathways, network analysis, imaging coupled to modeling, and multi scale modeling. This course is intended for first year BIOE PhD students only.

BIOE 519 - BIOMATERIALS SYNTHESIS
Short Title: BIOMATERIALS SYNTHESIS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Biomaterials covers the design and synthesis of materials which interact with biologic phenomena such as cell-free, microbial, and mammalian systems. Topics covered include: surfaces and surface fractionalization, biomedical implants and them immune response, three dimensional cell culture systems, and regulatory hurdles (e.g., FDA clearance). The class will be rooted in a historical perspective, with a particular emphasis on the latest techniques in synthetic chemistry relating to biomaterials. This course is intended for first year BIOE PhD students only.

BIOE 521 - MICROCONTROLLER APPLICATIONS
Short Title: MICROCONTROLLER APPLICATIONS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 385
Description: This class covers the usage of microcontrollers in a laboratory setting. We will start with basic electronics and, in the lab component, design, program, and build systems utilizing widely-available microcontrollers (e.g. Arduino, Raspberry PI). Units in motion control, sensors (light, temperature, humidity, UV/Vis absorbance), and actuation (pneumatics, gears, and motors) will provide students with functional knowledge to design and prototype their own experimental systems for laboratory-scale automation. BIOE 521 students will be expected to complete a final research paper. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 421. Mutually Exclusive: Cannot register for BIOE 521 if student has credit for BIOE 421.
BIOE 522 - GENE THERAPY
Short Title: GENE THERAPY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Gene therapy suffered from major clinical setbacks in the late 1990's, putting the entire field of genetic medicine at a standstill. However, through perseverance and strategic re-thinking of how viruses and cells could be used as therapeutics, the field is currently experiencing a biotechnological revolution. In December of 2017, a virus-based gene therapy drug was approved by the FDA, making it the first of its kind for the treatment of an inherited disease. This landmark achievement is just the beginning of a new era of human therapeutics. This class will discuss the gene therapy field – where it was and where it is now. Clinically important vectors currently under human testing, and opportunities for the next generation of improved gene delivery vectors will be presented. The biological and physiological barriers to efficient gene delivery will be investigated in order to spur new ideas for improving vector efficiency and specificity. Graduate/Undergraduate Equivalency: BIOE 422. Mutually Exclusive: Cannot register for BIOE 522 if student has credit for BIOE 422.

BIOE 523 - BIOENGINEERING SYSTEMS AND CONTROL
Short Title: BIOENG SYSTEMS & CONTROLS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to basic principles of control theory and applications of these methods and tools to analyze the dynamics of biological systems with examples from metabolic pathway control, synthetic biology and physiological systems. Cross-list: CHBE 523.

BIOE 524 - EXTRACELLULAR MATRIX
Short Title: EXTRACELLULAR MATRIX
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the biology, organization, mechanics, and turnover of extracellular matrix. There will be an emphasis on cells and cell-matrix interactions, matrix distribution within and design of connective tissues and organs techniques for quantitative analysis of matrix, techniques for measurement and modeling of connective tissue biomechanics, changes with growth and aging and tissue/matrix degradation. Additional projects will be required of graduate level students. Graduate/Undergraduate Equivalency: BIOE 464. Recommended Prerequisite(s): BIOE 372, BIOC/BIOE 341. Mutually Exclusive: Cannot register for BIOE 524 if student has credit for BIOE 464.

BIOE 525 - NANOBIOENGINEERING AND NANOMEDICINE
Short Title: NANOBIOENG AND NANOMEDICINE
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers broad range of topics in nanobioengineering and nanomedicine, including synthesis characterization and fractionalization of nanomaterials and nanostructures, nanoparticle-based molecular imaging probes, nanocarriers, for drug/gene delivery, and nanomachines for gene editing and regulation. Examples will be given to illustrate the applications of nanobioengineering and nanomedicine.

BIOE 526 - ADVANCES IN GENOME EDITING AND ENGINEERING
Short Title: ADVANCES IN GENOME EDITING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a course for graduate students who are interested in learning the emerging field of precision genome editing and its applications in biology and medicine. This is a lecture course consisting of classes that meet weekly for 3 hours; instruction is delivered both in a lecture setting and through projects.

BIOE 527 - HEALTHCARE INNOVATION AND ENTREPRENEURSHIP
Short Title: HEALTHCARE INNOV & ENTREPREN
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for healthcare entrepreneurs who want to build innovative medical technologies. During the course, students will learn how to identify customers, key stakeholders, and the market opportunity for a clinical need; apply design thinking, including low-fidelity prototyping, to quickly test and iterate on a concept; assess regulatory, reimbursement, and clinical trial requirements; identify key assumptions and develop a business model; create a financial model based on business model assumptions; determine capital requirements and funding sources for their venture; understand and evaluate term sheets; create a pitch presentation for investors. Instructor Permission Required.

BIOE 528 - MEDICAL ENGINEERING AND DESIGN LAB
Short Title: MED ENGINEERING & DESIGN LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this studio-based lab, students apply technical engineering and prototyping skills to medical design projects. Participants are taught and apply a range of topics including engineering design processes, medical materials, biocompatibility, design for manufacturing, rapid prototyping, medical equipment, sterility, manufacturing techniques, and quality system implementation.
BIOE 529 - HEALTHCARE INNOVATION AND ENTREPRENEURSHIP LAB
Short Title: INNOV & ENTREPRENEURSHIP LAB
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this follow-on experiential Lab course, students work on refining and completing the plan for the venture they created in Health Innovation and Entrepreneurship. Teams receive guidance and Mentoring from faculty and mentors to develop the next steps of their business. The Lab takes place in the Liu Idea Lab for Innovation and Entrepreneurship, a purpose built state-of-the-art incubator and co-working space on the Rice campus.

BIOE 530 - MEDICAL ENGINEERING & DESIGN LAB 2
Short Title: MED ENGIN & DESIGN LAB 2
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 528
Description: In this studio-based lab, students apply technical engineering and prototyping skills to medical design projects. Participants are taught and apply a range of topics including engineering design processes, medical materials, biocompatibility, design for manufacturing, rapid prototyping, medical equipment, sterility, manufacturing techniques, and quality system implementation. This course is intended for only those students in Bioengineering.

BIOE 534 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 559. Graduate/Undergraduate Equivalency: BIOE 419. Mutually Exclusive: Cannot register for BIOE 534 if student has credit for BIOE 419. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)

BIOE 535 - ENGINEERING CELL-BASED THERAPEUTICS FOR THE TREATMENT OF DISEASE
Short Title: CELL-BASED THERAPEUTICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Once the stuff of science fiction, there is increasing attention on using engineered living cells as therapeutic agents. We will discuss how application of synthetic biology, genetic engineering, and systems biology can endow cells with the ability to detect and treat disease, identifying breakthroughs, challenges, and long-term possibilities for this exciting new field. Recommended Prerequisite(s): BIOE 321.

BIOE 536 - FRONTIERS IN IMMUNOENGINEERING
Short Title: IMMUNOENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce immunology concepts from an engineering perspective and covers various immune responses including to pathogens, self, allergens, cancer, and biomaterials. Using principles of engineering we will perform an in-depth analysis of these responses and the latest advances on the development of novel therapeutics. Topics include systems immunology, nanotechnology, hydrogels, biomaterials, vaccines, cancer immunotherapy, autoimmunity, tissue engineering, stem cells, viruses, and the microbiome. Instructor Permission Required.

BIOE 537 - GENETIC AND EPIGENETIC CONTROL
Short Title: GENETIC AND EPIGENETIC CONTROL
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: All human diseases are driven by alterations in genetic sequences, cellular transcription, and/or chromatin structure. In this course, students will learn how transformative new technologies permit measuring and manipulating these alterations, and how bioengineers can leverage these innovative tools to combat human diseases and catalyze advances in biotechnology.

BIOE 539 - APPLIED STATISTICS FOR BIOENGINEERING AND BIOTECHNOLOGY
Short Title: APPLIED STAT FOR BIOE BIOTECH
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course will cover fundamentals of probability and statistics with emphasis on application to biomedical problems and experimental design. Recommended for students pursuing careers in medicine or biotechnology. Graduate/Undergraduate Equivalency: BIOE 439. Recommended Prerequisite(s): BIOE 252 Mutually Exclusive: Cannot register for BIOE 539 if student has credit for BIOE 439.
BIOE 541 - CELL AND MOLECULAR BIOLOGY FOR ENGINEERS
Short Title: CELL & MOLECULAR BIOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Understanding the behaviors of cells and biomolecules in health and disease is a prerequisite to appropriately applying modern bioengineering principles. In this course, students will learn the fundamentals of cell and molecular biology and how transformative new technologies permit measuring and engineering these alterations to improve human health and uncover biological insights. Graduate/Undergraduate Equivalency: BIOE 341. Mutually Exclusive: Cannot register for BIOE 541 if student has credit for BIOE 341.

BIOE 543 - DNA BIOTECHNOLOGY, BIOPHYSICS, AND MODELING
Short Title: DNA BIOTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Semester-long course on fundamental properties of DNA, and their role in DNA biotechnology. Students will develop, analyze, and simulate simple biophysical models of DNA reactions, as well as learn and model methods of modern DNA biotechnology. Proficiency with MATLAB required.

BIOE 548 - MACHINE LEARNING AND SIGNAL PROCESSING FOR NEUROENGINEERING
Short Title: NEURAL SIGNAL PROCESSING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The activity of a complex network of billions of interconnected neurons underlies our ability to sense, represent and store the details of experienced life, and enables us to interact with our environment and other organisms. Modern neuroscience techniques enable us to access this activity, and thus to begin to understand the processes whereby individual neurons enable complex behaviors. In order to increase this understanding and to design biomedical systems which might therapeutically interact with neural circuits, advanced statistical signal processing and machine learning approaches are required. This class will cover a range of techniques and their application to basic neuroscience and neural interfaces. Topics include latent variable models, point processes, Bayesian inference, dimensionality reduction, dynamical systems, and spectral analysis. Neuroscience applications include modeling neural firing rates, spike sorting, decoding, characterization of neural systems, and field potential analysis. Cross-list: ELEC 548.

BIOE 552 - INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS
Short Title: INTRO SYSTEMS BIOLOGY MODELING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. Same as 490 but with more emphasis on recent advances in the field - paper reading and presentations. Cross-list: SSPB 502. Graduate/Undergraduate Equivalency: BIOE 490. Recommended Prerequisite(s): Basic knowledge of biochemistry, cell biology, linear algebra, and ordinary differential equations is expected. Mutually Exclusive: Cannot register for BIOE 552 if student has credit for BIOE 490.

BIOE 553 - SYSTEMS BIOLOGY AND NEUROENGINEERING
Short Title: SYS BIOLOGY & NEUROENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to advances in computational biology relevant to neuroengineering, and equip them with a suite of tools emerging from systems biology to student neurological processes. Example class topics include: decoding multineuron activity, models for optogenetic control, and optimization of neuro-generative therapies.

BIOE 554 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIOE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: CEVE 554, MECH 554. Graduate/Undergraduate Equivalency: BIOE 454. Mutually Exclusive: Cannot register for BIOE 554 if student has credit for BIOE 454.
BIOE 558 - INTRODUCTION TO GENOME EDITING AND ENGINEERING  
Short Title: GENOME EDITING AND ENGINEERING  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides an introduction to the recent advances in the genome editing and engineering field. Past and current stages of genome-editing technologies, the fundamental mechanisms of different classes of genome-editing proteins, and cutting-edge strategies for engineering novel genome-editing agents and their applications in synthetic biology and therapeutics. Cross-list: CHBE 558.

BIOE 564 - BIOINFORMATICS: NETWORK ANALYSIS  
Short Title: BIOINFORMATICS: NETWORKS  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course covers computational aspects of biological network analysis, a major theme in the area of systems biology. The course discusses protein-protein interaction, signaling, metabolic, and functional networks, and covers issues related to constructing, analyzing various types of networks, as well as how they can be used for downstream applications. Cross-list: COMP 572.

BIOE 571 - PRINCIPLES OF VISUAL DESIGN  
Short Title: VISUAL DESIGN  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will instruct participants in conceptual and technical approaches for effective visual communication of data, technical information, and engineering / science concepts, and will develop strategies for improving presentation of materials from participants own research. Knowledge and skills will be developed through short lectures, in-class studio instruction, design assignments, presentations, and a final design project.

BIOE 572 - BIOMECHANICS  
Short Title: BIOMECHANICS  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course introduces the fundamental principles of mechanics applied to the analysis and characterization of biological systems. Topics covered include normal and shear stresses, normal and shear strains, mechanical properties of materials, load, deformation, elasticity and elastoplastic behavior. Quantitative analysis of statically determinate and indeterminate structures subjected to tension, compression, torsion and bending will be covered. Additionally, aspects of blood rheology, viscoelasticity, and musculoskeletal mechanics will be addressed. Mutually Exclusive: Cannot register for BIOE 572 if student has credit for BIOE 372. Graduate/Undergraduate Equivalency: BIOE 372. Mutually Exclusive: Cannot register for BIOE 572 if student has credit for BIOE 372.

BIOE 574 - CONTINUUM BIOMECHANICS  
Short Title: CONTINUUM BIOMECHANICS  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): BIOE 372  
Description: This course deals with elements of continuum mechanics relevant to bioengineering. The course covers important concepts in tensor calculus, kinematics, stress and strain, and constitutive theories of continua. Selected topics in bone, articular cartilage, blood and circulation, and cell biomechanics will be discussed to illustrate the application of continuum mechanism to bioengineering problems.

BIOE 578 - BIOTECHNOLOGY PRACTICUM  
Short Title: BIOTECHNOLOGY PRACTICUM  
Department: Bioengineering  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is part of the NIH Biotechnology Training Program and is limited to program participants. Students will receive exposure and training in cutting edge concepts and technologies.
### BIOE 580 - PROTEIN ENGINEERING
- **Short Title:** PROTEIN ENGINEERING
- **Department:** Bioengineering
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** Manipulation of gene expression in prokaryotic and eukaryotic cells. Rational design and directed evolution for cell and protein engineering. Selection and screening technologies and process optimization. Synthetic Biology: engineering and application of gene circuits. Molecular biotechnology applications: Diagnosis, Therapeutics and Vaccines. Cross-list: CHBE 580. Recommended Prerequisite(s): CHBE 310/510 or equivalent is highly recommended.

### BIOE 586 - RESPIRATORY SYSTEM MECHANICS
- **Short Title:** RESPIRATORY SYSTEM MECHANICS
- **Department:** Bioengineering
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** Mechanics of ventilation, respiratory muscle mechanics, rib cage mechanics, mechanical coupling between the respiratory muscles and the rib cage, and inferences on mechanics from respiratory muscle anatomy. The class will meet in the Pulmonary Division at Baylor College of Medicine in the Texas Medical Center. Cross-list: MECH 586.

### BIOE 587 - OPTICAL IMAGING AND NANOBIOPHOTONICS
- **Short Title:** OPTIC IMAGING/NANOBIOPHOTONICS
- **Department:** Bioengineering
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** This course focuses on diagnostic and therapeutic applications of photonics-based technologies with particular emphasis on nanotechnology enabled optical approaches. This course emphasizes biomedical applications of optics and complements BIOE 484 which introduces fundamental principles of optics to bioengineers.

### BIOE 589 - COMPUTATIONAL MOLECULAR BIOENGINEERING/BIOPHYSICS
- **Short Title:** COMP MOLECULAR BIOENG/BIOPHYS
- **Department:** Bioengineering
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** This is a course designed for students in computationally-oriented biomedical and bioengineering majors to introduce the principles and methods used for the simulations and modeling of macromolecules of biological interest. Protein conformation and dynamics are emphasized. Empirical energy function and molecular dynamics calculations are described. Specific biological problems are discussed to illustrate the methodology. Classic examples such as the cooperative mechanism of hemoglobin and more frontier topics such as the motional properties of molecular motors and ion channels as well as results derived from the current literature are covered. Instructor Permission Required. Recommended Prerequisite(s): MATH 212, (BIOS 301 or BIOL 301), BIOE 332.

### BIOE 591 - FUNDAMENTALS OF MEDICAL IMAGING I
- **Short Title:** FUND MEDICAL IMAGING I
- **Department:** Bioengineering
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 585. Graduate/Undergraduate Equivalency: BIOE 485. Mutually Exclusive: Cannot register for BIOE 591 if student has credit for BIOE 485.

### BIOE 592 - SENSORY NEUROENGINEERING
- **Short Title:** SENSORY NEUROENGINEERING
- **Department:** Bioengineering
- **Grade Mode:** Standard Letter
- **Course Type:** Seminar
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Description:** This course will explore how bioengineering techniques and principles are applied to understand and model sensory systems, with a focus on the auditory, vestibular, and visual systems. The interaction between the electrical, mechanical and optical aspects of these systems, and ways to modulate these interactions, will be explored. The course will also cover the design of current auditory, visual and somato-sensory neuroprosthetics (i.e. cochlear-implants, retinal implants and brain-machine interfaces), as well as emerging technologies for neural stimulation. Graduate/Undergraduate Equivalency: BIOE 492. Mutually Exclusive: Cannot register for BIOE 592 if student has credit for BIOE 492.
BIOE 486 - MUTUALLY EXCLUSIVE: CANNOT REGISTER FOR BIOE 596 IF STUDENT HAS CREDIT FOR CROSS-LIST: ELEC 586. GRADUATE/UNDERGRADUATE EQUIVALENCY: BIOE 486. PLANNED TO GAIN EXPERIENCE WITH NUCLEAR MEDICINE IMAGING. ADDITIONAL PRINCIPLES OF RADIOTRACER KINETIC MODELING. A TRIP TO A CLINICAL SITE IN ALSO IMAGING MODALITIES AND LAYS THE FOUNDATIONS FOR UNDERSTANDING THE ACQUISITION, FORMATION, PROCESSING AND THE CLINICAL APPLICATIONS OF THESE PET IMAGING. THE COURSE WILL INTRODUCE THE BASIC PRINCIPLES OF IMAGE DESCRIPTION:

COURSE LEVEL: GRADUATE

RESTRICTIONS:

CREDIT HOURS: 3

COURSE TYPE: STANDARD LETTER

DEPARTMENT:

SHORT TITLE: BIOE 486 - FUNDAMENTALS OF MEDICAL IMAGING II

COURSE TITLE: FUND MEDICAL IMAGING II

DEPARTMENT: BIOENGINEERING

GRADE MODE: STANDARD LETTER

COURSE TYPE: LECTURE

CREDIT HOURS: 3

RESTRICTIONS: ENROLLMENT IS LIMITED TO GRADUATE LEVEL STUDENTS.

COURSE LEVEL: GRADUATE

DESCRIPTION: THIS COURSE Focuses ON FUNCTIONAL IMAGING MODALITIES USED SPECIFICALLY IN NUCLEAR MEDICINE SUCH AS GAMMA CAMERAS, SPECT, AND PET IMAGING. THE COURSE WILL INTRODUCE THE BASIC PRINCIPLES OF IMAGE ACQUISITION, FORMATION, PROCESSING AND THE CLINICAL APPLICATIONS OF THESE IMAGING MODALITIES AND LAYS THE FOUNDATIONS FOR UNDERSTANDING THE PRINCIPLES OF RADIOTRACER KINETIC MODELING. A TRIP TO A CLINICAL SITE IN ALSO PLANNED TO GAIN EXPERIENCE WITH NUCLEAR MEDICINE IMAGING. ADDITIONAL COURSEWORK REQUIRED BEYOND THE UNDERGRADUATE COURSE REQUIREMENTS.

CROSS-LIST: ELEC 586. GRADUATE/UNDERGRADUATE EQUIVALENCY: BIOE 486.

MUTUALLY EXCLUSIVE: CANNOT REGISTER FOR BIOE 596 IF STUDENT HAS CREDIT FOR BIOE 486.

BIOE 596 - MODELING TISSUE MECHANICS

COURSE TITLE: MODELING TISSUE MECHANICS

DEPARTMENT: BIOENGINEERING

GRADE MODE: STANDARD LETTER

COURSE TYPE: INDEPENDENT STUDY

CREDIT HOURS: 3

RESTRICTIONS: ENROLLMENT IS LIMITED TO GRADUATE LEVEL STUDENTS.

COURSE LEVEL: GRADUATE

DESCRIPTION: INDEPENDENT STUDY AND SEMINAR COURSE WHICH FOCUSES ON MODELING THE MECHANICAL PROPERTIES OF BIOLOGICAL TISSUES. DATA FROM EXPERIMENTS WILL BE USED TO REFIN THE PREDICTIONS OF NONLINEAR MATHEMATICAL COMPUTER MODELS. AIMED AT JUNIORS, SENIORS, AND GRADUATE STUDENTS. LABORATORY WORK PERFORMED AT BAYLOR COLLEGE OF MEDICINE, COMPUTER WORK AT RICE UNIVERSITY. CROSS-LIST: MECH 595.

BIOE 596 - FUNDAMENTALS OF MEDICAL IMAGING II

COURSE TITLE: FUND MEDICAL IMAGING II

DEPARTMENT: BIOENGINEERING

GRADE MODE: STANDARD LETTER

COURSE TYPE: LECTURE

CREDIT HOURS: 3

RESTRICTIONS: ENROLLMENT IS LIMITED TO GRADUATE LEVEL STUDENTS.

COURSE LEVEL: GRADUATE

DESCRIPTION: THIS COURSE Focuses ON FUNCTIONAL IMAGING MODALITIES USED SPECIFICALLY IN NUCLEAR MEDICINE SUCH AS GAMMA CAMERAS, SPECT, AND PET IMAGING. THE COURSE WILL INTRODUCE THE BASIC PRINCIPLES OF IMAGE ACQUISITION, FORMATION, PROCESSING AND THE CLINICAL APPLICATIONS OF THESE IMAGING MODALITIES AND LAYS THE FOUNDATIONS FOR UNDERSTANDING THE PRINCIPLES OF RADIOTRACER KINETIC MODELING. A TRIP TO A CLINICAL SITE IN ALSO PLANNED TO GAIN EXPERIENCE WITH NUCLEAR MEDICINE IMAGING. ADDITIONAL COURSEWORK REQUIRED BEYOND THE UNDERGRADUATE COURSE REQUIREMENTS.

CROSS-LIST: ELEC 586. GRADUATE/UNDERGRADUATE EQUIVALENCY: BIOE 486.

MUTUALLY EXCLUSIVE: CANNOT REGISTER FOR BIOE 596 IF STUDENT HAS CREDIT FOR BIOE 486.

BIOE 595 - MODELING TISSUE MECHANICS

COURSE TITLE: MODELING TISSUE MECHANICS

DEPARTMENT: BIOENGINEERING

GRADE MODE: STANDARD LETTER

COURSE TYPE: INDEPENDENT STUDY

CREDIT HOURS: 3

RESTRICTIONS: ENROLLMENT IS LIMITED TO GRADUATE LEVEL STUDENTS.

COURSE LEVEL: GRADUATE

DESCRIPTION: INDEPENDENT STUDY AND SEMINAR COURSE WHICH FOCUSES ON MODELING THE MECHANICAL PROPERTIES OF BIOLOGICAL TISSUES. DATA FROM EXPERIMENTS WILL BE USED TO REFIN THE PREDICTIONS OF NONLINEAR MATHEMATICAL COMPUTER MODELS. AIMED AT JUNIORS, SENIORS, AND GRADUATE STUDENTS. LABORATORY WORK PERFORMED AT BAYLOR COLLEGE OF MEDICINE, COMPUTER WORK AT RICE UNIVERSITY. CROSS-LIST: MECH 595.
BIOE 615 - BIOENGINEERING AND CARDIAC SURGERY
Short Title: BIOENGINEERING/CARDIAC SURGERY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address biomaterials and medical devices relevant to cardiac and vascular surgery and interventional cardiology in adult and pediatric patients. Mechanical and design considerations, notable successes and failures, and ethical issues will also be discussed, as will differences in cardiac disease and care due to health disparities.

BIOE 620 - TISSUE ENGINEERING
Short Title: TISSUE ENGINEERING
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Includes strategies to regenerate metabolic organs and repair structural tissues, as well as cell-based therapies to deliver proteins and other therapeutic drugs, with emphasis on issues related to cell and tissue transplantation such as substrate properties, angiogenesis, growth stimulation, cell differentiation, and immunoprotection. Cross-list: CHBE 620.

BIOE 621 - BIOVENTURES
Short Title: BIOVENTURES
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MGMT 633 or BIOE 633
Description: A hands-on immersion into life science entrepreneurship through practical lessons that are applied to students' group projects throughout the course. This practical course will provide the skills and resources to facilitate scientist-driven entrepreneurship in conceiving new life science ventures and translating research ideas into commercial ventures. This course will be taught in conjunction w/UTMB faculty on the Rice campus (BRC) and will meet from Feb 26 - April 30, 2015. To apply for the course, Rice students should fill out the online application located on the URL site listed above. Instructor Permission Required. Repeatable for Credit.
Course URL: goo.gl/forms/pJ0UMeJItO (http://goo.gl/forms/pJ0UMeJItO/)

BIOE 627 - MEDICAL INNOVATION INDUSTRY SEMINAR
Short Title: MED. INNOVATION INDUSTRY SEM.
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course exposes participants to the wide variety of career paths in the medical technology industry including large to mid sized companies, consulting, biotech, pharma, diagnostics, hospital administration and more through guest lectures, case studies, and informational interviews. Additional topics include: Resume and LinkedIn refinement, Job Application Process, Interview Skills, Delivering Oral Presentations

BIOE 628 - MEDICAL TECHNOLOGY DESIGN SEMINAR 2
Short Title: MED TECH DESIGN SEMINAR 2
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn to address unmet clinical needs thru methodical design. Concept generation principles & proof-of-concept prototyping will be discussed. Screening techniques will be taught that not only weigh technical merit of a concept, but regulatory, reimbursement, IP & business strategies. Students will participate in industry case studies & guest lectures from industry professionals.

BIOE 631 - BIOMATERIALS APPLICATIONS
Short Title: BIOMATERIALS APPLICATIONS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Emphasis will be placed on issues regarding the design, synthesis, evaluation, regulation and clinical translation of biomaterials for specific applications. An overview of significant biomaterials engineering applications will be given, including topics such as ophthalmologic, orthopedic, cardiovascular and drug delivery applications, with attention to specific case studies. Regulatory issues concerning biomaterial will also be addressed. Assignments for this class will include frequent readings of the scientific literature with occasional homework questions, one midterm and cumulative final, a group project, a seminar report and individual presentations. In addition, graduate students in BIOE 631 will have additional exam problems and an additional research paper. Graduate/Undergraduate Equivalency: BIOE 431. Mutually Exclusive: Cannot register for BIOE 631 if student has credit for BIOE 431.
BIOE 633 - ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS
Short Title: LIFE SCIENCE ENTREPRENEURSHIP
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This pragmatic course combines core lectures on entrepreneurship with special guest presentations by notable life science entrepreneurs. It explores the roles that physicians, scientists, engineers, and MBA’s play in biotech, medical device, and healthcare companies, as well as major trends in Angel and Venture Capital Financings of Startups. Lectures on entrepreneurial team building, leadership and career planning are included. Cross-list: MGMT 633.

BIOE 643 - CELL MECHANICS, MECHANOTRANSDUCTION AND THE CELL MICROENVIRONMENT
Short Title: MECHANOTRANSDUCTION
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mechanotransduction is a fundamental process essential for living systems and plays a fundamental role in cell signaling, cancer metastasis and stem cell differentiation. Additionally, fundamental biological processes such as endocytosis cell fusion and cell migration are driven by a coordinated interplay of molecular interactions that drive membrane deformation. This course will survey the current understanding of mechanotransduction and the mechanical properties of cells and their microenvironment, including membrane and cytoskeletal mechanics. Experimental approaches for measuring and manipulating the material properties of cells and their environment; including optical, electrical and magnetic techniques will be covered. A variety of application will be covered, including manipulation in engineering of mechanotransduction pathways to drive cell migration and stem cell differentiation. Instructor Permission Required. Cross-list: PHYS 643.

BIOE 648 - MOLECULAR TECHNIQUES IN BIOENGINEERING
Short Title: MOLECULAR TECHNIQUES IN BIOENG
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the fundamental physical principles of light interaction with matter, separation (by charge, size, confirmation) and detection techniques utilized in the field of bioengineering. These include absorbance and fluorescence spectroscopy, light and fluorescence microscopy, flow cytometry, electrophoresis, PCR, Blotting, and ELISA. A research paper on new advancements on a technique/technology of their choice based on the ones covered. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOE 348. Mutually Exclusive: Cannot register for BIOE 648 if student has credit for BIOE 348.

BIOE 654 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOE 554 or CEVE 554 or MECH 554 or BIOE 454 or CEVE 454 or MECH 454

BIOE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

BIOE 680 - NANO-NEUROTECHNOLOGY
Short Title: NANO-NEUROTECHNOLOGY
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will review current nanofabricated technologies for measuring, manipulating, and controlling neural activity. The course will be based on reviewing current academic literature and topics will include nano-electronic, -photonic, -mechanical, and -fluidic neural devices. Cross-list: ELEC 680.

BIOE 682 - SYSTEMS BIOLOGY OF HUMAN DISEASES
Short Title: SYS BIO OF HUMAN DISEASES
Department: Bioengineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to concepts necessary for application of systems - Biology Approaches to Human Diseases. Topics include transcriptional and metabolic design principles, introduction to various regulatory network motifs in diseases and potential treatments using embryonic stem cells. Analysis of complex diseases using engineering concepts such as optimality, nonequilibrium thermodynamics, multiscale analysis and spatiotemporal transport. Cross-list: CHBE 682.
Bioengineering colloquia. Repeatable for Credit. Graduate students in BIOE are expected to attend all regular specific dissertation specialty, and are an important part of graduate the research at other institutions, oftentimes in an area outside students’ colloquium series. These colloquia provide an opportunity to learn about recent research in bioengineering will be presented in this colloquium series. These colloquia provide an opportunity to learn about the research at other institutions, oftentimes in an area outside students’ specific dissertation specialty, and are an important part of graduate education. Graduate students in BIOE are expected to attend all regular Bioengineering colloquia. Repeatable for Credit.

BIOENGINEERING COLLOQUIA

Short Title: BIOENGINEERING COLLOQUIA
Department: Bioengineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.

Description: Recent research in bioengineering will be presented in this colloquium series. These colloquia provide an opportunity to learn about the research at other institutions, oftentimes in an area outside students’ specific dissertation specialty, and are an important part of graduate education. Graduate students in BIOE are expected to attend all regular Bioengineering colloquia. Repeatable for Credit.

Biosciences (BIOS)

BIOS 100 - TRANSFER CREDIT – INTRODUCTORY BIOLOGY LABORATORY

Short Title: TRANSFER CREDIT-INTRO BIOL LAB
Department: Biosciences
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 1-2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: For transfer of an introductory biology laboratory course in the BioSciences that is designated for biology majors and/or pre-health professionals and that has no current equivalent in the Rice curriculum. Any student may receive a maximum of one BIOC 100 course for a maximum of 2 credit hours. This credit counts toward the total credit hours required for graduation, but does not fulfill any major or minor requirements for Biosciences. Students must contact the BioSciences transfer credit advisor to determine if their course will transfer. Instructor Permission Required.

BIOS 110 - INTRODUCTION TO RESEARCH

Short Title: INTRODUCTION TO RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: This 6-week course is for high school juniors and seniors to conduct scientific research in the laboratories of Rice faculty in Biosciences. Students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and receive 5 hours of Rice University course credit. Interested students must first complete the department application: https://biosciences.rice.edu/sites/g/files/bxs4001/files/inline-files/BIOS110Application.pdf. After department approval, students will be required to enroll as a visiting student; tuition and fees will apply. PLEASE NOTE: There is a risk of cancellation depending on Rice’s Public Health Guidelines and the status of the pandemic as we get closer to the start of Summer Classes. This course will follow the current University’s Public Health Guidelines of wearing masks and practicing social distancing at all times while on campus. Instructor Permission Required. Repeatable for Credit.
BIOS 118 - FIRST-YEAR SEMINAR IN LOCAL BIOLOGY RESEARCH (BIOCHEMISTRY, CELL BIOLOGY, AND GENETICS FOCUS)

Short Title: FIRST-YEAR SEMINAR (BCBG)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A 7-week seminar course to introduce first-year prospective biologists to the excitement of research at Rice and the Medical Center and to provide context with which to think about facts presented in biosciences textbooks. Small groups will meet weekly with a graduate student or postdoctoral researcher to explore a published research article by a local lab, gaining background information about the subject and exposure to the research techniques. In the final session, the group will tour the lab that produced the featured article. Additional tours and activities TBA. All first-year non-transfer students are eligible to enroll in BIOS 118 regardless of AP credit. This course meets in the second half of the semester and features research in biochemistry, cell biology, and genetics, and related fields.

BIOS 119 - FIRST-YEAR SEMINAR IN LOCAL BIOLOGY RESEARCH (ECOLOGY AND EVOLUTIONARY BIOLOGY FOCUS)

Short Title: FIRST-YEAR SEMINAR (EEB)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A 7-week seminar course to introduce first-year prospective biologists to the excitement of research at Rice and to provide context with which to think about facts presented in biosciences textbooks. Small groups will meet weekly with a graduate student or postdoctoral researcher to explore a published research article by a local lab, gaining background information about the subject and exposure to the research techniques. In the final session, the group will tour the lab that produced the featured article. Additional tours and activities TBA. All first-year non-transfer students are eligible to enroll in BIOS 119 regardless of AP credit. This course meets in the first half of the semester and features research in ecology and evolutionary biology.

BIOS 120 - BIOLOGY FOR VOTERS

Short Title: BIOLOGY FOR VOTERS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Students cannot enroll who have a major in Biochemistry and Cell Biology, Biological Sciences or Ecology & Evolutionary Biology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designer babies, climate change, the anti-vaccine movement, gender identity, evolution...exploring these and other socially relevant topics will provide a context for learning essential concepts in biology and ways to distinguish science truth from science fiction.
Course URL: www.ruf.rice.edu/~bioslabs/bioc122/ (http://www.ruf.rice.edu/~bioslabs/bioc122/)

BIOS 124 - INTRODUCTION TO ECOLOGY AND EVOLUTIONARY BIOLOGY

Short Title: INTRO TO EEB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides a short introduction to the science of ecology and evolutionary biology. The topics covered include the mechanisms of evolution, the origin of species, the history of life on earth, biodiversity, animal behavior, population and community ecology, ecosystems, and conservation biology.

BIOS 128 - BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE

Short Title: BRAINSTEM
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: BrainSTEM is a service organization that teaches STEM subjects through the lens of neuroscience. We perform hands-on, small-group activities with ~45 students per week. This course will prepare you to communicate science in a both effective and entertaining manner, as well as build your skills in managing small groups. More information can be found at 'www.brainstem.club.' Graduate/Undergraduate Equivalency: BIOS 528. Mutually Exclusive: Cannot register for BIOS 128 if student has credit for BIOS 528. Repeatable for Credit.

BIOS 129 - BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE

Short Title: BRAINSTEM
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Course Level: Undergraduate Lower-Level
Description: BrainSTEM is a service organization that teaches STEM subjects through the lens of neuroscience. We perform hands-on, small-group activities with ~45 students per week. This course will prepare you to communicate science in a both effective and entertaining manner, as well as build your skills in managing small groups. More information can be found at 'www.brainstem.club.' Repeatable for Credit.

BIOS 201 - INTRODUCTORY BIOLOGY I

Short Title: INTRODUCTORY BIOLOGY I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The first in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines chemistry and energetics, cell physiology, cell biology, Mendelian genetics, molecular genetics, developmental biology, and plant physiology.
BIOS 202 - INTRODUCTORY BIOLOGY II
Short Title: INTRODUCTORY BIOLOGY II
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOC 201 or BIOS 201
Description: The second in a series of two introductory biology courses (BIOS 201, BIOS 202). This course examines the diversity of life, comparative animal physiology, evolution, ecology, and conservation. An emphasis is placed on evolution as a central framework necessary for a complete understanding of modern biology. Group discussions allow students to explore topics in more detail and discover how they are relevant to our everyday lives.

BIOS 204 - ENVIRONMENTAL SUSTAINABILITY: THE DESIGN & PRACTICE OF COMMUNITY AGRICULTURE
Short Title: COMMUNITY GARDEN
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course introduces the fundamentals of community garden design and practice. Responsibilities will center on developing and improving the Rice Community Garden. A strong emphasis will be on learning and applying ecological principles to the practice of community agriculture. Class has required meetings outside of regular class time. Distribution Credit for EBIO/ENST 204 no longer eligible beginning Fall 2019. Repeatable for Credit.

BIOS 205 - MICROBE HUNTERS REVISITED
Short Title: MICROBE HUNTERS REVISITED
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will review important microbiologists and their discoveries of infectious agents. From Pasteur to Prusiner, we will review the infectious agents they described, as well as the methods used for their discovery. The classic text by Paul de Kruif entitled "Microbe Hunters" will be the basis for half of the course material.

BIOS 210 - INTRODUCTION TO RESEARCH
Short Title: INTRODUCTION TO RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is only for Rice students conducting research for the first time. The students will conduct scientific research in the laboratories of the Rice faculty in Biosciences. During the five-week course, students will engage in full time research and will be mentored by experienced researchers under the supervision of Rice faculty. Participating students will also receive formal instruction on the basics of scientific research and innovation. Instructor permission is required to register. Instructor Permission Required. Repeatable for Credit.

BIOS 211 - INTERMEDIATE EXPERIMENTAL BIOSCIENCES
Short Title: EXPERIMENTAL BIOSCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (BIOC 201 or BIOS 201 (may be taken concurrently)) and BIOC 201 or BIOS 201 (may be taken concurrently)
Description: Introduction to scientific method, principles of experimental design, selected research strategies, record keeping, and technical communication as related to biological science. The prereq BIOS 201 may be taken concurrently with BIOS 211. Registration restricted to current BioSciences majors (BCB, BIOS, EEB) and new BioSciences majors (with concentrations of Biochemistry, Cell Biology & Genetics, or Integrative Biology) for sections 001, 002, 003, 004, and 005. BCB minors can register for sections 001, 002, 003, 004, 005, and 011. Mutually Exclusive: Cannot register for BIOS 211 if student has credit for BIOS/BIOC 212. Mutually Exclusive: Cannot register for BIOS 211 if student has credit for BIOC 212/BIOS 212.

BIOS 212 - INTERMEDIATE EXPERIMENTAL CELLULAR AND MOLECULAR NEUROSCIENCE
Short Title: EXPERIMENTAL NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to students with a major in Neuroscience. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): BIOS 201 or BIOS 201 (may be taken concurrently)
Description: Introduction to the scientific method, principles of experimental design, selected research strategies, record keeping, and technical communication as related to neuroscience. This course is restricted to Neuroscience majors. Instructor permission is required if students have not yet declared. The pre-req BIOS 201 or BIOS 201 may be taken concurrently with BIOS 212. Mutually Exclusive: Cannot register for BIOS 212 if student has credit for BIOS 211.
BIOS 213 - INTRODUCTORY LAB IN ECOLOGY & EVOLUTION
Short Title: INTRO LAB ECOL & EVOL
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): EBI0 202 or BIOS 202 (may be taken concurrently)
Description: Undergraduate teaching in a biosciences laboratory. Participate in meetings and selected seminars; supervise students in one or more laboratory sections. Provide group and individual instruction to undergraduates during and outside of laboratory classes. Instructor Permission Required. Repeatable for Credit.

BIOS 215 - BIOS LAB TEACHING
Short Title: BIOS LAB TEACHING
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Undergraduate teaching in a biosciences laboratory. Participate in meetings and selected seminars; supervise students in one or more laboratory sections. Provide group and individual instruction to undergraduates during and outside of laboratory classes. Instructor Permission Required. Repeatable for Credit.

BIOS 216 - DISCUSSION SECTION TEACHING
Short Title: DISCUSSION SECTION TEACHING
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, undergraduates who have previously excelled in a BIOS course will develop teaching skills by leading discussion sections or serving as writing mentors under the guidance of the course instructor. Instructor Permission Required. Repeatable for Credit.

BIOS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BIOS 250 - INTERMEDIATE LABORATORY IN BIOSCIENCES
Short Title: INTERMEDIATE LAB IN BIOSCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In BIOS 250 students conduct investigative studies in the areas of biological science, neuroscience, natural history, ecology, evolution, and/or animal behavior. These studies may encompass original research, instructor-designed experiments, and/or online projects with curated data, depending on the availability of in-person laboratory and/or field experiences. This course is available to students who cannot reasonably be expected to complete BIOS 211, 212, or 213 and will substitute for that course requirement for any major concentration or minor in BioSciences, subject to approval by the instructors of the course to be replaced and the BioSciences Undergraduate Curriculum Committee. Instructor Permission Required.

BIOS 271 - ECOSYSTEM MANAGEMENT
Short Title: ECOSYSTEM MANAGEMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will focus on applied ecosystem topics including relations with state and federal agencies, filed studies, wetland delineations, permitting compliance, and environmental regulations. Graduate/Undergraduate Equivalency: BIOS 571.

BIOS 280 - SUSTAINABLE DEVELOPMENT AND REPORTING
Short Title: SUSTAINABLE DEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Sustainable development is an approach to development based on interacting social, economic, and environmental forces. It is intended as methodology for planning, and a guiding principle for Environmental Health and safety compliance (EHSs) and Corporate Sustainability (CSRs). Students will learn compliance guidelines, risk management, and assessment considerations. Graduate/Undergraduate Equivalency: BIOS 580. Mutually Exclusive: Cannot register for BIOS 280 if student has credit for BIOS 580.
BIOS 299 - EXPERIENTIAL EDUCATION IN BIOSCIENCES
Short Title: EXPERIENTIAL EDUC IN BIOS
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This experiential education course credits a student's experience in an approved internship/practicum with the goal of further developing their professional skills. Hour and activity requirements are flexible to accommodate a variety of experiential activities in biology-related professional contexts. There are no prerequisites. To receive approval to enroll, students must arrange their own internship, apply to the course instructor (https://forms.gle/NGrU5MJzYRRN5CL8), and produce an offer letter from their internship provider containing start and end dates and a description of their intended internship activities and expectations. Additional requirements are available on the course syllabus. Instructor Permission Required. Repeatable for Credit.

BIOS 300 - PARADIGMS IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: PARADIGMS IN BIOCHM & CELL BIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines paradigms in biochemistry and cell biology with a specific focus on the "central dogma" of molecular biology and is designed for BIOS majors and minors and recommended strongly for students with Advanced Placement in Biology who do not take BIOS 201 and for students wanting additional foundation before transitioning to other 300-level BIOS lecture courses. Using a “flipped” format, lectures are available online, and in-class activities address confusions/questions, examine both historic and contemporary research papers, explore cases and problems, and engage students in short writing assignments. Recommended Prerequisite(s): Recommended strongly for students with Advanced Placement in Biology and designed for prospective Biosciences majors. For students with AP credit for BIOS/BIOC 201, this course is strongly recommended as preparation for BIOS 341 (Cell Biology).

BIOS 301 - BIOCHEMISTRY I
Short Title: BIOCHEMISTRY I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and (BIOC 201 or BIOS 201)
Description: The second in an integrated sequence of three courses (BIOS 201, 301, 302). Structure and function of proteins, enzymes, and nucleic acids; enzyme kinetics; glycolysis, aerobic metabolism, and energy coupling. Recommended Prerequisite(s): CHEM 212

BIOS 302 - BIOCHEMISTRY II
Short Title: BIOCHEMISTRY II
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 301 or BIOS 301
Description: The final in an integrated sequence of three courses (BIOS 201, 301, 302). In depth study of carbohydrate, amino acid, and lipid metabolic pathways, hormone regulation of metabolic pathways, key cell signaling mechanisms, and the structural biology of DNA replication, transcription, and translation into proteins. Course also involves analysis of primary scientific literature. Recommended Prerequisite(s): CHEM 212 or CHEM 320

BIOS 310 - INDEPENDENT RESEARCH FOR BIOSCIENCES UNDERGRADUATES
Short Title: IND RES FOR BIOS UNDERGRADS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 111 or BIOC 112 or FWIS 115 or NSCI 120 or BIOS 211 or BIOS 211 or BIOC 212 or BIOS 212 or BIOC 306
Description: Independent research in Rice Biosciences faculty laboratories (sections 2 and above) or other Texas Medical Center laboratories (section 1). Students must have secured a research position prior to applying for BIOS 310. Students spend at least 42 hours in the laboratory for each semester hour of credit (>9h/week for 3 credits). A minimum of 3 credit hours is needed to count toward the BS in Biosciences or to replace one required 300+ level elective lab course for the BA in Biosciences (cannot replace concentration core labs). Requires a proposal abstract, weekly reports, and a research paper (fall/spring/summer) or a poster presentation (spring/summer for advanced students). Students wishing to perform their research in an off-campus lab must apply online (biosugresearch.rice.edu) at least 3 weeks prior to the start of classes and may not register for fewer than 3 credit hours. Students taking BIOS 310 in the full summer semester must be available to do full-time research for a minimum of 6 weeks or part-time equivalent which should equal to a total of 126 hours working in the lab. It is recommended that summer students spread their hours over 8-10 weeks. Recommended Prerequisite(s): Students are strongly advised to secure research advisors and register for the class well in advance of the start of classes. Repeatable for Credit. Instructor Permission Required. Recommended Prerequisite(s): Students are strongly advised to secure research advisors and register for the class well in advance of the start of classes. Repeatable for Credit.
Course URL: www.biosugresearch.rice.edu/ (http://www.biosugresearch.rice.edu/)
BIOS 311 - ADVANCED EXPERIMENTAL BIOSCIENCES

Short Title: ADV EXPERIMENTAL BIOSCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212) and (BIOS 301 or BIOS 301 (may be taken concurrently))
Description: Advancement of biochemical laboratory methods, record keeping, technical communication skills, and research strategies. Students will maintain a research quality laboratory notebook and will submit a paper in the style of a journal article. Pre-req BIOS 301 may be taken concurrently with BIOS 311.

BIOS 312 - ADVANCED COMMUNICATION IN THE BIOLOGICAL SCIENCES

Short Title: ADV COMMUNICATION IN BIOL SCI
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on improving students' written and oral communication skills. Emphasis will be placed on communication of scientific topics for audiences ranging from experts to the general public through weekly assignments. Instructor Permission Required. Repeatable for Credit.

BIOS 313 - EXPERIMENTAL SYNTHETIC BIOLOGY

Short Title: EXPERIMENTAL SYNTHETIC BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212) and (BIOC 301 or BIOS 301 (may be taken concurrently))
Description: Students learn molecular biological procedures commonly used to build and characterize synthetic genetic circuits. Teams of students work on a research project in the interdisciplinary field of synthetic biology. Students continue to develop technical communication skills.

BIOS 317 - LAB MODULE IN BEHAVIOR

Short Title: LAB MODULE IN BEHAVIOR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (EBIO 321 or BIOS 321) and (EBIO 213 or BIOS 213)
Description: Field experiments in behavior. Learn to formulate and test hypotheses on bird behavior using mockingbirds, grackles, and herons nesting on campus. Class has required meetings outside of regular class time.

BIOS 318 - MICROBIOLOGY LABORATORY

Short Title: MICROBIOLOGY LABORATORY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212)
Description: Laboratory course in the Central American country of Belize. Topics will include the earth - the coral reef and the tropical rainforest in this 2-week summer course. Includes a course fee that covers all transportation, accommodation, and meals. Distribution Credit for all Environmental samples.
Course URL: www.ruf.rice.edu/~bioslabs/bios318/ (http://www.ruf.rice.edu/~bioslabs/bios318/)

BIOS 319 - TROPICAL FIELD BIOLOGY

Short Title: TROPICAL FIELD BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examine first-hand the two most diverse ecosystems on earth - the coral reef and the tropical rainforest in this 2-week summer course in the Central American country of Belize. Topics will include the diversity of tropical organisms and habitats, the formation of coral reefs, rainforest ecology, historical biogeography, symbiosis, and conservation of tropical biodiversity. While a background in biology is desirable, individuals lacking this background but having a special interest in the tropics are encouraged to enroll. Includes a course fee that covers all transportation, accommodation, and meals. Distribution Credit for BIOS 319 no longer eligible beginning Fall 2019. Instructor Permission Required.
BIOS 320 - ECOLOGY AND CONSERVATION OF BRAZILIAN WETLANDS LABORATORY
Short Title: BRAZILIAN WETLANDS LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course consists of a 2-week trip to Brazil to examine first-hand the ecology of the largest wetland ecosystem on earth - the Pantanal. Days will be spent in the field making observations and collecting data; lectures in the evenings will cover topics including freshwater ecology, seasonal flooding dynamics, community ecology of wetland species, symbiosis, geology, environmental management, ecotourism, and conservation biology. Includes a course fee that covers all transportation, accommodations, and meals. Distribution Credit for BIOS 320 no longer eligible beginning Fall 2019. Recommended Prerequisite(s): EBIO 213 or BIOS 213

BIOS 321 - ANIMAL BEHAVIOR
Short Title: ANIMAL BEHAVIOR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202)
Description: Evolutionary theory is used to evaluate behavioral adaptations of organisms to their environment.

BIOS 322 - CONSERVATION BIOLOGY LAB
Short Title: CONSERVATION BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 213 or BIOS 213
Description: This course will give students hands-on experiences in the practice of conservation biology through authentic projects related to prioritization and design of nature preserves, restoration of natural environments, and for monitoring threatened and endangered species in the Houston area. BIOS 423 may be taken concurrently with EBIO 322. Graduate/Undergraduate Equivalency: BIOS 522. Mutually Exclusive: Cannot register for BIOS 322 if student has credit for BIOS 522.

BIOS 326 - INSECT BIOLOGY
Short Title: INSECT BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 202 or BIOS 202
Description: This course addresses contemporary issues in ecology and evolution through the lens of insect diversity. Readings span a broad literature (popular to technical). Writing and oral reports develop proficiency in scientific communication.

BIOS 327 - BIOLOGICAL DIVERSITY
Short Title: BIOLOGICAL DIVERSITY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202) and (EBIO 213 or BIOS 213)
Description: This laboratory course focuses on the theory and practice of estimating biodiversity. Students work in groups to design, execute, and communicate the results of a systematic survey of particular taxonomic groups in the Big Thicket National Preserve in east Texas. Class has required meetings outside of regular class time.

BIOS 329 - ANIMAL DIVERSITY
Short Title: ANIMAL DIVERSITY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) or (EBIO 202 or BIOS 202) or (EBIO 213 or BIOS 213)
Description: The evolution and systematics of the animal kingdom with consideration of functional anatomy, comparative physiology, behavior, medical implications and resource management. Graduate/Undergraduate Equivalency: BIOS 529. Mutually Exclusive: Cannot register for BIOS 329 if student has credit for IOS 529/EBIO 529.
BIOS 330 - INSECT BIOLOGY LAB
Short Title: INSECT BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202) and (EBIO 213 or BIOS 213) and (EBIO 326 or BIOS 326 (may be taken concurrently))
Description: Hands-on experiences with collection and curation of insects.

BIOS 332 - ECOLOGY
Short Title: ECOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202)
Description: Study of population dynamics, species interactions, plant and animal community organization, and ecosystem function. Graduate/Undergraduate Equivalency: BIOS 532. Mutually Exclusive: Cannot register for BIOS 332 if student has credit for BIOS 532.

BIOS 333 - BIONNOVATION STUDIO: FROM BASIC RESEARCH AND IDEATION TO TECHNOLOGY DEVELOPMENT
Short Title: BIOINNOVATION STUDIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212
Description: In this lab, students will explore the relationship between curiosity-driven science and the steps of biological ideation that lead to technology creation. While the course focuses centrally on a semester long lab project, there will be informal discussions of articles and books with technology translation experts, visiting biology entrepreneurs, and commercialization experts.

BIOS 334 - EVOLUTION
Short Title: EVOLUTION
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 202 or BIOS 202
Description: Principles of biological evolution. Topics include natural selection, adaptation, molecular evolution, formation of new species, the fossil record, biogeography, and principles of classification. Graduate/Undergraduate Equivalency: BIOS 534. Mutually Exclusive: Cannot register for BIOS 334 if student has credit for BIOS 534.

BIOS 336 - PLANT DIVERSITY
Short Title: PLANT DIVERSITY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 202 or BIOS 202
Description: The evolution, systematics, and ecology of plants, with emphasis on flowering plants and biodiversity.

BIOS 337 - FIELD BIRD BIOLOGY LAB
Short Title: FIELD BIRD BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 213 or BIOS 213
Description: This course centers on a series of five field trips to diverse habitats for observing birds both immigrants and residents. Each will be preceded by a lecture and students will do two projects. Class has required meetings outside of regular class time. Distribution Credit for BIOS 337 no longer eligible beginning Fall 2019.
BIOS 338 - ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
Short Title: BIO DATA ANALYSIS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIIO 213 or BIOS 213 or BIOC 211 or BIOS 211 or BIOC 212 or BIOS 212
Description: This course addresses how to analyze, visualize and draw conclusions from biological data. It introduces basic concepts in statistics interwoven with training in data analysis using the R computing environment. Students will learn to identify underlying data structures and wrangle data. Students will also learn to effectively convey results using statistical graphics. Topics include basic R programming, data exploration, statistical modeling, parameter estimation and interpretation, and model comparison. This class particularly focuses on biological data. Graduate/Undergraduate Equivalency: BIOS 538. Mutually Exclusive: Cannot register for BIOS 338 if student has credit for BIOS 538.

BIOS 339 - PLANT DIVERSITY LAB
Short Title: PLANT DIVERSITY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 201 or BIOC 201) and (BIOS 202 or EBIIO 202)
Corequisite: BIOS 336
Description: This course will complement the BIOS 336 course by providing hands-on experience in the science of botany. Students will become familiar with the anatomy, physiology, evolution and biodiversity of plants through lab dissections, microscopy, and field observations.

BIOS 340 - INTEGRATIVE ANIMAL PHYSIOLOGY
Short Title: INTEGRATIVE ANIMAL PHYSIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 201 or BIOC 201) and (BIOS 202 or EBIIO 202)
Description: This course takes a comparative approach to investigate animal physiology of vertebrates. Students learn how animals are adapted to their environments, including how they meet their energy needs, take up and transport oxygen, and maintain hydration and salt balance. Students read primary literature to explore survival in extreme environments. Mutually Exclusive: Cannot register for BIOS 340 if student has credit for BIOS 540, BIOC 335, BIOC 536. Graduate/Undergraduate Equivalency: BIOS 540.

BIOS 341 - CELL BIOLOGY
Short Title: CELL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 201 or BIOS 201
Description: Molecular mechanisms of eukaryotic cell function. Structure, function, and biogenesis of all subcellular organelles. Cell-cell communication, cytoskeleton assembly and function, cell cycle control, and cell-cell adhesions. Emphasis will be on cytoplasmic events; molecular studies of transcription are taught in BIOS 302 and BIOS 344. RECOMMENDATION: BIOS 300 is recommended for students using advanced placement credit for BIOS 201 and students preferring additional foundational background prior to enrollment in BIOS 341.

BIOS 344 - MOLECULAR BIOLOGY AND GENETICS
Short Title: MOLECULAR BIOLOGY & GENETICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mendelian genetics, population genetics, mapping, gene expression and regulation, genetic engineering, DNA replication and recombination, human genetics, genetic disease and gene therapy. Recommended Prerequisite(s): BIOS 201 or BIOS 201

BIOS 350 - ADVANCED LABORATORY IN BIOSCIENCES
Short Title: ADVANCED LAB IN BIOSCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1-2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In BIOS 350 students conduct investigative studies in the areas of biological science, neuroscience, natural history, ecology, evolution, and/or animal behavior. These studies may encompass original research, instructor-designed experiments, and/or online projects with curated data, depending on the availability of in-person laboratory and/or field experiences. BIOS 350 further advances basic laboratory and/or field experiences, record keeping abilities, and technical communication skills that were introduced and/or reinforced in the intermediate lab course. This course is available to students who cannot reasonably be expected to complete an advanced lab requirement for any major concentration in Biosciences and will substitute for that course requirement, subject to approval by the instructors of the course to be replaced and the BioSciences Undergraduate Curriculum Committee. Registration for this course will be by "instructor permission only." This course will be either a half or full semester course, credit hours: 1-2. Instructor Permission Required.
BIOS 352 - PHYSICAL CHEMISTRY FOR THE BIOSCIENCES
Short Title: PHYS CHEM FOR BIOSCIENCES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 126 or PHYS 102 or PHYS 112 or PHYS 142) and (BIOC 301 or BIOS 301)
Description: Study of selected aspects of physical chemistry as it relates to the biosciences. Includes thermodynamics, reaction rate theory, quantum mechanics, and atomic and molecular structure.

BIOS 368 - CONCEIVING AND MISCONCEIVING THE MONSTROUS IN FICTION AND IN ART, IN MEDICINE AND IN BIOSCIENCE
Short Title: MONSTER
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Across variations of life, we draw boundaries between normal, not normal, and monstrous. From the Biosciences to the Creative Arts, our conceptions of the “monstrous” illuminate our identity, perceptions, and fears. Discussion-based class accessible to people of all backgrounds and interests.

BIOS 371 - SEMINAR IN CONTEMPORARY BIOLOGICAL AND BIOMEDICAL RESEARCH
Short Title: BIOMEDICAL RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOC 341 or BIOS 341 (may be taken concurrently) or BIOC 301 or BIOS 301 (may be taken concurrently)
Description: This course will offer students a close-up look at an area of contemporary biological and biomedical research in a small-group seminar setting. Each seminar will focus on a different area of research through reading and discussion of recent research articles in that focus area. The faculty discussion leader for each seminar will be drawn from Baylor College of Medicine, UT Health Science Center, MD Anderson Cancer Center, Rice and others. Prereqs may be taken concurrently. Please consult the course website for a complete listing of seminars offered each semester. Please refer to the following link for additional information: http://www.bioc.rice.edu/bioc371. Instructor Permission Required. Recommended Prerequisite(s): Students should check the courses website for additional prerequisites, notes from the instructor, and other information specific to each section. Repeatable for Credit.

BIOS 372 - IMMUNOLOGY
Short Title: IMMUNOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 201 or BIOS 201) and (EBIO 202 or BIOS 202)
Description: Cellular and molecular basis of innate and adaptive immune function in mammals. Graduate/Undergraduate Equivalency: BIOS 572. Recommended Prerequisite(s): (BIOC 301 or BIOS 301) and (BIOC 341 or BIOS 341). Mutually Exclusive: Cannot register for BIOS 372 if student has credit for BIOC 372/BIOC 573.

BIOS 373 - CORAL REEF ECOSYSTEMS
Short Title: CORAL REEF ECOSYSTEMS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EBIO 202 or BIOS 202
Description: This three credit lecture course introduces students to a complex, dynamic and sensitive ecosystem: coral reefs. We will explore the biotic and abiotic components of coral reefs; how reef organisms interact with each other and the environment, and the factors that contribute to reef construction and decline over time and space. Graduate/Undergraduate Equivalency: BIOS 573.

BIOS 385 - FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE
Short Title: FUNDAMENTALS OF NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOC 201 or BIOS 201
Description: Cellular, molecular, and integrative mechanisms of neural function, including membrane and axon physiology, synaptic transmission and plasticity, sensory transduction and processing. Graduate/Undergraduate Equivalency: BIOS 585.
BIOS 390 - TRANSFER CREDIT IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: TRAN CREDIT BIOCHEM&CELL BIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For transfer of courses which have no current equivalent in the Rice curriculum, but which can be counted as 300 level lecture courses in biochemistry, cell biology, and genetics. Repeatable for Credit.

BIOS 391 - TRANSFER CREDIT IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: TRAN CREDIT ECOL&EVOLUTION
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For transfer of courses which have no current equivalent in the Rice curriculum, but which can be counted as a 300-level lecture course in ecology and evolutionary biology. Repeatable for Credit.

BIOS 393 - LABORATORY TRANSFER CREDIT IN BIOSCIENCES
Short Title: LAB TRANSFER CREDIT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For transfer of an advanced laboratory course in the biosciences that has no current equivalent in the Rice Biosciences curriculum. Any student may receive a maximum of one credit of BIOS 393.

BIOS 401 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Biosciences Honors Research Program offers our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Biosciences or an approved off-campus site. Students registering for BIOS 401 are expected to take BIOS 402 the following semester. Typical expectations include an average of approximately 15 hours of research per week and will also include written and oral presentations intended to develop important science communication skills such as a proposal, and progress reports, and culminate in a final product such as a final paper, poster, oral presentation, and/or thesis. Department Permission Required. Repeatable for Credit.

BIOS 402 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 401 or BIOS 401
Corequisite: BIOS 412
Description: The Biosciences Honors Research Program offers our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Biosciences or an approved off-campus site. Students registering for BIOS 401 are expected to take BIOS 402 the following semester. Typical expectations include an average of approximately 15 hours of research per week and will also include written and oral presentations intended to develop important science communication skills such as a proposal, and progress reports, and culminate in a final product such as a final paper, poster, oral presentation, and/or thesis. Repeatable for Credit.

BIOS 405 - PHYSICAL BIOLOGY
Short Title: PHYSICAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 352 or BIOS 352) and MATH 211
Description: This course provides a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Graduate/Undergraduate Equivalency: BIOS 505.
BIOS 412 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 401 or BIOS 401
Corequisite: BIOS 402
Description: This companion seminar requires attendance at course meetings and a formal scientific presentation of research performed while enrolled in the Biosciences Honors Research Program. Repeatable for Credit.

BIOS 415 - EXPERIMENTAL PHYSIOLOGY
Short Title: EXPERIMENTAL PHYSIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 311 or BIOC 311 or BIOS 385 (may be taken concurrently) or BIOS 385 or NEUR 385 and (BIOS 211 or BIOC 211 or BIOS 212 or BIOC 212)
Description: Laboratory studies in membrane, nerve, and muscle physiology, with emphasis on experimental design, data analysis, and data interpretation. BIOS/NEUR 385 may be taken concurrently with BIOS 415.
Course URL: www.ruf.rice.edu/~bioslabs/bios415 (http://www.ruf.rice.edu/~bioslabs/bios415/)

BIOS 417 - EXPERIMENTAL CELL AND MOLECULAR NEUROSCIENCE
Short Title: ADV EXPERIMENTAL NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 212 or BIOC 212 and CAAM 210 and (STAT 305 or STAT 310 or ECON 307 or STAT 312) and (BIOS 385 or BIOC 385 or NEUR 385)
Description: Students will explore the molecular properties of neurons and related cells using standard techniques in the field. Experiments will include manipulating exocytosis, examining protein expression levels in different brain regions of mice, and culturing primary neurons. Lessons will also include a brief lecture/discussion on fundamental principles within cellular and molecular neuroscience.

BIOS 420 - MOLECULAR BASIS OF DISEASES
Short Title: MOLECULAR BASIS OF DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course intends to provide in-depth knowledge of the molecular basis of human diseases. We will discuss: 1) Different types of genetic variations that may lead to human diseases; 2) The various approaches to investigate the molecular basis of human diseases; 3) The molecular and cellular consequences of disease-associated genetic variations; 4) The physiological and environmental causes of genetic variations; 5) The molecular basis for disease diagnosis and treatments. We will mainly focus on molecular mechanisms of inherent genetic diseases, neurodegenerative diseases, cancer and environmentally induced diseases. This will be a combined lecture/discussion course. The class materials are mainly based on preliminary literatures and case studies. Students are expected to actively participate in discussion in class and to give presentations and lectures based on research paper. Graduate/Undergraduate Equivalency: BIOS 520. Recommended Prerequisite(s): (BIOS 301 or BIOC 301) and (BIOS 302 or BIOC 302)

BIOS 423 - CONSERVATION BIOLOGY
Short Title: CONSERVATION BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOS 201 or BIOC 201) and (EBIO 202 or BIOS 202) and (EBIO 325 or BIOS 325)
Description: This course is designed to give students a broad overview of conservation biology. Lecture and discussions will focus on conservation issues such as biodiversity, extinction, management, sustained yield, invasive species and preserve design. Counts as a capstone course for the major concentration in Ecology and Evolutionary Biology. Graduate/Undergraduate Equivalency: BIOS 523.

BIOS 424 - MICROBIOLOGY AND BIOTECHNOLOGY
Short Title: MICROBIOLOGY & BIOTECHNOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOS 201 or BIOC 201
Description: Structure and functions of microorganisms with emphasis on their environmental, industrial and medical importance. Graduate/Undergraduate Equivalency: BIOS 524. Recommended Prerequisite(s): BIOS 301 or BIOC 301 Mutually Exclusive: Cannot register for BIOS 424 if student has credit for BIOS 524.
BIOS 425 - PLANT MOLECULAR GENETICS AND DEVELOPMENT

Short Title: PLANT MOLECULAR GENETICS

Department: Biosciences

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341

Description: Novel aspects of plant biology and development with emphasis on molecular and genetic mechanisms. Plant responses to the environment and the use of bioengineering and other means to develop new plant products will also be covered. Graduate/Undergraduate Equivalency: BIOS 525. Mutually Exclusive: Cannot register for BIOS 425 if student has credit for BIOS 525.

BIOS 431 - BIOLOGY OF INFECTIOUS DISEASES

Short Title: BIOLOGY OF INFECTIOUS DISEASES

Department: Biosciences

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): (EBIO 213 or BIOS 213) and (EBIO 325 or BIOS 332)

Description: This course gives a broad overview of the biology of infectious diseases using examples from humans, plants, and animals. Topics include diversity of diseases, mechanisms of disease transmission, epidemiology, population regulation, evolution of virulence, disease dynamics in natural communities and disease invasion and conservation biology. Counts as a capstone course for the major concentration in Ecology and Evolutionary Biology.

BIOS 432 - RESEARCH SEMINAR IN TRANSLATIONAL NEUROSCIENCE

Short Title: MEDICAL NEUROSCIENCE

Department: Biosciences

Grade Mode: Standard Letter

Course Type: Seminar

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): (BIOS 385 or BIOC 385 or NEUR 380) and (BIOS 201 or BIOC 201) and (BIOS 212 or BIOC 212) and (MATH 102 or MATH 106) and (STAT 305 or STAT 312 or STAT 310)

Description: Students will work with Dr. Flynn and Dr. Krishnan (a clinician at BCM) to study the literature on neuropathologies. Students will learn how neuroscience research is applied in the medical field for the first third of the class. The remainder of the time will be spent creating a literature review on a brain related pathologies of their choice, with the goal of publication. Instructor Permission Required.

BIOS 442 - MOLECULES, MEMORY AND MODEL ANIMALS: METHODS IN BEHAVIORAL NEUROSCIENCE

Short Title: BEHAVIORAL NEUROSCIENCE

Department: Biosciences

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): (PSYC 380 or NEUR 380 or BIOC 380 or NEUR 385) and (PSYC 203 or BIOS 321 or EBIO 321) and (STAT 305 or STAT 310 or ECON 307 or STAT 312)

Description: This will be a combined lecture/discussion course on historical and current methods in behavioral neuroscience using primary literature. Topics will include the molecular basis of memory, genetic impacts on cognition, and possible epigenetic influences on behavior. Special emphasis will be placed on discussing different model organism and their benefits/ drawbacks in neuroscience research.

BIOS 443 - DEVELOPMENTAL NEUROBIOLOGY

Short Title: NEURODEVELOPMENT

Department: Biosciences

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): BIOS 341 or BIOC 341 or BIOS 301 or BIOS 301 or BIOS 344 or BIOC 344

Description: An advanced undergraduate and graduate level course, dedicated to analysis and evaluation of scientific inquiry into animal development and neurodevelopment. Textbook based lectures and discussions based on primary scientific literature are used to exemplify and evaluate concepts and methodology. Writing assignments, quizzes, midterm and final exam will be used to evaluate performance. Graduate/Undergraduate Equivalency: BIOS 543.

BIOS 447 - EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE

Short Title: BIOLOGY AND MEDICINE

Department: Biosciences

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341 or BIOS 344 or BIOC 344

Description: Current biological methods offer the potential to transform health care. We will examine the biology and methodology of emergent health care technologies such as stem cell therapy and personal genome sequencing to understand their potential to impact human health. Graduate/Undergraduate Equivalency: BIOS 547.
BIOS 449 - ADVANCED CELL AND MOLECULAR NEUROSCIENCE  
**Short Title:** ADV CELL AND MOLECULAR NEURO  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (BIOS 301 or BIOS 301 or BIOS 341) and (BIOS 341 or BIOC 341 or BIOS 341 or BIOL 341) and (MATH 102 or MATH 106) and (STAT 305 or STAT 310 or ECON 307 or STAT 312)  
**Description:** This course will be an overview of advanced principles and techniques in cell and molecular neuroscience; subjects will include bioelectricity, cellular signaling, and the molecular mechanics of neuronal plasticity. The class will primarily be lecture driven. However, there will be seminar component – students will review primary scientific literature, discuss it in small groups, and present their findings. Graduate/Undergraduate Equivalency: BIOS 549. Recommended Prerequisite(s): PSYC 380 or BIOC 380 or NEUR 380 Mutually Exclusive: Cannot register for BIOS 449 if student has credit for BIOS 549.

BIOS 450 - VIRUSES AND INFECTIOUS DISEASES  
**Short Title:** VIRUSES & INFECTIOUS DISEASES  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOS 301 or BIOS 301 or BIOS 341 or BIOC 341  
**Description:** Animal viruses, especially those relevant to human health, will be discussed. Topics primarily focus on virus structure and the molecular biology of the virus life cycle. Practical issues such as the history of viral diseases, clinical manifestations, laboratory diagnosis, management and prevention will also be discussed. Graduate/Undergraduate Equivalency: BIOS 550.

BIOS 460 - CANCER BIOLOGY  
**Short Title:** CANCER BIOLOGY  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (BIOS 301 or BIOS 301) and (BIOS 341 or BIOS 341)  
**Description:** Provides an integrated lecture series summarizing current knowledge in cancer biology and integrating current literature with basic concepts. Topics include: statistics of incidence/survival, types of cancer, pathology, the process of carcinogenesis and sources of carcinogens, genetic and epigenetic mechanisms and consequences, cancer progression, metastasis and current treatment options. Students will learn to use online databases to develop independent strategies for analyzing datasets. There will be several writing assignments and in class oral presentations of research articles. Graduate/Undergraduate Equivalency: BIOS 560. Mutually Exclusive: Cannot register for BIOS 460 if student has credit for BIOS 560.

BIOS 470 - COMPUTATION WITH BIOLOGICAL DATA  
**Short Title:** COMPUTATION WITH BIOL DATA  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (BIOC 301 or BIOS 301 or BIOC 341 or BIOS 341 or BIOS 344 or BIOS 344) and (MATH 102 or MATH 106)  
**Description:** This course will teach programming and analysis techniques essential for modern research in the biological sciences. Students will learn the basics of programming in the MATLAB or Python scripting languages and applications to analyzing biological data. There will be a particular focus on quantitative image and sequence analysis. Graduate/Undergraduate Equivalency: BIOS 570. Mutually Exclusive: Cannot register for BIOS 470 if student has credit for BIOS 570.

BIOS 477 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar, Internship/Practicum, Lecture/Laboratory, Laboratory, Lecture  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BIOS 481 - MOLECULAR BIOPHYSICS I  
**Short Title:** MOLECULAR BIOPHYSICS I  
**Department:** Biosciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** BIOS 301 or BIOS 301 or BIOS 352 or BIOS 352  
**Description:** Focus on principles of common biophysical methods used for study of conformations and dynamics of biological macromolecules and assemblies. Topics cover spectroscopic methods (absorption, fluorescence, circular dichroism, epr, NMR), transport processes, sedimentation, calorimetry, mass spectrometry, crystallography, cryoelectron microscopy, atomic force microscopy, ligand-protein interactions, protein folding, single molecule detection, computer simulations, functional genomics and laboratory evolution. Biological examples will be used to demonstrate merits and complementarity in each of the biophysical methods. Graduate/Undergraduate Equivalency: BIOS 551.
BIOS 482 - STRUCTURAL BIOLOGY
Short Title: STRUCTURAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BIOC 301 or BIOS 301) and (PHYS 101 or PHYS 125) and (PHYS 102 or PHYS 126)
Description: Structural biology plays an important role in defining atomic structures of biomolecules and understanding relationships between structure, dynamics and function in living systems. This course will give an introduction to techniques of determining biomolecular structures, X-ray crystallography, NMR, and cryoelectron microscopy and discuss striking examples of the power of structural biology. Graduate/Undergraduate Equivalency: BIOS 552.

BIOS 495 - SEMINAR: TOPICS IN ENVIRONMENTAL SCIENCE
Short Title: TOPICS: ENVIRONMENTAL SCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an integration of interdisciplinary topics that span environmental sciences. Topics will vary depending upon the interests and needs of both students and faculty. Only Seniors may register for this course without instructor permission.

BIOS 505 - PHYSICAL BIOLOGY
Short Title: PHYSICAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic introduction to a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biomolecular dynamics, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Cross-list: BIOE 502, SSPB 501. Graduate/Undergraduate Equivalency: BIOS 405.

BIOS 510 - STEM CELL BIOLOGY
Short Title: STEM CELL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to modern topics in stem cell biology, teach students to critically evaluate primary literature, and teach students to synthesize research ideas into review articles and grant proposals. This is a literature and discussion-based course and will require reading 2-3 articles from the primary literature per week. Graduate/Undergraduate Equivalency: BIOS 410.

BIOS 520 - MOLECULAR BASIS OF DISEASES
Short Title: MOLECULAR BASIS OF DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course intends to provide in-depth knowledge of the molecular basis of human diseases. We will discuss: 1) Different types of genetic variations that may lead to human diseases; 2) The various approaches to investigate the molecular basis of human diseases; 3) The molecular and cellular consequences of disease-associated genetic variations; 4) The physiological and environmental causes of genetic variations; 5) The molecular basis for disease diagnosis and treatments. We will mainly focus on molecular mechanisms of inherent genetic diseases, neurodegenerative diseases, cancer and environmentally induced diseases. This will be a combined lecture/discussion course. The class materials are mainly based on preliminary literatures and case studies. Students are expected to actively participate in discussion in class and to give presentations and lectures based on research paper. Graduate/Undergraduate Equivalency: BIOS 420.

BIOS 521 - STUDENT SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: STUDENT SEMINAR IN EEB
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Student-led presentations of work in progress, research ideas, and topics of research interest. Designed to enhance oral presentation skills and facilitate discussion of research ideas. Open to upper-level undergraduates and graduate students. Repeatable for Credit.

BIOS 522 - CONSERVATION BIOLOGY LAB
Short Title: CONSERVATION BIOLOGY LAB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will give students hands-on experiences in the practice of conservation biology through authentic projects related to prioritization and design of nature preserves, restoration of natural environments, and for monitoring threatened and endangered species in the Houston area. Graduate/Undergraduate Equivalency: BIOS 322. Mutually Exclusive: Cannot register for BIOS 522 if student has credit for BIOS 322.
BIOS 523 - CONSERVATION BIOLOGY
- **Short Title:** CONSERVATION BIOLOGY
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** The course is designed to give students a broad overview of conservation biology. Lecture and discussions will focus on conservation issues such as biodiversity, extinction, management, sustained yield, invasive species and preserve design. Graduate/Undergraduate Equivalency: BIOS 423. Mutually Exclusive: Cannot register for BIOS 523 if student has credit for BIOS 323.

BIOS 524 - MICROBIOLOGY AND BIOTECHNOLOGY
- **Short Title:** MICROBIOLOGY & BIOTECHNOLOGY
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** Structure and functions of microorganisms with emphasis on their environmental, industrial and medical importance. Graduate/Undergraduate Equivalency: BIOS 424. Mutually Exclusive: Cannot register for BIOS 524 if student has credit for BIOS 424.

BIOS 525 - PLANT MOLECULAR GENETICS AND DEVELOPMENT
- **Short Title:** PLANT MOLECULAR GENETICS
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** The evolution and systematics of the animal kingdom with consideration of functional anatomy, comparative physiology, behavior, medical implications and resource management. Graduate/Undergraduate Equivalency: BIOS 329. Mutually Exclusive: Cannot register for BIOS 529 if student has credit for BIOL 329/BIOS 329.

BIOS 526 - LAB MODULE IN NMR SPECTROSCOPY AND MOLECULAR MODELING
- **Short Title:** LAB MOD NMR SPECTROSCOPY&MOLECULAR MODELING
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture/Laboratory
- **Credit Hours:** 1
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Prerequisite(s):** BIOC 481 or BIOS 481 or BIOC 482 or BIOS 482 (may be taken concurrently) or BIOC 552 or BIOS 552 (may be taken concurrently) or BIOC 551 or BIOS 551
- **Description:** The students will learn to set up, acquire, and process one-dimensional and basic two-dimensional NMR experiments. Spectral interpretation (3D molecular modeling of proteins and nucleic acids) for nucleic acids and proteins using homonuclear and heteronuclear data. Enrollment limited to 12, with priority to graduate students. Offered first half of the semester. BIOS 482/552 may be taken concurrently with BIOS 530.

BIOS 527 - ECOLOGY
- **Short Title:** ECOLOGY
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** Study of population dynamics, species interactions, plant and animal community organization, and ecosystem function. Graduate/Undergraduate Equivalency: BIOS 332. Mutually Exclusive: Cannot register for BIOS 532 if student has credit for BIOS 332.

BIOS 528 - BRAINSTEM - TEACHING STEM THROUGH NEUROSCIENCE
- **Short Title:** BRAINSTEM
- **Department:** Biosciences
- **Grade Mode:** Satisfactory/Unsatisfactory
- **Course Type:** Internship/Practicum
- **Credit Hour:** 1
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** BrainSTEM is a service organization that teaches STEM subjects through the lens of neuroscience. We perform hands-on, small-group activities with ~45 students per week. This course will prepare you to communicate science in a both effective and entertaining manner, as well as build your skills in managing small groups. More information can be found at 'www.brainstem.club.' Graduate/Undergraduate Equivalency: BIOS 128. Mutually Exclusive: Cannot register for BIOS 528 if student has credit for BIOS 128. Repeatable for Credit.

BIOS 529 - ANIMAL DIVERSITY
- **Short Title:** ANIMAL DIVERSITY
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Description:** The evolution and systematics of the animal kingdom with consideration of functional anatomy, comparative physiology, behavior, medical implications and resource management. Graduate/Undergraduate Equivalency: BIOS 329. Mutually Exclusive: Cannot register for BIOS 529 if student has credit for BIOL 329/BIOS 329.

BIOS 530 - LAB MODULE IN NMR SPECTROSCOPY AND MOLECULAR MODELING
- **Short Title:** LAB MOD NMR SPECTROSCOPY&MOLECULAR MODELING
- **Department:** Biosciences
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture/Laboratory
- **Credit Hours:** 1
- **Restrictions:** Enrollment is limited to Graduate level students.
- **Course Level:** Graduate
- **Prerequisite(s):** BIOC 481 or BIOS 481 or BIOC 482 or BIOS 482 (may be taken concurrently) or BIOC 552 or BIOS 552 (may be taken concurrently) or BIOC 551 or BIOS 551
- **Description:** The students will learn to set up, acquire, and process one-dimensional and basic two-dimensional NMR experiments. Spectral interpretation (3D molecular modeling of proteins and nucleic acids) for nucleic acids and proteins using homonuclear and heteronuclear data. Enrollment limited to 12, with priority to graduate students. Offered first half of the semester. BIOS 482/552 may be taken concurrently with BIOS 530.
BIOS 535 - PRACTICAL X-RAY CRYSTALLOGRAPHY
Short Title: PRACT X-RAY CRYSTALLOGRAPHY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOC 552 or BIOS 552 (may be taken concurrently) or BIOC 482 or BIOS 482 (may be taken concurrently)
Description: This is an introduction to macromolecular crystallography with emphasis on crystallization methods, data acquisition, processing and molecular model-building. Approaches to solving structures will be discussed, as well as refinement of molecular models. Offered second half of the semester. Prerequisites are concurrent and may be taken the same semester.

BIOS 537 - ADVANCED STRUCTURAL BIOLOGY SEMINAR
Short Title: ADV STRUCTURAL BIOLOGY SEMINAR
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: One hour seminar course in theoretical and practical aspects of crystallography, primarily as it applies to macromolecular crystallography. Presentations will be given by instructors and students on advanced topics based on published works or original research. Repeatable for Credit.

BIOS 538 - ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
Short Title: BIO DATA ANALYSIS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses how to analyze, visualize and draw conclusions from biological data. It introduces basic concepts in statistics interwoven with training in data analysis using the R computing environment. Students will learn to identify underlying data structures and wrangle data. Students will also learn to effectively convey results using statistical graphics. Topics include basic R programming, data exploration, statistical modeling, parameter estimation and interpretation, and model comparison. This class particularly focuses on biological data. Graduate/Undergraduate Equivalency: BIOS 338. Mutually Exclusive: Cannot register for BIOS 538 if student has credit for BIOS 338.

BIOS 540 - INTEGRATIVE ANIMAL PHYSIOLOGY
Short Title: INTEGRATIVE ANIMAL PHYSIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course takes a comparative approach to investigate animal physiology of vertebrates. Students learn how animals are adapted to their environments, including how they meet their energy needs, take up and transport oxygen, and maintain hydration and salt balance. Students read primary literature to explore survival in extreme environments. Mutually Exclusive: Cannot register for BIOS 540 if student has credit for BIOS 340, BIOS 335, BIOS 536. Graduate/Undergraduate Equivalency: BIOS 340.

BIOS 541 - RESEARCH SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of individual research or current topics in particular areas. Intended for students conducting research projects with the instructor as advisor. Repeatable for Credit.

BIOS 542 - RESEARCH SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of individual research or current topics in particular areas. Intended for students conducting research projects with the instructor as advisor. Repeatable for Credit.

BIOS 543 - DEVELOPMENTAL NEUROBIOLOGY
Short Title: NEURODEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced undergraduate and graduate level course, dedicated to analysis and evaluation of scientific inquiry into animal development. Textbook based lectures and discussions based on primary scientific literature are used to exemplify and evaluate concepts and methodology. Writing assignments, quizzes, midterm and final exam will be used to evaluate performance. Graduate/Undergraduate Equivalency: BIOS 443.
BIOS 547 - EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
Short Title: BIOLOGY AND MEDICINE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Current biological methods offer the potential to transform health care. We will examine the biology and methodology of emergent health care technologies such as stem cell therapy and personal genome sequencing to understand their potential to impact human health. Graduate/Undergraduate Equivalency: BIOS 447. Recommended Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341 or BIOS 344 or BIOC 344

BIOS 549 - ADVANCED CELL AND MOLECULAR NEUROSCIENCE
Short Title: ADV CELL AND MOLECULAR NEURO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be an overview of advanced principles and techniques in cell and molecular neuroscience; subjects will include biophysics, cellular signaling, and the molecular mechanics of neuronal plasticity. The class will primarily be lecture driven. However, there will be seminar component – students will review primary scientific literature, discuss it in small groups, and present their findings. Graduate/Undergraduate Equivalency: BIOS 449. Mutually Exclusive: Cannot register for BIOS 549 if student has credit for BIOS 449.

BIOS 550 - VIRUSES AND INFECTIOUS DISEASES
Short Title: VIRUSES & INFECTIOUS DISEASES
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Animal viruses, especially those relevant to human health, will be discussed. Topics primarily focus on virus structure and the molecular biology of the virus life cycle. Practical issues such as the history of viral diseases, clinical manifestations, laboratory diagnosis, management and prevention will also be discussed. Graduate/Undergraduate Equivalency: BIOS 450.

BIOS 551 - MOLECULAR BIOPHYSICS
Short Title: MOLECULAR BIOPHYSICS I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focus on principles of common biophysical methods used for study of conformations and dynamics of biological macromolecules and assemblies. Topics cover spectroscopic methods (absorption, fluorescence, circular dichroism, epr, NMR), transport processes, sedimentation, calorimetry, mass spectrometry, crystallography, cryo-electron microscopy, atomic force microscopy, ligand-protein interactions, protein folding, single molecule detection, computer simulations, functional genomics and laboratory evolution. Biological examples will be used to demonstrate merits and complementarity in each of the biophysical methods. Graduate/Undergraduate Equivalency: BIOS 481.

BIOS 552 - STRUCTURAL BIOLOGY
Short Title: STRUCTURAL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structural biology plays an important role in defining atomic structures of biomolecules and understanding relationships between structure, dynamics and function in living systems. This course will give an introduction to techniques of determining biomolecular structures, X-ray crystallography, NMR, and cryoelectron microscopy and discuss striking examples of the power of structural biology. Graduate/Undergraduate Equivalency: BIOS 482. Recommended Prerequisite(s): BIOC 301 or BIOS 301

BIOS 554 - EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
Short Title: BIOLOGY AND MEDICINE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Current biological methods offer the potential to transform health care. We will examine the biology and methodology of emergent health care technologies such as stem cell therapy and personal genome sequencing to understand their potential to impact human health. Graduate/Undergraduate Equivalency: BIOS 447. Recommended Prerequisite(s): BIOS 301 or BIOC 301 or BIOS 341 or BIOC 341 or BIOS 344 or BIOC 344

BIOS 557 - MOLECULAR BIOPHYSICS
Short Title: MOLECULAR BIOPHYSICS I
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focus on principles of common biophysical methods used for study of conformations and dynamics of biological macromolecules and assemblies. Topics cover spectroscopic methods (absorption, fluorescence, circular dichroism, epr, NMR), transport processes, sedimentation, calorimetry, mass spectrometry, crystallography, cryo-electron microscopy, atomic force microscopy, ligand-protein interactions, protein folding, single molecule detection, computer simulations, functional genomics and laboratory evolution. Biological examples will be used to demonstrate merits and complementarity in each of the biophysical methods. Graduate/Undergraduate Equivalency: BIOS 481.

BIOS 559 - SUSTAINABILITY IMPACT ASSESSMENTS
Short Title: SUSTAINABILITY IMPACTS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an exciting review of the methodologies involved in conducting Environmental Impact Assessments according to epistemologies from Sustainable Development. EIAs have to be conducted, before permitting is secured, for large projects and programs; such as power plants, highways, pipelines, dams, mines, airports, incinerators and landfills. Most environmental consultancies and government environmental offices will routinely engage experts who are familiar with a comprehensive assessment of local ecosystems around a project or program.
Course URL: profms.rice.edu (http://profms.rice.edu)
BIOS 560 - CANCER BIOLOGY
Short Title: CANCER BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides an integrated lecture series summarizing current knowledge in cancer biology and integrating current literature with basic concepts. Topics include: statistics of incidence/survival, types of cancer, pathology, the process of carcinogenesis and sources of carcinogens, genetic and epigenetic mechanisms and consequences, cancer progression, metastasis and current treatment options. Students will learn to use online databases to develop independent strategies for analyzing datasets. There will be several writing assignments and in class oral presentations of research articles. This course requires instructor permission to enroll. Please fill out the special registration form from https://registrar.rice.edu/student/special_registration. All requests will be reviewed and you will be notified of an enrollment decision.
Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOS 460. Mutually Exclusive: Cannot register for BIOS 560 if student has credit for BIOS 460.

BIOS 561 - TOPICS IN EVOLUTION (FALL)
Short Title: TOPICS IN EVOLUTION (FALL)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in evolution. Repeatable for Credit.

BIOS 562 - TOPICS IN EVOLUTION (SPRING)
Short Title: TOPICS IN EVOLUTION (SPRING)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in evolution. Repeatable for Credit.

BIOS 563 - TOPICS IN ECOLOGY (FALL)
Short Title: TOPICS IN ECOLOGY (FALL)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in ecology. Repeatable for Credit.

BIOS 568 - TOPICS IN ECOLOGY (SPRING)
Short Title: TOPICS IN ECOLOGY (SPRING)
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review and discussion of the literature on current research in ecology. Repeatable for Credit.

BIOS 569 - CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: CORE COURSE IN ECOLOGY & EVOL
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of topics in ecology and evolution taught by all EEB faculty.

BIOS 570 - COMPUTATION WITH BIOLOGICAL DATA
Short Title: COMPUTATION WITH BIOL DATA
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will teach programming and analysis techniques essential for modern research in the biological sciences. Students will learn the basics of programming in the MATLAB or Python scripting languages and applications to analyzing biological data. There will be a particular focus on quantitative image and sequence analysis. Instructor Permission Required. Graduate/Undergraduate Equivalency: BIOS 470. Mutually Exclusive: Cannot register for BIOS 570 if student has credit for BIOS 470.

BIOS 571 - ECOSYSTEM MANAGEMENT
Short Title: ECOSYSTEM MANAGEMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on applied ecosystem topics including relations with state and federal agencies, field studies, wetland delineations, permitting compliance, and environmental regulations. Graduate/Undergraduate Equivalency: BIOS 271.
BIOS 572 - IMMUNOLOGY
Short Title: IMMUNOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cellular and molecular basis of innate and adaptive immune function in mammals. Graduate students will be required to do all the usual assignments associated with the undergraduate section of the course but in addition will write a substantial paper on some aspects of the field that is relevant to their planned careers in biomedical research/biotechnology. Graduate/Undergraduate Equivalency: BIOS 372.

BIOS 573 - CORAL REEF ECOSYSTEMS
Short Title: CORAL REEF ECOSYSTEMS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This three credit lecture course introduces students to a complex, dynamic and sensitive ecosystem: coral reefs. We will explore the biotic and abiotic components of coral reefs; how reef organisms interact with each other and the environment, and the factors that contribute to reef construction and decline over time and space. Graduate/Undergraduate Equivalency: BIOS 373.

BIOS 575 - INTRODUCTION TO RESEARCH
Short Title: INTRODUCTION TO RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 4
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction of first-year graduate students to the research programs and laboratories of individual faculty members. Open only to BCB graduate students.

BIOS 580 - SUSTAINABLE DEVELOPMENT AND REPORTING
Short Title: SUSTAINABLE DEVELOPMENT
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sustainable development is an approach to development based on interacting social, economic, and environmental forces. It is intended as methodology for planning, and a guiding principle for Environmental Health and safety compliance (EHSs) and Corporate Sustainability (CSRs). Students will learn compliance guidelines, risk management, and assessment considerations. Graduate/Undergraduate Equivalency: BIOS 280. Mutually Exclusive: Cannot register for BIOS 580 if student has credit for BIOS 280.

BIOS 581 - GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: GRAD SEM BIOCHEM & CELL BIOL
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A discussion of selected research topics. Required of all Biochemistry and Cell Biology graduate students. Open only to BCB graduate students. Repeatable for Credit.

BIOS 582 - GRADUATE SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: GRAD SEM BIOCHEM & CELL BIOL
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A discussion of selected research topics. Required of all Biochemistry and Cell Biology graduate students. Open only to BCB graduate students. Repeatable for Credit.

BIOS 583 - MOLECULAR INTERACTIONS
Department: Biochemistry and Cell Biology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: First of two integrated classes taken by first-year graduate students in BCB (to be followed by BIOC 588, Cellular Interactions). Covers advanced topics in biochemistry, ranging from protein and nucleic acid synthesis, folding, function, and engineering to allostery, dynamics, and degradation with an emphasis on fundamental principles, research methodologies, problem solving, and critical analysis of primary literature. Enrollment limited to BCB graduate students.

BIOS 584 - GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: GRAD SEM IN ECOL & EVOL BIOL
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Faculty and student presentations on current research. Required of all Ecology & Evolutionary Biology graduate students. Repeatable for Credit.
BIOS 585 - FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE
Short Title: FUNDAMENTALS OF NEUROSCIENCE
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cellular, molecular, and integrative mechanisms of neural function, including membrane and axon physiology, synaptic transmission and plasticity, sensory transduction and processing. Graduate/Undergraduate Equivalency: BIOS 385.

BIOS 586 - GRADUATE SEMINAR IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: GRAD SEM: ECOL & EVOL BIOLOGY
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected research topics in current plant biology, focusing on cellular, tissue, and organismal structure and function with an emphasis on fundamental principles, research methodologies, and critical analysis of primary literature.

BIOS 587 - RESEARCH DESIGN, PROPOSAL WRITING, AND PROFESSIONAL DEVELOPMENT
Short Title: PROPOSAL WRITING
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Preparation for professional scientific communication with an emphasis on writing research proposals, describing work in progress, and presenting data in context of research goals.

BIOS 588 - CELLULAR INTERACTIONS
Short Title: CELLULAR INTERACTIONS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Second of two integrated classes taken by first-year graduate students in BCB (following BIOC 583, Molecular Interactions). Covers advanced topics in genetics, cell biology, and developmental biology, focusing on cellular, tissue, and organismal structure and function with an emphasis on fundamental principles, research methodologies, and critical analysis of primary literature.

BIOS 589 - EEB OUTREACH DEVELOPMENT
Short Title: EEB OUTREACH DEVELOPMENT
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is for Rice students interested in developing life science outreach initiatives that target underserved K-12 students in the Houston area. Goals of the course include developing hands-on teaching modules related to Texas science education standards and expanding graduate student teaching experiences beyond the University setting.

BIOS 590 - SPECIAL TOPICS IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: SPEC TOPCS BIOC & CELL BIO
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Development of specific topic areas at the graduate level. Instructor Permission Required.

BIOS 591 - GRADUATE TEACHING IN ECOLOGY AND EVOLUTIONARY BIOLOGY
Short Title: GRADUATE TEACHING IN EEB
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised instruction in teaching ecology and evolutionary biology. Repeatable for Credit. Repeatable for Credit.

BIOS 592 - TOPICS IN QUANTITATIVE BIOLOGY AND BIOMEDICAL INFORMATICS (KECK SEMINAR)
Short Title: TOPICS QUANT BIO & BIOMED INFO
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A discussion of selected research topics in quantitative biology and biomedical informatics. Repeatable for Credit.

BIOS 593 - CURRENT TOPICS IN PLANT BIOLOGY
Short Title: TOPICS IN PLANT BIOLOGY
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected research topics in current plant biology literature. Repeatable for Credit.
BIOS 599 - GRADUATE TEACHING IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: GRADUATE TEACHING IN BIOCHEM
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised instruction in teaching biochemistry and cell biology. Repeatable for Credit.

BIOS 611 - RESEARCH SEMINAR IN BIOCHEMISTRY AND CELL BIOLOGY
Short Title: RESEARCH SEMINAR
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of individual research or current topics in particular areas. Intended for students conducting research projects in the lab of the instructor. Repeatable for Credit.

BIOS 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Biosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BIOS 701 - GRADUATE LAB RESEARCH I
Short Title: GRADUATE LAB RESEARCH I
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 2-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research in Biochemistry and Cell Biology. Designed for short term laboratory projects for first year graduate students. Repeatable for Credit.

BIOS 702 - GRADUATE LAB RESEARCH II
Short Title: GRADUATE LAB RESEARCH II
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 2-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research in Biochemistry and Cell Biology. Designed for short term laboratory projects for first year graduate students. Repeatable for Credit.

BIOS 800 - BIOCHEMISTRY & CELL BIOLOGY GRADUATE RESEARCH
Short Title: BCB GRADUATE RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Biochemistry and Cell Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Biochemistry & Cell Biology graduate research. Repeatable for Credit.

BIOS 801 - ECOLOGY & EVOLUTIONARY BIOLOGY GRADUATE RESEARCH
Short Title: EEB GRADUATE RESEARCH
Department: Biosciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Ecology & Evolutionary Biology graduate research. Repeatable for Credit.

Business (BUSI)

BUSI 220 - LILIE DESIGN THINKING
Short Title: LILIE DESIGN THINKING
Department: Business
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Design thinking is a problem-solving process that can be used to reduce risk when launching a new idea and increase your chances of developing an innovative solution that people want. At the center of the design thinking approach is building empathy with the people for which you are creating products, services, and processes. From that deep empathy, insights will emerge, with which we will apply an iterative prototyping and experimentation method to learn quickly and apply resources efficiently.

BUSI 221 - NEW ENTERPRISES
Short Title: NEW ENTERPRISES
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will learn and experience a process for innovation-based venture development. During the semester, students will form teams and create a plan for a new venture. Cross-list: ENGI 221. Mutually Exclusive: Cannot register for BUSI 221 if student has credit for BUSI 462.
BUSI 223 - BUSINESS MODELING FOR ENTREPRENEURS
Short Title: MODELING FOR ENTREPRENEURS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course teaches how to translate a startup business plan into a bottoms up quantitative model of the business and its underlying assumptions. Students will learn how to build a model of cash flows for a startup, how to use that model to track performance and identify errors in the underlying assumptions and adjust, and how to update the model based on realized performance.

BUSI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Business
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

BUSI 246 - THE MONEY REVOLUTION: FINTECH, CRYPTOCURRENCIES, AND BLOCKCHAIN
Short Title: FINTECH: THE MONEY REVOLUTION
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Are financial services the next industry to be brought to its knees by disruptors and blockchain technology? Analyze how the likes of Square, PayPal, Stripe, Lending Club, OnDeck or Robinhood are disrupting financial services. Look into the next wave of technologies which are likely to accelerate the disruption: blockchain, cryptocurrencies and robotics.

BUSI 251 - INTRODUCTION TO BUSINESS STATISTICS AND ANALYSIS
Short Title: INTRO TO BUSINESS STATS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed to equip you with a basic understanding of business data analysis tools and techniques including essential Excel, build descriptive business data measures, and develop your aptitude for data modeling. Explores basic probability concepts, including measuring and modeling uncertainty, uses various data distributions, confidence intervals, hypothesis testing along with the Linear Regression Model, to analyze and inform business decisions.

BUSI 271 - BUSINESS OF HEALTHCARE
Short Title: BUSINESS OF HEALTHCARE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will serve as an introduction to the U.S. healthcare system from a business perspective. We will describe the providers and the financial system that comprise healthcare, and the challenges healthcare faces. We will explore opportunities to increase quality while decreasing costs and the effects of the COVID-19 pandemic on an already strained system.

BUSI 291 - FUNDAMENTALS OF SALES
Short Title: FUNDAMENTALS OF SALES
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Fundamentals of Sales introduces students to the knowledge, skills, and behaviors require for success in the field of sales. Topics include planning effective sales meetings and sales presentations, client decision-making styles, and approaches to influencing client behavior. Students will demonstrate mastery of these topics through role-playing and class/instructor feedback.

BUSI 296 - BUSINESS COMMUNICATION
Short Title: BUSINESS COMMUNICATION
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides an introduction to business, focusing on the strategy and practice of effective communications in business situations. The course includes individual communication skills assessment and development as well as team-based oral and written communication instruction.
BUSI 305 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers the preparation, analysis, and use of corporate financial statements; asset and liability valuation and income determination; receivables, inventories, present values, tangible and intangible fixed assets, bonds, leases, shareholder equity, intercorporate investments, consolidations, and cash flow accounting. Space is limited.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)

BUSI 310 - LEADING PEOPLE IN ORGANIZATIONS
Short Title: LEADING IN ORGANIZATIONS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduces the psychological and sociological processes underlying human behavior in organizational settings (e.g., companies, schools, sports clubs). Topics include motivation, decision making, principles of fairness and justice, cross-cultural differences, working in teams, and tactics of influence.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)

BUSI 343 - BUSINESS FINANCIAL MANAGEMENT
Short Title: FINANCIAL MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 280 or SOSC 302 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or POLI 395 or PSYC 339) and (ECON 100 or ECON 200) and BUSI 305
Description: Develops the core concepts of corporate financial management and introduces a set of analytical tools to evaluate financial decisions. Employs concepts of time value of money, risk and return, and market efficiency to examine how capital market investors value risky assets. Develops a framework for evaluating corporate investment and financing decisions. Mutually Exclusive: Cannot register for BUSI 343 if student has credit for ECON 343.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)

BUSI 361 - COMMUNICATION FOR ENTREPRENEURS
Short Title: ENTREPRENEURIAL COMMUNICATION
Department: Business
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course introduces key concepts, tools, and practices of communication in the context of start ups, small businesses, and other entrepreneurial ventures. Emphasis is on practicing skills valuable throughout the life cycle of a new venture. Students will learn skills for communicating and working with their team, investors, and mentors.

BUSI 374 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307
Description: An introduction to the design and integration of successful operations procedures both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products, customers, and information. Covering measurable techniques to deal with bottlenecks, inventory, queues, quality management, and some strategic issues in operations. Recommended Prerequisite(s): BUSI 305 and (ECON 100 or ECON 200)

BUSI 380 - MARKETING
Short Title: MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 280 or SOSC 302 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or POLI 395 or PSYC 339) and (ECON 100 or ECON 200)
Description: Introduces the role of marketing in organizations and the principal marketing decisions facing management. Topics include marketing planning and strategy; segmentation and targeting; understanding customer buying behavior; behavioral economics; development and management of products and services; branding; channels of distribution; sales; digital marketing, advertising and promotional methods; pricing strategy; and the development of integrated marketing strategies.
Course URL: www.business.rice.edu/ (http://www.business.rice.edu/)
BUSI 390 - STRATEGIC MANAGEMENT
Short Title: STRATEGIC MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Graduate Professional or Visiting Graduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 305
Description: Examines the strategic management of businesses in market and non-market environments. Key topics include competitive and industry analysis, strategy formulation and implementation, and strategic planning. Case discussions of real companies are combined with readings. Recommended Prerequisite(s): ECON 100 or ECON 200
Mutually Exclusive: Cannot register for BUSI 390 if student has credit for BUSI 471.
Course URL: business.rice.edu/ (http://business.rice.edu/)

BUSI 395 - DATA ANALYTICS
Short Title: DATA ANALYTICS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 101
Description: An introduction to the statistics and mathematics required for the applications of data science to business environments. The course covers both descriptive and predictive analytics. Starting with the building blocks of probability, random variables and sampling distributions moving to hypothesis testing and regression analysis and culminating with more advanced topics such as multiple regression, model selection and time series analysis emphasizing their use in addressing concrete business problems. Mutually Exclusive: Cannot register for BUSI 395 if student has credit for DSCI 301/ECON 307/STAT 310/STAT 315.

BUSI 401 - FINANCIAL STATEMENT ANALYSIS
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (BUSI 343 or ECON 343) and BUSI 305
Description: Financial statements are a key source of information about the economic activities of a firm. This course builds on the core financial accounting course by incorporating more complex financial statement items and how they should be interpreted, along with illustrating tools to evaluate performance using financial statement items. Key aspects of the course include understanding how to use information from financial statements to evaluate corporate performance, risk, earnings management, and valuation. The course focuses on determining the quality of financial reporting, the implications for performance measurement and forecasting, along with utilizing this information in conjunction with systematic ratio analysis to examine questions concerning valuation. The course is primarily case based involving the evaluation of actual financial statements and real world investment decisions. Includes a Communications lab. Mutually Exclusive: Cannot register for BUSI 401 if student has credit for MGMP 601/MGMP 602/MGMT 601.

BUSI 405 - ISSUES IN FINANCIAL REPORTING I
Short Title: ISSUES IN FINANCIAL REPORTING I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 305
Description: Building on subject matter introduced in BUSI 305, this course provides students with a deeper knowledge of generally accepted accounting principles and procedures so that they properly account for and present information in financial statements prepared for external users. The student will acquire an understanding of the accounting issues relating to complex revenue recognition issues, inventory costing, long-lived tangible and intangible assets, and discontinued operations. The student should be able to evaluate alternative accounting methods and choose the methods which will best convey the financial information related to the above areas. The student should be able to demonstrate an understanding of the transaction analysis, recording, classification, summarization, and reporting procedures in the accounting cycle, and an understanding of the information contained in the financial statements. Finally, students should be able to demonstrate written communication skills required of accountants. BUSI 305 Financial Accounting is a prerequisite for this course.
BUSI 420 - LEADERSHIP AND TEAMS
Short Title: LEADERSHIP AND TEAMS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 310
Description: Leadership is essential for organizational effectiveness, and in the modern workplace, work is primarily completed by teams. Thus, it is essential that students learn how to effectively lead and work within teams. This course will teach students leadership attributes, behaviors, relationships between leaders and team members, and leading effective teams through team composition, development, and management of team processes. A variety of teaching techniques including lectures, case analysis, and experiential exercises will be used to help students to understand and internalize scientifically-proven knowledge. Includes a Communications lab.

BUSI 421 - POWER, INFLUENCE AND ORGANIZATIONAL CHANGE
Short Title: POWER, INFLUENCE & ORG CHANGE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 310
Description: A manager's primary purpose is to use power to influence subordinates and create an effective organization. This course will teach students how to build power, how to influence people, and the proper use of power and influence to initiate and manage organizational change. The course will introduce a framework for power, influence, and organizational changes and teach students how to enhance their personal competencies in the context of navigating these organizational dynamics. A variety of teaching techniques including lectures, case analysis, video, and experiential exercises will be used to help students to understand and internalize scientifically-proven knowledge.

BUSI 422 - NEGOTIATIONS AND DECISION MAKING
Short Title: NEGOTIATIONS & DECISION MAKING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 310
Description: Successful managers and professionals possess effective negotiation and decision-making skills. This course teaches students how to formulate effective negotiation strategies, how to resolve conflict by engaging in negotiation, how to identify commonly seen biases and errors in negotiation and decision-making, how to deal with uncertainty in negotiation and decision-making, and how to overcome potential biases and errors in negotiation, judgment and decision making. A variety of teaching techniques including lectures, case analysis, and experiential exercises will be used to help students to understand and internalize scientifically-proven knowledge.

BUSI 430 - MANAGEMENT ACCOUNTING
Short Title: MANAGEMENT ACCOUNTING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (ECON 100 or ECON 200) and BUSI 305
Description: This course emphasizes the use of accounting information internally for business management as opposed to the external reporting emphasis of financial accounting. Specifically, the course covers the design of decision support systems to aid planning and control in different types of organizations. It integrates accounting with ideas from data analysis, microeconomics, and operations management. Among the topics covered are the use of cost information for short- and long-term decision making, cost-volume-profit analysis, budgetary control, cost allocation, capital budgeting, and responsibility accounting.

BUSI 431 - ADVANCED STRATEGIC MANAGEMENT
Short Title: ADVANCED STRATEGIC MANAGEMENT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and BUSI 310 and (BUSI 343 or ECON 343) and BUSI 380 and BUSI 390
Description: This course builds upon, and extends, the foundational strategy concepts covered in the core Strategic Management course. We shall examine how companies can achieve a competitive advantage through innovation, geographic or product market expansion, as well as expansion into new businesses through diversification or vertical integration. Since companies pursue these opportunities not only through organic means, but also increasingly through mergers or acquisitions, the course will also examine the benefits and challenges associated with these alternate modes and how to manage them effectively. The course will conclude by studying the process by which companies develop their strategy as well the actions they need to take in order to execute that strategy so as to achieve the desired results. Includes a Communications lab.
BUSI 433 - TECHNOLOGY AND INNOVATION STRATEGY
Short Title: TECH & INNOVATION STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 390
Description: Innovation is a critical aspect of firm’s strategy to achieve competitive advantage and enhanced performance. However, the management of innovation is inherently difficult and risky in technology industries where customer demand and preferences change quickly and technological changes are highly unpredictable. This course focuses on the management of innovation and growth from the perspective of both large companies and small. We shall examine issues such as: what different types of innovation can firms pursue and what types of innovation are a more durable source of advantage; what are the obstacles to innovation in firms, and how can they build an organizational level innovation capability; how can firms deal with market and technological uncertainty through open innovation; how does disruptive innovation happen and how can it be managed; and how to formulate successful strategies in platform businesses dominated by network effects.

BUSI 440 - AUDITING
Short Title: AUDITING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 305
Description: The principles and procedures used by public accountants and internal auditors in examining financial statements and supporting data to verify the accuracy and fairness of the information presented. Specific topics covered include: financial statement, regulatory and contract compliance, internal and operational audits, professional standards and ethical conduct; statistical and judgmental sampling; the audit-impact of information technology; audit risk and internal control structure evaluation; application of procedures in transaction cycles; audit reporting; the importance of professional skepticism; role of the PCAOB in setting and enforcing auditing standards for U.S. publicly traded companies, as well as the issue of mandatory audit firm rotation; role of the International Auditing and Assurance Standards Board in setting International Standards of Auditing.

BUSI 447 - ADVANCED CORPORATE FINANCE
Short Title: ADVANCED CORPORATE FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 OR ECON 307) AND (BUSI 343 OR ECON 343)
Description: In-depth analysis of corporate financial decision making including project selection and financing. Emphasizes project valuation methodologies and the connection between valuation and financial policy. Provides a theoretical framework for decision making and addresses practical applications. Integrates quantitative modelling and includes a Communications lab. Recommended Prerequisite(s): (BUSI 395 OR STAT 305 OR STAT 310 OR STAT 312 OR STAT 315 OR DSCI 301 OR ECON 307) AND (BUSI 343 OR ECON 343)

BUSI 448 - INVESTMENTS
Short Title: INVESTMENTS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307) and (BUSI 343 or ECON 343)
Description: Overview of financial asset classes and instruments, including equity, fixed income, and derivative securities. Develops a theoretical and practical understanding of modern portfolio theory, with an emphasis on measuring and managing investment risk and return. Introduces advanced asset pricing models and their role in understanding risk and return.
BUSI 450 - DERIVATIVES
Description: The course covers the basics of hedging and option strategies.
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): BUSI 395 or STAT 305 or STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 and BUSI 343 or ECON 343

BUSI 461 - FINANCING THE STARTUP VENTURE
Description: The goal of this course is to provide students with an overview of financing options for startups. The course covers crowdfunding, angel investors, accelerators, and the venture capital industry.
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

BUSI 463 - ENTREPRENEURIAL STRATEGY
Description: The first half of this course provides an integrated strategy framework for entrepreneurs. The course is structured to provide a deep understanding of the core strategic challenges facing start-up innovators, and a synthetic framework for choosing and implementing entrepreneurial strategy in dynamic environments, as well as a general understanding of the financing options for early stage startups, including angel investment, accelerators, crowdfunding and the venture capital industry.
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

BUSI 465 - STUDENT VENTURE FUND: EVALUATING STARTUP INVESTMENT OPPORTUNITIES
Description: This course introduces students to contemporary concepts, debates, and contexts necessary for analyzing and engaging in the sphere of social entrepreneurship. The course has four distinct parts: social context; organizational forms and collaborations; private sector roles; and measurement and impacts. Various aspects of social entrepreneurship, such as base of the pyramid/microenterprises, private-public partnerships, private-governmental partnerships, voluntary social codes, corporate social responsibility, and ethical consumerism will be covered. From this foundation, students will undertake a social entrepreneurship project about a contemporary social problem in Houston: food insecurity and food deserts. Cross-list: GLHT 464, SOSC 464.
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

BUSI 469 - LILIE NEW VENTURE CHALLENGE
Description: In this capstone project-based experiential learning course, students work on their own startup ideas in teams using the frameworks taught in the E&I framework courses (financing and strategy for startups, new enterprises, business modeling for entrepreneurs, human and social context in entrepreneurship). To apply for this course visit http://hpanahi.web.rice.edu/nvc/ Instructor Permission Required.
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
BUSI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

BUSI 480 - MARKETING STRATEGY
Short Title: MARKETING STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 380
Description: This course relates marketing activities to some of the key strategic business decisions: choosing customers, defining and creating value, delivering and appropriating value, and sustaining value against competitors and over time. To do so, the course builds on concepts and topics from the marketing core course (e.g., segmentation, targeting, and positioning, brand management, product life cycle management, pricing, and channel design) and cast them in a broader strategic business context. We use these marketing concepts in an integrated fashion, as the firm's main tools to design profitable long term interactions with its customers and competitors.

BUSI 491 - ACCOUNTING THEORY
Short Title: ACCOUNTING THEORY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BUSI 405
Description: The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the “political” intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. The prerequisite for undergraduates is BUSI 405, but the course will also be open also to a small number of other students who have taken just BUSI 305. MBA students: Prerequisite is MGMT 601. PhD students: no prerequisites. All students must obtain the prior permission of the instructor. Course may not be taken pass/fail and may not be audited. Enrollment will be limited. Mutually Exclusive: Cannot register for BUSI 491 if student has credit for MACC 591/MGMT 591.

BUSI 499 - UNDERGRADUATE BUSINESS INDEPENDENT STUDY
Short Title: UG BUSINESS INDEPENDENT STUDY
Department: Business
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

BUSI 500 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Business
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 501 - DOCTORAL MARKETING RESEARCH SEMINAR
Short Title: DOCTORAL MARK. RES. SEMINAR
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 503 - SEMINAR IN JUDGEMENT AND DECISION MAKING
Short Title: SEM IN JDGMT & DECISION MAKING
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Course Level: Graduate

BUSI 504 - GAME THEORY
Short Title: GAME THEORY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Game theory is a discipline that provides a mathematical methodology for modeling and analyzing interactive decisions among multiple agents. Game theory has a wide range of applications in economics, political science, but most importantly (in my opinion) business. The approach of this course will be somewhere between that of a typical economics class (i.e. very mathematical) and that of a typical business seminar (applied and paper based.) Definitions will be stated formally, and arguments will be developed rigorously. At the same time, much of the course will be devoted to using game theory to understand applications in economics and business. Taking these applications as a starting point, we will develop an understanding of what constitutes a good mathematical model for addressing a business question. Repeatable for Credit.

BUSI 505 - SEMINAR IN CONSUMER BEHAVIOR
Short Title: SEMINAR IN CONSUMER BEHAVIOR
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 506 - ADVANCED TOPICS IN MARKETING RESEARCH
Short Title: ADVANCED TOPICS IN MARKT. RES.
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this seminar is to examine recent work in, or relevant to, consumer research. We will select a set of topics to be considered over the semester, often triggered by a new article of particular interest or student interests. For each topic considered, a few articles will be chosen, and we will read and discuss those. Our goals will be to gain exposure to the latest ideas in consumer research and to develop research ideas. In particular, each week we should generate in class the design/idea for at least one new study in the focal topic area. Repeatable for Credit.

BUSI 507 - BAYESIAN APPLICATIONS IN MARKETING LITERATURE
Short Title: BAYESIAN APPS IN MARKETING LIT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course aims to develop an understanding of Bayesian empirical applications in the Marketing literature. The course starts with a brief theoretical foundation to Bayesian inference and subsequently focuses on empirical applications in the Marketing literature. The aim of this course is not to equip students with the methodological tools of Bayesian inference. It is assumed that students are familiar with these methodologies. Academic papers from the Marketing literature are assigned to the class and discussed in class. Repeatable for Credit.

BUSI 510 - ANALYTICAL MODELS IN MARKETING
Short Title: ANALYTICAL MODELS IN MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 511 - SELECTED TOPICS IN MARKETING
Short Title: SELECT TOPICS IN MARKETING
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 515 - MICRO FOUNDATIONS OF ORGANIZATION AND MANAGEMENT
Short Title: MICRO FOUNDATIONS - ORG & MGMT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
BUSI 521 - FINANCIAL ECONOMICS I
Short Title: FINANCIAL ECONOMICS I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502
Description: Introduction to asset pricing and portfolio choice theory. Covers mathematical analysis of single-period and dynamic models, including pricing by arbitrage, mean-variance analysis, factor models, dynamic optimization, recursive utility, and an introduction to continuous-time finance. Cross-list: ECON 505.

BUSI 522 - CORPORATE FINANCE
Short Title: CORPORATE FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will prepare students for a career as a scholar in finance. To do so, we will read and discuss key scholarly papers in the field. Our focus will be on classic and recent research papers in the field of corporate finance. The course is structured to introduce students to selected areas of research and research methods, rather than to be encyclopedic in its coverage. Repeatable for Credit.

BUSI 523 - EMPIRICAL METHODS IN FINANCE
Short Title: EMPIRICAL METHODS IN FINANCE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is intended to get students up to speed with a toolbox and working facility of methods commonly used in empirical finance research. For each method, we will follow a three-step learning process. We first cover the econometrics from a mathematical (but light and intuitive) approach. Then we will observe researchers using the method in the wild. Then you will use it yourself through exercises and problem sets. Repeatable for Credit.

BUSI 524 - FINANCE: SPECIAL TOPICS I
Short Title: FINANCE: SPECIAL TOPICS I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a brief review of the literature on derivative pricing and the term structure of interest rates. If we have time we may also read some papers on the financial crisis. The objective is to prepare students to critically think about the current research in each of these areas and, at the same time, give some basic knowledge about each of these research areas. The course is intended for Ph.D. students. This course is very quantitative and requires basic familiarity with asset pricing theory (BUSI 521). Even though, the course is very quantitative, emphasis is given to intuition instead to mathematical rigor. Repeatable for Credit.

BUSI 525 - FINANCE: SPECIAL TOPICS II
Short Title: FINANCE: SPECIAL TOPICS II
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 526 - FINANCE: SPECIAL TOPICS III
Short Title: FINANCE: SPECIAL TOPICS III
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the empirical asset pricing side of financial economics. The course will focus on the development of stylized facts and tools for the investigation of data and on the underlying theoretical asset pricing frameworks. We will also read recent research papers in empirical asset pricing and generate ideas for future research.

BUSI 527 - FINANCE: SPECIAL TOPICS IV
Short Title: FINANCE: SPECIAL TOPICS IV
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
BUSI 530 - INTRODUCTION TO ACCOUNTING RESEARCH
Short Title: INTRO TO ACCT. RESEARCH
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course offers a thorough and broad-ranging introduction to accounting theory and research. It covers origins and evolution of key relevant accounting institutions, thought, paradigms and methods. Repeatable for Credit.

BUSI 531 - EMPIRICAL METHODS IN ACCOUNTING
Short Title: EMPIRICAL METHODS IN ACCOUNTNG
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 532 - ANALYTICAL RESEARCH IN ACCOUNTING
Short Title: ANALYTICAL RESEARCH IN ACCT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 533 - CONTEMPORARY ACCOUNTING: RESEARCH TOPICS
Short Title: CONTEMPORARY ACCT. RES. TOPICS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this PhD seminar, students will relate and reconcile key theoretical and analytical insights that have emerged in the accounting literature with the vast empirical/experimental research. Specifically, we will pick selected topics of mainstream interest in accounting, review key analytical insights in each topic and relate/reconcile these insights with empirical findings. Where possible, we will attempt to generate testable empirical predictions as well as identify opportunities for analytical research. Topics include agency theory, performance evaluation and incentives, corporate governance, disclosure theory, aspects of auditing, cost measurement and product/capacity planning.

BUSI 540 - STRATEGY I
Short Title: STRATEGY I
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a Ph.D. level seminar focused on seminal theory and recent theoretical approaches in the strategic management literature. The literature in strategic management attempts to explain the differences in the performance and survival of firms by analyzing the effects of a variety of factors at multiple levels, including countries, industries, organizational networks, firms, teams, and individuals. The intent of this seminar is to provide a foundation for conducting and publishing original research in strategic management. The seminar will cover several topics in the field along with relevant theoretical perspectives developed in economics, finance, organization theory, psychology, and sociology. Over the course of the semester, you will: • Read a large amount of articles published in the leading journals of the field; • Evaluate different theoretical perspectives; • Constructively critique empirical research; • Formulate novel research ideas that advance the field of strategic management; • Professionally present research ideas and respond to comments; and • Develop ideas into a research paper that provides the foundations for a future theoretical paper or empirical study. Repeatable for Credit.

BUSI 541 - STRATEGY II
Short Title: STRATEGY II
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Strategic management research attempts to explain the differences in firm behaviors and outcomes by analyzing the effects of a variety of factors at multiple levels, including countries, industries, firms, teams, and individuals. This seminar is the second part of the strategic management seminar series (The first part is Business 540: Strategic Management Theory). While Business 540 focuses on seminal theory and recent theoretical approaches in the strategic management literature, this seminar focuses on phenomena and research topics in strategy research. It provides an overview of classic and current research topics including innovation and technology strategy, strategic alliances and networks, international strategy, product diversification, corporate governance, executive leadership, strategic decision processes, change and adaptation. Specific topics and phenomena will be examined from both theoretical and empirical perspectives. From the theoretical perspective, we will discuss how the various theories discussed in Business 540 are used to explain these phenomena. From the empirical perspective, we will discuss various research designs and methods used to in research on these topics. Overall, the intent of this seminar is to provide students a foundation for conducting and publishing original research in strategic management. Repeatable for Credit.
BUSI 542 - ORGANIZATIONAL CHANGE
Short Title: ORGANIZATIONAL CHANGE
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 543 - EXECUTIVE LEADERSHIP AND CORPORATE GOVERNANCE
Short Title: EXEC LEADERSHIP & CORP GOV
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this Ph.D. seminar is to provide basic foundations and knowledge of current research in innovation and entrepreneurship. We will cover seminar articles as well as the cutting edge foci in the field. Over the course of this seminar, each student should evaluate and critically review the assigned readings, develop a mental model of the literature on innovation and entrepreneurship, and develop new ideas and approaches that advance some portion of the theory/research.

BUSI 544 - CONTEMPORARY MANAGEMENT THOUGHT
Short Title: CONTEMPORARY MGMT THOUGHT
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 545 - STRATEGY RESEARCH IN CORPORATE DEVELOPMENT
Short Title: STRATEGY RESEARCH IN CORP DEV.
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 546 - EMERGING MARKET STRATEGY
Short Title: EMERGING MARKET STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 547 - SEMINAR ON INNOVATION AND ENTREPRENEURSHIP
Short Title: INNOVATION & ENTREPRENEURSHIP
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 548 - CORPORATE STRATEGY
Short Title: CORPORATE STRATEGY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 549 - STRATEGY PRO-SEMINAR
Short Title: STRATEGY PRO-SEMINAR
Department: Business
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will expose you to the research areas of the entire strategy and organizational behavior faculty at the Jones School and possible invited guests. Repeatable for Credit.

BUSI 550 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate

BUSI 551 - STRATEGY RESEARCH IN CORPORATE DEVELOPMENT:
STRATEGIC ALLIANCES AND ACQUISITIONS
Short Title: STRATEGY RESEARCH IN CORP DEV
Department: Business
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PHD-BUSI program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
### BUSI 552 - DESIGN OF BUSINESS RESEARCH
**Short Title:** DESIGN OF BUSINESS RESEARCH
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate
**Description:** Provides doctoral students with introduction to the design of social research, with particular emphasis on research in the domain of business.

### BUSI 553 - NETWORK THEORY AND APPLICATIONS
**Short Title:** NETWORK THEORY
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Seminar
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate
**Description:** This course explores network theory and its applications to organizational phenomena. By examining the structure of relations among actors, network approaches seek to explain variations in beliefs, behaviors, and outcomes. Each session progresses from classic studies to more recent applications and refinements of theory and methods.

### BUSI 677 - SPECIAL TOPICS
**Short Title:** SPECIAL TOPICS
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
**Credit Hours:** 1-4
**Restrictions:** Enrollment is limited to Graduate or Visiting graduate level students.
**Course Level:** Graduate
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

### BUSI 711 - FOUNDATIONS OF MARKETING
**Short Title:** FOUNDATIONS OF MARKETING
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
**Course Level:** Graduate
**Description:** Introduction to the key concepts underlying the function of marketing and its interaction with other functions in a business enterprise. Explores marketing’s role in defining, creating, and communicating value to customers.

### BUSI 712 - DATA-DRIVEN MARKETING
**Short Title:** DATA-DRIVEN MARKETING
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
**Course Level:** Graduate
**Description:** This applied course focuses on using customer data to optimize marketing decisions. Topics include targeting of customers for marketing campaigns, quantifying customer value, text mining of customer reviews, and online experiments to optimize promotions.

### BUSI 721 - FOUNDATIONS OF FINANCE
**Short Title:** FOUNDATIONS OF FINANCE
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
**Course Level:** Graduate
**Description:** Introduction to the theory and practice of corporate finance and the analytical tools necessary to answer the most important questions related to firms’ financing and investment decisions, focusing the following building blocks: Valuation, Investment Decisions, Risk and Return, Financing Decisions, Derivative Securities.

### BUSI 722 - DATA-DRIVEN FINANCE
**Short Title:** DATA-DRIVEN FINANCE
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
**Course Level:** Graduate
**Description:** This applied course focuses on analytical finance to support business decision-making. This includes applying machine learning and other data analytic tools to improve investment, financing, and risk management decisions.

### BUSI 731 - FOUNDATIONS OF OPERATIONS MANAGEMENT
**Short Title:** FOUNDATIONS OF OPERATIONS MGMT
**Department:** Business
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 1.5
**Restrictions:** Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Data Science degree.
**Course Level:** Graduate
**Description:** Introduction to the design and integration of successful operations tactics both within the organization and across supply chains. The course focuses on understanding, managing and improving processes and flows of products, customers and information and touches on bottlenecks, inventory, quality management, queues, and strategic issues in operations.
BUSI 732 - DATA-DRIVEN OPERATIONS
Short Title: DATA-DRIVEN OPERATIONS
Department: Business
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Graduate
Description: This applied course focuses on the data transformation of operations management. It addresses the impact of modern data analysis on process optimization, production, Inventory and supply chain issues. Introducing and using advanced statistics, optimization and machine learning techniques.

BUSI 800 - PHD RESEARCH
Short Title: PHD RESEARCH
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

BUSI 801 - PHD RESEARCH II
Short Title: PHD RESEARCH II
Department: Business
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment limited to students in the PHD-BUSI program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

LEAD 102 - INTRODUCTION TO CIVIC LEADERSHIP
Short Title: INTRO TO CIVIC LEADERSHIP
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: LEAD 102 will increase students’ understanding of civic leadership in theory and practice. Simulations and case studies will examine how public leaders effect societal change while projects on campus and in the community will provide the opportunity to work in small groups to analyze and address leadership challenges and present findings to stakeholders.
Course URL: ccl.rice.edu (http://ccl.rice.edu)

LEAD 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center for Civic Leadership
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LEAD 250 - LEADERSHIP AND CIVIC PROFESSIONALISM
Short Title: LEADERSHIP AND CIVIC PROF
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-12
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course develops knowledge and skills to exercise civic leadership in professional settings. Students will strengthen capacities for recognizing how values, skills, and interests relate to the capacity to exercise effective leadership; for establishing meaningful relationships with mentors, co-workers, and cohort peers and for understanding the interconnectedness of civic leadership in professional contexts. Required of and limited to Leadership Rice Mentorship Experience Fellows placed in mandatory associated internship. Instructor Permission Required.
Course URL: leadership.rice.edu (http://leadership.rice.edu)

LEAD 260 - ADVOCATING FOR IDEAS TO CHANGE THE WORLD
Short Title: ADVOCATING FOR CHANGE
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Advocating for change is an experiential learning course that teaches students how to engage in issue advocacy as a method of social change. Students work in teams with faculty mentors to develop and implement an advocacy plan for a particular cause or policy of interest. Cross-list: POLI 260.

LEAD 321 - LEADERSHIP COMMUNICATION
Short Title: LEADERSHIP COMMUNICATION
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Powerful communication skills are essential for effective leadership, and LEAD 321 equips students to articulate ideas with poise, confidence, and clarity. Students develop written, oral, interpersonal, and team skills while developing an understanding of leadership communication in different contexts, including specific fields of study. The Leadership Communication class gives students the opportunity to practice the types of communication that will be required of them in the workplace and that will be crucial for their success.
LEAD 330 - LEADERSHIP IN HIGHER EDUCATION
Short Title: LEADERSHIP IN HIGHER EDUCATION
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Higher education is a challenging environment for leaders - when transformative changes are desired, the process of leadership offers the only possibility for change that is viewed as legitimate. This course uses a case study approach to understand leadership through the lenses of strategic choice, governance, organizational change, culture and values, leader transitions, and crisis.

LEAD 333 - STEM (SCIENCE TECHNOLOGY ENGINEERING AND MATHEMATICS) OUTREACH: INTRO TO CIVIC SCIENCE
Short Title: STEM OUTREACH
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students teach prepared 4th-grade science lessons in Houston area elementary schools. Students meet weekly with faculty to practice implementing the activities, discuss pedagogical techniques, and delve into issues relating to education and our community. The culminating project is writing a proposal to address a need in education, education policy, and/or community issues.

LEAD 335 - CRISIS LEADERSHIP
Short Title: CRISIS LEADERSHIP
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: It feels like we live in perpetual whitewater these days. We lurch from crisis to crisis, many of which might have been avoided. This course examines major public crises resulting from low-probability, high-consequence events. The core premise is that effective leadership improves the likelihood of avoiding or mitigating the consequences of crises, and allows us to take advantage of the opportunities that disasters create.

LEAD 340 - PHILANTHROPY IN THEORY AND PRACTICE
Short Title: PHILANTHROPY T & L
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the history, philosophy, and practice of philanthropy in addressing public need with an introduction to ethics and importance of financial giving and community investment. Students will spend substantial time working with local nonprofits in order to select a recipient for a grant awarded by the class.

LEAD 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LEAD 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center for Civic Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Chemical & Biomolecular Eng (CHBE)

CHBE 100 - INTRODUCTION TO CHEMICAL AND BIOMOLECULAR ENGINEERING
Short Title: INTRO TO CHEM&BIOMOLECULAR ENG
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A series of lectures for freshman that outline how chemical and biomolecular engineers tackle today’s major energy, health, environmental and economic challenges by working to provide sustainable and affordable energy, by designing new materials, biological products or medical therapeutics, and by developing production methods that are friendly to our environment.
CHBE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHBE 243 - CHEMICAL ENGINEERING LAB I
Short Title: CHEMICAL ENGINEERING LAB I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHBE 301 and CHBE 303
Description: Fundamental chemical engineering experiments demonstrating laboratory safety procedures, use of analytical equipment, and basic fluid mechanics, phase behavior, energy and mass balances, and fluid properties. Lectures will introduce technical report writing and communication.

CHBE 281 - ENGINEERING SUSTAINABLE COMMUNITIES
Short Title: ENGRG SUSTAINABLE COMMUNITIES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will work in teams to develop sustainable solutions for energy or environmental problems affecting our Houston and Rice communities. Emphasis will be placed on the integration of engineering fundamentals with societal issues, environmental and safety considerations, sustainability and professional communications. Prerequisites: Introductory Engineering Courses, or Permission of Instructor. Cross-list: ENST 281.

CHBE 301 - CHEMICAL ENGINEERING FUNDAMENTALS
Short Title: CHEMICAL ENGR FUNDAMENTALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Corequisite: CHBE 302
Description: Use of basic mathematical concepts and computer tools, physical laws, stoichiometry and the thermodynamic properties of matter to obtain material and energy balances for steady and unsteady state systems. Required for sophomores intending to major in chemical engineering.

CHBE 302 - APPLIED MATHEMATICS AND NUMERICAL METHODS FOR CHEMICAL ENGINEERS I
Short Title: APPLIED MATH FOR CHEM ENGS I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CHBE 301
Description: This course and its second part in the Spring semester will cover mathematical concepts that are at the heart of mathematical modeling in Chemical Engineering. Machine calculations are indispensable for studying the mathematical models in realistic applications, while classical, analytical techniques applied to simplified models serve to strengthen one's intuition. In this course, we will learn both the analytical techniques and also complementary numerical methods. For the latter part, programming literacy is essential. This requires gaining proficiency in (1) the programming language, an aspect that involves learning the grammar and the syntax of the language, and (2) computational thinking, an aspect that is independent of the programming language and is a skill that is broadly applicable to all problem solving and analysis. We will study all these aspects with applications in Chemical and Biomolecular Engineering. If registering for CHBE 302, you must register for CHBE 301.

CHBE 303 - COMPUTER-AIDED ANALYSIS OF CHEMICAL AND BIOMOLECULAR PROCESSES
Short Title: COMP ANALYSIS CHEM BIOM PROC
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to data analysis, numerical methods, structured programming and computation used to solve relevant chemical and biomolecular engineering problems.
CHBE 305 - APPLIED MATHEMATICS AND NUMERICAL METHODS FOR CHEMICAL ENGINEERS II
Short Title: APPLIED MATH FOR CHEM ENGS II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 301 and (CHBE 302 or CHBE 303) and MATH 211

CHBE 310 - FUNDAMENTALS OF BIOMOLECULAR ENGINEERING
Short Title: INTRO BIOMOLECULAR ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and CHBE 301 and CHBE 303

CHBE 334 - CHEMICAL ENGINEERING LAB II
Short Title: CHEMICAL ENGINEERING LAB II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411
Description: Experiments demonstrating principles presented in core chemical engineering courses.

CHBE 335 - PROCESS SAFETY IN CHEMICAL ENGINEERING
Short Title: PROCESS SAFETY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411 and MATH 211
Description: Examination of principles of chemical process safety through case studies and group discussions.

CHBE 336 - INNOVATION AND SUSTAINABILITY
Short Title: INNOVATION & SUSTAINABILITY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics in development and environmental economics focusing on how innovation can improve underdeveloped economies and our environment. Introduction to a general framework for assessing the impact of humans on the environment. Environmental consequences of increasing energy use. Case studies showing how innovation information technologies can provide alternatives for sustainable growth. Graduate/Undergraduate Equivalency: CHBE 582. Mutually Exclusive: Cannot register for CHBE 382 if student has credit for CHBE 582.

CHBE 343 - CHEMICAL ENGINEERING LAB II
Short Title: CHEMICAL ENGINEERING LAB II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411
Description: Experiments demonstrating principles presented in core chemical engineering courses.

CHBE 344 - CHEMICAL ENGINEERING LAB II
Short Title: CHEMICAL ENGINEERING LAB II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 401 and CHBE 411
Description: Experiments demonstrating principles presented in core chemical engineering courses.

CHBE 382 - INNOVATION AND SUSTAINABILITY
Short Title: INNOVATION & SUSTAINABILITY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics in development and environmental economics focusing on how innovation can improve underdeveloped economies and our environment. Introduction to a general framework for assessing the impact of humans on the environment. Environmental consequences of increasing energy use. Case studies showing how innovation information technologies can provide alternatives for sustainable growth. Graduate/Undergraduate Equivalency: CHBE 582. Mutually Exclusive: Cannot register for CHBE 382 if student has credit for CHBE 582.

CHBE 390 - CHEMICAL KINETICS AND REACTOR DESIGN
Short Title: KINETICS & REACTOR DESIGN
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 301 and CHBE 305 and CHBE 310 and MATH 211 and (MATH 212 or MATH 222)
Description: General areas that are covered in this course are (1) principles of chemical kinetics; (2) analysis of reaction rate data; (3) heterogeneous catalysis; (4) ideal reactor design and sizing; and (5) heat effects in reactor designs.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
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<tbody>
<tr>
<td>CHBE 401</td>
<td>TRANSPORT PHENOMENA I</td>
<td>TRANSPORT PHENOMENA I</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>(CHBE 305 and MATH 211) and MATH 212 or MATH 222 and (PHYS 101 and PHYS 102) or (PHYS 112 and PHYS 111)</td>
<td>Development and application of the first and second laws of thermodynamics.</td>
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<tr>
<td>CHBE 402</td>
<td>TRANSPORT PHENOMENA II</td>
<td>TRANSPORT PHENOMENA II</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>(CHBE 401 and CAAM 336) (may be taken concurrently)</td>
<td>Design principles as applied to chemical engineering systems. Engineering economic principles. Costs of equipment, feedstocks, and utilities. Equipment design. Use of modern simulation tools. Graduate/Undergraduate Equivalency: CHBE 503. Mutually Exclusive: Cannot register for CHBE 403 if student has credit for CHBE 503.</td>
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<tr>
<td>CHBE 403</td>
<td>DESIGN FUNDAMENTALS</td>
<td>DESIGN FUNDAMENTALS</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>(CHBE 390 and CHBE 402 and CHBE 412)</td>
<td>Design principles as applied to chemical engineering systems. Engineering economic principles. Costs of equipment, feedstocks, and utilities. Equipment design. Use of modern simulation tools. Graduate/Undergraduate Equivalency: CHBE 503. Mutually Exclusive: Cannot register for CHBE 403 if student has credit for CHBE 503.</td>
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<tr>
<td>CHBE 404</td>
<td>CHEMICAL ENGINEERING DESIGN</td>
<td>CHEMICAL ENGINEERING DESIGN</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHBE 403</td>
<td>Strategies for conceptual design of complex chemical engineering systems. Components include sustainability, heat and power integration. Students tackle engineering design projects in small groups. Instructor Permission Required.</td>
</tr>
<tr>
<td>CHBE 405</td>
<td>DECISION TOOLS FOR CHEMICAL ENGINEERS</td>
<td>DECISION TOOLS FOR CHEM ENGERS</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>(CHBE 301 and CHBE 305 and MATH 211 and MATH 212)</td>
<td>Development and application of the first and second laws of thermodynamics.</td>
</tr>
<tr>
<td>CHBE 410</td>
<td>APPLIED BIOMOLECULAR ENGINEERING</td>
<td>APPLIED BIOMOLECULAR ENGR</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHBE 301 and CHBE 310</td>
<td>Covers core principles, design considerations and empirical techniques required for biomolecular engineering workflows, control systems engineering for biological chassis including feedback and dynamic regulation, separations of biological molecules, and bioprocess engineering.</td>
</tr>
<tr>
<td>CHBE 411</td>
<td>THERMODYNAMICS I</td>
<td>THERMODYNAMICS I</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHBE 301 and CHBE 305</td>
<td>Development and application of the first and second laws of thermodynamics.</td>
</tr>
<tr>
<td>CHBE 412</td>
<td>THERMODYNAMICS II</td>
<td>THERMODYNAMICS II</td>
<td>Chemical &amp; Biomolecular Engr</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHBE 410</td>
<td>Advanced treatment of chemical and phase equilibria in multicomponent systems. Includes a detailed study of nonideal solutions. Instructor Permission Required.</td>
</tr>
</tbody>
</table>

Instructor Permission Required.
CHBE 415 - SEPARATION TECHNOLOGIES FOR CHEMICAL AND BIOMOLECULAR PROCESSES  
**Short Title:** SEPARATION TECHNOLOGIES  
**Department:** Chemical & Biomolecular Engr  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CHBE 301  
**Description:** This course covers general separation principles by equilibrium, diffusion and convective mass transport. Topics covered include mass transport, distillation, solid-liquid and liquid-liquid extraction, crystallization, absorption, adsorption, stripping and membrane processes. Graduate/Undergraduate Equivalency: CHBE 515. Mutually Exclusive: Cannot register for CHBE 415 if student has credit for CHBE 515.  

CHBE 418 - ELECTRON TRANSPORT IN SOLIDS  
**Short Title:** ELECTRON TRANSPORT IN SOLIDS  
**Department:** Chemical & Biomolecular Engr  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course is designed to understand how charge and energy flow in basic semiconductor devices. First or second year graduate students from different disciplines and backgrounds will learn about fundamental concepts that describe the physics of semiconductors all the way from atoms and crystal structure to the workings of solar cells and light emitting diodes. Graduate/Undergraduate Equivalency: CHBE 518.  

CHBE 420 - TRANSPORT PHENOMENA IN BIOENGINEERING  
**Short Title:** TRANSPORT PHENOMENA BIOENG  
**Department:** Chemical & Biomolecular Engr  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MATH 211 and MATH 212 and BIOE 391 and (BIOE 332 or CHBE 412)  
**Description:** This course covers transport phenomena as applied to biological systems and biomedical devices. Conservation of momentum and mass equations are first derived and then used to analyze transport of momentum and mass in biology, physiology, and in biomedical devices. This course is designed for senior bioengineering students. Cross-list: BIOE 420.  

CHBE 425 - THERMODYNAMIC APPLICATIONS FOR ENERGY AND ENVIRONMENTAL SYSTEMS  
**Short Title:** THERMO FOR ENERGY/ENVIRONMENT  
**Department:** Chemical & Biomolecular Engr  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CHBE 412  
**Description:** Review of fundamentals of phase and chemical equilibrium thermodynamics and electro-chemistry, and their applications to model the phase behavior of petroleum reservoir fluids, and the generation and transformation of energy from renewable resources. Modeling of the partitioning of contaminants in the environment, carbon capture and sequestration and other environmental applications. Graduate/Undergraduate Equivalency: CHBE 525.  

CHBE 443 - CHEMICAL ENGINEERING LAB III  
**Short Title:** CHEMICAL ENGINEERING LAB III  
**Department:** Chemical & Biomolecular Engr  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CHBE 343 and CHBE 402 and CHBE 412  
**Description:** Experiments demonstrating principles presented in core chemical engineering courses including transport phenomena, thermodynamics, and process control professionalism and engineering ethics.  

CHBE 450 - PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE  
**Short Title:** PETRO PHASE BEHAV & FLOW ASSUR  
**Department:** Chemical & Biomolecular Engr  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CHBE 305 and CHBE 412  
**Description:** Reviews fundamentals of phase and chemical equililibria thermodynamics focusing on the application of experimental and advanced modeling techniques to characterize reservoir fluids and predict their phase behavior and thermo-physical properties. Intended for students who wish to develop expertise on PVT modeling and gain understanding of common petroleum flow assurance problems. Graduate/Undergraduate Equivalency: CHBE 550. Mutually Exclusive: Cannot register for CHBE 450 if student has credit for CHBE 550.
CHBE 455 - TWO PHASE FLOW/MULTIPHASE FLOW IN PIPES
Short Title: TWO PHASE FLOW/MULTIPHASE FLOW
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course addresses the basics concepts, fundamentals, mathematical modeling and practical issues in multiphase fluid flow containing oil, water, gas and suspended solid particles in the oil and gas well columns, offshore and onshore production systems and pipelines. This course will have both an undergraduate and graduate level. Graduate/Undergraduate Equivalency: CHBE 555. Mutually Exclusive: Cannot register for CHBE 455 if student has credit for CHBE 555.

CHBE 465 - STATISTICAL PHYSICS WITH APPLICATIONS TO MOLECULAR NANOSCIENCE AND TECHNOLOGY
Short Title: STAT PHY W/MOL NANOSCI & TECH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explains the foundations of modern statistical physics, including the renormalization group theory, and describes applications to phenomena at the molecular ("nano") scale in various disciplines including chemical engineering, physics, chemistry, electrical engineering, and material science. No knowledge of statistical physics is required, but fundamentals of thermodynamics are useful. Graduate/Undergraduate Equivalency: CHBE 565. Mutually Exclusive: Cannot register for CHBE 465 if student has credit for CHBE 565.

CHBE 468 - INDUSTRIAL CHEMICAL PROCESSES
Short Title: INDUSTRIAL CHEMICAL PROCESSES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and CHBE 390
Description: Survey of the range of key industrial chemical processes to understand the application of industrial chemistry, catalysis, reactor design, and other chemical engineering technologies in the development of those processes. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 568.

CHBE 470 - PROCESS DYNAMICS AND CONTROL
Short Title: PROCESS DYNAMICS & CONTROL
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHBE 390 and CHBE 402 and CHBE 412

CHBE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHBE 490 - CHEMICAL CAR ENGINEERING AND DESIGN
Short Title: CHEM CAR ENG AND DESIGN
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An engineering design course focused on the design and fabrication of a car powered by a chemical reaction. Repeatable for Credit.

CHBE 495 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of advanced topics of interest. Students will spend time exploring special topics chosen with their advisor, and will participate in weekly discussion groups. The number of credits will vary and are awarded based on total time required to explore the chosen project. Instructor Permission Required. Repeatable for Credit.
CHBE 498 - SUMMER UNDERGRADUATE RESEARCH
Short Title: SUMMER UNDERGRADUATE RESEARCH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern chemical and biomolecular engineering research under the direction of a selected faculty member. Recommended Prerequisite(s): CHBE 301 or CHBE 305 or CHBE 310 Repeatable for Credit.

CHBE 499 - UNDERGRADUATE RESEARCH THESIS
Short Title: UNDERGRADUATE RESEARCH THESIS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in modern chemical engineering research under the direction of a selected faculty member. Department Permission Required. Repeatable for Credit.

CHBE 501 - FLUID MECHANICS AND TRANSPORT PROCESSES
Short Title: FLUID MECH & TRANSPORT PROC
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced study in fluid mechanics and transport processes including analytical and numerical approximation methods, boundary layer theory, and potential flow theory.

CHBE 503 - DESIGN FUNDAMENTALS
Short Title: DESIGN FUNDAMENTALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design principles as applied to chemical engineering systems. Engineering economic principles. Costs of equipment, feedstocks, and utilities. Equipment design. Use of modern simulation tools. Graduate level course will include an advanced project as a separate requirement. Department Permission Required. Graduate/ Undergraduate Equivalency: CHBE 403. Mutually Exclusive: Cannot register for CHBE 503 if student has credit for CHBE 403.

CHBE 505 - ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS
Short Title: ADVANCED NUMERICAL METHODS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to advanced numerical methods in chemical engineering. Topics include: systems of linear and nonlinear equations, quadratures, ODEs and PDEs. Monte Carlo methods, optimization, fast Fourier transforms and statistical description of data. Students will be expected to learn and use a high-level programming language as MATLAB or Python.

CHBE 506 - DECISION TOOLS FOR CHEMICAL ENGINEERS
Short Title: DECISION TOOLS FOR CHEM ENGRS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Use of concepts from economics, accounting, and finance in making design and operating decisions in the field of chemical engineering. Introduction to use of life-cycle analysis in decision-making. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 405. Mutually Exclusive: Cannot register for CHBE 506 if student has credit for CHBE 405.

CHBE 510 - FUNDAMENTALS AND APPLICATIONS IN ELECTROCHEMICAL ENERGY CONVERSION
Short Title: ELECTROCHEMISTRY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves electrochemistry fundamentals and their applications in renewable energy conversion technologies. Specific topics will include water splitting, fuel cells, CO2 reduction to fuels, Li ion batteries, flow batteries, and supercapacitors. Recommended Prerequisite(s): Thermodynamics and Physical Chemistry

CHBE 514 - MACROMOLECULAR ENGINEERING
Short Title: MACROMOLECULAR ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an in-depth understanding of the structure-property relationships of soft materials (primarily polymers) at the molecular and macromolecular level. Topics will include polymers synthesis, structure, transport and dynamics. In addition, this course will highlight the applications of complex fluids in energy, medicine and coatings/adhesives. Recommended Prerequisite(s): CHEM 211 AND (CHEM 212 OR CHEM 320) AND (MATH 211 OR MATH 221)
CHBE 515 - SEPARATION TECHNOLOGIES FOR CHEMICAL AND BIOMOLECULAR PROCESSES
Short Title: SEPARATION TECHNOLOGIES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers general separation principles by equilibrium, diffusion and convective mass transport. Topics covered include mass transport, distillation, solid-liquid and liquid-liquid extraction, crystallization, absorption, adsorption, stripping and membrane processes. Graduate/Undergraduate Equivalency: CHBE 415. Mutually Exclusive: Cannot register for CHBE 515 if student has credit for CHBE 415.

CHBE 518 - ELECTRON TRANSPORT IN SOLIDS
Short Title: ELECTRON TRANSPORT IN SOLIDS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to understand how charge and energy flow in basic semiconductor devices. First or second year graduate students from different disciplines and backgrounds will learn about fundamental concepts that describe the physics of semiconductors all the way from atoms and crystal structure to the workings of solar cells and light emitting diodes. Graduate/Undergraduate Equivalency: CHBE 418.

CHBE 519 - ATOMICISTIC SIMULATION METHODS AND ENGINEERING APPLICATIONS
Short Title: ATOMICISTIC SIMULATION
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide students with an introduction to atomistic-scale simulation methods ranging from empirical force fields to electronic structure theory, as well as overview concepts underlying energy minimization, molecular dynamics, and monte carlo simulations. The course will demonstrate the utilization of these methods for predicting chemical and material properties.

CHBE 523 - BIOENGINEERING SYSTEMS AND CONTROL
Short Title: BIOENG SYSTEMS & CONTROLS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to basic principles of control theory and applications of these methods and tools to analyze the dynamics of biological systems with examples from metabolic pathway control, synthetic biology and physiological systems. Cross-list: BIOE 523.

CHBE 525 - THERMODYNAMIC APPLICATIONS FOR ENERGY AND ENVIRONMENTAL SYSTEMS
Short Title: THERMO FOR ENERGY/ENVIRONMENT
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of fundamentals of phase and chemical equilibrium thermodynamics and electro-chemistry, and their applications to model the phase behavior of petroleum reservoir fluids, and the generation and transformation of energy from renewable resources. Modeling of the partitioning of contaminants in the environment, carbon capture and sequestration and other environmental applications. Graduate/Undergraduate Equivalency: CHBE 425.

CHBE 540 - STATISTICAL PHYSICS FOR NANOSCIENCE AND NANOENGINEERING
Short Title: STAT PHYS NANOSCI NANOENG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide students with an introduction to statistical physics and its applications in numerous current fields of nanoscience and nanoengineering, in particular nanotubes, polymers, colloids, magnets, ferroelectrics, liquid crystals, and biological systems. Theories are presented, and the RG theory of phase transitions is discussed. Only basic undergraduate physics and mathematics are required.

CHBE 545 - PRINCIPLES OF BIOMOLECULAR ENGINEERING, DESIGN AND SELECTION
Short Title: PRINC BIOMOLEC ENGR DSGN&SELEC
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the core principles, design considerations and empirical techniques used for engineering biomolecules. Topics include the construction of genetic screens and selections, the concepts of stringency and selective pressure, use of controls, prediction of failure modes, and an overview of modern biomolecular engineering workflows. Recommended Prerequisite(s): UG Molecular Bio Eqiv or CHBE 310 or BIOE 341
CHBE 548 - ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT
Short Title: ENERGY SYS AND SUSTAINABLE DEV
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Application of energy conversion and the energy-environment-economy system. Energy Indexes and its correlation with energy supply and demand. The impact of energy consumption in health, income and education. Environmental policy, climate change and the impact of energy systems. Present and projected supply and demand of energy from primary sources, renewables and non-renewables. Hydroelectric, Thermolectric power generation, from Hydrogen, Nuclear, Solar, Wind, and biomass. Recommended Prerequisite(s): CHBE 411 or MECH 200

CHBE 550 - PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE
Short Title: PETRO PHASE BEHAV & FLOW ASSUR
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHBE 305 and CHBE 412)
Description: Reviews fundamentals of phase and chemical equilibria thermodynamics focusing on the application of experimental and advanced modeling techniques to characterize reservoir fluids and predict their phase behavior and thermo-physical properties. Intended for students who wish to develop expertise on PVT modeling and gain understanding of common petroleum flow assurance problems. At the graduate level (CHBE 550), a final project will be required. Graduate/Undergraduate Equivalency: CHBE 450. Mutually Exclusive: Cannot register for CHBE 550 if student has credit for CHBE 450.

CHBE 552 - ENERGY CONVERSION AND APPLICATION
Short Title: ENERGY CONVERSION AND APPL
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will give an overview of various unconventional and renewable energy resources and technical challenges facing their production and usage. Issues around energy security, sustainability and affordability will be addressed. In addition, the role of disruptive innovations on energy systems will be discussed. The student will develop both a global and regional view on energy production. Recommended Prerequisite(s): CHBE 411 or CHBE 412 or MECH 200

CHBE 555 - TWO PHASE FLOW/MULTIPHASE FLOW IN PIPES
Short Title: TWO PHASE FLOW/MULTIPHASE FLOW
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses the basics concepts, fundamentals, mathematical modeling and practical issues in multiphase fluid flow containing oil, water, gas and suspended solid particles in the oil and gas well columns, offshore and onshore production systems and pipelines. This course will have both an undergraduate and graduate level. Graduate/Undergraduate Equivalency: CHBE 455. Mutually Exclusive: Cannot register for CHBE 555 if student has credit for CHBE 455.

CHBE 557 - DISCOVERY AND ENGINEERING OF BIOACTIVE NATURAL PRODUCTS
Short Title: DISCOVERY & ENG BIO NAT PROD
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course surveys the discovery and biosynthesis of natural products and engineering approaches to modify and optimize production of natural products. Topics include: Mechanistic enzymology. Biosynthetic gene clusters and pathways. Bioinformatic analysis and genome mining. Engineering of enzymes for biocatalysis. Metabolic engineering for natural and non-natural products.

CHBE 558 - INTRODUCTION TO GENOME EDITING AND ENGINEERING
Short Title: GENOME EDITING AND ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to the recent advances in the genome editing and engineering field. Past and current stages of genome-editing technologies, the fundamental mechanisms of different classes of genome-editing proteins, and cutting-edge strategies for engineering novel genome-editing agents and their applications in synthetic biology and therapeutics. Cross-list: BIOE 558.
CHBE 560 - COLLOIDAL AND INTERFACIAL PHENOMENA
Short Title: COLLOIDAL & INTERFACIAL PHENOM
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will provide knowledge into the fundamentals of colloidal interactions (e.g., stabilisation, adsorption, self-assembly) and the techniques currently applied for their assessment. Apart from the theoretical background, the course will also provide applicable knowledge by covering current and emerging applications involving these phenomena. Interfacial tension, wetting and spreading, contact angle hysteresis, interaction between colloid particles, stability of interfaces, flow and transport near interfaces will be covered. NOTE: Offered in alternative year with MSNE 594/CHBE 594. Cross-list: MSNE 560.

CHBE 565 - STATISTICAL PHYSICS WITH APPLICATIONS TO MOLECULAR NANOSCIENCE AND TECHNOLOGY
Short Title: STAT PHY W/MOL NANOSCI & TECH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explains the foundations of modern statistical physics, including the renormalization group theory, and describes applications to phenomena at the molecular ("nano") scale in various disciplines including chemical engineering, physics, chemistry, electrical engineering, and material science. No knowledge of statistical physics is required, but fundamentals of thermodynamics are useful. Graduate/Undergraduate Equivalency: CHBE 465. Mutually Exclusive: Cannot register for CHBE 565 if student has credit for CHBE 465.

CHBE 568 - INDUSTRIAL CHEMICAL PROCESSES
Short Title: INDUSTRIAL CHEMICAL PROCESSES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the range of key industrial chemical processes to understand the application of industrial chemistry, catalysis, reactor design, and other chemical engineering technologies in the development of those processes. Appropriate for juniors and higher. Graduate/Undergraduate Equivalency: CHBE 468.

CHBE 570 - INDUSTRIAL CATALYSIS AND PETROCHEMICAL PROCESSES
Short Title: INDUSTRIAL CATALYSIS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers industrial applications of catalysis and petrochemical processes. It intends to bridge the gap between the fundamentals and theories of heterogeneous catalysis and the practical applications in petrochemical industries. It is suitable for graduate students and advanced undergraduate students with permission. Repeatable for Credit.

CHBE 571 - FLOW AND TRANSPORT THROUGH POROUS MEDIA I
Short Title: FLOW&TRANSPT POROUS MEDIA I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the geology, chemistry, and physics of multicomponent, multiphase fluids in porous media. Includes hydrostatic and hydrodynamic properties of fluids in soils and rocks and the simulation of fundamental transport processes in one dimension.

CHBE 580 - PROTEIN ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Manipulation of gene expression in prokaryotic and eukaryotic cells. Rational design and directed solutions for cell and protein engineering. Selection and screening technologies and process optimization. Synthetic Biology: engineering and application of gene circuits. Molecular biotechnology applications: Diagnosis, Therapeutics and Vaccines. Cross-list: BIOE 580. Recommended Prerequisite(s): CHBE 310/510 or equivalent is highly recommended.

CHBE 582 - INNOVATION AND SUSTAINABILITY
Short Title: INNOVATION & SUSTAINABILITY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in development and environmental economics focusing on how innovation can improve underdeveloped economies and our environment. Introduction to a general framework for assessing the impact of humans on the environment. Environmental consequences of increasing energy use. Case studies showing how innovation information technologies can provide alternatives for sustainable growth. NOTE: Graduate students taking this course will have to write and present a term paper on sustainability, economics and environmental costs, or IT innovation. Graduate/Undergraduate Equivalency: CHBE 382. Mutually Exclusive: Cannot register for CHBE 582 if student has credit for CHBE 382.
CHBE 590 - KINETICS, CATALYSIS, AND REACTION ENGINEERING
Short Title: ADV REACTION ENGRG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of kinetics and reactor design equations; steady state multiplicity and stability; heterogeneous catalysis; catalyst preparation, characterization, testing; catalytic reaction mechanisms; diffusion and reaction in catalyst pellets; conservation equations; reactor analysis; fixed bed reactor design; reactions of solids; mixing in chemical reactors; parameter estimation for reactor models.

CHBE 593 - INTRODUCTION TO POLYMER PHYSICS AND ENGINEERING
Short Title: POLYMER PHYSICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course focuses on demonstrating how the physical properties of polymers can be understood from simple models. Students will be introduced to the terminology and mathematics involved in the physical understanding of polymer systems. The course is intended for students who would like to gain an understanding of modern approaches to polymer physics. NOTE: Not offered every year. Cross-list: MSNE 593.

CHBE 594 - PROPERTIES OF POLYMERS
Short Title: PROPERTIES OF POLYMERS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course will introduce basic concepts in polymer science including the synthesis and chemical modification of polymers as well as physical properties of polymers. Topics include approaches to polymer synthesis, processing and characterization of polymer materials, and an introduction to mathematical models applied to describe the structure and dynamics of polymeric materials. NOTE: Offered in alternative year with MSNE 560/CHBE 560. Cross-list: MSNE 594. Repeatable for Credit.

CHBE 590 - KINETICS, CATALYSIS, AND REACTION ENGINEERING
Short Title: ADV REACTION ENGRG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of kinetics and reactor design equations; steady state multiplicity and stability; heterogeneous catalysis; catalyst preparation, characterization, testing; catalytic reaction mechanisms; diffusion and reaction in catalyst pellets; conservation equations; reactor analysis; fixed bed reactor design; reactions of solids; mixing in chemical reactors; parameter estimation for reactor models.

CHBE 593 - INTRODUCTION TO POLYMER PHYSICS AND ENGINEERING
Short Title: POLYMER PHYSICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course focuses on demonstrating how the physical properties of polymers can be understood from simple models. Students will be introduced to the terminology and mathematics involved in the physical understanding of polymer systems. The course is intended for students who would like to gain an understanding of modern approaches to polymer physics. NOTE: Not offered every year. Cross-list: MSNE 593.

CHBE 594 - PROPERTIES OF POLYMERS
Short Title: PROPERTIES OF POLYMERS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course will introduce basic concepts in polymer science including the synthesis and chemical modification of polymers as well as physical properties of polymers. Topics include approaches to polymer synthesis, processing and characterization of polymer materials, and an introduction to mathematical models applied to describe the structure and dynamics of polymeric materials. NOTE: Offered in alternative year with MSNE 560/CHBE 560. Cross-list: MSNE 594. Repeatable for Credit.
CHBE 609 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS I
Short Title: OIL AND GAS ASSET INTEGRITY I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I," to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: MSNE 609.

CHBE 610 - THERMODYNAMICS AND APPLICATIONS TO HYDROCARBON PRODUCTION AND CHEMICAL ENGINEERING PHENOMENA
Short Title: THERMO APP TO OIL PRODUCTION
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn how thermodynamics can be used to gain insights into hydrocarbon energy production processes. Classical thermo is covered in bulk phase equilibrium and stability, interfaces, and then liquid films areas. Some statistical thermo and molecular simulations. Effect of nano-size and charge on material properties, nucleation, species distribution, climate change, and shale gas/oil.

CHBE 611 - ADVANCED TOPICS-THERMODYNAMICS
Short Title: ADVANCED TOPICS-THERMODYNAMICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced treatment of the thermodynamics of pure and multicomponent systems. Topics range from classical thermodynamics to a discussion of modern developments, and include an introduction to statistical thermodynamics.

CHBE 615 - APPLICATION OF MOLECULAR SIMULATION AND STATISTICAL MECHANICS
Short Title: APPL MOLEC SIMULATN&STAT MECH
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to molecular simulation techniques and applications of statistical mechanics-based theory to engineering problems. Projects involve topics of current research interest. Students are expected to know thermodynamics and to have had some introduction to statistical mechanics.

CHBE 618 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS II
Short Title: OIL AND GAS ASSET INTEGRITY II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I," to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: MSNE 618.

CHBE 620 - TISSUE ENGINEERING
Short Title: TISSUE ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on cell-cell interactions and the role of the extracellular matrix in the structure and function of normal and pathological tissues. Includes strategies to regenerate metabolic organs and repair structural tissues, as well as cell-based therapies to deliver proteins and other therapeutic drugs, with emphasis on issues related to cell and tissue transplantation such as substrate properties, angiogenesis, growth stimulation, cell differentiation, and immunoprotection. Cross-list: BIOE 620.

CHBE 630 - CHEMICAL ENGINEERING OF NANOSTRUCTURED MATERIALS
Short Title: CHEM ENG NANOSTRUCTURE MATRLS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of materials with structural features on the nanometer scale. Discussion of general concepts of synthesis, characterization and applications. Highlight advances found in recent literature.

CHBE 633 - SPECIAL TOPICS ON THE STATISTICAL FOUNDATIONS OF NON-EQUILIBRIUM MOLECULAR NANOSYSTEMS
Short Title: SPEC TOPICS:STAT FNDT MOL NANO
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Selected topics in the foundations of the statistical physics of soft condensed matter, including colloidal, nanoscale, and macromolecular systems. Foundations of transport phenomena statistical theory; stochastic processes in macromolecular and colloidal systems; course-graining; modeling and simulation of intramolecular forces; stochastic differential equations; simulation techniques. Instructor Permission Required.
CHBE 634 - SURFACE ANALYSIS METHODS IN MATERIALS SCIENCE
Short Title: SURFACE ANALYSIS METHODS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the theory and practice of modern surface analysis methods, including secondary ion mass spectroscopy, atomic force microscopy, and X-ray photoelectron spectroscopy. The theory and example application of each technique will be presented, and prior experience with surface analysis is not required. This course may be taken concurrently with the Surface Science Lab, CHBE 636.

CHBE 636 - SURFACE ANALYSIS METHODS LAB
Short Title: SURFACE ANALYSIS METHODS LAB
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHBE 634
Description: Surface science laboratory course for surface analysis techniques including time-of-flight secondary ion mass spectroscopy (ToF-SIMS), X-ray photoelectron spectroscopy (XPS), and atomic force microscopy. Must be taken concurrently with CHBE 634. Instructor Permission Required.

CHBE 640 - METABOLIC ENGINEERING
Short Title: METABOLIC ENGINEERING
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CHBE 650 - THERMODYNAMICS OF INTERFACES, FLUIDS AND ELASTIC MATERIALS
Short Title: FLUIDS AND ELASTIC MATERIALS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Bulk-Phase Equilibrium and Irreversibility, and Interfacial Thermodynamics of fluids and elastic materials are presented in a unified framework. Thermodynamic stability of fluids and elastic solids are also covered. Examples include past climates changes, various diffusion processes, and size effect on properties.

CHBE 655 - THERMODYNAMICS AND APPLICATIONS TO HYDROCARBON PRODUCTION AND CHEMICAL ENGINEERING PHENO
Short Title: THERMODYNAMICS & APPS HC PROD
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How thermodynamics can be used to gain fundamental insights into many chem-e problems and hydrocarbon energy production processes. Course covers classical thermodynamics in the broad context of bulk phase equilibrium and stability, bulk phase irreversible phenomena, interfacial thermodynamics, and thermodynamics of thin liquid films; some statistical thermodynamics and molecular simulations.

CHBE 661 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 662 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 671 - FLOW AND TRANSPORT THROUGH POROUS MEDIA II
Short Title: FLOW&TRANSPORT POROUS MEDIA II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Calculation of multicomponent-multiphase transport in one to three dimensions using finite difference methods. Includes development of multidimensional models of systems and representation and estimation of geological heterogeneity.

CHBE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
CHBE 682 - SYSTEMS BIOLOGY OF HUMAN DISEASES
Short Title: SYS BIO OF HUMAN DISEASES
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to concepts necessary for application of systems - Biology Approaches to Human Diseases. Topics include transcriptional and metabolic design principles, introduction to various regulatory network motifs in diseases and potential treatments using embryonic stem cells. Analysis of complex diseases using engineering concepts such as optimality, nonequilibrium thermodynamics, multiscale analysis and spatiotemporal transport. Cross-list: BIOE 682.

CHBE 692 - APPLIED MATHEMATICS FOR CHEMICAL ENGINEERING
Short Title: APPL MATHEMATICS FOR CHEM ENG
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The class focuses on the numerical analysis of various times integration techniques for ordinary differential equations, as well as spatial and temporal discretization methods for hyperbolic and parabolic partial differential equations that describe processes in engineering and biology. Homework and projects aim at the comparative evaluation of the various schemes discussed in class. Recommended prerequisite(s): Knowledge of a programming language (Fortran preferably) elementary P.D.E.'s, basic concepts of calculus.

CHBE 693 - APPLIED MATHEMATICS FOR CHEMICAL ENG PART II: APPLICATIONS
Short Title: APPLIED MATH CHEM ENG II: APPS
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students are introduced to several basic applications of mathematics problems of chemical engineering and other fields of engineering and science. Recommended Prerequisite(s): CHBE 692

CHBE 695 - MCHE INDEPENDENT STUDY
Short Title: MCHE INDEPENDENT STUDY
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will do research and/or carry out independent study on a particular problem as agreed by the student and advisor. The number of credit hours granted will be determined in each case based upon work load. Students will be provided an outline (syllabus) of the expectations for hours and product that will be reviewed periodically with the advisor and course instructor. Instructor Permission Required. Repeatable for Credit.

CHBE 700 - M.S. RESEARCH AND THESIS
Short Title: M.S. RESEARCH AND THESIS
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 720 - SPECIAL TOPICS IN CHEMICAL ENGINEERING I
Short Title: SPECIAL TOPICS CHEM ENGRG I
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 760 - BAYLOR/RICE MD/PHD PROGRAM
Short Title: BAYLOR/RICE MD/PHD PROGRAM
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Chemical & Biomolecular Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CHBE 801 - SPECIAL TOPICS IN CHEMICAL ENGINEERING II
Short Title: SPECIAL TOPICS CHEM ENGRG II
Department: Chemical & Biomolecular Engr
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Summer internship in an area related to thesis research or professional broadening. Permission of thesis advisor and department chair required. Repeatable for Credit.
Chemistry (CHEM)

CHEM 101 - INTRODUCTION TO SCIENTIFIC RESEARCH
Short Title: INTRO SCIENTIFIC RESEARCH
Department: Chemistry
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is for rising junior and senior high school students. As visiting students, the students will conduct scientific research in the laboratories of Rice faculty in the areas of Nanotechnology, Chemistry, Materials, and Engineering. Two applications need to be submitted for enrollment into this course. First, the Research Experience in Chemistry application (download the Chemistry application here: https://chemistry.rice.edu/community/chem-101-intro-scientific-research) should be emailed, along with all the required documents as indicated in the application, to CHEM101@rice.edu. Upon confirmation of acceptance from the Chemistry department, students must then complete the visiting student application process for high school students. Instructions to do this can be found in the Application Checklist at summer.rice.edu. Instructor Permission Required. Repeatable for Credit.

CHEM 110 - FRESHMAN CHEMISTRY SEMINAR
Short Title: FRESHMAN CHEMISTRY SEMINAR
Department: Chemistry
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This half-semester course introduces freshmen to chemical research at Rice and in Houston. All first-year non-transfer students are eligible to enroll in CHEM 110 regardless of AP credit. Here: https://chemistry.rice.edu/community/chem-101-intro-scientific-research

CHEM 111 - AP/OTH CREDIT IN GENERAL CHEMISTRY I
Short Title: AP/OTH CREDIT IN GEN CHEM I
Department: Chemistry
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 121, but does not count for distribution.

CHEM 112 - AP/OTH CREDIT IN GENERAL CHEMISTRY II
Short Title: AP/OTH CREDIT IN GEN CHEM II
Department: Chemistry
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 122, but does not count for distribution.

CHEM 113 - AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I
Short Title: AP/OTH CREDIT-GEN CHEM LAB I
Department: Chemistry
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 123, but does not count for distribution.

CHEM 114 - AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II
Short Title: AP/OTH CREDIT-GEN CHEM LAB II
Department: Chemistry
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in chemistry, such as the Chemistry Advanced Placement exam or the International Baccalaureate higher-level chemistry exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of CHEM 124, but does not count for distribution.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Distribution Group</th>
<th>Credit Hours</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121</td>
<td>GENERAL CHEMISTRY I</td>
<td>GENERAL CHEMISTRY I</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>Distribution Group</td>
<td>3</td>
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</tr>
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<td>GENERAL CHEMISTRY LABORATORY I</td>
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<td>Chemistry</td>
<td>Standard Letter</td>
<td>Laboratory</td>
<td>Distribution Group</td>
<td>1</td>
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<td>GENERAL CHEMISTRY LABORATORY II</td>
<td>GENERAL CHEMISTRY LAB II</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Laboratory</td>
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</tr>
</tbody>
</table>

**CHEM 121 - GENERAL CHEMISTRY I**

**Short Title:** GENERAL CHEMISTRY I  
**Department:** Chemistry  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction of chemical phenomena emphasizing problems and methods in Chemistry. Either CHEM 121 or CHEM 151 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. Students must also register for CHEM 123 General Chemistry Laboratory I. The course and the co-requisite lab are graded jointly.

**CHEM 122 - GENERAL CHEMISTRY II**

**Short Title:** GENERAL CHEMISTRY II  
**Department:** Chemistry  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** CHEM 111 or CHEM 121 or CHEM 151  
**Description:** A continuation of CHEM 121. Either CHEM 122 or CHEM 152 may be taken as prerequisites for higher study in chemistry, but only one may be taken for credit. Students must also register for CHEM 124 General Chemistry Laboratory II. The course and the co-requisite lab are graded jointly.

**CHEM 123 - GENERAL CHEMISTRY LABORATORY I**

**Short Title:** GENERAL CHEMISTRY LAB I  
**Department:** Chemistry  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Required laboratory component of CHEM 121. Students must also register for CHEM 121. Credit may only be received for either CHEM 123 or CHEM 153 but not both. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 123 no longer eligible beginning Fall 2019.

**CHEM 124 - GENERAL CHEMISTRY LABORATORY II**

**Short Title:** GENERAL CHEMISTRY LAB II  
**Department:** Chemistry  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hours:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** CHEM 113 or CHEM 123 or CHEM 153  
**Description:** Required laboratory component of CHEM 122. Students must also register for CHEM 122. Credit may not be received for both CHEM 124 and CHEM 154. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 124 no longer eligible beginning Fall 2019.

**CHEM 151 - HONORS CHEMISTRY I**

**Short Title:** HONORS CHEMISTRY I  
**Department:** Chemistry  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Corequisite:** CHEM 153  
**Description:** An accelerated introduction to chemical phenomena emphasizing principles and theories in chemistry. Recommended strongly for students who plan to major in chemistry or have a strong high school background. Students with AP credit in Chemistry who intend to pursue advanced study in Chemistry are strongly encouraged to take CHEM 151 and CHEM 152. Students must also register for CHEM 153, which is laboratory that meets once per week. Either CHEM 121 or CHEM 151 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. The course and the co-requisite lab are graded jointly. Recommended prerequisite(s): high school chemistry and physics.

**CHEM 152 - HONORS CHEMISTRY II**

**Short Title:** HONORS CHEMISTRY II  
**Department:** Chemistry  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** CHEM 151 or CHEM 111  
**Corequisite:** CHEM 154  
**Description:** A continuation of CHEM 151. Students with AP credit in Chemistry who intend to pursue advanced study in Chemistry are strongly encouraged to take CHEM 151 and CHEM 152. Students must also register for CHEM 154 which is a laboratory that meets once per week. Either CHEM 122 or CHEM 152 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. The course and the co-requisite are graded jointly.
CHEM 153 - HONORS CHEMISTRY LABORATORY I
Short Title: HONORS CHEMISTRY LABORATORY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 151
Description: Required laboratory component of CHEM 151. Students must also register for CHEM 151. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 153 no longer eligible beginning Fall 2019.

CHEM 154 - HONORS CHEMISTRY LABORATORY II
Short Title: HONORS CHEMISTRY LABORATORY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 153 or CHEM 123 or CHEM 113
Corequisite: CHEM 152
Description: Required laboratory component of CHEM 152. Students must also register for CHEM 152. The course and the co-requisite lab are graded jointly. Distribution Credit for CHEM 154 no longer eligible beginning Fall 2019.

CHEM 176 - THE CHEMISTRY OF ART
Short Title: THE CHEMISTRY OF ART
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The chemistry of the materials and methods used to create, conserve and authenticate art objects will be presented. Topics may include sculpture, painting, photography, textiles, jewelry, furniture, etc. Taught in conjunction with the Conservation Department and Staff of the MFAH. Some classes will be held at the MFAH or HMNS.

CHEM 178 - THE CHEMISTRY OF COOKING
Short Title: THE CHEMISTRY OF COOKING
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the chemistry involved in the composition, transformation, and consumption of food. Topics include chemical properties and reactions of food, cooking tools, and techniques, sensory perception, and nutrition. Lectures and hands-on kitchen experiments are taught in conjunction with Rice Dining Service. Knowledge of high school chemistry is expected.

CHEM 201 - ADVANCED TOPICS IN GENERAL CHEMISTRY
Short Title: ADV TOPICS IN GEN CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (CHEM 111 and CHEM 112) and (MATH 101 (may be taken concurrently) or MATH 102 (may be taken concurrently) or MATH 105 or MATH 106 or MATH 111 or MATH 112)
Description: CHEM 201 is a one-semester lecture course intended for 1st-year undergraduate prospective Chemistry majors who have received credit for AP Chemistry (or equivalent). It is strongly encouraged for those who will take upper-level chemistry courses as a means to refresh and deepen their understanding of challenging core topics. Focus areas include: quantum descriptions of atoms and molecules, chemical thermodynamics, equilibria, and reaction kinetics. Completion of AP Calculus or concurrent enrollment in Math 101 or 102 is expected.

CHEM 205 - ADVANCED TOPICS IN GENERAL CHEMISTRY LAB
Short Title: ADV TOPICS IN GEN CHEM LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 201
Description: Required laboratory component for CHEM 201. Students must also register for CHEM 201.

CHEM 210 - WILD TOPICS IN CHEMISTRY AND NANOTECHNOLOGY
Short Title: WILD TOPICS CHEM AND NANOTECH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A variety of topics related to chemistry and nanotechnology will be discussed. Some topics are classical while others are current. Topics may include nanocars, molecular electronics, how to form a startup company. Grades will be based upon attendance and quizzes. Cross-list: CEVE 210, MSNE 210. Repeatable for Credit.
CHEM 211 - ORGANIC CHEMISTRY I
Short Title: ORGANIC CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 112 or CHEM 122 or CHEM 152
Corequisite: CHEM 213
Description: Organic chemistry of aliphatic and aromatic compounds with emphasis on structure, functional groups, bonding, stereochemistry, and reaction mechanisms. CHEM 211 may be taken as a prerequisite for higher study in chemistry. CHEM 211 and CHEM 213 are co-requisites and must be taken together in the same semester.

CHEM 212 - ORGANIC CHEMISTRY II
Short Title: ORGANIC CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHEM 211 or CHEM 319
Corequisite: CHEM 214
Description: Continuation of CHEM 211 with an emphasis on aromatic compounds, reactivity and biologically relevant molecules. Either CHEM 212 or CHEM 320 may be taken as a prerequisite for higher study in chemistry, but only one of these may be taken for credit. CHEM 212 and CHEM 214 are co-requisites and must be taken together the same semester. Mutually Exclusive: Cannot register for CHEM 212 if student has credit for CHEM 320.

CHEM 213 - ORGANIC CHEMISTRY DISCUSSION
Short Title: ORGANIC CHEMISTRY DISCUSSION
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 211
Description: CHEM 211 and CHEM 213 are co-requisites and must be taken together in the same semester.

CHEM 214 - ORGANIC CHEM DISCUSSION II
Short Title: ORGANIC CHEM DISCUSSION II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: CHEM 212
Description: CHEM 212 and CHEM 214 are co-requisites and must be taken together in the same semester. Repeatable for Credit.
CHEM 280 - UNDERGRADUATE TEACHING PRACTICUM
Short Title: UG TEACHING PRACTICUM
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, undergraduates who have previously excelled in CHEM courses will develop teaching skills while supporting faculty as teaching assistants (TAs) in a particular CHEM course for the benefit of the students taking that particular course. This course is open only to undergraduates with special permission of the course instructor and can be repeated for credit. Instructor Permission Required. Repeatable for Credit.

CHEM 301 - PHYSICAL CHEMISTRY I
Short Title: PHYSICAL CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 212 or MATH 222)
Description: An introduction to fundamental principles in quantum chemistry, chemical bonding and molecular spectroscopy. Mutually Exclusive: Cannot register for CHEM 301 if student has credit for CHEM 312.

CHEM 302 - PHYSICAL CHEMISTRY II
Short Title: PHYSICAL CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 301 or CHEM 319 and (CHEM 215 (may be taken concurrently) or CHEM 365 (may be taken concurrently))
Description: A continuation of CHEM 211 that is in greater depth than CHEM 212. Primarily for chemistry majors and science or engineering students with a strong interest in chemistry research. Either CHEM 212 or CHEM 320 completes the two-semester organic chemistry sequence and may be taken as a prerequisite for higher study in chemistry. Majors other than CHEM should request instructor permission to enroll. Pre-requisite of CHEM 215/CHEM 365 may be taken concurrently with CHEM 320. Mutually Exclusive: Cannot register for CHEM 320 if student has credit for CHEM 212.

CHEM 319 - ORGANIC CHEMISTRY I
Short Title: ORGANIC CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 or CHEM 212 or CHEM 319 and (CHEM 215 (may be taken concurrently) or CHEM 365 (may be taken concurrently))
Description: CHEM 319 focuses on the understanding of organic reaction mechanisms as well as on the prediction of reactivity by carefully analyzing the participating molecular orbitals, stereochemistry and relevant molecular conformations of the substrates as well as the specific reaction conditions.
CHEM 365 - ORGANIC CHEMISTRY LAB
Short Title: ORGANIC CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 212 or CHEM 319
Description: Experiments illustrating techniques in synthetic organic chemistry and instrumental methods of analysis. Normally taken in conjunction with CHEM 212 or CHEM 320. NOTE: only one of CHEM 232 and CHEM 365 may be taken for credit.

CHEM 366 - INORGANIC CHEMISTRY LAB
Short Title: INORGANIC CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Inorganic Chemistry Laboratory. Experiments illustrating techniques in inorganic and organometallic chemistry and instrumental methods of analysis. Normally taken in conjunction with CHEM 212 or CHEM 320. NOTE: only one of CHEM 232 and CHEM 366 may be taken for credit.

CHEM 367 - MATERIALS CHEMISTRY LAB
Short Title: MATERIALS CHEMISTRY LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Experiments illustrating techniques in synthetic organic chemistry and instrumental methods of analysis. Normally taken in conjunction with CHEM 212 or CHEM 320. NOTE: only one of CHEM 232 and CHEM 367 may be taken for credit.

CHEM 368 - CHEMICAL MEASUREMENT LAB
Short Title: CHEMICAL MEASUREMENT LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Experiments illustrating techniques in synthetic organic chemistry and instrumental methods of analysis. Normally taken in conjunction with CHEM 212 or CHEM 320. NOTE: only one of CHEM 381 and CHEM 368 may be taken for credit. Mutually Exclusive: Cannot register for CHEM 381 and CHEM 368 if student has credit for CHEM 381.

CHEM 369 - ADVANCED INORGANIC SYNTHESIS
Short Title: ADVANCED INORGANIC SYNTHESIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced techniques in inorganic and organometallic synthesis will be covered including air sensitive manipulations using Schlenk line, vacuum lines and dry box. Graduate students may register with an approved Special Registration form.

CHEM 390 - RESEARCH FOR UNDERGRADUATES
Short Title: RESEARCH FOR UNDERGRADUATES
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent chemical research at Rice or in other Texas Medical Center groups. Students spend at least 3 hours per week in the laboratory for each semester hour of credit, in addition to other requirements. If taken for 3 or more hours, counts toward the CHEM 391 requirement for the BS degree in chemistry. Instructor permission required. Students are expected to complete CHEM 391 before the end of their junior year; permission is not normally granted for students in their final year of undergraduate study. Prior to enrollment, students must secure a position in a laboratory. Application materials found on the department website must be submitted by August 1st for Fall term and December 1st for the Spring term. Instructor Permission Required.

CHEM 391 - RESEARCH FOR UNDERGRADUATES
Short Title: RESEARCH FOR UNDERGRADUATES
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent chemical research at Rice or in other Texas Medical Center groups. Students spend at least 3 hours per week in the laboratory for each semester hour of credit, in addition to other requirements. If taken for 3 or more hours, counts toward the CHEM 391 requirement for the BS degree in chemistry. Instructor permission required. Students are expected to complete CHEM 391 before the end of their junior year; permission is not normally granted for students in their final year of undergraduate study. Prior to enrollment, students must secure a position in a laboratory. Application materials found on the department website must be submitted by August 1st for Fall term and December 1st for the Spring term. Instructor Permission Required.

CHEM 398 - ADVANCED MODULE: DEVELOPMENT OF EXPERIMENTS FOR UNDERGRADUATE CHEMISTRY LABS
Short Title: ADV MOD DEV EXP UG CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An advanced laboratory module open to exceptional majors to develop laboratory experiments under the supervision of a chemistry faculty member. Each student will design an experiment to be included in an undergraduate teaching lab. Required is a written document, which should include an experimental protocol, background information and possible pre- and post-lab questions. Instructor Permission Required.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 401</td>
<td>ADVANCED ORGANIC CHEMISTRY</td>
<td>ADVANCED</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHEM 212 or CHEM 320</td>
<td>The principles of structure and bonding are used to explain and predict reactivity in organic chemistry. Extensive practice with reaction mechanism and curved-arrow formalism. Topics include conformational analysis, acidity/basicity, functional group preparation, stereoselective synthesis, and organo-element chemistry. Graduate/Undergraduate Equivalency: CHEM 501. Mutually Exclusive: Cannot register for CHEM 401 if student has credit for CHEM 501.</td>
</tr>
<tr>
<td>CHEM 415</td>
<td>CHEMICAL KINETICS AND DYNAMICS</td>
<td>CHEMICAL</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>MATH 212 and (PHYS 102 or PHYS 112)</td>
<td>Description and analysis of the rates of unimolecular, bimolecular and composite chemical reactions in gas and solution phases. Both macroscopic kinetics and microscopic reaction dynamics are covered. Graduate/Undergraduate Equivalency: CHEM 515. Mutually Exclusive: Cannot register for CHEM 415 if student has credit for CHEM 515.</td>
</tr>
<tr>
<td>CHEM 420</td>
<td>CLASSICAL AND STATISTICAL THERMODYNAMICS</td>
<td>CLASSICAL</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHEM 360</td>
<td>A review of the principles of classical thermodynamics and an introduction to the theories and methods of statistical thermodynamics with applications to problems in chemistry. Graduate/Undergraduate Equivalency: CHEM 520. Mutually Exclusive: Cannot register for CHEM 420 if student has credit for CHEM 520.</td>
</tr>
<tr>
<td>CHEM 430</td>
<td>QUANTUM CHEMISTRY</td>
<td>QUANTUM</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>(CHEM 310 or CHEM 312 or CHEM 301) and MATH 212 and (PHYS 102 or PHYS 112)</td>
<td>The purpose of this course is to provide the student with a working knowledge of the basic concepts and mathematical formalism of quantum mechanics. Topics include the mathematics of quantum mechanics, one-dimensional problems, central field problems, the harmonic oscillator, angular momentum, perturbation theory, spin, and introduction to methods of modern electronic structure theory, with applications in atomic and molecular structures, spectroscopy, and chemical bonding. Graduate/Undergraduate Equivalency: CHEM 530. Mutually Exclusive: Cannot register for CHEM 430 if student has credit for CHEM 530.</td>
</tr>
<tr>
<td>CHEM 475</td>
<td>PHYSICAL METHODS IN INORGANIC CHEMISTRY</td>
<td>PHYS METH</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHEM 360</td>
<td>A survey course of research techniques used in modern inorganic chemistry. Topics covered will include X-ray diffraction, mass spectrometry, magnetism, and various spectroscopies (IR, Raman, UV-Vis, NMR, EPR, XPS, and Mossbauer). Graduate/Undergraduate Equivalency: CHEM 575. Mutually Exclusive: Cannot register for CHEM 475 if student has credit for CHEM 575.</td>
</tr>
<tr>
<td>CHEM 477</td>
<td>SPECIAL TOPICS</td>
<td>SPECIAL</td>
<td>Chemistry</td>
<td>Standard Letter</td>
<td>Internship/Practicum, Lecture, Seminar, Laboratory</td>
<td>1-4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHEM 311 and CHEM 312</td>
<td>Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.</td>
</tr>
</tbody>
</table>
CHEM 491 - RESEARCH FOR UNDERGRADUATES
Short Title: RESEARCH FOR UNDERGRADUATES
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 391
Description: Independent chemical research at Rice or in other Teams Medical Center groups. Ordinarily taken by students who have taken CHEM 391. Students spend at least 3 hours per week in the laboratory for each semester hour of credit, in addition to other requirements. Instructor permission required. Prior to enrollment, students must secure a position in a laboratory. Application materials, found on the department website, must be submitted by August 1st for Fall term, December 1st for Spring term, or April 1st for Summer term. Instructor Permission Required. Repeatable for Credit.

CHEM 492 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 391
Description: The 1st half of the Honors Research Program. CHEM 492 and CHEM 493 function as a pair and must be taken in the same academic year. Requirements include at least 15 hours or laboratory research per week and a thesis (research report). Students who complete the Chemistry Honors Research Program are given primary consideration for "Distinction in Research and Creative Work," a university award for select undergraduates, chosen by the department and granted at commencement, which appears on the transcript and diploma. Ordinarily offered Fall term. Instructor Permission Required.

CHEM 493 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 492
Description: The 2nd half of the Honors Research Program. CHEM 492 and CHEM 493 function as a pair and must be taken in the same academic year. Requirements include at least 15 hours or laboratory research per week and a thesis (research report). Students who complete the Chemistry Honors Research Program are given primary consideration for "Distinction in Research and Creative Work," a university award for select undergraduates, chosen by the department and granted at commencement, which appears on the transcript and diploma. Ordinarily offered Fall term. Instructor Permission Required.

CHEM 495 - TRANSITION METAL CHEMISTRY
Short Title: TRANSITION METAL CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 and CHEM 360
Description: Structure, bonding and reactivity of coordination and organometallic compounds; ligand field theory; electronic spectroscopy; magnetism; reaction mechanisms; catalysis. Graduate/Undergraduate Equivalency: CHEM 595. Mutually Exclusive: Cannot register for CHEM 495 if student has credit for CHEM 595.

CHEM 501 - ADVANCED ORGANIC CHEMISTRY
Short Title: ADVANCED ORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The principles of structure and bonding are used to explain and predict reactivity in organic chemistry. Extensive practice with reaction mechanism and curved-arrow formalism. Topics include conformational analysis, acidity/basicity, functional group preparation, stereoselective synthesis, and organo-element chemistry. Graduate/Undergraduate Equivalency: CHEM 401. Mutually Exclusive: Cannot register for CHEM 501 if student has credit for CHEM 401.

CHEM 505 - PROPOSAL WRITING AND REVIEW IN CHEMISTRY
Short Title: PROPOSAL WRITING IN CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches how to prepare scientific proposals including developing an idea, writing, and peer review including creating a mock panel review.
CHEM 511 - SPECTRAL METHODS IN ORGANIC CHEMISTRY  
Short Title: SPECTRAL METHODS ORGANIC CHEM  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): CHEM 212 or CHEM 320  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. Elucidation of organic structures by physical techniques. Interpretation of infrared, ultraviolet, nuclear magnetic resonance, and mass spectral.

CHEM 515 - CHEMICAL KINETICS AND DYNAMICS  
Short Title: CHEMICAL KINETICS & DYNAMICS  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Description and analysis of the rates of unimolecular, bimolecular, and composite chemical reactions in gas and solution phases. Both macroscopic kinetics and microscopic reaction dynamics are covered. Graduate/Undergraduate Equivalency: CHEM 415. Mutually Exclusive: Cannot register for CHEM 515 if student has credit for CHEM 415.

CHEM 520 - CLASSICAL AND STATISTICAL THERMODYNAMICS  
Short Title: CLASSICAL & STAT THERMODYNAMIC  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): CHEM 310 or (CHEM 311 or CHEM 312) and MATH 212 and (PHYS 102 or PHYS 112)  
Description: A review of the principles of classical thermodynamics and an introduction to the theories and methods of statistical thermodynamics with applications to problems in chemistry. Graduate/Undergraduate Equivalency: CHEM 420. Mutually Exclusive: Cannot register for CHEM 520 if student has credit for CHEM 420.

CHEM 523 - ADVANCED ANALYSIS METHODS FOR MOLECULAR DYNAMICS FROM STATISTICAL MECHANICS TO MACHINE LEARNING  
Short Title: MOLECULAR DYNAMICS METHODS  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. Modern methods to extract physical and chemical information from molecular dynamics simulation will be presented, including the determination of reaction coordinates, free energies calculations, and estimation of experimentally measurable observables. The theoretical background and different applications will be discussed. The students will apply the methods on practical examples.

CHEM 525 - FUNDAMENTAL PHOTOLUMINESCENCE SPECTROSCOPY  
Short Title: FUND PHOTOLUM SPECT  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. A hands-on approach to the methods of computational quantum chemistry and their application.
CHEM 533 - NANOSCIENCE AND NANO TECHNOLOGY I  
Short Title: NANOSCIENCE & NANO TECHNOLOGY  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introduction to the basic principles of nanoscience and nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester. Expected to be taught Spring 2019. Cross-list: CEVE 533, MSNE 534.

CHEM 537 - BIOPHYSICAL CHEMISTRY  
Short Title: BIOPHYSICAL CHEMISTRY  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will cover selected modern experimental and theoretical approaches to biophysical problems. Specifically, protein folding, single molecules and cytoskeleton dynamics will be discussed from theoretical and experimental points of view.

CHEM 541 - MOLECULES THAT CHANGED THE WORLD  
Short Title: MOLECULES CHANGED THE WORLD  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): CHEM 212 or CHEM 320  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will expand on our learned knowledge of some of the Nature's most intriguing molecules and the ability of Man to discover, synthesize, modify and use them to our advantage in what areas were not formerly envisioned. Undergraduates may register for the course by filling out a special registration form. These forms can be brought to DBH 243 for processing.

CHEM 542 - MEDICINAL CHEMISTRY I  
Short Title: MEDICINAL CHEMISTRY I  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): (CHEM 212 or CHEM 320) and BIOC 301  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introductory course intended to provide the student with an overview of the elements of drug discover, design and development. Targets for drug discovery will be discussed, as well as considerations of drug optimization with respect to the biological target and drug metabolism. A summary of the FDA and patent processes will also be included. Undergraduates may register for the course by filling out a special registration form. These forms can be brought to DBH 243 for processing.

CHEM 545 - PHYSICAL ORGANIC CHEMISTRY  
Short Title: PHYSICAL ORGANIC CHEMISTRY  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of organic reaction mechanisms. Includes Huckel M.O. theory, kinetics, isotope effects, linear free energy relationships, thermochemical group additivity, substituent and solvent effects, acidity, and free radical chemistry. Recommended Prerequisite(s): CHEM 311. Repeatable for Credit.

CHEM 547 - SUPRAMOLECULAR CHEMISTRY  
Short Title: SUPRAMOLECULAR CHEMISTRY  
Department: Chemistry  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): CHEM 212 or CHEM 320  
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An examination of noncovalent interactions and their impact in biology, chemistry, and engineering. Topics will include self-assembly, molecular recognition, protein folding and structure, nucleic acid structure, polymer organization, crystallization and applications of the above for the design and synthesis of nanostructured materials.
CHEM 548 - PEPTIDE CHEMISTRY DESIGN, SYNTHESIS AND STRUCTURE
Short Title: PEPTIDE CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Undergraduates may register for this course by Special Registration form. The course examines solid phase peptide synthesis and strategies to prepare both simple and complex peptide primary architectures. This is followed by looking at analytical methods to assess peptide purity and structure. The course will then consider the design and characterization of peptide sequences that will result in specific 3D structures.

CHEM 551 - BIOMOLECULAR CONCEPTS
Short Title: BIOMOLECULAR CONCEPTS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 310 or CHEM 311
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will explore quantitative concepts and tools from chemistry and physics relevant to molecular biology. An executive survey of molecular biology and the basic experimental approaches to biomolecular structure will be followed by a discussion of the structural basics of proteins and nucleic acids. The motion and energy landscapes of proteins will be discussed. Protein folding and evolution and the dynamic basis of gene regulation will be explored. Mutually Exclusive: Cannot register for CHEM 551 if student has credit for CHEM 451.

CHEM 552 - CHEMICAL BIOLOGY
Short Title: CHEMICAL BIOLOGY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines biological problems from a chemical perspective. Starting with the structural and functional properties of amino acids, nucleotides, and sugars, we discuss how these molecules organize into higher-order structures (e.g., proteins and nucleic acids). Topics include macromolecular structure-function relationships, developing hybrid chemical/biological drugs, and modern target discovery approaches.

CHEM 555 - DRUG DISCOVERY AT THE INTERFACE OF CHEMISTRY AND BIOLOGY
Short Title: DRUG DISCOVERY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212. Repeatable for Credit.
Description: Drug discovery requires a close integration of chemistry and biology. This course explores the design and development of new medicine from a chemical biological perspective. Topics includes fundamental methods for biomolecule synthesis and engineering and application to hybrid chemical/biologic drugs, as well as modern approaches for target discovery and validation.

CHEM 558 - NANOCRYSTALS
Short Title: NANOCRYSTALS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a detailed investigation into the chemical and physical principles of inorganic nanocrystals. Topics will include nucleation and growth, crystal faceting, surface ligand chemistry, size-dependent properties and scaling relationships, interparticle forces, and nanoparticle self-assembly. Proficiency in physical chemistry and inorganic materials is strongly encouraged.
CHEM 559 - SPECTROSCOPY AT THE SINGLE MOLECULE/PARTICLE LIMIT
Short Title: SPEC SINGLE MOLECULE/PARTICLE
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course will cover principles of electronic spectroscopy of molecules and nanoparticles with emphasis on single molecule/particle spectroscopy methods and analysis techniques.

CHEM 560 - ADVANCED OPTICAL MICROSCOPY
Short Title: ADV OPTICAL MICROSCOPY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. This course covers a broad array of optical techniques for single-molecule detection, spectroscopy, and imaging for detection of (A) motional dynamics, (B) super-resolution structures beyond the diffraction limit, and (C) nanoscale interactions and orientations in biological samples. This course integrates rigorous quantitative analysis approaches and theoretical considerations across the disciplines of chemistry, biology, and physics.

CHEM 570 - NANOTECHNOLOGY FOR TEACHERS, TEACHING CHEMICAL CONCEPTS VIA INQUIRY I
Short Title: TEACHING CHEMICAL CONCEPTS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Using the Concept Development Approach, this course will teach teachers how to engage students in inquiry science and provide teachers with in depth conceptual knowledge about chemical fundamentals. The course will include hands-on activities and discussions about chemical concepts that include gas laws, kinetic molecular theory, acid base equilibrium, and phase equilibrium. Nanotechnology research with biological applications will be highlighted throughout the course. Instructor Permission Required.

CHEM 571 - TEACHING CHEMICAL CONCEPTS VIA INQUIRY II, NANOTECHNOLOGY FOR TEACHERS
Short Title: CHEMICAL CONCEPTS - INQUIRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Using the Concept Development Approach, this course will teach teachers how to engage students in inquiry science and provide teachers with in depth conceptual knowledge about chemical fundamentals. The course will include hands-on activities and discussions about chemical concepts that include gas laws, kinetic molecular theory, acid base equilibrium, and phase equilibrium. Nanotechnology research with biological applications will be highlighted throughout the course. Instructor Permission Required. Recommended Prerequisite(s): CHEM 570.

CHEM 575 - PHYSICAL METHODS IN INORGANIC CHEMISTRY
Short Title: PHYS METH INORGANIC CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey course of research techniques used in modern inorganic chemistry. Topics covered will include X-ray diffraction, matrix isolation, mass spectrometry, magnetism, electrochemistry, and various spectroscopies (IR, Raman, UV-Vis, NMR, EPR, XPS, EXAFS, and Mossbauer). Graduate/Undergraduate Equivalency: CHEM 475. Mutually Exclusive: Cannot register for CHEM 575 if student has credit for CHEM 475.

CHEM 580 - MICROSCOPY METHODS IN MATERIALS SCIENCE
Short Title: MICROSCOPY METHODS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers theory and applications of electron microscopy techniques with an emphasis on transmission and scanning transmission electron microscopy (TEM, STEM). Topics include modern instrumentation and hardware, electron diffraction, imaging modes, tomography, and spectroscopy (energy dispersive x-ray spectroscopy (EDS), electron-energy loss spectroscopy (EELS), cathodoluminescence (CL)). Previous experience with electron microscopes recommended. Can be taken alone or concurrently with lab course MSNE 582. Instructor Permission Required. Cross-list: MSNE 580.
CHEM 582 - ELECTRON MICROSCOPY CENTER LAB
Short Title: ELECTRON MICROSCOPY CENTER LAB
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 580
Description: Hands-on laboratory using the instruments in the electron microscopy center. The students will gain the knowledge necessary to operate the instruments and analyze data independently. Must be taken concurrently with CHEM 580. Instructor Permission Required. Cross-list: MSNE 582.

CHEM 583 - ORGANOMETALLIC CHEMISTRY I
Short Title: ORGANOMETALLIC CHEMISTRY I
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 580
Description: Organometallic Chemistry I. An introduction to organometallic chemistry, focusing on transition metal structure, bonding, and reactivity. This course is the first half of a two-course sequence, together with CHEM 584: Organometallic Chemistry II. Each course is a half-semester course. Expected to be taught 1st half of the term. Undergraduates with appropriate preparation may register by filling out a special registration form. Recommended Prerequisite(s): CHEM 320 or CHEM 212 or CHEM 360

CHEM 584 - ORGANOMETALLIC CHEMISTRY II
Short Title: ORGANOMETALLIC CHEMISTRY II
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: CHEM 583
Description: Organometallic Chemistry II. An introduction to organometallic chemistry, focusing on transition metal structure, bonding, and reactivity. This course is the first half of a two-course sequence, together with CHEM 583: Organometallic Chemistry I. Each course is a half-semester course. Expected to be taught 2nd half of the term. Undergraduates with appropriate preparation may register by filling out a special registration form.

CHEM 586 - CHEMICAL TOOLS FOR BIOLOGY
Short Title: CHEMICAL TOOLS FOR BIOLOGY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: MSNE 582.
Description: Hands-on laboratory using the instruments in the electron microscopy center. The students will gain the knowledge necessary to operate the instruments and analyze data independently. Must be taken concurrently with CHEM 580. Instructor Permission Required. Cross-list: MSNE 582.

CHEM 590 - PROFESSIONAL MASTERS SEMINAR IN APPLIED CHEMISTRY
Short Title: PROF. MS. SEMINAR IN APPLIED CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for students in the Professional Masters Program in Applied Chemistry. The course will consist of two parts. In the first part, speakers from industrial, education and government entities will be invited to give talks on the topics of their activities. In the second part, students will be required to present on various topics related to Applied Chemistry.

CHEM 591 - RESEARCH LAB EXPERIENCE
Short Title: RESEARCH LAB EXPERIENCE
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for students in the Professional Masters’ Program in Applied Chemistry. The student will be assigned to a project and mentor in a current research laboratory in the Chemistry Department.

CHEM 592 - STATISTICAL DATA ANALYSIS
Short Title: STATISTICAL DATA ANALYSIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of the statistical tools and methods needed for the analysis of large scientific datasets including an overview of fundamental statistical concepts, statistical tests, and estimation methods. This course will also provide an introduction to MATLAB as an example of computational tool for the analysis and visualization of large datasets.
CHEM 595 - TRANSITION METAL CHEMISTRY
Short Title: TRANSITION METAL CHEMISTRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structure, bonding and reactivity of coordination and organometallic compounds; ligand field theory; electronic spectroscopy; magnetism; reaction mechanisms; catalysis. Graduate/Undergraduate Equivalency: CHEM 495. Mutually Exclusive: Cannot register for CHEM 595 if student has credit for CHEM 495. Repeatable for Credit.

CHEM 600 - GRADUATE SEMINAR
Short Title: GRADUATE SEMINAR
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1: PHYSICAL CHEMISTRY-NANO Section 2: ORGANIC AND BIOLOGICAL CHEMISTRY Section 3: NANOCHEMISTRY Section 4: CARBON NANOCHEMISTRY. This seminar series is open to all chemistry graduate students or graduate students whose home department is chemistry. Students from other departments may audit the course with instructor permission. Repeatable for Credit.

CHEM 630 - MOLECULAR SPECTROSCOPY AND GROUP THEORY
Short Title: MOLEC SPECTROSCPY &GROUP THRY
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The spectra of simple molecules, including microwave, infrared, visible, ultraviolet, and Raman spectra; introductory aspects of molecular symmetry and group theory; resonance spectroscopy; surface-enhanced spectroscopy.

CHEM 650 - CHEMICAL PHYSICS OF CONDENSED AND BIOLOGICAL MATTER
Short Title: CHEM PHYS CONDENSED&BIO MATTER
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The principles underlying the structure and dynamics of condensed phase and biological matter. Both experimental phenomenology and theoretical approaches will be used. Starting with a review of intermolecular forces, the course will describe the structure and thermodynamics of clusters, crystalline solids, metals, liquids, glasses and biomolecules. A unified picture of reactions and classical and quantum phase transitions in condensed matter will be presented. The energy landscape theory of the dynamics of glasses and protein folding will also be covered. Expected to be taught Fall 2018. Mutually Exclusive: Cannot register for CHEM 650 if student has credit for CHEM 450.

CHEM 656 - CLASSICS IN TOTAL SYNTHESIS
Short Title: CLASSICS IN SYNTHESIS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 401 or CHEM 501
Description: Selected total synthesis will be discussed. Special emphasis will be placed on retro-synthetic analysis, synthetic strategies and technologies, asymmetric synthesis and catalysis.

CHEM 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CHEM 700 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to graduate students in chemistry and only in exceptional circumstances to undergraduates. Repeatable for Credit.

CHEM 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Chemistry
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
Chinese (CHIN)

CHIN 211 - ACCELERATED ELEMENTARY CHINESE I
Short Title: ACCEL ELEMENTARY CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For students with some background in spoken Chinese but not Chinese. Development of interactional competence in Chinese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for CHIN 141 if student has credit for CHIN 101/CHIN 222.

CHIN 212 - ACCELERATED ELEMENTARY CHINESE II
Short Title: ACCEL ELEMENTARY CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHIN 211
Description: Continuation of CHIN 141, for students whose home language is not Chinese. Development of interactional competence in Chinese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit.

CHIN 206 - ACCELERATED SECOND-YEAR CHINESE FOR HERITAGE LEARNERS
Short Title: ACCEL CHIN - HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Intensive second-year Chinese course for students with an intermediate level in spoken Chinese who lack knowledge of Chinese characters. This course covers the equivalents of CHIN 263 and 264 with a greater emphasis on reading and writing. Students will be prepared for CHIN 301 or 311 upon completion of the course. Mutually Exclusive: Credit cannot be earned for this course AND CHIN 263 and/or CHIN 264. CHIN 206 covers the same material as 263 and 264 combined. Mutually Exclusive: Cannot register for CHIN 206 if student has credit for CHIN 263/CHIN 264.

CHIN 206 - ACCELERATED SECOND-YEAR CHINESE FOR HERITAGE LEARNERS
Short Title: ACCEL CHIN - HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Intensive second-year Chinese course for students with an intermediate level in spoken Chinese who lack knowledge of Chinese characters. This course covers the equivalents of CHIN 263 and 264 with a greater emphasis on reading and writing. Students will be prepared for CHIN 301 or 311 upon completion of the course. Mutually Exclusive: Credit cannot be earned for this course AND CHIN 263 and/or CHIN 264. CHIN 206 covers the same material as 263 and 264 combined. Mutually Exclusive: Cannot register for CHIN 206 if student has credit for CHIN 263/CHIN 264.
CHIN 263 - SECOND YEAR CHINESE I
Short Title: SECOND YEAR CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHIN 142
Description: Continuation of CHIN 142, for students whose home language is not Chinese. Development of interactional competence in Chinese, (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for CHIN 263 if student has credit for CHIN 201/CHIN 206.

CHIN 264 - SECOND YEAR CHINESE II
Short Title: SECOND YEAR CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): CHIN 263
Description: Continuation of CHIN 263, for students whose native language is not Chinese. Development of interactional competence in Chinese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Chinese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for CHIN 264 if student has credit for CHIN 202/CHIN 206.

CHIN 301 - THIRD YEAR CHINESE I
Short Title: THIRD YEAR CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 301
Description: Continuation of CHIN 301, for students whose home language is not Chinese. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced. Upon completion, students expected to be able to write approximately 800 Chinese characters, and be able to perform communicative tasks appropriate to this range of characters.

CHIN 302 - THIRD YEAR CHINESE II
Short Title: THIRD YEAR CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 301
Description: Continuation of CHIN 311. More emphasis on reading narratives, comprehending authentic oral texts, and speaking in more formal contexts. Writing assignments stress skills necessary for expressing arguments on socio-cultural topics. At the completion of CHIN 312, students will be able to write approximately 1000 Chinese characters.
CHIN 319 - SPECIAL TOPICS: ADVANCED CHINESE I
Short Title: SPECIAL TOPICS: ADV CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 301 or CHIN 311
Description: This course helps students develop an advanced level of proficiency in Chinese through the analysis and use of the target language in the context of specific topics of interest that will vary.

CHIN 320 - SPECIAL TOPICS: ADVANCED CHINESE II
Short Title: SPECIAL TOPICS: ADV CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 319
Description: This is a continuation of CHIN 319. This course helps students develop an advanced level of proficiency in Chinese through the analysis and use of the target language in the context of specific topics of interest that will vary.

CHIN 330 - INTRODUCTION TO TRADITIONAL CHINESE POETRY
Short Title: INTRO TO TRAD CHINESE POETRY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation. Cross-list: ASIA 330, MDEM 370.

CHIN 332 - MODERN CHINESE LITERATURE AND ITS MOVIE ADAPTABLES
Short Title: FILM & MODERN CHINESE LIT
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of modern Chinese literature through the visual imagery of Chinese films to show how and why different time periods and different media affect the theme of a story. One third covers movie adaptations of classical Chinese literature. Films subtitled in English, shown outside of class. All readings in English translation. Cross-list: ASIA 332.

CHIN 334 - TRADITIONAL CHINESE TALES AND SHORT STORIES
Short Title: TRADITIONAL CHINESE TALES
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Learning Chinese literature and culture through reading vernacular stories, fantastic tales, biographies, and philosophical parables. Discussion topics: literature and Confucianism, Taoism and Buddhism; literature and history; self and other; fantastic world and reality; women as domestic aliens and aliens portrayed as women, etc. Readings are in English translation. Cross-list: ASIA 334.

CHIN 335 - INTRODUCTION TO CLASSICAL CHINESE NOVELS
Short Title: CLASSICAL CHINESE NOVELS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings in English translation. Cross-list: ASIA 335, MDEM 375.
CHIN 401 - FOURTH YEAR CHINESE I
Short Title: FOURTH YEAR CHINESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 302 or CHIN 312
Description: Continuation of CHIN 302, emphasis on developing oral fluency at the discourse level and cultivating advanced writing skill. Students will read and discuss a variety of social, political and economic issues. Upon completion, students are expected to be able to write approx. 1000 characters.

CHIN 402 - FOURTH YEAR CHINESE II
Short Title: FOURTH YEAR CHINESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 401
Description: Continuation of CHIN 401, emphasis on strengthening speaking and writing skills at the advance level with more authentic readings selected from newspapers, literary works and academic texts. Upon completion, students are expected to be able to write approx. 1200 characters.

CHIN 422 - THE ORIGINAL BEAUTY OF CHINESE LITERATURE
Short Title: ORIGINAL BEAUTY OF CHINESE LIT
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 401
Description: The course will expose students to the best literary works created in the Chinese tradition, both classical and modern, and give them a general introduction to different genres, including poetry, fiction, drama, and philosophical essays. It will improve their language proficiency through reading original texts of Chinese literature. Cross-list: ASIA 422.

CHIN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Civil and Environmental Eng (CEVE)

CEVE 100 - AP/OTH CREDIT IN ENVIRONMENTAL SCIENCE
Short Title: AP/OTH CR ENVIRONMENTAL SCIENCE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

CEVE 101 - FUNDAMENTALS OF CIVIL AND ENVIRONMENTAL ENGINEERING
Short Title: FUNDAMENTAL OF CIVIL & ENVIRONMENTAL ENGINEERING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This introduction will cover the essential topics and quantitative techniques in civil and environmental engineering. General engineering, engineering math, fluid mechanics, hydrology, statistics, and mass balance techniques will be presented followed by applications.

CEVE 210 - WILD TOPICS IN CHEMISTRY AND NANO TECHNOLOGY
Short Title: WILD TOPICS IN CHEMISTRY AND NANO TECHNOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A variety of topics related to chemistry and nanotechnology will be discussed. Some topics are classical while others are current. Topics may include nanocars, molecular electronics, how to form a startup company. Grades will be based upon attendance and quizzes. Cross-list: CHEM 210, MSNE 210. Repeatable for Credit.

CEVE 211 - ENGINEERING MECHANICS
Short Title: ENGINEERING MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: Continuation of CHIN 302, emphasis on developing oral fluency at the discourse level and cultivating advanced writing skill. Students will read and discuss a variety of social, political and economic issues. Upon completion, students are expected to be able to write approx. 1000 characters.

CHIN 422 - THE ORIGINAL BEAUTY OF CHINESE LITERATURE
Short Title: ORIGINAL BEAUTY OF CHINESE LIT
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHIN 401
Description: The course will expose students to the best literary works created in the Chinese tradition, both classical and modern, and give them a general introduction to different genres, including poetry, fiction, drama, and philosophical essays. It will improve their language proficiency through reading original texts of Chinese literature. Cross-list: ASIA 422.

CHIN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Graduate/Undergraduate Equivalency: CEVE 502. Mutually Exclusive: students will be challenged to understand the application of sustainable design principles to individual engineering and developing projects, and future generations. In addition to learning to apply sustainable creation physical as well as social structures that will work for current balancing economic, ecological/environmental and social issues to and decreasing resource availability. Sustainable design requires advancement in light of increasing material, energy and water demands formulating and solving problems of societal development and Description:

Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CEVE 301 - ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
Short Title: ENG ECONOMICS & PROJECT MGMT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 211
Description: Life cycle economics analysis to project development, project economic analysis, contracting, network scheduling, risk management, organizational structures and cases. Mutually Exclusive: Cannot register for CEVE 301 if student has credit for CEVE 201/CEVE 505/ENGI 505.

CEVE 302 - SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The objective of this course is to develop skills in formulating and solving problems of societal development and advancement in light of increasing material, energy and water demands and decreasing resource availability. Sustainable design requires balancing economic, ecological/environmental and social issues to create physical as well as social structures that will work for current and future generations. In addition to learning to apply sustainable design principles to individual engineering and developing projects, students will be challenged to understand the application of sustainable design thinking a the municipal and corporate level. Cross-list: ENGI 302. Graduate/Undergraduate Equivalency: CEVE 502. Mutually Exclusive: Cannot register for CEVE 302 if student has credit for CEVE 502.

CEVE 307 - ENERGY AND THE ENVIRONMENT
Short Title: ENERGY AND THE ENVIRONMENT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will discuss the history of air pollution and its effects as motivation for control of anthropogenic emissions to the atmosphere. Topics will include air pollution control strategies and regulations, predictive pollution concentration models, general ideas to reduce air pollution, and specific technologies to limit emissions of criteria pollutants and their precursors. Graduate/Undergraduate Equivalency: CEVE 508. Mutually Exclusive: Cannot register for CEVE 308 if student has credit for CEVE 508.

CEVE 308 - INTRODUCTION TO AIR POLLUTION CONTROL
Short Title: INTRO TO AIR POLLUTION CONTROL
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: This course will discuss the history of air pollution and its effects as motivation for control of anthropogenic emissions to the atmosphere. Topics will include air pollution control strategies and regulations, predictive pollution concentration models, general ideas to reduce air pollution, and specific technologies to limit emissions of criteria pollutants and their precursors. Graduate/Undergraduate Equivalency: CEVE 508. Mutually Exclusive: Cannot register for CEVE 308 if student has credit for CEVE 508.
CEVE 311 - MECHANICS OF SOLIDS AND STRUCTURES
Short Title: MECHANICS OF SOLIDS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering, Civil & Environmental Engineer, Civil Engineering or Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 211 or MECH 211
Description: Analysis of stress and the deformation of solids with applications to beams, circular shafts, and columns. Required for following undergraduate majors: civil and environmental and mechanical engineering. Cross-list: MECH 311.

CEVE 312 - STRENGTH OF MATERIALS LAB
Short Title: STRENGTH OF MATERIALS LAB
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 (may be taken concurrently) or MECH 311 (may be taken concurrently)
Description: Instruction in standard tension, compression, and torsion tests of ferrous and nonferrous metals. Includes experimental techniques and the behavior of structural elements. Prerequisites may be taken concurrently.

CEVE 313 - UNCERTAINTY AND RISK IN URBAN INFRASTRUCTURES
Short Title: RISK-BASED DEC UNDER UNCERT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 312 or STAT 310 or STAT 315 or DSCI 301 or ECON 307 or ECON 382 or STAT 331 or ELEC 331
Description: This course explores methods for practical risk-based decision support, particularly for infrastructure systems. Uncertainty quantification (UQ) to external events including natural hazards is at the core of risk-informed design, operation, and mitigation actions. UQ also guides engineering practice and enables code developments. The course emphasizes decision theory, Bayesian approaches, risk analysis tools, and infrastructure safety. Cross-list: STAT 313. Repeatable for Credit.

CEVE 314 - SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
Short Title: SUST WTR PURIF FOR DEV WORLD
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an overview of sustainable strategies for safe water supply in off-the-grid, low-income regions. Topics covered include water quality and treatment, sustainability and WASH (water, sanitation and hygiene). A major element of the course is a project to solve a water-related issue in a real-world context. Cross-list: BIOE 365, GLHT 314. Repeatable for Credit.

CEVE 315 - URBAN WATER SYSTEMS: SOURCES, TREATMENT, DISTRIBUTION, RESOURCE RECOVERY AND REUSE
Short Title: URBAN WATER SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce urban water systems, including water sources, treatment processes, distribution and collection systems, and resource recovery and reuse. Student will learn the principles of physical, chemical, and biological processes, operations and reactor configurations commonly used for water quality control. In addition, students will learn analysis and design of specific water treatment and resource recovery processes and operations. Recommended Prerequisite(s): Recommend completion of CHEM 121, CHEM 122, MATH 211, and MATH 212.

CEVE 316 - URBAN WATER SYSTEMS LAB: WATER QUALITY PARAMETERS AND TREATMENT TECHNIQUES
Short Title: URBAN WATER SYSTEMS LAB
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CEVE 315
Description: This course will introduce measurement of physicochemical water quality parameters. The principles behind the measurements and the significance of measured values will be covered. Selected conventional and advanced water treatment techniques will be introduced with emphasis on experimental design, group problem solving, and report writing.
CEVE 320 - ETHICS AND ENGINEERING LEADERSHIP
Short Title: ETHICS & ENGINEERING LEADERSHIP
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Civil & Environmental Engineer, Civil Engineering or Environment Analysis & Decisions. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 101
Description: Seminar introduces students to a framework for discussing and making ethical engineering and professional decisions. Using case studies and exercises, students will look at their own profession and its Engineering Code of Ethics as well as at the issues and risks they may face as managers and executives. Cross-list: ENGI 320. Graduate/Undergraduate Equivalency: CEVE 529. Mutually Exclusive: Cannot register for CEVE 320 if student has credit for CEVE 529.

CEVE 322 - ENGINEERING ECONOMICS
Short Title: ENGINEERING ECONOMICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are introduced. Requires oral and written presentations by students. Cross-list: ENGI 320. Graduate/Undergraduate Equivalency: CEVE 529. Mutually Exclusive: Cannot register for CEVE 322 if student has credit for RCEL 505.

CEVE 323 - APPLIED SUSTAINABLE PLANNING AND DESIGN
Short Title: APPL. SUST. PLANNNG & DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 302 or CEVE 502
Description: This course applies principles learned in CEVE 302/502 to real-world sustainability projects. Three to four case studies will comprise the class. These case studies will involve development of design solutions for (1) carbon neutral design, (2) ecosystem services transactions, (3) sustainable industrial applications and/or (4) air pollution and environmental justice. Graduate/Undergraduate Equivalency: CEVE 523. Mutually Exclusive: Cannot register for CEVE 323 if student has credit for CEVE 523.

CEVE 325 - STRUCTURAL ANALYSIS AND MODELING
Short Title: STRUCTURAL ANALYSIS & MODELING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311
Description: This course provides students with a fundamental understanding of structural analysis and behavior with application to determinate and indeterminate structures. Classical methods of analysis along with an introduction to structural modeling will be examined. Mutually Exclusive: Cannot register for CEVE 325 if student has credit for CEVE 304.

CEVE 363 - APPLIED FLUID MECHANICS
Short Title: APPLIED FLUID MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 212 and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Study of fluid properties, fluid statics, and incompressible fluid steady flow. Includes energy and momentum equations with many applications, similitude and dimensional analysis, and viscous fluid flow in pipe networks. Required for B.S.C.E.

CEVE 400 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 202 or MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: MECH 400. Graduate/Undergraduate Equivalency: CEVE 500. Mutually Exclusive: Cannot register for CEVE 400 if student has credit for CEVE 500.
CEVE 401 - CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
Short Title: ENVIRONMENTAL CHEMISTRY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics include: introductory concepts of general chemistry; applied physical chemistry; and organic and biochemical concepts as used in the profession. Graduate/Undergraduate Equivalency: CEVE 501. Mutually Exclusive: Cannot register for CEVE 401 if student has credit for CEVE 501.

CEVE 404 - ATMOSPHERIC PARTICULATE MATTER
Short Title: ATMOSPHERIC PARTICULATE MATTER
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Description and examination of the processes determining the chemical and physical characteristics of atmospheric aerosol particles. Important focal points include aerosol measurements and control techniques and aerosol climate effects. Most attention will be paid to processes active in the troposphere, but important differences between the troposphere and stratosphere are addressed. Graduate/Undergraduate Equivalency: CEVE 504. Mutually Exclusive: Cannot register for CEVE 404 if student has credit for CEVE 504.

CEVE 406 - INTRODUCTION TO ENVIRONMENTAL LAW
Short Title: INTRO TO ENVIRONMENTAL LAW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Environmental Law is intended to introduce the student to the methods used by the United States and the international community to regulate and/or allocate air, water and land resources. A key focus of this course will be the emerging area of the law of sustainable development, including the implementation of full price costing, life cycle analysis, carbon cycle analysis, allocation of assimilative capacity and other similar issues. Cross-list: ENST 406. Graduate/Undergraduate Equivalency: CEVE 506.

CEVE 411 - ATMOSPHERIC CHEMISTRY AND CLIMATE
Short Title: ATMOSPHERIC CHEM & CLIMATE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CHEM 111 or CHEM 121) and (CHEM 112 or CHEM 122) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Study of the chemical and physical processes that govern the formation, transformation, and transport of gases and particles in the atmosphere. Overview of urban and regional air pollution, including tropospheric ozone formation and particulate matter; stratospheric chemistry; and global climate change. Graduate/Undergraduate Equivalency: CEVE 511. Mutually Exclusive: Cannot register for CEVE 411 if student has credit for CEVE 511.

CEVE 412 - HYDROLOGY AND WATER RESOURCES ENGINEERING
Short Title: HYDROLOGY & WATER RESOURCE ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The purpose of this course is to introduce the student to the fundamentals of the hydrologic cycle, surface water, open channel flow concepts, and water resources. The course will introduce concepts related to the hydrologic cycle in urban and natural watersheds, rainfall runoff and hydrograph response, overland and channel flood routing, open channel flow, and the basics of floodplain. At the end of the semester, we will also cover the current state of flood policy, flood disasters, and discuss innovative strategies for tackling flood-related issues and adapting to changes in flood risk over time. There will be significant emphasis on applying and solving the governing equations, calculations and models to analyze water balance, and hydrologic and hydraulic response to severe rainfall events. Student participation and a completion of a HEC-HMS modeling exercise will be expected. Case studies will be presented and discussed near end of the class. Graduate/Undergraduate Equivalency: CEVE 509. Mutually Exclusive: Cannot register for CEVE 412 if student has credit for CEVE 509.
CEVE 415 - URBAN INFRASTRUCTURE, ENVIRONMENT AND SUSTAINABILITY
Short Title: URBAN INFRA, ENVIRO & SUSTAIN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an introduction to sustainable development and sustainable design. Sustainable development is one of the most interesting and challenging issues facing the world today. Sustainability is about living within the limits of natural and human systems as well as working to ensure that future generations have the ability to meet their needs even as we ensure that current generations can meet theirs. Sustainability is about social issues as well as environmental and economic ones. Sustainability either is or will become an issue of primary concern to virtually every country, state, city, corporation and institution in the world over the next decade or two. Upon completion of this course, you will be able to enter into the dialogue about sustainable human systems. Instructor Permission Required.

CEVE 416 - FUNDAMENTALS OF GROUNDWATER FLOW
Short Title: FUND. GROUNDWATER FLOW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will cover the fundamental principles of groundwater flow, including moisture flow in the unsaturated zone; aquifer testing and interpretation of field data; sustainable production of groundwater for public water supplies; models of groundwater flow in the saturated and unsaturated zones; groundwater policy – use and landowner rights; the future of groundwater management. Graduate/Undergraduate Equivalency: CEVE 516. Mutually Exclusive: Cannot register for CEVE 416 if student has credit for CEVE 516.

CEVE 417 - FINITE ELEMENT ANALYSIS
Short Title: FINITE ELEMENT ANALYSIS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 212 or MATH 222) and (CAAM 210 or CAAM 211)
Description: An introduction to finite element analysis by Galerkin's method and the method of least squares as applied to both ordinary and partial differential equations common in engineering applications. Element interpolations, numerical integration, computational considerations for efficient solution and post-processing methods. Application of the commercial codes to ANSYS and Cosmosworks. Cross-list: MECH 417. Graduate/Undergraduate Equivalency: CEVE 517. Mutually Exclusive: Cannot register for CEVE 417 if student has credit for CEVE 517.

CEVE 420 - ENVIRONMENTAL REMEDIATION RESTORATION
Short Title: ENVI REMEDIATION RESTORATION
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Remediation principles and application of full-scale remediation technologies for restoration of contaminated soil, groundwater, and surface water. Topics include mass balances and distribution of chemicals in environmental media; development of remediation goals through risk assessment; treatment technology selection criteria and costs; groundwater, soil, and surface water restoration technologies; and regulatory considerations. Graduate/Undergraduate Equivalency: CEVE 520. Mutually Exclusive: Cannot register for CEVE 420 if student has credit for CEVE 520.

CEVE 424 - TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS
Short Title: SYSTEM RELIABILITY METHODS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will learn computational simulation and theoretical techniques for the reliability assessment of engineered systems as a function of their component failure probabilities. We will explore time-dependent and algorithmic system reliability, and will use modern structural infrastructure systems as case studies, including power systems, wind turbines, bridges, and buildings. Graduate/Undergraduate Equivalency: CEVE 524. Mutually Exclusive: Cannot register for CEVE 424 if student has credit for CEVE 524.

CEVE 426 - SMART MATERIALS FOR THE ENVIRONMENT
Short Title: SMART MATERIALS FOR THE ENVI
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The purpose of this course is to introduce students to the concept of smart materials and their application to address challenges in environmental engineering. The course will cover three broad categories of smart materials, namely self-healing materials, stimuli-responsive materials, and materials with molecular-recognition capabilities. The use of these materials for structural, sensing, water treatment, and energy applications will be highlighted. The course will emphasize the underlying chemical and thermodynamic principles driving the behavior and responses of smart materials. Graduate/Undergraduate Equivalency: CEVE 526.
CEVE 427 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM
Short Title: PHY GUIDED ML-DATA DRIVEN FEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311 or MECH 315
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Cannot be taken concurrently with CEVE/MECH 527. Prerequisites CEVE/MECH 311. Cross-list: MECH 427.
Mutually Exclusive: Cannot register for CEVE 427 if student has credit for CEVE 527.
Course URL: Satishnagarajaijah.rice.edu (http://Satishnagarajaijah.rice.edu)

CEVE 431 - DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS
Short Title: REINFORCED CONCRETE BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CEVE 432
Description: Design of reinforced concrete buildings including concepts and code practices routinely used in professional structural engineering design for concrete members and structural systems. Behavior of building members as related to design will be discussed as well. Graduate/Undergraduate Equivalency: CEVE 531. Recommended Prerequisite(s): CEVE 304 or CEVE 325 and CEVE 311 Mutually Exclusive: Cannot register for CEVE 431 if student has credit for CEVE 407/CEVE 408/CEVE 530/CEVE 531.

CEVE 432 - CONCRETE & STEEL STRUCTURES LABORATORY
Short Title: CONCRETE & STEEL LABORATORY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: CEVE 431
Description: Instruction in testing and data analysis, design of concrete mix, casting concrete cylinders and reinforced concrete beams, fabrication of steel frame, testing of concrete beams and steel frame. Mutually Exclusive: Cannot register for CEVE 432 if student has credit for CEVE 407/CEVE 408.

CEVE 434 - FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
Short Title: FATE/TRANSPORT OF CONTAMINANTS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Physical and chemical principles governing the fate and transport of contaminants in the aqueous environment, and the applications of such principles in environmental engineering. Emphasis is put on mass transport and transportation processes in natural and engineering systems. Previous course work in fluid mechanics and calculus through differential equations is strongly suggested. Graduate/Undergraduate Equivalency: CEVE 534. Mutually Exclusive: Cannot register for CEVE 434 if student has credit for CEVE 534.

CEVE 441 - DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS
Short Title: STRUCTURAL STEEL BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311
Description: Design of structural steel buildings including concepts and material routinely used in professional structural engineering design practice for steel members, connections and assemblies. Behavior of building members as related to design will be discussed as well. Graduate/Undergraduate Equivalency: CEVE 541. Recommended Prerequisite(s): CEVE 304 or CEVE 325 Mutually Exclusive: Cannot register for CEVE 441 if student has credit for CEVE 541.

CEVE 444 - ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY
Short Title: ENVIRON MICROBIOL & ECOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Fundamentals of microbiology and the ecology of microbes, highlighting their interactions with each other and the environment, and integration of these principles in the context of important natural and engineered environmental systems. Graduate/Undergraduate Equivalency: CEVE 544. Mutually Exclusive: Cannot register for CEVE 444 if student has credit for CEVE 544.
CEVE 452 - URBAN TRANSPORTATION SYSTEMS
Short Title: URBAN TRANSPORTATION SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course integrates information from various engineering and scientific disciplines to provide a rational basis for bridge design under regular and extreme loading. It provides an introduction to bridge engineering, including bridge systems, construction material, loading, and reliability-based design. Design, analysis, and retrofit for seismic and coastal threats will be introduced. Graduate/Undergraduate Equivalency: CEVE 560. Mutually Exclusive: Cannot register for CEVE 460 if student has credit for CEVE 560.

CEVE 454 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CEVE 311 or MECH 311) and (CEVE 304 or CEVE 325) and CEVE 431 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: BIOE 454, MECH 454. Graduate/Undergraduate Equivalency: CEVE 554. Mutually Exclusive: Cannot register for CEVE 454 if student has credit for CEVE 554.

CEVE 455 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. Cross-list: CAAM 452. Graduate/Undergraduate Equivalency. CEVE 555. Recommended Prerequisite(s): CAAM 336
Mutually Exclusive: Cannot register for CEVE 455 if student has credit for CEVE 555.
CEVE 476 - STRUCTURAL DYNAMIC SYSTEMS
Short Title: STRUCTURAL DYNAMIC SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 311 or MECH 311
Description: Introduction to structural dynamic systems. Linear SDOF and MDOF discrete systems, undamped and damped systems, free and forced vibration, dynamic response to periodic and arbitrary excitations, numerical evaluation of dynamic response, response spectrum and modal analysis. Additional topics for graduate version 576: Linear systems theory, transform methods, state space methods, feedback control, observers and identification. Applications using MATLAB. Demonstrations and laboratory examples. Students will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 576. Mutually Exclusive: Cannot register for CEVE 476 if student has credit for CEVE 576.

CEVE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory, Lecture, Internship/Practicum, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CEVE 480 - SENIOR DESIGN
Short Title: SENIOR DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The capstone designed course in the Spring Semester will provide senior engineering students with a complete designed experience including fundamental design issues in the major areas of the curriculum, small team experiences, project proposals, progress reports and presentations, design software and computations, major report writing, and a final presentation to the CEE faculty and an external jury of professional engineers. An established local firm will assist in teaching practical design methods and consultation with other faculty is required as part of the overall experience.

CEVE 481 - INTRODUCTION TO SENIOR DESIGN
Short Title: INTRODUCTION TO SENIOR DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Semester. Lectures will focus on various engineering design topics and CAD training. Potential design projects will be introduced and students will form interdisciplinary design teams. Design teams will present before jury to win their design projects.

CEVE 484 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIRON RISK ASSESS&HUMAN HLTH
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 305
Description: Learn and apply quantitative risk assessment methodology to estimate human health risk from environmental exposure to contamination in air, soil and water. Students will conduct a series of team projects focused on toxicology, risk based screening levels, exposure concentration estimation and risk characterization. Cross-list: STAT 484. Graduate/Undergraduate Equivalency: CEVE 684. Mutually Exclusive: Cannot register for CEVE 484 if student has credit for CEVE 684.

CEVE 492 - MODELING AND ANALYSIS OF NETWORKED SYSTEMS
Short Title: MODELING & ANALYSIS OF NET SYS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces methods for modeling, characterizing and predicting the behavior of complex infrastructure and technological systems. The discussed analysis methods rely on network science, optimization, and computational complexity principles so as to unravel the emergent features of structural and infrastructure systems. Topological properties, ranking tools, dynamic processes, and percolation-based resilience are studied from analytical, algorithmic, and numerical simulation perspectives. The course also explores interdependencies and mitigation actions for spatially and temporally evolving systems. The graduate level course includes advanced exercises in homework and exams, as well as a research-oriented final project. Graduate/Undergraduate Equivalency: CEVE 592. Mutually Exclusive: Cannot register for CEVE 492 if student has credit for CEVE 592. Repeatable for Credit.
CEVE 496 - SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING

Short Title: SYSTEM I.D. & MACHINE LEARNING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to modeling and system identification of dynamic systems with machine learning. Students in CEVE 596 will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 596. Mutually Exclusive: Cannot register for CEVE 496 if student has credit for CEVE 596.

CEVE 499 - SPECIAL PROBLEMS

Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation, including a course toward directed research and/or a research project. Study of selected topics including individual investigations special lectures, and seminars. Student works independently with only minimal faculty direction. Offered upon mutual agreement of faculty and student. May earn varying amount of credit hours depending on the amount of time devoted and the amount of academic work associated with the course. Repeatable for Credit.

CEVE 500 - ADVANCED MECHANICS OF MATERIALS

Short Title: ADV MECHANICS OF MATERIALS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: MECH 500. Graduate/Undergraduate Equivalency: CEVE 400. Mutually Exclusive: Cannot register for CEVE 500 if student has credit for CEVE 400.

CEVE 501 - CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE

Short Title: ENVIRONMENTAL CHEMISTRY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include: introductory concepts of general chemistry, applied physical chemistry, and organic and biochemical concepts as used in the profession. Graduate students are required to write and present an advanced paper. Graduate/Undergraduate Equivalency: CEVE 401. Mutually Exclusive: Cannot register for CEVE 501 if student has credit for CEVE 401.

CEVE 502 - SUSTAINABLE DESIGN

Short Title: SUSTAINABLE DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective of this course is to develop skills in formulating and solving problems of societal development and advancement in light of increasing material, energy and water demands and decreasing resource availability. Sustainable design requires balancing economic, ecological/environmental and social issues to create physical as well as social structures that will work for current and future generations. In addition to learning to apply sustainable design principles to individual engineering and developing projects, students will be challenged to understand the application of sustainable design thinking a the municipal and corporate level. Graduate students will be required to undertake additional assignments relative to sustainable design. Graduate/Undergraduate Equivalency: CEVE 302. Mutually Exclusive: Cannot register for CEVE 502 if student has credit for CEVE 302.

CEVE 503 - NONLINEAR FINITE ELEMENT ANALYSIS

Short Title: NONLINEAR FEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
CEVE 504 - ATMOSPHERIC PARTICULATE MATTER
Short Title: ATMOSPHERIC PARTICULATE MATTER
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 112 or CHEM 122 or CHEM 152) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Description and examination of the processes determining the chemical and physical characteristics of atmospheric aerosol particles. Important focal points include aerosol measurements and control techniques and aerosol climate effects. Most attention will be paid to processes active in the troposphere, but important differences between the troposphere and stratosphere are addressed. Extra work required for graduate students. Graduate/Undergraduate Equivalency: CEVE 404. Mutually Exclusive: Cannot register for CEVE 504 if student has credit for CEVE 404.

CEVE 505 - ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
Short Title: ENG ECONOMICS & PROJECT MGMT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Environment Analysis & Decisions. Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy degree.
Course Level: Graduate
Description: Life cycle economics analysis to project development, project economic analysis, contracting, network scheduling, risk management, organizational structures and cases. 505 requires an additional paper. Cross-list: ENGI 505. Mutually Exclusive: Cannot register for CEVE 505 if student has credit for CEVE 301/CEVE 479.

CEVE 506 - INTRODUCTION TO ENVIRONMENTAL LAW
Short Title: INTRO TO ENVIRONMENTAL LAW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to Environmental Law is intended to introduce the student to the methods used by the United States and the international community to regulate and/or allocate air, water and land resources. A key focus of this course will be the emerging area of the law of sustainable development, including the implementation of full price costing, life cycle analysis, carbon cycle analysis, allocation of assimilative capacity and other similar issues. Graduate students will be required to undertake additional assignments Graduate/Undergraduate Equivalency: CEVE 406.

CEVE 507 - ENERGY AND THE ENVIRONMENT
Short Title: ENERGY AND THE ENVIRONMENT
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the physical principles of energy use and its impacts on Earth’s environment and climate. Topics will include energy mechanics, climate change, and the environmental impacts and future prospects of various fossil fuel and alternative energy sources. Additional problems will be assigned to Graduate students. Graduate/Undergraduate Equivalency: CEVE 307. Mutually Exclusive: Cannot register for CEVE 507 if student has credit for CEVE 307.

CEVE 508 - INTRODUCTION TO AIR POLLUTION CONTROL
Short Title: INTRO TO AIR POLLUTION CONTROL
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: This course will discuss the history of air pollution and its effects as motivation for control of anthropogenic emissions to the atmosphere. Topics will include air pollution control strategies and regulations, predictive pollution concentration models, general ideas to reduce air pollution, and specific technologies to limit emissions of criteria pollutants and their precursors. Additional paper is required for graduate students. Graduate/Undergraduate Equivalency: CEVE 308. Mutually Exclusive: Cannot register for CEVE 508 if student has credit for CEVE 308.

CEVE 509 - HYDROLOGY AND WATER RESOURCES ENGINEERING
Short Title: HYDROLOGY & WATER RESOURCE ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of the hydrologic cycle, meteorology, rainfall-runoff, flood routing, urban system design, and open channel flow are covered. Topics in ground water flow and well mechanics are also included. Applications include computational hydrology, floodplain analysis, watershed behavior, and low impact development. Group presentations are required. The graduate level course includes an extra paper. Graduate/Undergraduate Equivalency: CEVE 412. Mutually Exclusive: Cannot register for CEVE 509 if student has credit for CEVE 412.
CEVE 510 - PRINCIPLES OF ENVIRONMENTAL ENGINEERING
Short Title: PRINCIPLES OF ENVI ENGINEERING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers principles of water quality engineering, air pollution control and solid and hazardous waste management. Elements of risk assessment, global atmospheric change, and pollution prevention are also addressed to contribute to adequate-level competency in Environmental Engineering. Graduate students will write a term paper and prepare a lecture. Graduate/Undergraduate Equivalency: CEVE 310. Mutually Exclusive: Cannot register for CEVE 510 if student has credit for CEVE 310.

CEVE 511 - ATMOSPHERIC CHEMISTRY AND CLIMATE
Short Title: ATMOSPHERIC CHEM & CLIMATE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 111 or CHEM 121) and (CHEM 112 or CHEM 122) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141)
Description: Study of the chemical and physical processes that govern the formation, transformation, and transport of gases and particles in the atmosphere. Overview of urban and regional air pollution, including tropospheric ozone formation and particulate matter; stratospheric chemistry; and global climate change. Extra work required for graduate students. Graduate/Undergraduate Equivalency: CEVE 411. Mutually Exclusive: Cannot register for CEVE 511 if student has credit for CEVE 411.

CEVE 516 - FUNDAMENTALS OF GROUNDWATER FLOW
Short Title: FUND. GROUNDWATER FLOW
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will cover the fundamental principles of groundwater flow, including moisture flow in the unsaturated zone; aquifer testing and interpretation of field data; sustainable production of groundwater for public water supplies; models of groundwater flow in the saturated and unsaturated zones; groundwater policy – use and landowner rights; the future of groundwater management. Graduate/Undergraduate Equivalency: CEVE 416. Mutually Exclusive: Cannot register for CEVE 516 if student has credit for CEVE 416.

CEVE 519 - ELASTICITY, PLASTICITY AND DAMAGE MECHANICS
Short Title: ELASTICITY/PLASTICITY/DAMAGE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of phenomena that determine the response of solids to deformation and loading: elasticity, plasticity, damage mechanics and cracking. Review of continuum mechanics with emphasis on the physical mechanisms of deformation and fracture. Classification of the behavior of solids. Modeling of different types of material behavior. The physics underlying the phenomena and methods for the numerical analysis of the resulting equations are discussed. Cross-list: MECH 519.
CEVE 520 - ENVIRONMENTAL REMEDIATION RESTORATION
Short Title: ENVI REMEDIATION RESTORATION
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Remediation principles and application of full-scale remediation technologies for restoration of contaminated soil, groundwater, and surface water. Topics include mass balances and distribution of chemicals in environmental media; development of remediation goals through risk assessment; treatment technology selection criteria and costs; groundwater, soil, and surface water restoration technologies; and regulatory considerations. Graduate students receive additional, more challenging assignments. Graduate/Undergraduate Equivalency: CEVE 420. Mutually Exclusive: Cannot register for CEVE 520 if student has credit for CEVE 420.

CEVE 523 - APPLIED SUSTAINABLE PLANNING AND DESIGN
Short Title: APPL. SUST. PLANNING & DESIGN
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 302 or CEVE 502
Description: This course applies principles learned in CEVE 302/502 to real-world sustainability projects. Three to four case studies will comprise the class. These case studies will involve development of design solutions for (1) carbon neutral design, (2) ecosystem services transactions, (3) sustainable industrial applications and/or (4) air pollution and environmental justice. Graduate/Undergraduate Equivalency: CEVE 323. Mutually Exclusive: Cannot register for CEVE 523 if student has credit for CEVE 323.

CEVE 524 - TIME-DEPENDENT SYSTEM RELIABILITY METHODS AND APPLICATIONS
Short Title: SYSTEM RELIABILITY METHODS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn computational simulation and theoretical techniques for the reliability assessment of engineered systems as a function of their component failure probabilities. We will explore time-dependent and algorithmic system reliability, and will use modern structural infrastructure systems as case studies, including power systems, wind turbines, bridges, and buildings. Extra provisions for graduate students in assignments, exams, and projects. Graduate/Undergraduate Equivalency: CEVE 424. Mutually Exclusive: Cannot register for CEVE 524 if student has credit for CEVE 424.

CEVE 526 - SMART MATERIALS FOR THE ENVIRONMENT
Short Title: SMART MATERIALS FOR THE ENVI
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to introduce students to the concept of smart materials and their application to address challenges in environmental engineering. The course will cover three broad categories of smart materials, namely self-healing materials, stimuli-responsive materials, and materials with molecular-recognition capabilities. The use of these materials for structural, sensing, water treatment, and energy applications will be highlighted. The course will emphasize the underlying chemical and thermodynamic principles driving the behavior and responses of smart materials. Graduate/Undergraduate Equivalency: CEVE 426.

CEVE 527 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM
Short Title: PHY GUIDED ML- DATA DRIVEN FEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 311 or MECH 311
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (& optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Students in CEVE 527 (GR version) will be required to do more advanced assignments and a project. Prerequisites CEVE/MECH 311. Cross-list: MECH 527. Mutually Exclusive: Cannot register for CEVE 527 if student has credit for CEVE 427.
Course URL: Satishnagarajaiah.rice.edu (http://Satishnagarajaiah.rice.edu)

CEVE 528 - ENGINEERING ECONOMICS
Short Title: ENGINEERING ECONOMICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are developed. Requires oral and written presentations by students. Grad students will have an additional case study to perform beyond CEVE 322 requirements. Cross-list: ENGI 528. Graduate/Undergraduate Equivalency: CEVE 322. Mutually Exclusive: Cannot register for CEVE 528 if student has credit for RCEL 505.
CEVE 529 - ETHICS AND ENGINEERING LEadership
Short Title: ETHICS & ENGINRNG LEADERSHIP
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Civil & Environmental Engineer, Civil Engineering or Environment Analysis&Decisions. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar introduces students to a framework for discussing and making ethical engineering and professional decisions. Using case studies and exercises, students will look at their own profession and its Engineering Code of Ethics as well as at the issues and risks they may face as managers and executives. Graduate students will do an extra paper. Instructor Permission Required. Cross-list: ENGI 529. Graduate/ Undergraduate Equivalency: CEVE 320. Mutually Exclusive: Cannot register for CEVE 529 if student has credit for CEVE 320.

CEVE 531 - DESIGN AND BEHAVIOR OF CONCRETE BUILDINGS AND BUILDING ELEMENTS
Short Title: REINFORCED CONCRETE BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of reinforced concrete buildings including concepts and code practices routinely used in professional structural engineering design for concrete members and structural systems. Behavior of building members as related to design will be discussed as well. Graduate/Undergraduate Equivalency: CEVE 431. Recommended Prerequisite(s): CEVE 311. Mutually Exclusive: Cannot register for CEVE 531 if student has credit for CEVE 407/CEVE 431/CEVE 530.

CEVE 533 - NANOSCIENCE AND NANOTECHNOLOGY
Short Title: NANOSCIENCE & NANOtechnology
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introduction to the basic principles of nanoscience and nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester. Expected to be taught Spring 2019. Cross-list: CHEM 533, MSNE 534.

CEVE 534 - FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
Short Title: FATE/TRANSPORT OF CONTAMINANTS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Physical and chemical principles governing the fate and transport of contaminants in the aqueous environment, and the applications of such principles in environmental engineering. Emphasis is put on mass transport and transportation processes in natural and engineering systems. Previous course work in fluid mechanics and calculus through differential equations is strongly suggested. Extra work required, for Graduate Students. Graduate/Undergraduate Equivalency: CEVE 434. Mutually Exclusive: Cannot register for CEVE 534 if student has credit for CEVE 434. Repeatable for Credit.

CEVE 535 - PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL
Short Title: PHYS CHEM PROC WATER QUAL CTRL
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Principles, modeling and design aspects of physical chemical treatment processes in drinking water, wastewater and groundwater remediation applications. Modern treatment technologies such as membrane separation, advanced oxidation, and photocatalysis will be covered.

CEVE 536 - ENVIRONMENTAL BIOTECHNOLOGY AND BIOREMEDIATION
Short Title: ENVIRONMENTAL BIOTECHNOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theory and application of biochemical processes in environmental engineering.

CEVE 538 - COMPUTATIONAL NANOSCIENCE FOR GREEN INFRASTRUCTURE
Short Title: COMPUTATIONAL NANOsciENCE
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Computational methods such as first principles, kinetic Monte Carlo (KMC), classical MC (in Canonical, Grand Canonical, and isobaric-isothermal ensembles), and classic MD in predicting materials formation and properties. Case studies include cementitious materials, metals, and thermoelectric materials. Other case studies are possible depending on the student's background and instructor’s approval. Cross-list: MSNE 538.
CEVE 541 - DESIGN AND BEHAVIOR OF STRUCTURAL STEEL BUILDINGS AND BUILDING ELEMENTS
Short Title: STRUCTURAL STEEL BUILDINGS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of structural steel buildings including concepts and material routinely used in professional structural engineering design practice for steel members, connections and assemblies. Behavior of building members as related to design will be discussed as well. Graduate students registered to CEVE 541 will explore advanced topics in structural steel building behavior and design. Graduate/Undergraduate Equivalency: CEVE 441. Mutually Exclusive: Cannot register for CEVE 541 if student has credit for CEVE 441.

CEVE 544 - ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY
Short Title: ENVIRON MICROBIOL & ECOLOGY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of microbiology and the ecology of microbes, highlighting their interactions with each other and the environment, and integration of these principles in the context of important natural and engineered environmental systems. Graduate/Undergraduate Equivalency: CEVE 444. Mutually Exclusive: Cannot register for CEVE 544 if student has credit for CEVE 444.

CEVE 550 - ENVIRONMENTAL ORGANIC CHEMISTRY
Short Title: ENVIRONMENTAL ORGANIC CHEM
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course covering parameter estimation methods, thermodynamics, and kinetic needed to predict the fate, transports, and reactivity of organic compounds in air, water, and soils. Topics: volatization, solubility, sorption, partitioning, diffusion, aquatic reactivity, photochemistry, and transport modeling.

CEVE 554 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or MECH 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or CHBE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, MECH 554. Graduate/Undergraduate Equivalency: CEVE 454. Mutually Exclusive: Cannot register for CEVE 554 if student has credit for CEVE 454.

CEVE 555 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. May receive credit for only one of the following courses: CAAM 452/CEVE 455/CAAM 536/CEVE 555. Cross-list: CAAM 536. Graduate/Undergraduate Equivalency: CEVE 455. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CEVE 555 if student has credit for CEVE 454.

CEVE 560 - BRIDGE ENGINEERING AND EXTREME EVENTS
Short Title: BRIDGE ENG. & EXTREME EVENTS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course integrates information from various engineering and scientific disciplines to provide a rational basis for bridge design under regular and extreme loading. It provides an introduction to bridge engineering, including bridge systems, construction material, loading, and reliability-based design. Design, analysis, and retrofit for seismic and coastal threats will be introduced. Graduate/Undergraduate Equivalency: CEVE 460. Recommended Prerequisite(s): CEVE 304 and CEVE 311. Mutually Exclusive: Cannot register for CEVE 560 if student has credit for CEVE 460.
CEVE 565 - NANOENVIRONMENTAL ENGINEERING FOR TEACHERS (NEET)
Short Title: NANOENVIRONMENTAL ENGR-TEACHERS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Nano-Environmental Engineering for Teachers (NEET) course is designed to serve AP environmental science teachers. The purpose of the program is to increase the current knowledge of educators to empower them in implementing rigorous project-based engineering activities on the topic of water sustainability. Instructor Permission Required.

CEVE 571 - PRINCIPLES OF SOIL MECHANICS AND FOUNDATION ENGINEERING
Short Title: SOIL MECHANICS AND FOUNDATIONS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to fundamentals of soil mechanics will include phase relationships, grain size, plasticity, soil classification, and clay mineralogy. The effect of water in soils, including capillarity, shrinkage and swelling, permeability, seepage and effective stress will be discussed. Consolidation, settlement, compressibility, failure theory, and the strength of sands and clays will be investigated. Design considerations will be discussed. Introduction to fundamentals of foundation engineering will include subsurface exploration methods and lateral earth pressures. The design of shallow and deep foundations, including pile installation and geophysical and geotechnical site investigation will be presented. CEVE 471, the undergraduate version, includes a lab. Students in CEVE 571 must register for CEVE 471/CEVE 571. Mutually Exclusive: Cannot register for CEVE 471/CEVE 571 if student has credit for CEVE 470/CEVE 570.

CEVE 576 - STRUCTURAL DYNAMIC SYSTEMS
Short Title: STRUCTURAL DYNAMIC SYSTEMS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to structural dynamic systems. Linear SDOF and MDOF discrete systems, undamped and damped systems, free and forced vibration, dynamic response to periodic and arbitrary excitations, numerical evaluation of dynamic response, response spectrum and modal analysis. Additional topics for graduate version 576: Linear systems theory, transform methods, state space methods, feedback control, observers and identification. Applications using MATLAB. Demonstrations and laboratory examples. Students will be required to do more advanced assignments and a project. Cross-list: MECH 576. Graduate/Undergraduate Equivalency: CEVE 476. Mutually Exclusive: Cannot register for CEVE 576 if student has credit for CEVE 476.

CEVE 578 - EARTHQUAKE ENGINEERING
Short Title: EARTHQUAKE ENGINEERING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Characteristics of ground motion, analysis methods for linear and nonlinear base excited structures, and principles of seismic design including case studies and performance based engineering concepts. Probabilistic methods in earthquake engineering including seismic hazard analysis, fragility modeling, and risk assessment and mitigation. Recommended Prerequisite(s): CEVE 576 or equivalent course in Structural Dynamics.

CEVE 590 - MCEE SPECIAL STUDY
Short Title: MCEE SPECIAL STUDY
Department: Civil & Environmental Engr
Grade Mode: Research
Credit Hours: 2-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Professional master Project course involves the following (1) a project of practical relevance to the practice of Civil and Environmental Engineering, and (2) detailed project report. Students need to work with a faculty advisor. Instructor Permission Required. Repeatable for Credit.

CEVE 592 - MODELING AND ANALYSIS OF NETWORKED SYSTEMS
Short Title: MODELING & ANALYSIS OF NET SYS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces methods for modeling, characterizing and predicting the behavior of complex infrastructure and technological systems. The discussed analysis methods rely on network science concepts. Probabilistic methods in earthquake engineering including seismic hazard analysis, fragility modeling, and risk assessment and mitigation. Recommended Prerequisite(s): CEVE 576 or equivalent course in Structural Dynamics.
CEVE 596 - SYSTEM IDENTIFICATION OF DYNAMIC SYSTEMS WITH MACHINE LEARNING
Short Title: SYSTEM I.D. & MACHINE LEARNING
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to modeling and system identification of dynamic systems with machine learning. Students in CEVE 596 will be required to do more advanced assignments and a project. Graduate/Undergraduate Equivalency: CEVE 496. Mutually Exclusive: Cannot register for CEVE 596 if student has credit for CEVE 496.

CEVE 599 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent research and investigation, including a course toward directed research and/or a research project. Study of selected topics including individual investigations special lectures, and seminars. Student works independently with only minimal faculty direction. Offered upon mutual agreement of faculty and student. May earn varying amount of credit hours depending on the amount of time devoted and the amount of academic work associated with the course. Repeatable for Credit.

CEVE 601 - SEMINAR
Short Title: SEMINAR
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuing seminar on Civil and Environmental research. Repeatable for Credit.

CEVE 602 - SEMINAR
Short Title: SEMINAR
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuing seminar on Civil and Environmental research. Repeatable for Credit.

CEVE 603 - NANOTECHNOLOGY-ENABLED WATER TREATMENT (NEWT) CORE CONCEPTS SEMINAR
Short Title: NEWT CORE COURSE
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will introduce NEWT graduate students to the basic scientific concepts behind NEWT research. It is also intended to develop a common language for NEWT students in different research areas, and to contribute to the development of a center culture. Instructor Permission Required. Repeatable for Credit.

CEVE 635 - ADVANCED TOPICS: WATER CHEMISTRY
Short Title: ADV TOPICS: WATER CHEMISTRY
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal lecture and assigned reading in topics such as redox kinetics and thermodynamics, absorption and desorption, and the associated mathematics. An advanced topics course. Repeatable for Credit.

CEVE 636 - ADVANCED TOPICS IN BIOREMEDIATION
Short Title: ADV TOPICS IN BIOREMEDIATION
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic principles of Microbial Physiology, Metabolism, Stoichiometry, Thermodynamics and Kinetics applied to the selection, design and performance evaluation of engineered and intrinsic bioremediation systems. Repeatable for Credit.

CEVE 640 - ADVANCED TOPICS IN ENVIRONMENTAL ENGINEERING SCIENCES
Short Title: ADV TOPICS/ENVIRONMENTAL ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Special topics in Graduate Study.

CEVE 641 - ADVANCED TOPICS IN ENVIRONMENTAL ENGINEERING
Short Title: ADV TOPICS/ENVIRONMENTAL ENG
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics in Graduate Study.
CEVE 651 - M.S. RESEARCH AND THESIS
Short Title: M.S. RESEARCH AND THESIS
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CEVE 652 - M.S. RESEARCH AND THESIS
Short Title: M.S. RESEARCH AND THESIS
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

CEVE 654 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 554 or BIOE 554 or MECH 554 or BIOE 454 or CEVE 454 or MECH 454

CEVE 678 - APPLIED STOCHASTIC MECHANICS
Short Title: APPLIED STOCHASTIC MECHANICS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Nonlinear random vibrations, Statistical Linearization, ARMA filters modeling, Monte Carlo Simulation, Wiener-Volterra series, time-variant structural reliability, and Stochastic Finite Elements are presented from a perspective of usefulness to aerospace, civil, marine, and mechanical applications. Cross-list: MECH 678.

CEVE 679 - APPLIED MONTE CARLO ANALYSIS
Short Title: APPLIED MONTE CARLO ANALYSIS
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Probability density and power spectrum based simulation concepts and procedures are discussed. Scalar and vectorial simulation are addressed. Spectral decomposition and digital filter algorithms are presented. Applications from aerospace, earthquake, marine, and wind engineering, and from other applied science disciplines are included. Cross-list: MECH 679.

CEVE 684 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIRON RISK ASSESS&HUMAN HLTH
Department: Civil & Environmental Engr
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 280 or STAT 305
Description: Learn and apply quantitative risk assessment methodology to estimate human health risk from environmental exposure to contamination in air, soil and water. Students will conduct a series of team projects focused on toxicology, risk based screening levels, exposure concentration estimation and risk characterization. Cross-list: STAT 684. Graduate/Undergraduate Equivalency: CEVE 484. Mutually Exclusive: Cannot register for CEVE 684 if student has credit for CEVE 484.

CEVE 736 - ADVANCED RESEARCH TOPICS: ENVIRONMENTAL BIOTECHNOLOGY AND NANOTECHNOLOGY
Short Title: ADV TOPICS:ENVIR BIOTECH & NAN
Department: Civil & Environmental Engr
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research oriented presentations and discussions of landmark papers and experimental methods for doctoral students in the Alvarez research group. Repeatable for Credit.
Classical Studies (CLAS)

CLAS 102 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOTHIC
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: HART 101, MDEM 111. Mutually Exclusive: Cannot register for CLAS 102 if student has credit for HART 220.

CLAS 107 - GREEK CIVILIZATION AND ITS LEGACY
Short Title: GREEK CIVILIZATION & LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An examination of the literary, artistic, and intellectual achievements of classical Greek civilization from Homer through the golden age of classical Athens to the spread of Greek culture in the Hellenistic world. The influence of ancient Greece on Western culture will be a focus. Case studies in the later reception of classical Greek literature (e.g., tragedy), philosophy (e.g., Socrates), history (e.g., democracy), and art (e.g., The Parthenon) will be examined. Cross-list: HUMA 107.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 108 - ROMAN CIVILIZATION AND ITS LEGACY
Short Title: ROMAN CIVILIZATION SITS LEGACY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will investigate central aspects of Roman civilization: politics, religion, law, oratory, private life, public entertainment, literature, and visual art and architecture. We will also examine the place of ancient Rome in the western imagination, and the influence of ancient Rome on later politics, literature, and art. Cross-list: HUMA 111.
Course URL: classicallegacy.rice.edu/ (http://classicallegacy.rice.edu/)

CLAS 124 - CLASSICAL ANTIQUITY IN CHILDREN'S LITERATURE
Short Title: ANTIQUITY IN CHILDREN'S LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will study children's literature, from the Victorian period to the present day, in which models from classical antiquity and/or the idea of classical antiquity itself are prominent, seeking to understand the meanings "classical antiquity" held and holds for their authors and readers, and the agendas they served and serve. Taught in English.

CLAS 207 - LOVE LIFE IN CLASSICAL ANTIQUITY
Short Title: LOVE LIFE IN ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Love, sex, marriage and eroticism were important aspects of ancient Greek and Roman culture as they are of our own, though they were sometimes conceived of very differently. In this course we will consider the evidence for various aspects of sexual relationships in poetry, art, inscriptions, philosophy, and more.

CLAS 208 - THE FALL OF ROME
Short Title: THE FALL OF ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course will consider the fall of Rome as an historical event and an historical topic. We will examine how, why, and even if the Roman empire fell in antiquity. We will also consider the historical narrative of Rome's fall, including in Gibbon's Decline and Fall of the Roman Empire.
CLAS 209 - CAMENAE TO CHRISTIANITY: A SURVEY OF LATIN POETRY
Short Title: A SURVEY OF LATIN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of Latin poetry from its origins to its late period. Readings are in English. The course provides a broad overview of Latin literary history through the close study of Roman poetry and of the culture in which it was produced. Authors include Catullus, Virgil, Horace, and Ovid.

CLAS 210 - HOMER AND VIRGIL AND THEIR RECEPTION
Short Title: HOMER AND VIRGIL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course reads Homer's ILIAD and ODYSSEY and Virgil's AENEID in translation. Topics include the nature of oral poetry, the history of the epic genre, Virgilian intertextuality, the cultural and political contexts in which the poems arose, and case studies in the poets' reception.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 218 - CITIES, SANCTUARIES, CIVILIZATIONS: INTRODUCTION TO GREEK ART AND ARCHAEOLOGY
Short Title: GREEK ART AND ARCHAEOLOGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art and archaeology of the ancient Greek world. Artistic media, such as sculpture and vase painting will be examined in a broad range of the material culture ancient Greeks created and used. Consideration of these materials within their cultural, social and religious contexts will be discussed. Cross-list: HART 216.

CLAS 219 - OLD ENGLISH: READINGS IN BEOWULF
Short Title: OLD ENGLISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will read selections from Beowulf in the original Old English, and discuss its literary and historical importance. No prior knowledge of Old English required.

CLAS 225 - AUGUSTUS AND THE 'GOLDEN AGE' OF ROME
Short Title: AUGUSTUS & 'GOLDEN AGE' ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of Augustan Rome through the literature, art, and architecture that revolutionized the eternal city under its first Emperor, both through his agency and in more subversive form. We will ask how writers and artists responded to this moment of transformation, and how text and material culture interacted to shape Roman Imperial culture.

CLAS 235 - CLASSICAL MYTHOLOGY: INTERPRETATION, ORIGINS, AND INFLUENCE
Short Title: CLASSICAL MYTHOLOGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will read and analyze some of the most influential Greek myths (including their parallels and permutations in other cultures). Employing insights from a variety of theoretical approaches to myth, we will identify typical story patterns, characters, and events, and the values, anxieties, and aspirations for which they stand.
Course URL: classicallegacy.rice.edu (http://classicallegacy.rice.edu)

CLAS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
CLAS 302 - GREEK TRAGEDY
Short Title: GREEK TRAGEDY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read 16 Greek tragedies by Aeschylus, Sophocles, and Euripides as well as contemporary criticism of tragedy by Aristophanes, Plato, and Aristotle. We will consider how ancient tragedies were staged, how they were received by their audiences, how they fit in the life of Athens, how they influenced later dramatic arts, and how they continue to stimulate thinking about the human situation.

CLAS 321 - SPECIAL TOPICS IN ANCIENT ART
Short Title: ROME: THE ETERNAL CITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture the reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Cross-list: HART 309.

CLAS 316 - DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE
Short Title: DEMOCRACY & POLITICAL THEORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: PLST 316.

CLAS 319 - ANCIENTS VERSUS MODERNS
Short Title: ANCIENTS VERSUS MODERNS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores conceptions of the self from Homer to Augustine of Hippo, focusing especially on views of the mind or soul and its relation to the body, thought or reason and its relation to desire, human agency and responsibility, and the individual self in relation to others.

CLAS 317 - THE SELF IN GREEK AND ROMAN THOUGHT
Short Title: SELF IN GREEK & ROMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores conceptions of the self from Homer to Augustine of Hippo, focusing especially on views of the mind or soul and its relation to the body, thought or reason and its relation to desire, human agency and responsibility, and the individual self in relation to others.

CLAS 311 - THE SELF IN GREEK AND ROMAN THOUGHT
Short Title: SELF IN GREEK & ROMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores conceptions of the self from Homer to Augustine of Hippo, focusing especially on views of the mind or soul and its relation to the body, thought or reason and its relation to desire, human agency and responsibility, and the individual self in relation to others.

CLAS 310 - THE DAWN OF ROME: GENERATING THE URBAN, SOCIAL AND POLITICAL LIFE OF THE ETERNAL CITY
Short Title: THE DAWN OF ROME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course you will uncover the roots of the Eternal City, Rome. Through analysis of archaeological remains, art historical methodologies and theories of social space, intentionality, structuration and agency, you will question how and why Rome became a city and a culture the reshaped the world. The course will focus on the first 500 years of Roman art and society, ca. 800-300 BCE, looking closely at the kingship of Rome, the genesis of the Roman Republic, and the ability to understand a distant culture through artistic manufacture, materiality and philosophical shift. Cross-list: HART 309.

CLAS 303 - SOCRATES
Short Title: SOCRATES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Plato’s Socratic dialogues, among the world’s masterpieces of prose literature, and Aristophanes’ Clouds, in which the “sophist” Socrates is mercilessly mocked for his outlandish uselessness. We will read Plato’s Apology of Socrates at both the beginning and the end of the course, considering the reasons that Socrates was tried, convicted, and executed by his fellow citizens, and what was the nature of his defense. Mutually exclusive with FWIS 149 and CLAS 303. Mutually Exclusive: Cannot register for CLAS 303 if student has credit for FWIS 149.

CLAS 318 - CROSS-LIST: HART 309
Short Title: CROSS-LIST: HART 309
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read 16 Greek tragedies by Aeschylus, Sophocles, and Euripides as well as contemporary criticism of tragedy by Aristophanes, Plato, and Aristotle. We will consider how ancient tragedies were staged, how they were received by their audiences, how they fit in the life of Athens, how they influenced later dramatic arts, and how they continue to stimulate thinking about the human situation.

CLAS 315 - THE GREEK SOCIETY
Short Title: THE GREEK SOCIETY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: PLST 316.

CLAS 314 - GREEK ART AND SOCIETY
Short Title: GREEK ART AND SOCIETY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will introduce you to the major monuments of Rome, Pompeii, and Herculaneum. We will focus not only on the history and functions of these monuments in antiquity but also on how their meaning and representation has changed and evolved in the post-classical world. Instructor Permission Required. Cross-list: HART 318. Repeatable for Credit.
CLAS 324 - THE GENESIS OF ROMAN ART
Short Title: THE GENESIS OF ROMAN ART
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the roots of the art and architecture of ancient Rome (ca. 600-200 BCE). In it we will examine the earliest vestiges of sculpture, painting and architecture from the Archaic and Classical periods to the twisted forms of Hellenistic conquest. You will grapple with the questions of cultural agency, connoisseurship, cultural interaction, network and object theories and spatial imagination to question standard narratives that divide Rome in this time from neighboring Greek polities. Cross-list: HART 327.

CLAS 326 - MATERIAL, FORM, SPACE, TIME: CONCRETE AND THE REVOLUTION OF SPACE IN ANCIENT ROME
Short Title: MATERIAL, FORM, SPACE, TIME
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "Architectural Revolution" has been tied to Le Corbusier, the Eiffel Tower, the Louvre, Brunelleschi and to towering Gothic cathedrals. At the foundation of all these endeavors is the Concrete Revolution in Roman Architecture. In this course we'll look at the four essential elements of this revolution from the fourth century BCE to the fifth century CE, and we'll investigate how shifts in application and experience created a background that informs design to this day. Cross-list: ARCH 326, HART 326.

CLAS 336 - INTRO TO INDO-EUROPEAN
Short Title: INTRO TO INDO-EUROPEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will begin with a brief survey of the Indo-European languages, followed by a detailed reconstruction of Proto-Indo-European phonology, morphology, and syntax. The second half of the course will deal with Indo-European culture, laws, society and poetics, together with a consideration of advanced topics in the individual branches. Cross-list: LING 336.

CLAS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CLAS 482 - CAESAR'S PALACE: AUTHOR(ITY) AND MEANING IN THE ROMAN IMPERIAL RESIDENCE
Short Title: CAESAR'S PALACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Described as both a "Hall of Despotism" and a "Citadel of Majesty," the palace of the Roman emperors is one of the great enigmas of antiquity. Its vast remains (larger than Versailles) are relatively well preserved, but it is poorly understood as part of the concept of emperorship. In this course we will examine the palace within the context of Imperial Roman art and politics; then we will dissect its meaning(s), the intentions of those who created it, and generally deconstruct it, brick by brick, to question agency and spatial experience from a macro-historical perspective. Cross-list: HART 482.

CLAS 492 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work. Instructor Permission Required. Repeatable for Credit.

CLAS 493 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to Classical Studies majors in their final year. Thesis, approximately 7,500-15,000 words (30-60 pages), on a topic of the student's choice in consultation with a faculty member. CLAS 493 and CLAS 494 form a two semester sequence. Requirements for 493 include a detailed prospectus with annotated bibliography. Instructor Permission Required.
Cntr Lang & Intercultural Comm (CLIC)

CLIC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CLIC 369 - INTERCULTURAL COMMUNICATION:IC LANGUAGE IN INTERACTION
Short Title: IC LANGUAGE IN INTERACTION
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course centers on the development of intercultural communicative competence in the context of learning a L2 with special focus on language uses, sociolinguistic strategies and structures of interactional discourses in spoken and written languages. This course is taught in English.

CLIC 385 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will engage in an in depth study of topics related to language study and intercultural communication under the guidance of CLIC faculty. Topics will vary but will develop the students' ability to communicate in the target language. Department Permission Required.

CLIC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Cognitive Sciences (CSCI)

CSCI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CSCI 340 - METHODS OF COGNITIVE SCIENCE
Short Title: METHODS OF COGNITIVE SCIENCE
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cognitive science is a basic science of mental operations in humans, animals, and artificial systems. It is a highly interdisciplinary endeavor that draws on philosophy, psychology, biology, linguistics, and computer science, among other traditional disciplines. This course provides an integrated introduction to the primary empirical methods for studying the human mind. Students will learn how the scientific method is applied to study mental information representation, manipulation, and utilization in natural and artificial cognitive systems. It will teach students to understand and evaluate existing methodological approaches as well as recognize what is necessary to replicate results. Topics include the philosophical foundations of cognitive science, basic methods of cognitive psychology, neuroscience, linguistics, computational modeling, data analysis, and ethical responsibility when conducting cognitive research.

CSCI 390 - SUPERVISED RESEARCH IN COGNITIVE SCIENCES
Short Title: SUPERV RESRCH COGNITIVE SCI
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised research on topics relevant to the cognitive sciences. Limited to majors in Cognitive Sciences. Instructor Permission Required. Repeatable for Credit.
CSCI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CSCI 481 - HONORS PROJECT
Short Title: HONORS PROJECT
Department: Cognitive Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent directed research toward preparation of an undergraduate honors project or thesis. Instructor Permission Required. Repeatable for Credit.

Collage Course (COLL)
COLL 100 - CLEOPATRA: UNTANGLING THE MISCONCEPTIONS (BAKER)
Short Title: CLEOPATRA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How is history written, and by whom? This course will use the case study of Cleopatra to analysis how and why her narrative has been framed in a certain frame for the past 2,000 years.

COLL 101 - MIND AND MATTER: SPORT PSYCHOLOGY AND PHYSIOLOGY IN FENCING AND OTHER SPORTS (BAKER)
Short Title: SPORT PSYCHOLOGY IN FENCING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Fencing may be perceived rather as a rare, inaccessible sport yet its basic fundamentals of swordplay is prevalently seen among us. Its root has extended into the modern day in various forms such as StarWars Lightsaber fights, in which Darth Vader lunges, parries, and attacks the opponent with lightsaber. Also its athletic presence has been augmenting as an Olympic sport and large global championships as fencing has proved to be more than just sword fights with its complex technicality and mental strategies. While most sports do incorporate mental strategies into performance, fencing integrates these mental knowledge into performance simultaneously with body movements. How does this dual integration of psychological strategies and physical movements in fencing differentiate from other sports? In this course, students will go over fundamental principles of fencing, compare different types and rules of fencing, and discuss mental strategies along with the physical strategies observed in Olympic games that influence an individual's performance. Students will also be able to try practical tactics and styles in fencing and have a chance to attend one of Rice Fencing Club practices if social distancing regulations ameliorate. Furthermore, students will research sports psychology and learn how psychological factors such as visualization, imagery, self-talk and others enhance athletic performance.

COLL 102 - INTRO TO CRYPTO-A FUTURE OF BLOCKCHAIN AND CRYPTOCURRENCY (BAKER)
Short Title: INTRO TO CRYPTO
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will cover the basics of blockchain, many of its applications (including cryptocurrency, non-fungible tokens, and more), and how students can adopt this revolutionary new technology into their daily lives.
COLL 103 - FROM STAGE TO SCREEN: THE GOOD AND THE BAD OF MOVIE MUSICALS (BROWN)
Short Title: FROM STAGE TO SCREEN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Even before the dawn of the COVID-19 pandemic and the complete shut-down of Broadway, live, quality theatre was rarely accessible, especially at an affordable price. Film adaptations of musicals, however, allow people to witness that theatre for a fraction of a Broadway ticket price, with one essential trade-off: the shift in storytelling medium requires changes to the source material that can lessen its quality dramatically. While some film adaptations are able to preserve, even enhance, the artistry of the original production, others handle the challenge much less gracefully. In "From Stage to Screen," students will watch and discuss as assortment of film adaptations of musicals, ranging from critical acclaim and film style, in order to answer the question: considering the many definitions of success, what factors influence the artistic success of a film adaptation of a musical? While there are no exams in the course, students demonstrate comprehension of course themes through periodic papers reacting to the films and a final analytical presentation.

COLL 104 - INTRODUCTION TO CONVERSATIONAL HINDI/URDU (JONES)
Short Title: INTRO TO HINDI/URDU
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In an increasingly connected world, speaking Hindi/Urdu opens you to communicate with over 500 million people. Although both languages are written differently, how do Hindi and Urdu intersect to form a conversational language? How does learning conversational Hindi/Urdu impact your relationship with South Asia? In Introduction to Conversational Hindi and Urdu, students will develop basic interactive competence in Hindi/Urdu to express themselves and understand others. Students will become familiar with common words and phrases and learn to converse familiar situations. This learning will be accompanied by sociocultural knowledge of South Asia by exposure to famous movies and songs, cultural events, and conversations with a native speaker. This course will focus on conversational Hindi/Urdu and will not involve learning scripts. No prior knowledge of Hindi/Urdu required.

COLL 105 - TELLING TALES TOGETHER COOPERATIVE STORYTELLING (JONES)
Short Title: TELLING TALES TOGETHER
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How does cooperative storytelling work in today's modern world? Students will learn how cooperative storytelling exists in the digital age and how they can participate in telling stories together.

COLL 106 - DISSECTING PHYSICS POP SCIENCE, FROM BLACK HOLES TO QUANTUM PHYSICS (MCMURTRY)
Short Title: DISSECTING PHYSICS POP SCIENCE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Popular science is the communication of scientific knowledge intended for a general audience. This genre of media is accessible to almost everyone and consequently evokes widespread interest in physical phenomena, from the mysterious environments of black holes to the paradoxical observations in quantum physics. However, the information conveyed is almost always qualitative. The oversaturation of textually descriptive information in pop-physics can set expectations that differ from the type of work actually being done. What is the role of qualitative and quantitative information in the strengths and weaknesses of pop-physics? We will assess the positive and negative implications of the inclusion and exemption of math in physics popular science, such as how math's prevalence and accessibility shapes its public image. We will also evaluate how well are we representing physics and educating the public through the omission of numbers. Here we probe the quantitative side of popular physics topics and use this understanding to concurrently reason whether or not the current norms for science communication should be modified.

COLL 107 - SUPER SMASH THEORY: SUBCULTURE AND ANALYSIS (MARTEL)
Short Title: SUPER SMASH THEORY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, novice and expert students alike will undergo an in-depth investigation of the implications and intricacies of Super Smash Bros., through the subsequent competitive scene that has developed around it.

COLL 108 - SURVIVOR: SOCIAL STRATEGIES IN FOCUS (WIESS)
Short Title: SURVIVOR: SOCIAL STRATEGIES
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students analyze the successful strategies used in the show "Survivor" and relevant scholarly papers on the psychological aspects of the topic. They then apply those strategies in practice by playing the game in the classroom.
### COLLEGE COURSES

#### COL 109 - TALES FROM THE LAND OF THE RISING SUN (MCMURTRY)
**Short Title:** JAPANESE STORYTELLING  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** From the never-ending stream of new manga and anime to the new Godzilla movie released earlier this year, Japanese literature and media has shown an appeal that stretches far beyond its borders. While it may be easy to get caught up in the action of a well-choreographed fight scene or the beauty of a finely written paragraph, it is important to ask how Japanese literature and media influence conceptions of Japanese history and culture in the United States? In Japanese Storytelling, students will discuss the different ways that stories are told, from anime and movies to folklore and novels, and how they influence the way their culture is viewed. They will improve their ability to critically understand different texts and media through group discussion, short essays, and projects.

#### COL 110 - THE AMERICAN MICROBREWERY: A HISTORY AND A PRACTICUM (SID RICH)
**Short Title:** THE AMERICAN MICROBREWERY  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Through a historical and sociological analysis students will think critically about the American Microbrewery as both a historical institution and modern phenomenon. To complement this and demonstrate their knowledge students will physically brew multiple beers during the semester. Due to the necessity of sampling, this course will be limited to ages 21+.

#### COL 111 - AN INTRODUCTION TO THE STUDIES OF HAPPINESS & WELLBEING (JONES)
**Short Title:** THE HAPPINESS CLASS  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course serves as an introduction to studies and practices of happiness and wellbeing from an interdisciplinary perspective. We will investigate anthropological, scientific, literary, and artistic approaches to various aspects of wellbeing, in addition to critically engaging with diverse practices associated with the maintenance and creation of happiness.

#### COL 112 - DEFINING THE ANIME CULT CLASSIC (MCMURTRY)
**Short Title:** THE ANIME CULT CLASSIC  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** To what extent can any given anime be described as a cult classic? In this course, students will define the traits of the cult classic and then consume selected anime titles which exemplify such traits. They will hone their critical thinking and oral communication skills through participating in class discussions, writing prompts of various lengths and scope and ultimately analyzing an anime cult classic of choice in a term presentation.

#### COL 113 - NOT YOUR GRANDMA'S CROCHET CLASS (WIESS)
**Short Title:** NOT YOUR GRANDMA'S CROCHET  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Crocheting is developing into a modern form of self-expression that has relaxing benefits. In this course, we will explore the cultural position of crocheting and what it can teach us. Students will learn the basic crochet stitches, combine them through guided class projects, and end with an individual project.

#### COL 114 - CREATIVITY: THINKING DIFFERENTLY (WILL RICE)
**Short Title:** CREATIVITY  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** "Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world." – Albert Einstein Creativity is a skill that is often mistaken for an innate talent. Although often portrayed as something that you must be born with, many theories frame it as rather a particular ability that can be cultivated and developed.

#### COL 115 - HOUSTON: FOOD, CITY, AND IMMIGRATION (MCMURTRY)
**Short Title:** HOUSTON FOOD AND IMMIGRATION  
**Department:** College Courses  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course uses food and cuisine as a method of understanding the history and culture of Houston and its immigrants. In analyzing cuisine and culture of Houston we seek to answer: How much does Houston's food culture and cuisine accurately represent immigrants and the waves of immigration? This will achieved through multiple field trips into Houston's restaurants complimented with in-class discussions.
Despite the attention breasts receive in media, most people know very little about the physiology and history of breasts, causing physical and emotional pain for billions of people. Students will study the physiology, commercialization, and social history of breasts from viewpoints of various cultures and time periods. No breasts are required!

Are there ways to practically integrate vegan desserts into our diets without breaking the bank and fundamentally changing the tastes that make them so irresistible to begin with? In this course, students will be given the tools to establish a firm foundation in vegan baking.

Despite the attention breasts receive in media, most people know very little about the physiology and history of breasts, causing physical and emotional pain for billions of people. Students will study the physiology, commercialization, and social history of breasts from viewpoints of various cultures and time periods. No breasts are required!
COLL 123 - THE CULTURAL AND SOCIAL IMPACT OF K-POP (WIESS)
Short Title: K-POP AND SOCIETY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will examine the impact of Korean and Western culture on the K-Pop industry.

COLL 124 - RISE OF ESPORTS INFRASTRUCTURE/STATUS AND LEAGUE (DUNCAN)
Short Title: ESPORTS INFRASTRUCTURE/STATUS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Esports industry has quietly existed since the late 1990s. However, recently the wildly popular MOBA game known as League of Legends and its pro scene has brought the Esports industry to the forefront. With all the good and bad the game has done for the esports community, we must ask ourselves: To what extent has League of Legends accounted for the success of esports and the creation of a toxic subculture, and how will its role evolve? Students will be introduced to the mechanics of the game in order to adopt a player perspective during analysis of esports. Through class discussion, readings, and responses, they will trace the impact the game has had on the rise of esports infrastructure, viewership and the creation of toxic player interactions between themselves and towards the teams they support. After completing this course, students should walk away with a greater understanding of esports, an appreciation for how far esports has come, and, possibly, a desire to participate in the esports community as a positive influence.

COLL 126 - FASHION FURIOUS - FASHION AS SELF EXPRESSION AND INDUSTRY (BAKER)
Short Title: FASHION FURIOUS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will be introduced to the fundamental artistic elements of fashion as well as components of the fashion industry in order to make informed fashion decisions regarding their own style and their impact on the world around them.

COLL 132 - ORIGAMI SEKKEI: A MATHEMATICAL APPROACH TO THE ANCIENT ART OF PAPER FOLDING (JONES)
Short Title: MATHEMATICAL ORIGAMI DESIGN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The art of paper folding has existed for over fifteen centuries, yet an astonishing 98 percent of new origami designs have been developed within the past fifty years and with rapidly increasing complexity. This modern day origami renaissance has been closely connected to advances in science, technology, and computational mathematics combined with artistic intuition and creativity. How can mathematical methods be applied to develop awesome, creative origami with a purpose? The practice of origami sekkei, or technical origami design, overthrows the traditional freestyle folding process and instead turns to a carefully engineered theoretical model. Students will explore contributions from the pioneers of modern origami, ranging from the fantastically intricate work of NASA physicist Robert J. Lang to the elegant simplicity of origami grandmaster Kyo Yoshizawa. The course will cover mathematical techniques such as base folding, grafting, circle packing, tree theory, and box pleating through hands-on, interactive exercises. Starting with the very basics, this course is designed to be approachable to beginners in all aspects but also offers topics that may be of additional interest for those in specialized fields of study. Overall, we hope to unfold the mysteries of origami and turn the page to reveal some of the most cutting-edge work in the field.

COLL 136 - FUNDAMENTALS OF DIGITAL DESIGN (MCMURTRY)
Short Title: DIGITAL DESIGN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In Fundamentals of Digital Design, students will learn the key principles of user experience and interface design (UX/UI), elements of mobile app interfaces, and the application of digital design for the technical world. Focusing heavily on interface design, this course will break down the elements of an interface and discuss color theory, typography, usability, and human factors, and leave students with a strong foundation in what makes good digital design.
COLL 137 - INVESTING, TRADING, AND PERSONAL FINANCE (WILL RICE)
Short Title: INVESTING AND TRADING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Have you ever thought of investing in the Financial Markets but aren’t sure how to get started? Do you think investing is for the old and wealthy? With the increasing precarity surrounding us, it is more important than ever to set yourself up for financial success. There is a common misconception in investing that you need a lot of money to get started. That is certainly not true anymore. All it takes is a plan. Learning how to invest is a skill that everyone can make use of. In this class, you will learn the basics of investing and account management. We will cover what the stock market is, how to invest, what stocks to pick, how to hedge, and the importance of investing your money. Starting to prepare for YOUR financial future is a luxury that many people wished they started doing in their early 20s. Over time, you will be able to generate more money through passive income than through a traditional office job, and this will be illustrated by the power of compound interest. We will discuss your needs as an individual financially and come up with an effective plan to meet those needs. We will also discuss something many mathematicians and investors have long debated – does technical analysis work? What are its limits, and when can you use it? Why should and why should it not work? By the end of the class, you will have the tools required to manage your own portfolio effectively and plan for your future and retirement.

COLL 139 - HYBRID BEINGS, MULTIPLE SELVES: THE CONSTRUCTION OF IDENTITY IN A DIGITAL AND MATERIAL AGE (BROWN)
Short Title: HYBRID BEINGS, MULTIPLE SELVES
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How much time do you spend online and how does that compare to your time offline? How do these different experiences mesh to influence the type of person you are? What kind of person does existing in these two planes make you? Hybrid Beings: Multiple Selves investigates the impacts of technology on our conceptions of self and embodied experience; focusing on visual technologies like print and screens. This course will focus predominantly on 21st century technologies, particularly the impact of social media on the way we conduct our lives and the ramifications of the corporate control of social life. A critical portion of the course will investigate the forms that social justice takes in the “real world” versus online, echo chambers, politically charged “news” generated by extremist groups, and the facilitation of these negative outcomes via the anonymity and lack of accountability afforded by the internet. Through our meanderings we will discuss ideas pertaining to materiality, phenomenology, power, gender, sexuality, race, intersectionality, and the social construction of experience. The ultimate question we pose is: What does it mean to BE in the 21st century and how can we adjust our behaviors to adapt to the inevitability of technology’s growing guidance of our lives?
COLL 145 - POKEMON: GAME STRATEGIES WITH IMPERFECT INFORMATION (LOVETT)
Short Title: POKEMON GAME STRATEGIES
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will explore the game theory and strategy behind the competitive Pokémon scene, gaining insight on how to make decisions in scenarios with limited information. At the core of this class is the question “how do I decide what move to make?” which involves analyzing what information is known and unknown, imagining possible obstacles and outcomes, and prioritizing appropriate goals. Students will develop skills and strategy tools to answer this question through the lens of Pokémon. The Pokémon games are turn-based strategy games where players create a team from a wide selection of characters and battle opponents with similarly constructed teams. Although typically this opponent is a simple AI, in a competitive context, human players battle each other. This increases the complexity of the game significantly. This course will focus on the “core series” of Pokémon video games for Nintendo handheld consoles, specifically the 8th and most recent installment of the series, Sword & Shield. The course will cover introductory mechanics and principles so that students with no prior experience won’t be lost, and at the end of the semester we will have an in-class tournament to apply skills gained.

COLL 146 - LAW IN FILM (MARTEL)
Short Title: LAW IN FILM
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Lightning trials, outbursts in the courtroom, and gavels slamming. Despite what movies might depict, these tropes are far from the reality. Through watching legal movies, learn how film distorts procedural and sociocultural aspects of the law.

COLL 147 - SUPERHEROES: MYTHOS & MORALITY (MARTEL)
Short Title: SUPERHEROES: MYTHOS & MORALITY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Fictional superheroes shape common ideals of justice, responsibility, and moral good. This class will compare flat and dynamic superhero character arcs, find intention behind each story, and glean if our fascination with superheroes can tell us about our personal values and obsession for a society in need of simple, straightforward mending. Students will pick out aspects of various superhero mythoi from media selections and be able to outline a story arc and craft powerful character that’s definitively theirs.

COLL 148 - THE ART OF THE BLOCKBUSTER: MOVIES MADE FOR THE MASSES (LOVETT)
Short Title: THE ART OF THE BLOCKBUSTER
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Do you like big-time movies and blockbusters? Do your wannabe movie snob friends scoff at your mainstream taste? Well, here is your chance to prove them wrong! From Steven Spielberg to Michael Bay and everyone in between, we will examine the nuances and stylings that make blockbusters what they are. We will also be diving into common blockbuster genres to examine how and why certain types of films become such big hits or massive failures. Whether it’s Mean Girls or Marvel movies, you will be equipped to defend any film’s perceived artistic value.

COLL 149 - WILL THE REAL COMEDIAN PLEASE STAND UP? (HANSZEN)
Short Title: STAND-UP (COMEDY) FOR YOURSELF
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will explore the game theory and strategy behind the competitive Pokémon scene, gaining insight on how to make decisions in scenarios with limited information. At the core of this class is the question “how do I decide what move to make?”, which involves analyzing what information is known and unknown, imagining possible obstacles and outcomes, and prioritizing appropriate goals. Students will develop skills and strategy tools to answer this question through the lens of Pokémon. The Pokémon games are turn-based strategy games where players create a team from a wide selection of characters and battle opponents with similarly constructed teams. Although typically this opponent is a simple AI, in a competitive context, human players battle each other. This increases the complexity of the game significantly. This course will focus on the “core series” of Pokémon video games for Nintendo handheld consoles, specifically the 8th and most recent installment of the series, Sword & Shield. The course will cover introductory mechanics and principles so that students with no prior experience won’t be lost, and at the end of the semester we will have an in-class tournament to apply skills gained.

COLL 153 - SOCIALIZATION THROUGH SPORTS: HOW SPORTS SHAPE WHO WE ARE (HANSZEN)
Short Title: SOCIALIZATION THROUGH SPORTS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar investigates the social function of sports, its importance to society, and how sports shape our understanding of self and others. Readings and viewings address sports as it relates to social theory, youth and aging, identity formation, high school and college, race, class, gender, deviance, bodily capital, activism.

COLL 160 - GAME SKILL - PROBLEM SOLVING THROUGH GAME MECHANICS (JONES)
Short Title: GAME SKILL
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How might we understand problem solving in everyday activities through game mechanics? Students will learn how to transfer problem solving skills learned through game mechanics to real-world problems.
COLL 162 - BACH TO THE FUTURE: AN OVERVIEW OF CLASSICAL MUSIC HISTORY (JONES)
Short Title: BACH TO THE FUTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: By studying music history, how would individuals become more familiar with classical music and its complexities? This course aims to show how listeners can gain a new appreciation for classical music through studying its history. Students will understand how political and social contexts influenced the composers' artistry and creations, and explore different genres of classical music, spanning from symphonies to operas.

COLL 163 - THE PHILOSOPHY OF BOJACK HORSEMAN (DUNCAN)
Short Title: PHILOSOPHY OF BOJACK HORSEMAN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Framed around the popular Netflix show Bojack Horseman, students will gain an introduction to ontology and deep understanding of existential philosophy. The focus will consistently be on two fundamental questions: "What is the meaning of life?" and consequently "If life has no inherent meaning, what do we do?"

COLL 164 - A TRIP TO THE NETHERLANDS - AN INTRODUCTION TO DUTCH CULTURE (BROWN)
Short Title: DUTCH CULTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In a tourist society where most vacation plans are made using TripAdvisor or comparable services it is hard to get a feel for a country while also doing things you like. In this class the students will answer the question: What does your perfect trip to the Netherlands looks like?

COLL 165 - SKATEBOARDING ON FILM (WIESS)
Short Title: SKATEBOARDING ON FILM
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Digital video cameras have heavily influenced the development of skateboarding as a sport since their introduction. Giving pros and amateurs alike a way to record and share their newest tricks, lines, and ideas, video recording has pushed skateboarding to be nearly as much art as sport. In this class, students will learn the basics of riding a skateboard and creating and editing your own videos. We will also make at least two class trips to a Houston skatepark to introduce students to Houston skate culture and provide additional filming opportunities. Ultimately students should be able to answer the following essential question: How might I express my individual artistic style in my films?

COLL 166 - INTRODUCTION TO THE SKIN WE LIVE IN (BAKER)
Short Title: INTRO TO SKIN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Skin problems aren't limited to acne; we sometimes get eczema, warts, and rashes. There's a sea of intriguing skin conditions just waiting to be understood and treated! This course will cover the integumentary system, ingredients in the skin care/dermatological industry, skin care habits, and skin diseases and treatments!

COLL 167 - INTRO TO IMAGINEERING: HOW TO THINK LIKE A DISNEY IMAGINEER (BROWN)
Short Title: INTRO TO IMAGINEERING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will delve into the history and design process of Imagineering to fully understand what it means to be an Imagineer. Students will learn "Mickey's Ten Commandments" for theme park design used throughout the theme park entertainment industry, observe previous and present projects created by WDI, and establish an understanding of how to think like an Imagineer. Students will also be challenged to apply the Imagineering thinking and design process from Blue Sky to "construction" in a semester-long project.
COLL 176 - ADDRESSING STIGMAS AGAINST DISCUSSING MENTAL HEALTH AND MENTAL ILLNESS (WILL RICE)
Short Title: LET'S TALK ABOUT MENTAL HEALTH
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Mental Health is defined as a person's condition with regard to their psychological and emotional well-being. Mental illness is defined as health conditions involving changes in emotion, thinking or behavior (or a combination of these). Stigma towards mental health largely takes the shape of societal disapproval of those with mental illness or who desire to discuss mental health in their communities. In this course, we will cover common stigmas related to discussing mental health and approaching mental illness. We will also examine how we may have implicit bias against people with mental illness or even against discussing mental health in general and how we can work to address those biases. This course will also look at various coping strategies used by individuals struggling with mental health and introduce positive practices to discuss mental health.

COLL 177 - INTRO TO DISABILITIES AND MENTAL DISORDERS (BAKER)
Short Title: DISABILITIES AND DISORDERS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Explore various disabilities and mental disorders, with an emphasis on integration and acceptance.

COLL 178 - BLOCKCHAIN BEYOND BITCOIN: HARNESING DISRUPTIVE TECHNOLOGICAL POTENTIAL (DUNCAN)
Short Title: BLOCKCHAIN BEYOND BITCOIN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How will blockchains empower positive and radical change in our increasingly globalized and data-driven society?

COLL 180 - THE ANATOMY OF MEDICAL-DECISION MAKING (MCMURTRY)
Short Title: MEDICAL-DECISION MAKING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will explore how medical professionals decide the best courses of action when faced with different ethical dilemmas. Through this course, students will be acclimated to ethical issues in medicine and how professionals make these seemingly impossible decisions.

COLL 181 - PRINCIPLES & APPLICATIONS OF VISUAL DESIGN (MARTEL)
Short Title: VISUAL DESIGN
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In Principles & Applications of Visual Design, students will learn about different design elements, including layout, iconography, color, and typography, considering how each creates a positive, purposeful visual experience. Combining theory and practice, this course aims to increase students' understanding of visual communication principles and awareness of the design that surrounds the world.

COLL 182 - INCREASING HAPPINESS AND SELF-ACCEPTANCE THROUGH MINDFULNESS AND MEDITATION (WILL RICE)
Short Title: MIND MATTERS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: At a rigorous university like Rice, stress is rampant. We tend to work harder when stressed and develop a cycle of putting off “alone time” or “personal time”. This class is here to show you that setting aside just 5-10 quiet minutes a day for some mindful time can reap benefits that surprise even the instructors of this class everyday new research comes out. But which methods can individuals practice to increase their happiness and self-acceptance? In this course, students will disconnect themselves from the outside world of technology, social media, and distractions for 1 hour a week, looking inwards to find the root causes of the uneasiness in oneself. Students will work on meditation, journaling, self-care, and other research-backed methods. They will learn to be stiller, observe their emotions more, and more easily identify the best actions to aid their mental health when faced with stressors. By the end of the course, they will have practiced a set of skills they can sustain long-term. Meditation and such topics often scare people, but there is absolutely no prior experience necessary for this course—we are excited to join you on this personal journey of yours, at your own pace!
COLL 183 - CULTURE OF TEA (LOVETT)
Short Title: CULTURE OF TEA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Tea can mean many different things to many people. Students will be exposed to different teas as they develop their own personal "culture of tea".

COLL 184 - THE ART OF TRASH CINEMA (DUNCAN)
Short Title: THE ART OF TRASH CINEMA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What is trash cinema? With this course, students will analyze the wide spread fascination with and appreciation for "bad movies" through study of these films' evolution and diversification over time.

COLL 185 - THE CROSSROADS BETWEEN COGNITIVE NEUROSCIENCE AND THEATRE (BAKER)
Short Title: COG NEUROSCIENCE AND THEATRE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How does neuroscience influence theatrical practices, and how do theatrical practices influence and address topics within neuroscience? This course will examine the exciting interplay between these two fields of study.

COLL 186 - HAWAI'I: BEYOND THE BROCHURE (DUNCAN)
Short Title: HAWAI'I: BEYOND THE BROCHURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Beset by political and personal turmoil, the composer Pauline Oliveros retreated inward in the late 1960's to develop listening techniques she called "Deep Listening" before returning to her public life as a composer. These techniques would become foundational to her musical life and the way she interacted with other people. What is it like to live with a listening practice that clears room for more than just our immediate goals? With no exams, this course will employ close readings of semi-improvisatory group exercises by Oliveros and solitary listening to explore the learned art of listening as both a social phenomenon and an individual journey, with an understanding of the many roles listening can play: a necessary pause before action, a blueprint for meaningful social interaction, a path toward healing.

COLL 187 - TEA AROUND THE WORLD: CULTURAL, HISTORICAL, AND PERSONAL PERSPECTIVES (MARTEL)
Short Title: TEA AROUND THE WORLD
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What can tea practices reveal about a culture? Students will explore tea practices around the world through tastings, readings, and discussions to discover the influence of tea on a culture and vice versa. Classes will involve an overview of the historical origins of tea as well as modern-day tea practices.

COLL 188 - THE COST OF CONSUMING: HOW OUR CHOICES AFFECT OUR FELLOW HUMANS AND THE ENVIRONMENT (BAKER)
Short Title: THE COST OF CONSUMING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is an introduction to ethical, conscious lifestyles through the lens of social and ethical issues and how individuals interact with them in their everyday, 21st-century lives. Assignments ask students to question what issues they care about and how what they buy affects what they support.

COLL 190 - AN ATMOSPHERE OF OPENING: DEEP LISTENING, PAULINE OLIVEROS, AND YOU (HANSZEN)
Short Title: DEEP LISTENING
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Beset by political and personal turmoil, the composer Pauline Oliveros retreated inward in the late 1960's to develop listening techniques she called "Deep Listening" before returning to her public life as a composer. These techniques would become foundational to her musical life and the way she interacted with other people. What is it like to live with a listening practice that clears room for more than just our immediate goals? With no exams, this course will employ close readings of semi-improvisatory group exercises by Oliveros and solitary listening to explore the learned art of listening as both a social phenomenon and an individual journey, with an understanding of the many roles listening can play: a necessary pause before action, a blueprint for meaningful social interaction, a path toward healing.
COLL 191 - BEER: THE HISTORY OF THE WORLD IN A GLASS (BAKER)
Short Title: BEER: HIST OF WORLD IN A GLASS
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: Through an exploration of world history, students will work to understand how major historical themes have influenced the development of new beer types, and how beer has transformed from a food group and the basics of economies, to a beverage of leisure. Due to the necessity of sampling, this class will be limited to ages 21+.

COLL 192 - GAME STRATEGIES OF POKER (LOVETT)
Short Title: GAME STRATEGIES OF POKER
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: In this course, students will learn everything from the basics of poker theory to the more complicated strategies and math which underlie the game. Our primary focus will be the variant no-limit Texas hold'em, the most popular form of poker.

COLL 194 - MUSIC AND SOCIETY (DUNCAN)
Short Title: MUSIC AND SOCIETY
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: This course will explore the ethical and legal questions that pervade music as a growing art form and cultural force.

COLL 195 - MAKEUP 101: FOUNDATIONS OF CREATIVE EXPRESSION (LOVETT)
Short Title: MAKEUP 101
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: Students will work together to answer the question: while the oversaturation of makeup products and style may present a daunting challenge to newcomers, how can makeup be used as a tool to enhance self-expression and promote creative artistry?

COLL 196 - DESIGNING YOUR LIFE: FINDING HAPPINESS, MEANING, AND SOCIAL Impact (MCMURTRY)
Short Title: DESIGNING YOUR LIFE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: In this class, we consider the historicity of the New Testament and examine additional primary and secondary sources to investigate the death and resurrection so pivotal in Jesus' claim to exclusivity: "I am the way, and the truth, and the life. No one comes to the Father except through me".

COLL 197 - THE GOSPEL TRUTH, INVESTIGATING JESUS' CLAIM TO EXCLUSIVITY (LOVETT)
Short Title: THE GOSPEL TRUTH
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: This course will explore the ethical and legal questions that pervade music as a growing art form and cultural force.

COLL 198 - ART CINEMA ISN’T BORING (JONES)
Short Title: ART CINEMA
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate-Lower-Level
Description: What constitutes "art cinema" and what advantages does it offer as a form of artistic expression? Arthouse films get their name from the arthouse cinemas they play in, as opposed to blockbuster theaters but the key to an art film is that it is about the artistic vision of its director, as opposed to an entertaining formula. These types of films can sometimes be written off as pretentious or boring. However, they are an entirely unique visual and aural route to engage with ideas on human nature itself. A film like Parasite indicates the potential that they have to make mainstream splashes. Watching art cinema can and should be an entirely exciting experience. Throughout the semester, we will be looking at some of the most acclaimed arthouse films from various countries around the world, gaining an appreciation for their context in larger cinematic movements. Students will analyze the directorial choices in these films and explore if they are making any significant statements beyond the surface of the film. By the end of the course, we will all have heightened our appreciation of these movies as a tool for personal expression, and students will be motivated to further explore uncharted cinematic territory. Mutually Exclusive: Cannot register for COLL 199 if student has credit for UNIV 235.
COLL 200 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Student instructors gain mastery of their subject of interest by practical application in teaching a course. Students are supervised by the faculty sponsor as approved by the Dean of Undergraduates. Students must have taken COLL 300 in developing the course. Instructor Permission Required. Repeatable for Credit.

COLL 202 - COOKING WITH CHEF ROGER (DUNCAN)
Short Title: COOKING WITH CHEF ROGER
Department: College Courses
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Cooking with Chef Roger teaches the students the fundamentals of cooking and help them to cook healthy delicious meals. The class also gives the students a clear idea about shopping for fresh ingredients and how to host successful parties.

COLL 203 - CYBERCRIME (LOVETT)
Short Title: CYBERCRIME
Department: College Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will introduce students to the current issues in cybercrime. It will include topics such as auction fraud, hacking, and identity theft. Students will read and discuss the statutes and cases that govern each area. Each class will have a fact scenario that will be analyzed using Federal and State law.

COLL 205 - PRACTICAL APPROACH TO PERSONAL FINANCE (HANSZEN)
Short Title: PERSONAL FINANCE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Basic introduction to the framework for making informed personal financial decisions. Prior knowledge of accounting or finance is not required. The course will provide a practical approach to personal finance. Topics will include budgeting, tax issues, banking services, use of credit, housing selection and ownership, investments, insurance, retirement planning and legal documents.

COLL 212 - BLACK MEN WRITING ABOUT THEIR WORLD: DU BOIS, BALDWIN, AND THEIR HEIRS (WIESS)
Short Title: BLACK MEN WRITING
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For Black men, what good are essays? This course explores the writerly activism, historical imagination, and the consequence of some of the best known work of W.E.B. Du Bois, James Baldwin, and several of their 21st century heirs. Taking cues from the subjects of the course, students will also get ample practice using the essay as a way to describe, analyze, and affect the contemporary black male condition. Permission of Instructor required. Instructor Permission Required.

COLL 214 - MASS INCARCERATION AND ITS DISCONTENTS: RACE, REFORM AND THE LAW (WIESS)
Short Title: MASS INCARCERATION
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course about the origins of mass incarceration in the United States; about the consequences of the present carceral state; and about efforts to address injustices that have proceeded from the nation's relatively recent and nearly insatiable impetus to cage its poor, non-white population.

COLL 218 - TO SERVE: LIVING A LIFE OF PUBLIC AND CIVIC SERVICE (BAKER)
Short Title: PUBLIC AND CIVIC SERVICE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Young Americans today are drawn to service-just not to public service. When so many people shrink from (or are repelled by) "politics" and "politicians", there has never been a better time to seek and exert leadership at every level. "Real Leaders, Real People" will draw practical lessons from the lives of leaders who overcame obstacles of various kinds.
COLL 219 - BORDER WALL: STATUS AND SYMBOL OF AMERICAN BOUNDARIES (BAKER)
Short Title: BORDER WALL
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: President Trump swept to power on a promise to “Build a Wall” and to deport the undocumented, and these promises and their fulfillment have dominated media and political attention for several years. The border is in “crisis,” the United States in a “state of emergency.” Taught by a civil rights lawyer, this course surveys the real and imagined elements of this crisis: patterns of and responses to contemporary migration, border enforcement and the militarization of border communities, the promises and failures of immigration courts and immigrant detention, and the goals, costs and efficacy of a border wall.

COLL 220 - WILLIAM MARSH RICE & SLAVERY (DUNCAN)
Short Title: WILLIAM MARSH RICE & SLAVERY
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will meet every other week and will enable students to engage in original historical research about William Marsh Rice and his world, with a specific focus on slavery and its aftermath in Texas. The research will aid the work of the Task Force on Slavery, Segregation, and Racial Injustice.

COLL 221 - THE BLACK EXPERIENCE AT RICE UNIVERSITY (WIESS)
Short Title: BLACK EXPERIENCE AT RICE
Department: College Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What does it mean, and what has it meant to be black at Rice? This seminar is focused on documenting and recovering the experience of black staff, students, and faculty at the university. The class is associated with the work of the Task Force on Slavery, Segregation, and Racial Injustice.

COLL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: College Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

COLL 299 - SCIENTIA: LECTURES IN SCIENCE AND CULTURE
Short Title: SCIENTIA SCIENCE & CULTURE
Department: College Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Annual lecture series, panel discussions and discussion talks on topics bridging science, culture and art. 4 lectures plus 2 discussion talks. Lectures are on specified dates, usually Tuesdays. Discussion talks scheduled at semester beginning. Topics vary year to year. Repeatable for Credit.

COLL 300 - PEDAGOGY FOR STUDENT INSTRUCTORS
Short Title: PEDAGOGY FOR STDNT INSTRUCTORS
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the first three weeks we will guide each student in the development of a proposal for a Student Taught Course. In the remaining four weeks we will learn and practice techniques of effective instruction.

Communication (COMM)

COMM 237 - ORAL COMMUNICATION IN PRACTICE AND THEORY
Short Title: THEORIES OF ORAL COMMUNICATION
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will aim to provide students with both a practical and theoretical framework for improving their oral presentation skills while fostering a level of self-awareness regarding the social constructions governing traditional "best practices."

COMM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
COMM 239 - A QUESTION OF STYLE, RHETORIC AND POPULAR WRITING
Short Title: RHETORIC AND POPULAR WRITING
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the rhetoric of popular writing in outlets such as National Geographic and Sports Illustrated. Through critical reading and writing workshops, students will acquire a nuanced understanding of available stylistic choices as they build the skills they need to develop their own voice with clarity, confidence, and style.

COMM 300 - COMMUNICATION IN THE DIGITAL AGE
Short Title: COMMUNICATION IN DIGITAL AGE
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will develop writing skills by maintaining a blog, generating Webpage content, and using social media. We will also produce video and audio content while remaining aware of how the form of the work impacts its content.

COMM 415 - MEDICAL COMMUNICATION
Short Title: MEDICAL COMMUNICATION
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to key issues, theories, and debates related to medical communication, while also helping students develop and reflect on their own communication strategies, and skills as future health care professionals. Sophomores and Freshmen who have fulfilled Rice’s First-year Writing-Intensive Seminar requirement for graduation may register by a Special Registration Form. Recommended Prerequisite(s): Successfully completed one course, FWIS 101 to 199, to fulfill the Rice’s First-year Writing-Intensive Seminar requirement for graduation.

COMM 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ACADEMIC READING AND WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how scholars construct arguments and use evidence to support claims, and they will practice writing texts that are relevant to their own courses and careers.

COMM 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ORAL COMMUNICATION SKILLS
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to pronunciation clarity, small group interactions, and formal presentations. Final projects will be related to students’ studies or research. Repeatable for Credit.

COMM 602 - ADVANCED ACADEMIC WRITING FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ADVANCED ACADEMIC WRITING
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses writing at both the macro- and micro-level, engaging students in such academic writing tasks as critiquing, reporting, and interpreting research findings, illustrating and justifying the significance of research, while also attending to mechanical topics. Writing assignments in the course will be linked to students’ studies, courses, or research. One-on-one conferences with instructors will be required.

COMM 605 - ADVANCED ENGLISH COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS
Short Title: ADVANCED ENGLISH COMMUNICATION
Department: Program Writing Communication
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This independent study course may be taken on its own or in conjunction with one of the other credit-bearing English communication courses. Students will work on a particular communication skill (reading, writing, speaking, listening) or combination of skills under the guidance of an ESL expert. Instructor Permission Required. Repeatable for Credit.

COMM 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Program Writing Communication
Grade Mode: Standard Letter
Course Type: Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment limited to Undergraduate Upper-Level or Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
Comp. & Applied Mathematics (CAAM)

CAAM 210 - INTRODUCTION TO ENGINEERING COMPUTATION
Short Title: INTRO TO ENG COMPUTATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Modeling, Simulation, and Visualization via MATLAB. Numerical methods: Newton’s method in one and several dimensions. Gaussian elimination and optimization. Application to problems in science and engineering. Lectures are held Monday and Wednesdays. In a laboratory component held on Fridays, students work in small groups on computational projects led by a Rice Learning Assistant. Recommended Prerequisite(s): MATH 101.

CAAM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CAAM 334 - MATRIX ANALYSIS FOR DATA SCIENCE
Short Title: MATRIX ANALYSIS DATA SCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Solution of linear systems and linear least squares problems. Eigenvalue problem and singular value decomposition. Introduction to gradient based methods. Applications to data science. Recommended Prerequisite(s): (MATH 212 or MATH 222) and (COMP 140 or CAAM 210) Mutually Exclusive: Cannot register for CAAM 334 if student has credit for CAAM 335.

CAAM 335 - MATRIX ANALYSIS
Short Title: MATRIX ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Equilibria and the solution of linear systems and linear least squares problems. Eigenvalue problem and its application to solve dynamical systems. Singular value decomposition and its application. Recommended Prerequisite(s): (MATH 212 or MATH 222) and (COMP 140 or CAAM 210) Mutually Exclusive: Cannot register for CAAM 335 if student has credit for CAAM 334.

CAAM 336 - DIFFERENTIAL EQUATIONS IN SCIENCE AND ENGINEERING
Short Title: DIFF EQUATIONS SCI & ENG
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Classical and numerical solution techniques for ordinary and partial differential equations. Fourier series and the finite element method for initial and boundary value problems arising in diffusion and wave propagation phenomena. Recommended Prerequisite(s): (MATH 212 or MATH 222) AND CAAM 210.

CAAM 378 - INTRODUCTION TO OPERATIONS RESEARCH AND OPTIMIZATION
Short Title: INTRO TO O.R. AND OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Formulation of mathematical models of complex decisions arising in management, economics, and engineering. Models using linear, nonlinear, stochastic and integer programming, as well as networks. Linear programming duality and its modeling implications. Overview of basic solution methods for these optimization models. Recommended Prerequisite(s): MATH 212 and (CAAM 335 OR MATH 211 OR MATH 355).
CAAM 382 - STOCHASTIC MODELS
Short Title: STOCHASTIC MODELS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102 or MATH 106
Description: Fundamentals of stochastic modeling. Topics include discrete & continuous time Markov models, Poisson processes, renewal theory, queueing systems, reliability, Markov decision processes, optimal design and control. Recommended Prerequisite(s): (STAT 280 or 305 or 310 or 315) and MATH 212 and (CAAM 210 or COMP 140) and (CAAM 335 or MATH 355)

CAAM 415 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Cross-list: ELEC 488, NEUR 415. Graduate/Undergraduate Equivalency: CAAM 615. Recommended Prerequisite(s): CAAM 210 or MATH 211 or CAAM 335 or MATH 355. Mutually Exclusive: Cannot register for CAAM 415 if student has credit for CAAM 615.

CAAM 416 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including “what does a network compute?”, “how does it compute?”, and “why does it compute that way?” Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: ELEC 489, NEUR 416.

CAAM 421 - LOGISTICS AND SUPPLY CHAIN MANAGEMENT
Short Title: LOG & SUPPLY CHAIN MANAGEMENT
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 378 and CAAM 382

CAAM 423 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQUATIONS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level

CAAM 435 - DYNAMICAL SYSTEMS
Short Title: DYNAMICAL SYSTEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Existence and uniqueness for solutions of ordinary differential equations and difference equations, linear systems, nonlinear systems, stability, periodic solutions, bifurcation theory. Theory and theoretical examples are complemented by computational, model driven examples from biological and physical sciences. Cross-list: MATH 435. Recommended Prerequisite(s): (MATH 212 or MATH 221) and (CAAM 335 or MATH 355 or MATH 354) and (MATH 302 or MATH 321 or MATH 331)
Course URL: math.rice.edu (http://math.rice.edu)
CAAM 436 - MODELING MATHEMATICAL PHYSICS
Short Title: MODELING MATHEMATICAL PHYSICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Derivation and properties of solutions of the partial differential equations of continuum physics. Basic concepts of continuum mechanics, ideal fluids, Navier-Stokes equations, linear elasticity, acoustics, basic principles of thermodynamics, Newtonian heat flow, porous flow, Maxwell's equations, electrical circuits. Graduate/Undergraduate Equivalency: CAAM 535. Recommended Prerequisite(s): CAAM 336. Mutually Exclusive: Cannot register for CAAM 436 if student has credit for CAAM 535.

CAAM 440 - APPLIED MATRIX ANALYSIS
Short Title: APPLIED MATRIX ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A second course in matrix analysis that presents advanced theoretical results alongside motivating applications. Topics include: properties of Hermitian, positive definite, nonnegative and stochastic matrices; Perron-Frobenius Theorem; spectral perturbation theory; singular value inequalities; generalized eigenvalue problems; functions of matrices; Lyapunov, Sylvester, and Riccati matrix equations. Applications include dynamical systems, control theory, and Markov chains.

CAAM 452 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. Cross-list: CEVE 455. Graduate/Undergraduate Equivalency: CAAM 536. Recommended Prerequisite(s): CAAM 336. Mutually Exclusive: Cannot register for CAAM 452 if student has credit for CAAM 536.

CAAM 453 - NUMERICAL ANALYSIS I
Short Title: NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (CAAM 334 or CAAM 335) and CAAM 336

CAAM 454 - ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION
Short Title: SYST OF EQNS & UNCONST OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Iterative methods for linear systems of equations including Krylov subspace methods; Newton and Newton-like methods for nonlinear systems of equations; Gradient and Newton-like methods for unconstrained optimization and nonlinear least squares problems; techniques for improving the global convergence of these algorithms; linear programming duality and primal-dual interior-point methods. Graduate/Undergraduate Equivalency: CAAM 554. Recommended Prerequisite(s): CAAM 453. Mutually Exclusive: Cannot register for CAAM 454 if student has credit for CAAM 554.

CAAM 467 - OPTIMIZATION METHODS IN FINANCE
Short Title: OPT METHODS IN FINANCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 378
Description: Portfolio optimization and asset allocation models. Risk management and option pricing. Deterministic and stochastic optimization approaches, as well as linear and nonlinear approaches will be used to model decisions arising in finance. Graduate/Undergraduate Equivalency: INDE 567.
CAAM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

CAAM 476 - LARGE-SCALE OPTIMIZATION
Short Title: LARGE-SCALE OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 378 and COMP 215
Description: Decomposition of large-scale linear, nonlinear and integer programs. Minkowski representation of polyhedral. Benders’ and Dantzig-Wolfe decomposition. Relaxations, including Lagrangian relaxation. Examples include multicommodity flow and stochastic linear programs. Design and testing of computational strategies for difficult optimization problems. Students will implement projects in Python and JMP.

CAAM 471 - LINEAR AND INTEGER PROGRAMMING
Short Title: LINEAR AND INTEGER PROGRAMMING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Linear and integer programming involve formulating and solving fundamental optimization models widely used in practice. This course introduces the basic theory, algorithms, and software of linear and integer programming. Topics studied in the linear programming part include polyhedron concepts, simplex methods, duality, sensitivity analysis and decomposition techniques. Building on linear programming, the second part of this course introduces modeling with integer variables and solution methodologies in integer programming including branch-and-bound and cutting-plane techniques. This course will provide a basis for further studies in convex and combinatorial optimization. Graduate/Undergraduate Equivalency: CAAM 571. Recommended Prerequisite(s): CAAM 335 and CAAM 378 Mutually Exclusive: Cannot register for CAAM 471 if student has credit for CAAM 571.

CAAM 490 - UNDERGRADUATE RESEARCH PROJECTS
Short Title: UNDERGRAD RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 382

CAAM 491 - UNDERGRADUATE RESEARCH PROJECTS
Short Title: UNDERGRAD RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 382
Description: Semester-long undergraduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.

CAAM 491 - UNDERGRADUATE RESEARCH PROJECTS
Short Title: UNDERGRAD RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 382
Description: Semester-long undergraduate-level research on a topic in Computational and Applied Mathematics. Instructor Permission Required. Repeatable for Credit.
CAAM 495 - SENIOR DESIGN PROJECT I
Short Title: SENIOR DESIGN PROJECT I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students engage in team-oriented year-long design projects that utilize modeling, analysis, and scientific computing skills to solve a problem motivated by an application in engineering or the physical, biological, or social sciences. Participants attend regular seminars addressing research techniques and effective written and verbal presentation of mathematics.

CAAM 496 - SENIOR DESIGN PROJECT II
Short Title: SENIOR DESIGN PROJECT II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CAAM 495
Description: Continuation of CAAM 495. Seminars focus on the presentation of results from design groups and provide guidance on the composition of a substantial project report.

CAAM 497 - LOSING THE PRECIOUS FEW
Short Title: LOSING THE PRECIOUS FEW
Department: Computational & Applied Math
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The class will read from Tapia's text: Losing the Precious Few: How America Fails to Educate Minorities in Science and Engineering and then discuss in class issues associated with the underrepresentation of Blacks and Hispanics in academic and national science and engineering activities. Topics will include racism, immigration, student admissions, faculty hiring, faculty promotion, the role of minority serving institutions, mistaking foreign minorities for the Precious Few, support issues and leadership.
Course URL: None (http://None)

CAAM 498 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover a selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: MATH 498, STAT 498. Graduate/Undergraduate Equivalency: CAAM 698. Mutually Exclusive: Cannot register for CAAM 498 if student has credit for CAAM 698. Repeatable for Credit.

CAAM 499 - COMPUTATIONAL AND APPLIED MATHEMATICS SEMINAR
Short Title: COMP & APPLIED MATH SEMINAR
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include eigenvalues, model reduction, combinatorial optimization, optimization algorithms, scientific computing, and numerical analysis. The topics may vary each semester.
Graduate/Undergraduate Equivalency: CAAM 699. Repeatable for Credit.

CAAM 501 - ANALYSIS I
Short Title: ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Real numbers, completeness, sequences and convergence, compactness, continuity, the derivative, the Riemann integral, fundamental theorem of calculus. Vector spaces, dimension, linear maps, inner products and norms, derivatives in R^n, inverse function theorem, implicit function theorem, multiple integration, change of variable theorem. Instructor Permission Required. Recommended Prerequisite(s): CAAM 501 Mutually Exclusive: Cannot register for CAAM 501 if student has credit for CAAM 401.
CAAM 502 - ANALYSIS II
Short Title: ANALYSIS II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL
Short Title: NONLINEAR SYSTEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course combines basic physical principles with vector calculus to derive many important partial differential equations governing motion of fluids and solids. Topics include stress, strain, idealized fluids, linear elasticity, acoustics, basics of thermodynamics, Navier-Stokes. Graduate/Undergraduate Equivalency: CAAM 436. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 519 if student has credit for CAAM 420.

CAAM 519 - COMPUTATIONAL SCIENCE I
Short Title: COMPUTATIONAL SCIENCE I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Scientific programming using high level languages, including C, Fortran, and C++. Emphasis on use of numerical libraries. Basic techniques of project planning, source management, documentation, program construction, i/o, visualization. Object-oriented design for numerical computing. Recommended Prerequisite(s): (CAAM 210 and CAAM 335) or CAAM 453. Mutually Exclusive: Cannot register for CAAM 519 if student has credit for CAAM 420.

CAAM 520 - COMPUTATIONAL SCIENCE II
Short Title: COMPUTATIONAL SCIENCE II
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theory and application of the message passing interface for programming scientific computing applications. Introduction to the architecture and programming of multicore and massively parallel processors, including general purpose graphics processing units, Insight for designing efficient numerical algorithms to improve parallelization of memory access and utilization of non-uniform memory architectures. Application interfaces include OpenMP, MPI, CUDA, OpenCL, and parallel numerical algorithm libraries. Instructor Permission Required. Recommended Prerequisite(s): CAAM 519

CAAM 523 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQNS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 535 - MODELING MATHEMATICAL PHYSICS
Short Title: MODELING MATHEMATICAL PHYSICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course combines basic physical principles with vector calculus to derive many important partial differential equations governing motion of fluids and solids. Topics include stress, strain, idealized fluids, linear elasticity, acoustics, basics of thermodynamics, Navier-Stokes. Graduate/Undergraduate Equivalency: CAAM 436. Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 535 if student has credit for CAAM 436.
CAAM 536 - NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS
Short Title: NUMERICAL METHODS FOR PDES
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: This course covers various numerical methods for solving partial differential equations: aspects of finite difference methods, finite element methods, finite volume methods, mixed methods, discontinuous Galerkin methods, and meshless methods. Both theoretical convergence and practical implementation of the methods are studied for elliptic and parabolic problems. May receive credit for only one of the following courses: CAAM 452/CEVE 455/CAAM 536/CEVE 555.
Cross-list: CEVE 555. Graduate/Undergraduate Equivalency: CAAM 452.
Recommended Prerequisite(s): CAAM 336 Mutually Exclusive: Cannot register for CAAM 536 if student has credit for CAAM 452.

CAAM 540 - APPLIED FUNCTIONAL ANALYSIS
Short Title: APPLIED FUNCTIONAL ANALYSIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): CAAM 402 or CAAM 502
Description: Hilbert spaces, Banach spaces, spectral theory, and weak topologies with applications to signal processing, control, and partial differential equations. Biennial; Offered in odd years. Recommended Prerequisite(s): CAAM 402 and MATH 322.

CAAM 542 - DISCONTINUOUS GALERKIN METHODS FOR SOLVING ENGINEERING PROBLEMS
Short Title: DISCONTINUOUS GALERKIN METHODS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course presents the theory and implementation of discontinuous Galerkin methods for partial differential equations commonly used in engineering applications. Two main classes of problems are covered: steady-state and time-dependent elliptic/parabolic and hyperbolic equations. These include (but are not limited to) the Poisson and heat equations, linear wave equations, and nonlinear conservation laws. Recommended Prerequisite(s): CAAM 453 or CAAM 553

CAAM 550 - NUMERICAL ANALYSIS I
Short Title: NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Mutually Exclusive: Cannot register for CAAM 550 if student has credit for CAAM 453.

CAAM 551 - NUMERICAL LINEAR ALGEBRA
Short Title: NUMERICAL LINEAR ALGEBRA
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Direct methods for large, sparse linear systems; regularization of ill-conditioned least squares problems; backward error analysis of basic algorithms for linear equations and least squares; sensitivity and conditioning of linear systems and least square problems; condition estimation. Preconditioned iterative methods for linear systems (CG, GMRES, BiCGStab, QMR); multigrid methods. Matrix theory including spectral decompositions, Schur form, eigenvalue perturbation theory, and the geometry of subspaces. Eigenvalue algorithms, Sylvester and Lyapunov equations, the implicitly shifted QR algorithm, computation of the SVD, generalized eigenvalue problems. Introduction to large scale eigenvalue algorithms. Proficiency in MATLAB and acquaintance with one or more of C, F77, C++, F90 is required. Recommended Prerequisite(s): CAAM 453 or CAAM 553 or CAAM 550

CAAM 552 - FOUNDATIONS OF FINITE ELEMENT METHODS
Short Title: FINITE ELEMENT METHODS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course presents the theory and implementation of finite element methods. Topics include weak solutions of partial differential equations, Sobolev spaces, approximation theory, convergence and reliability of the numerical methods. Continuous and discontinuous finite element methods are considered.
CAAM 553 - ADVANCED NUMERICAL ANALYSIS I
Short Title: ADV NUMERICAL ANALYSIS I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 401 (may be taken concurrently) or CAAM 501 (may be taken concurrently)
Description: Construction and analysis of numerical algorithms for root finding, interpolation and approximation of functions, quadrature, and the solution of differential equations; fundamentals of computer arithmetic; solution of linear systems, least squares problems, and eigenvalue problems via matrix factorizations; the singular value decomposition (SVD) and basic sensitivity analysis. Computer programming in MATLAB is required. This course covers fewer topics than CAAM 453 with greater theoretical depth. Prerequisite CAAM 501 may be taken concurrently with CAAM 553. Instructor Permission Required.

CAAM 554 - ITERATIVE METHODS FOR SYSTEMS OF EQUATIONS AND UNCONSTRAINED OPTIMIZATION
Short Title: SYST OF EQNS & UNCONST OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the same lecture material as CAAM 454, but fosters greater theoretical sophistication through more challenging problem sets and exams. Graduate/Undergraduate Equivalency: CAAM 454. Recommended Prerequisite(s): CAAM 550 or CAAM 553. Mutually Exclusive: Cannot register for CAAM 554 if student has credit for CAAM 454.

CAAM 558 - INTRO TO PARTIAL DIFFERENTIAL EQUATION BASED SIMULATION AND OPTIMIZATION
Short Title: PDE SIMULATION AND OPTIM
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CAAM 501 and CAAM 553
Description: Introduction to the theory and numerical methods for the solution of elliptic partial differential equations (PDEs) and optimization problems governed by these PDEs. Topics include functional analysis, well-posedness of elliptic problems, optimality conditions for PDE constrained optimization problems and finite element discretizations. Recommended Prerequisite(s): CAAM 554

CAAM 560 - OPTIMIZATION THEORY
Short Title: OPTIMIZATION THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Derivation and application of necessity conditions and sufficiency conditions for constrained optimization problems.

CAAM 564 - NUMERICAL OPTIMIZATION
Short Title: NUMERICAL OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Numerical algorithms for constrained optimization problems in engineering and sciences, including simplex and interior-point methods for linear programming, penalty, barrier, augmented Lagrangian and SQP methods for nonlinear programming. Recommended Prerequisite(s): CAAM 560 (may be taken concurrently) and CAAM 454.

CAAM 565 - CONVEX OPTIMIZATION
Short Title: CONVEX OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Convex optimization problems arise in communication, system theory, VLSI, CAD, finance, inventory, network optimization, computer vision, learning, statistics, etc., even though oftentimes convexity may be hidden and unrecognized. Recent advances in interior-point methodology have made it much easier to solve these problems and various solvers are now available. This course will introduce the basic theory and algorithms for convex optimization, as well as its many applications to computer science, engineering, management science and statistics. Biennial; Offered in Odd Years. Recommended Prerequisite(s): CAAM 335 and MATH 321.

CAAM 567 - SIGNAL RECOVERY: THEORY AND SIMULATION
Short Title: SIGNAL RECOVERY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces the theory and numerical algorithms for several fundamental signal recovery tasks. Topics include L1 minimization, sparse regression, compressed sensing, orthogonal matching pursuit, proximal operators, ADMM algorithms, Iterative Reweighted Least Squares. Nuclear norm minimization, matrix completion, robust Principal Component Analysis. Recommended Prerequisite(s): CAAM 37B or MATH 302 or STAT 310.
CAAM 568 - INDUSTRIAL AND APPLIED DATA SCIENCE AND CONTROL THEORY
Short Title: DATA SCIENCE & CONTROL THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course presents a pragmatic introduction to the foundational theory of data science and optimal control along with multiple practical applications. It includes modern (post-1990) aspects of data science driven by massively more data and computer power such as deep neural networks. Dynamical systems and optimal control methods are deeply impacted by these developments, and the course includes relevant sections on nonlinear control and reinforcement learning. It is supplemented by practical programming exercises to be completed every week by all students. Several industrial-strength applications from the energy sector are discussed in appropriate detail. Recommended Prerequisite(s): Equivalent of advanced course work in computer programming (e.g. COMP 321), calculus (e.g. MATH 212), statistics or probability theory (e.g. STAT 331), linear algebra (e.g. CAAM 334 or 335). Proficiency in MATLAB (course programming language) or Python (alternative to MATLAB available to course participants).

CAAM 570 - GRAPH THEORY
Short Title: GRAPH THEORY
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the structure and properties of graphs, together with a variety of applications. Includes paths, cycles, trees, connectivity, matchings, colorings, planarity, directed graphs, and algorithms. Some knowledge of linear algebra is recommended. Mutually Exclusive: Cannot register for CAAM 570 if student has credit for CAAM 470.

CAAM 571 - LINEAR AND INTEGER PROGRAMMING
Short Title: LINEAR AND INTEGER PROGRAMMING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the same lecture material as CAAM 471, but fosters greater theoretical sophistication through more challenging problem sets and exams. Graduate/Undergraduate Equivalency: CAAM 471. Mutually Exclusive: Cannot register for CAAM 571 if student has credit for CAAM 471.

CAAM 574 - COMBINATORIAL OPTIMIZATION
Short Title: COMBINATORIAL OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: General theory and approaches for solving combinatorial optimization problems are studied. Specific topics include basic polyhedral theory, minimum spanning trees, shortest paths, network flow, matching and matroids. The course also covers the traveling salesman problem. A student may not receive credit for both CAAM 474 and CAAM 574. Mutually Exclusive: Cannot register for CAAM 574 if student has credit for CAAM 474.

CAAM 581 - MATHEMATICAL PROBABILITY I
Short Title: MATHEMATICAL PROBABILITY I
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

CAAM 583 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
Short Title: INTRO RANDOM PROCESSES & APPL
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems, expansions of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: ELEC 533, STAT 583.

CAAM 585 - STOCHASTIC OPTIMIZATION
Short Title: STOCHASTIC OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Stochastic optimization models arise in many contexts. This course focuses on stochastic programs, including stochastic integer programs and multi-stage stochastic programs. It will emphasize the interplay between theory and computational approaches.
CAAM 590 - INDEPENDENT STUDY
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 591 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 592 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 593 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 594 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 595 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 596 - GRADUATE RESEARCH PROJECTS
Short Title: GRADUATE RESEARCH PROJECTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 600 - THESIS WRITING
Short Title: THESIS WRITING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Assists the student in preparation of the CAAM MA/PhD thesis and in other writing projects. Structure of a scientific paper, effective approaches to technical writing, building literature review, results, and discussion sections, how to write a good abstract, oral presentation skills. Prerequisite: Advisor approval of topic and consent of the instructor(s). Instructor Permission Required. Repeatable for Credit.

CAAM 615 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: ELEC 588, NEUR 615. Graduate/Undergraduate Equivalency: CAAM 415. Mutually Exclusive: Cannot register for CAAM 615 if student has credit for CAAM 415.

CAAM 620 - TOPICS IN COMPUTATIONAL SCIENCE
Short Title: TOPICS IN COMPUTATIONAL SCIENCE
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 640 - OPTIMIZATION WITH SIMULATION CONSTRAINTS
Short Title: OPTIMIZATION W/SIM CONSTRAINTS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.

CAAM 641 - TOPICS IN INVERSE PROBLEMS
Short Title: TOPICS IN INVERSE PROBLEMS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.

CAAM 642 - TOPICS IN SEISMIC IMAGING
Short Title: TOPICS IN SEISMIC IMAGING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.

CAAM 643 - TOPICS IN GEOMATHEMATICS
Short Title: TOPICS IN GEOMATHEMATICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical, computational and practical issues for inverse problems in science and engineering. Selected topics will vary depending on instructor and student interests. Instructor Permission Required. Repeatable for Credit.
CAAM 651 - TOPICS IN NUMERICAL LINEAR ALGEBRA
Short Title: TOPICS IN NUM LINEAR ALGEBRA
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Selected topics will vary depending on instructor and student interests. Derivation and analysis of Krylov and subspace iteration methods for large eigenvalue problems (Lanczos, Arnoldi, Jacobi-Davidson algorithms); preconditioning for linear systems and eigenvalue problems (incomplete LU, domain decomposition, multigrid); convergence analysis including potential theory and pseudospectra. Applications: regularization of discrete inverse problems; dimension reduction for large dynamical control systems; effects on non-normality on behavior of dynamical systems and iterative processes. Recommended Prerequisite(s): CAAM 551. Repeatable for Credit.

CAAM 652 - TOPICS IN NUMERICAL DIFFERENTIAL EQUATIONS
Short Title: TOPICS IN NUM DIFF EQNS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 654 - TOPICS IN OPTIMIZATION
Short Title: TOPICS IN OPTIMIZATION
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

CAAM 664 - TOPICS IN NONLINEAR PROGRAMMING
Short Title: TOPICS NONLINEAR PROGRAMMING
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year.

CAAM 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

CAAM 678 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar course that will cover a selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: MATH 698, STAT 698. Graduate/Undergraduate Equivalency: CAAM 498. Mutually Exclusive: Cannot register for CAAM 698 if student has credit for CAAM 498. Repeatable for Credit.

CAAM 690 - COMPUTATIONAL AND APPLIED MATHEMATICS SEMINAR
Short Title: COMP & APPLIED MATH SEMINAR
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics, computational finance, simulation driven optimization, data simulation, and spectral optimization in rational mechanics. The topics may vary each semester. Instructor Permission Required. Graduate/Undergraduate Equivalency: CAAM 498. Repeatable for Credit.

CAAM 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Computational & Applied Math
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is for CAAM MA or PhD students working on their thesis research. Repeatable for Credit.

Computer Science (COMP)

COMP 100 - INTRODUCTION TO COMPUTING AND INFORMATION SYSTEMS
Short Title: INTRO COMPUTING & INFO SYS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to organizing, analyzing, and presenting information using databases and spreadsheets. No programming involved, and no computing background expected.
Course URL: www.clear.rice.edu/comp100/ (http://www.clear.rice.edu/comp100/)
COMP 140 - COMPUTATIONAL THINKING  
**Short Title:** COMPUTATIONAL THINKING  
**Department:** Computer Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** An introduction to computational problem solving designed to give an overview of computer science using real-world problems across a broad range of disciplines. Students learn how to think about these problems and how to structure effective solutions to them using computation. No programming knowledge is required or expected; students learn how to implement their solutions in Python. If you register for fully online section, you must have a webcam and you must take the exams in person. *Final exams will not be in person in Fall 2020.*  
**Course URL:** [http://www.clear.rice.edu/comp140](http://www.clear.rice.edu/comp140/)
COMP 182 - ALGORITHMIC THINKING
Short Title: ALGORITHMIC THINKING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): COMP 130 or COMP 140 or COMP 160
Description: Algorithms are the engines of a great majority of systems, natural and artificial alike. This course introduces algorithmic thinking as a discipline for reasoning about systems, taming their complexities, and elucidating their properties. Algorithmic techniques, along with their correctness and efficiency, will be taught through reasoning about systems of interactions, such as markets, that are ubiquitous in our highly connected world.

COMP 200 - ELEMENTS OF COMPUTER SCIENCE
Short Title: ELEMENTS OF COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Broad introduction to major topics in computer science. Includes algorithms, mathematical models of computation, machine organization and design, programming languages, communication, and artificial intelligence. This course is intended for majors outside of Science and Engineering.
Course URL: www.clear.rice.edu/comp200/ (http://www.clear.rice.edu/comp200/)

COMP 215 - INTRODUCTION TO PROGRAM DESIGN
Short Title: INTRODUCTION TO PROGRAM DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): COMP 182
Description: This course covers the principles of programming and program design. The course is organized around a number of individual programming assignments that fit together to complete a significant, real-world application. Each assignment emphasizes one or more of the basic principles of software design, including: encapsulation, abstraction, test-driven development, and functional and object-oriented programming. The Java programming language will be used. An introduction to the basics of the Java language itself (including Java syntax and semantics) will be provided.

COMP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

COMP 290 - COMPUTER SCIENCE PROJECTS
Short Title: COMPUTER SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Theoretical and experimental investigations under staff direction. Credit cannot be received for both COMP 290 and COMP 390. Instructor Permission Required. Equivalency: COMP 390. Mutually Exclusive: Cannot register for COMP 290 if student has credit for COMP 390. Repeatable for Credit.

COMP 300 - SOCIETY IN THE INFORMATION AGE
Short Title: SOCIETY IN THE INFORMATION AGE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will review the remarkable technology of the Information Age and examine its effects on the ways in which we live, work and think about the world around us. We will consider, for example, how the pervasive use of computers and networks is changing our ideas about property, privacy, authority, social relations, knowledge and identity. And we will discuss what further changes we might see as technology continues to advance.

COMP 301 - ETHICS AND ACCOUNTABILITY IN COMPUTER SCIENCE
Short Title: ETHICS & ACCOUNTABILITY IN CS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Computer Science. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Given their growing power in the twenty-first century, computer scientists have duties both to society and their own profession to wield that power wisely and responsibly. In this discussion-and reflection-oriented course students will apply fundamentals of moral philosophy and social responsibility to current issues in computer science.
COMP 310 - ADVANCED OBJECT - ORIENTED PROGRAMMING AND DESIGN  
Short Title: ADV OBJECT-ORIENTED PROG  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 211 or COMP 215  
Description: Discover how state-of-the-art object-orient programming and design techniques can create globe-spanning software systems that are both flexible and scalable. Learn how software design patterns are used in multiple programming paradigms. Explore highly decoupled systems with dynamically configurable behaviors. Highly recommended for anyone interested in building large systems and software engineering. Mutually Exclusive: Cannot register for COMP 310 if student has credit for COMP 504.  
Course URL: www.clear.rice.edu/comp310 (http://www.clear.rice.edu/comp310/)

COMP 311 - FUNCTIONAL PROGRAMMING  
Short Title: FUNCTIONAL PROGRAMMING  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 211 or COMP 215  
Description: An introduction to concepts, principles, and approaches of functional programming. Functional programming is a style of programming where the key means of computation is the application of functions to arguments (which themselves might be functions). This style of programming has become increasingly popular in recent years because it offers important advantages in designing, maintaining, and reasoning about programs in many modern contexts such as web services, multicore programming, and cluster computing. Course work consists of a series of programming assignments in the Scala programming language and various library extensions such as Apache Spark. Graduate/Undergraduate Equivalency: COMP 544. Mutually Exclusive: Cannot register for COMP 311 if student has credit for COMP 544.  
Course URL: wiki.rice.edu/confluence/display/PARPROG/COMP311 (http://wiki.rice.edu/confluence/display/PARPROG/COMP311/)

COMP 316 - VIRTUAL RECONSTRUCTION OF HISTORICAL CITIES  
Short Title: VIRT. RECONSTR HISTORCL CITIES  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course, part of the HRC's Digital Humanities Initiative, is devoted to the virtual reconstruction of ancient urban landscapes with focus on individual buildings in their urban settings. All course activities will be based around interdisciplinary student teams who will work together through the semesters to complete a virtual reconstruction project. Instructor Permission Required. Cross-list: ANTH 346, ARCH 310, HART 316.

COMP 321 - INTRODUCTION TO COMPUTER SYSTEMS  
Short Title: INTRO TO COMPUTER SYSTEMS  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 211 or COMP 215  
Description: This course introduces computer systems from the programmer's perspective. Topics include data representation, the compilation process, and system-level programming concepts such as interrupts and concurrency. Formerly COMP 221. Mutually Exclusive: Cannot register for COMP 321 if student has credit for COMP 221.

COMP 322 - PRINCIPLES OF PARALLEL PROGRAMMING  
Short Title: FUNDAMENTALS OF PARALLEL PROG  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 211 or COMP 215  
Description: Fundamentals of parallel programming: abstract models of parallel computers, parallel algorithms and data structures, and common parallel programming patterns including task parallelism, undirected and directed synchronization, data parallelism, divide-and-conquer parallelism, and map-reduce. Laboratory assignments will explore these topics through the use of parallel extensions to the Java language. Cross-list: ELEC 323.
COMP 323 - INTRODUCTION TO MATHEMATICAL CRYPTOGRAPHY
Short Title: INTRO TO MATH CRYPTOGRAPHY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 382 or COMP 448 or MATH 448 or MATH 365
Description: The course introduces students to modern cryptographic techniques, focusing mainly on mathematical tools. The course covers topics such as Diffie-Hellman key exchange, the ElGamal public key crypto system, integer factorization and RSA, and elliptic curves and lattices in cryptography Cross-list: MATH 323. Graduate/Undergraduate Equivalency: COMP 523. Mutually Exclusive: Cannot register for COMP 323 if student has credit for COMP 523.

COMP 326 - DIGITAL LOGIC DESIGN
Short Title: DIGITAL LOGIC DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220
Description: Study of gates, flip-flops, combinational and sequential switching circuits, registers, logical and arithmetic operations, introduction to the Verilog hardware description language. Cross-list: ELEC 326.

COMP 327 - INTRODUCTION TO COMPUTER SECURITY
Short Title: INTRO TO COMPUTER SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310 or COMP 314 or ELEC 322
Description: This elective course covers a wide variety of topics in computer security, including hands-on experience with breaking software and engineering software to be harder to break. For example, students will perform buffer overflow attacks and exploit web application vulnerabilities, while also learning how to defend against them. Grades will be based on a series of in-class projects. Graduate/Undergraduate Equivalency: COMP 427, COMP 541. Mutually Exclusive: Cannot register for COMP 327 if student has credit for COMP 427/COMP 541.

COMP 330 - TOOLS AND MODELS FOR DATA SCIENCE
Short Title: TOOLS & MODELS - DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 211 or MATH 221) and COMP 215
Description: This course is an introduction to modern data science. Data science is the study of how to extract actionable, non-trivial knowledge from data. The proposed course will focus both on the software tools used by practitioners of modern data science, as well as the mathematical and statistical models that are employed in conjunction with such software tools. On the tools side, we will cover the basics of relational database systems, as well as modern systems for distributed computing based on MapReduce. On the models side, the course will cover standard supervised and unsupervised models for data analysis and pattern discovery. Graduate/Undergraduate Equivalency: COMP 543. Mutually Exclusive: Cannot register for COMP 330 if student has credit for COMP 543.

COMP 340 - STATISTICAL MODELS AND ALGORITHMS FOR DATA SCIENCE
Short Title: STATISTICAL MODELS FOR DS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 140 and (MATH 212 or MATH 222)
Description: The course is an intermediate level course in data science for students at the sophomore level with some experience in programming and background in mathematics (calculus). The course teaches students to “do” data science in Python using six modules to illustrate fundamental data science operations, data cleaning, model exploration, model formulation, model visualization, model communication. Recommended Prerequisite(s): COMP 182.

COMP 347 - COMPUTATIONAL GENOMICS FOR MICROBIAL FORENSICS
Short Title: COMP MICROBIAL FORENSICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182 and (STAT 310 or ECON 307 or STAT 315 or DSCI 301)
Description: We will review, critique, and discuss computational methods and approaches for microbial forensics and infectious disease monitoring in the genomics era. The seminar will be divided into topic-specific sessions, focusing on emerging research trends and open challenges in the field. Graduate/Undergraduate Equivalency: COMP 547. Mutually Exclusive: Cannot register for COMP 347 if student has credit for COMP 547.

COMP 382 or COMP 448 or MATH 448 or MATH 365
COMP 360 - COMPUTER GRAPHICS
Short Title: COMPUTER GRAPHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and (COMP 182 or COMP 280) and (MATH 211 or MATH 212 or MATH 221 or MATH 222) and (MATH 354 or MATH 355)
Description: 2D graphics techniques including fast line and curve drawing and polygon filling. 3D graphics problems including representation of solids, shading, and hidden surface elimination. Fractals, graphics standards. Graduate/Undergraduate Equivalency: COMP 560. Mutually Exclusive: Cannot register for COMP 360 if student has credit for COMP 560.
Course URL: www.owlnet.rice.edu/~comp360/ (http://www.owlnet.rice.edu/~comp360/)

COMP 361 - GEOMETRIC MODELING
Short Title: GEOMETRIC MODELING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and COMP 182 and COMP 215
Description: Exploration of curves and surfaces (e.g. parametric form, implicit form, and conversion between forms), the representation of solid (e.g., wireframes, octrees, boundary representations, and constructive solid geometry), and applications (e.g., graphics, motion planning, simulation, and finite element mesh generation. Graduate/Undergraduate Equivalency: COMP 561. Repeatable for Credit.

COMP 380 - PRACTICAL PROBLEM-SOLVING
Short Title: PRACTICAL PROBLEM-SOLVING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182
Description: We introduce algorithms, algorithmic techniques, and some discrete math with a decidedly practical bent. This will improve anyone's programming skills, but with specific application towards programming contests and programming-oriented job interviews. This also provides optional additional preparation for COMP 382. Features both individual and small-group exercises in a hands-on class.

COMP 382 - REASONING ABOUT ALGORITHMS
Short Title: REASONING ABOUT ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182
Description: Writing algorithms is fun, but how are you sure that the algorithm you wrote is flawless? Are there computing tasks for which it is impossible to produce an efficient algorithm, or, for that matter, any algorithm? To answer these questions, you have to learn to perform mathematical reasoning about algorithmic problems and solutions. COMP 382 is an introduction to such reasoning techniques. Topics covered would include elementary logic, analysis of the correctness and efficiency of algorithms, and formal computational models like finite automata and Turning machines. On the way, you are also going to learn some new algorithm design techniques.

COMP 390 - COMPUTER SCIENCE PROJECTS
Short Title: COMPUTER SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theoretical and experimental investigations under staff direction. Credit cannot be received for both COMP 290 and COMP 390. Instructor Permission Required. Equivalency: COMP 290. Mutually Exclusive: Cannot register for COMP 390 if student has credit for COMP 290. Repeatable for Credit.

COMP 402 - PRODUCTION PROGRAMMING
Short Title: PRODUCTION PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310 or COMP 411 or COMP 510 or COMP 511
Description: This course focuses on the principles and practices of test-driven software development, which have been popularized under the banner of “Extreme Programming.” To provide students with practical experience, the course engages students in the development of open source production programs written in JAVA or C#. The DRJAVA programming courses was developed by students in this course. Some of the major topics covered in course lectures include design patterns for controlling concurrency and refactoring transformations to improve legacy code. Graduate/Undergraduate Equivalency: COMP 501. Mutually Exclusive: Cannot register for COMP 402 if student has credit for COMP 501.
COMP 403 - REASONING AND SOFTWARE
Short Title: REASONING ABOUT SOFTWARE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 382 and COMP 215 or COMP 482 or COMP 409 or COMP 509
Description: Our reliance on software of all forms is increasing by the day. As a result, it is more important than ever to ensure that programs function correctly and cannot be exploited by hostile adversaries. The field of formal methods takes on this challenge, developing algorithms and programming methodologies that can be used to formally reason about what happens when software executes on arbitrary inputs, often without actually executing the program. Such reasoning can be used, for example, to identify subtle bugs and vulnerabilities in programs, or to give mathematical proofs of program correctness. This is a hands-on introduction to the field of formal methods. In this class, you will learn the theoretical foundations of these systems; you will also implement a series of systems that can be used to reason about the correctness of C programs. Graduate/Undergraduate Equivalency: COMP 503. Mutually Exclusive: Cannot register for COMP 403 if student has credit for COMP 503.

COMP 405 - ADVANCED TOPICS IN OBJECT-ORIENTED DESIGN
Short Title: ADV TOP OBJECT/ORIENTED DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310
Description: A topics-driven exploration of cutting-edge object oriented design issues and concepts including mutable recursive data frameworks, design patterns for sorting, parsing and games, service-oriented architectures and cloud computing. Detailed knowledge and practice in abstract structure and behavioral representations, delegation model programming, design patterns and Java are required. Graduate/Undergraduate Equivalency: COMP 505. Mutually Exclusive: Cannot register for COMP 405 if student has credit for COMP 505.

COMP 408 - VERIFIED PROGRAMMING
Short Title: VERIFIED PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will explore the mathematical underpinnings of reliable software. The students will learn how to use proof assistants to construct software along with a machine-checkable proof of its correctness. Basic concepts of logic, functional programming, static type systems and deductive verification will be covered. Graduate/Undergraduate Equivalency: COMP 548.

COMP 409 - ADVANCED LOGIC IN COMPUTER SCIENCE
Short Title: ADV LOGIC IN COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 211 or COMP 215) and (COMP 182 or COMP 280)
Description: Logic has been called "the calculus of computer science". The argument is that logic plays a fundamental role in computer science, similar to that played by calculus in the physical sciences and traditional engineering disciplines. Indeed, logic plays an important role in areas of Computer Science as disparate as artificial intelligence (automated reasoning), architecture (logic gates), software engineering (specification and verification), programming languages (semantics, logic programming), databases (relational algebra and SQL), algorithms (complexity and expressiveness), and theory of computation (general notions of computability). Graduate/Undergraduate Equivalency: COMP 509. Mutually Exclusive: Cannot register for COMP 409 if student has credit for COMP 509.
Course URL: www.cs.rice.edu/~vardi/comp409/ (http://www.cs.rice.edu/~vardi/comp409/)

COMP 410 - SOFTWARE ENGINEERING METHODOLOGY
Short Title: SOFTWARE ENGINEER METHODOLOGY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310 or COMP 314
Description: COMP 410 is a pure discovery-based learning course designed to give students real-life, hands-on training in a wide variety of software engineering issues that arise in creating large-scale, state-of-the-art software systems. The class forms a small software development "company" that works to deliver a product to a customer. The topics encountered include and are not limited to, dealing with new technologies (e.g. C#, .NET, distributed computing), advanced object-oriented programming and design, interacting with customers, problem specification and testing, individual and group communications, human resource management, group leadership, testing, integration and documentation. Traditional development cycle methodologies will be compared to recent, "agile" techniques. Graduate/Undergraduate Equivalency: COMP 539. Mutually Exclusive: Cannot register for COMP 410 if student has credit for COMP 539.
Course URL: www.bandgap.cs.rice.edu/classes/comp410 (http://www.bandgap.cs.rice.edu/classes/comp410/)
COMP 411 - PRINCIPLES OF PROGRAMMING LANGUAGES
Short Title: PRINCIPLES OF PROG LANGUAGES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 211 or COMP 310
Description: The design, definition and abstract implementation of programming languages including methods for precisely specifying syntax and semantics. Graduate/Undergraduate Equivalency: COMP 511. Mutually Exclusive: Cannot register for COMP 411 if student has credit for COMP 511.

COMP 412 - COMPILER CONSTRUCTION FOR UNDERGRADUATE STUDENTS
Short Title: COMPILER CONSTRUCTION - UG
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 314 or ELEC 322 or COMP 310 or COMP 215) and (COMP 221 or COMP 321)
Description: Topics in the design of programming language translators, including parsing, run-time storage management, error recovery, code generation and optimization. Graduate/Undergraduate Equivalency: COMP 506. Recommended Prerequisite(s): COMP 412 or COMP 506. Mutually Exclusive: Cannot register for COMP 412 if student has credit for COMP 506.
Course URL: www.clear.rice.edu/comp412 (http://www.clear.rice.edu/comp412/)

COMP 413 - DISTRIBUTED PROGRAM CONSTRUCTION
Short Title: DISTRIB PROGRAM CONSTRUCTION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 310
Description: This course focuses on modern principles for the construction of distributed programs, with an emphasis on design patterns, modern programming tools, and distributed object systems. The material will be applied in a substantial software design/construction project.

COMP 414 - OPTIMIZATION: ALGORITHMS, COMPLEXITY AND APPROXIMATIONS
Short Title: ALGORITHMS, COMPLEX. & APPROX
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The main focus of the course will be on smooth optimization techniques, with applications in machine learning and artificial intelligence. The course will introduce the basics of algorithms on continuous optimization, starting from the classical gradient descent algorithm in convex optimization, towards more sophisticated approaches in non-convex scenarios. The course will explore the fundamental theory, algorithms, complexity and approximations in nonlinear optimization. Graduate/Undergraduate Equivalency: COMP 514. Mutually Exclusive: Cannot register for COMP 414 if student has credit for COMP 514.

COMP 415 - REAL-WORLD SOFTWARE DEVELOPMENT
Short Title: REAL-WORLD SOFTWARE DEVELOPMNT
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 410
Description: Experience real customers, software, and situations. The class will be contracted by an industrial customer to design build, and deliver a product. Negotiate to finalize specifications, updates, and delivery schedules. Encounter real-life issues such as team management, intellectual property, and vagueness and specification changes while developing a state-of-the-art software application.
Course URL: www.bandgap.cs.rice.edu/classes/comp415 (http://www.bandgap.cs.rice.edu/classes/comp415/)

COMP 416 - GENOME-SCALE ALGORITHMS AND DATA STRUCTURES
Short Title: GENOME-SCALE ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182
Description: Since the advent of Sanger Sequencing in 1977, computer scientists have been devising algorithms and software tools to interpret and analyze DNA sequences. The field of bioinformatics focuses on computational approaches to solving biological questions. This course will serve as an introduction to widely used algorithms in bioinformatics used for pattern searching, genome assembly, sequence alignment, and clustering of biological data. No prior knowledge of biology is assumed. The class involves several programming assignments. Graduate/Undergraduate Equivalency: COMP 519.
COMP 417 - ADVANCED OPERATING SYSTEMS AND SECURITY
Short Title: ADVANCED OPERATING SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 421 or ELEC 421
Description: In this seminar, we will investigate advanced topics in the design and implementation of operating systems, including: OS structure (including Web Browsers), concurrency and synchronization, memory management, file systems and storage, virtual machines, and information protection. We will explore both fundamental and hot topics through reading, discussing, and presenting key research findings. This course will also cover methods for critiquing, writing, and presenting research findings through a course long project. Graduate/Undergraduate Equivalency: COMP 517. Mutually Exclusive: Cannot register for COMP 417 if student has credit for COMP 517.

COMP 418 - IOT PROGRAMMING AND DATA ANALYSIS
Short Title: IOT PROGRAM. AND DATA ANALYSIS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321
Description: This course is an introduction to the Internet of Things (IoT). It will present the tools and techniques needed to develop complex IoT applications that encompass interaction with the physical world and data analysis across the IoT computing infrastructure. The topics range from programming microcontrollers (e.g., Arduino) and single-board computers (e.g., Raspberry Pi) to IoT automation and the efficient analysis of real-time IoT data. Graduate/Undergraduate Equivalency: COMP 518.

COMP 420 - INTRODUCTION TO DISTRIBUTED COMPUTER SYSTEMS
Short Title: INTRO TO DISTRIBUTED COMP SYS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 421 or ELEC 421
Description: Introduction to distributed computer systems. The course covers concepts, architecture, algorithms, protocols, and implementation, focusing on distribution, scale, robustness in the face of failure, and security. Graduate/Undergraduate Equivalency: COMP 532. Mutually Exclusive: Cannot register for COMP 420 if student has credit for COMP 532.
Course URL: www.clear.rice.edu/comp420 (http://www.clear.rice.edu/comp420/)

COMP 421 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Cross-list: ELEC 421. Graduate/Undergraduate Equivalency: COMP 521. Mutually Exclusive: Cannot register for COMP 421 if student has credit for COMP 521.
Course URL: www.clear.rice.edu/comp421/ (http://www.clear.rice.edu/comp421/)

COMP 422 - PARALLEL COMPUTING
Short Title: PARALLEL COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 221 or COMP 321
Description: COMP 422 is an undergraduate version of this course. COMP 422 students will have four programming assignments. COMP 534 students will have five. As part of their assignments, both COMP 422 and COMP 534 students will analyze the scalability and parallel efficiency of parallel programs they write. COMP 534 students will additionally use tools to qualify the root causes of scaling losses in their programs and document their findings. Graduate/Undergraduate Equivalency: COMP 534. Mutually Exclusive: Cannot register for COMP 422 if student has credit for COMP 534.

COMP 424 - MOBILE AND EMBEDDED SYSTEM DESIGN AND APPLICATION
Short Title: MOBILE & EMBEDDED SYSTEM DESIGN AND APPLICATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220
Description: ELEC 424 introduces mobile and embedded system design and applications to undergraduate students and provides them hands-on design experience. It consists of three interleaming parts: lectures, student project, and student presentations. Cross-list: ELEC 424.
COMP 425 - COMPUTER SYSTEMS ARCHITECTURE  
Short Title: COMPUTER SYSTEMS ARCHITECTURE  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ELEC 326 or COMP 326  
Description: Evolution of key architecture concepts found in advanced uniprocessor systems. Fundamental and advanced pipelining techniques and associated issues for improving processor performance. Illustrated with RISC processors such as the ARM processor. Examine several metrics for processor performance, such as Amdahl's law. Key concepts of data and program memory systems found in modern systems with memory hierarchies and caches. Perform experiments in cache performance analysis. Influence of technology trends, such as Moore's law, on processor implementation. Approaches for exploiting instruction level parallelism, such as VLIM. Introduction to parallel and multicore architectures. Introduction to processor architectures targeted for embedded applications. Cross-list: ELEC 425. Graduate/Undergraduate Equivalency: COMP 554. Mutually Exclusive: Cannot register for COMP 425 if student has credit for COMP 554.

COMP 427 - INTRODUCTION TO COMPUTER SECURITY  
Short Title: INTRO TO COMPUTER SECURITY  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 310 and COMP 321  
Description: This elective course covers a wide variety of topics in computer security, including hands-on experience with/breaking software & engineering software to be harder to break. For example, students will perform buffer overflow attacks & exploit web application vulnerabilities, while also learning how to defend against them. Graduate/Undergraduate Equivalency: COMP 327, COMP 541. Mutually Exclusive: Cannot register for COMP 427 if student has credit for COMP 327/COMP 541.

COMP 429 - INTRODUCTION TO COMPUTER NETWORKS  
Short Title: INTRO TO COMPUTER NETWORKS  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 221 or COMP 321  
Course URL: www.clear.rice.edu/comp429/ (http://www.clear.rice.edu/comp429/)

COMP 430 - INTRODUCTION TO DATABASE SYSTEMS  
Short Title: INTRO TO DATABASE SYSTEMS  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (COMP 211 or COMP 215) and (COMP 182 or COMP 280)  
Description: Introduction to relational and other database systems, SQL programming, Database application programming, and Database design. Graduate/Undergraduate Equivalency: COMP 533. Mutually Exclusive: Cannot register for COMP 430 if student has credit for COMP 533.

COMP 431 - WEB DEVELOPMENT  
Short Title: WEB DEVELOPMENT  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): POLI 395  
Description: In this project-based course, students create multi-user Web applications involving all aspects of application development from front-end and back-end programming to interfacing client-server communications technologies. Class time includes discussions of topics in Web development, structural frameworks, test driven development, and time for students to develop their Web applications. Graduate/Undergraduate Equivalency: COMP 531. Recommended Prerequisite(s): COMP 310 or COMP 321 Mutually Exclusive: Cannot register for COMP 431 if student has credit for COMP 531.

COMP 435 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION  
Short Title: ELECTION SYSTEMS  
Department: Computer Science  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (COMP 211 or COMP 215) and (COMP 182 or COMP 280)  
Description: This multidisciplinary course will consider how elections are conducted to enhance participation, to accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be accurate and secure, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election. Cross-list: POLI 420, PSYC 420.
COMP 436 - SECURE AND CLOUD COMPUTING
Short Title: SECURE & CLOUD COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321
Description: What is "cloud computing?" How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today's services run inside the cloud -- a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today's cloud systems. Cross-list: ELEC 410. Graduate/Undergraduate Equivalency: COMP 536. Mutually Exclusive: Cannot register for COMP 436 if student has credit for COMP 536.

COMP 440 - ARTIFICIAL INTELLIGENCE
Short Title: ARTIFICIAL INTELLIGENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 212 and (ELEC 303 or STAT 310 or ECON 307 or STAT 312 or STAT 315 or DSCI 301) and (CAAM 334 or CAAM 335 or MATH 354 or MATH 355) and (COMP 382 or COMP 582) and COMP 310
Description: This is a foundational course in artificial intelligence, the discipline of designing intelligent agents. The course will cover the design and analysis of agents that do the right thing in the face of limited information and computational resources. The course revolves around two main questions: how agents decide what to do, and how they learn from experience. Tools from computer science, probability theory, and game theory will be used. Interesting examples of intelligent agents will be covered, including poker playing programs, bots for various games (e.g. WoW), DS1 – the spacecraft that performed an autonomous flyby of Comet Borrely in 2001, Stanley – the Stanford robot car that won the Darpa Grand Challenge, Google Maps and how it calculates driving directions, face and handwriting recognizers, Fedex package delivery planners, airline fare prediction sites, and fraud detectors in financial transactions. Cross-list: ELEC 440. Graduate/Undergraduate Equivalency: COMP 557. Mutually Exclusive: Cannot register for COMP 440 if student has credit for COMP 557.
Course URL: www.owlnet.rice.edu/~comp440 (http://www.owlnet.rice.edu/~comp440/)

COMP 441 - LARGE-SCALE MACHINE LEARNING
Short Title: LARGE-SCALE MACHINE LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 440 or ELEC 440
Description: Learning from large dataset is becoming a ubiquitous phenomena in all applications spanning robotics, medical decisions, internet, communication, biology, etc. Designed to give senior UG students a thorough grounding in the theory and algorithms needed for research and practical applications in machine learning for modern massive datasets. Topics draw from machine learning, classical statistics, algorithms and information theory. Graduate/Undergraduate Equivalency: COMP 542. Mutually Exclusive: Cannot register for COMP 441 if student has credit for COMP 542.

COMP 446 - MOBILE DEVICE APPLICATIONS
Short Title: MOBILE DEVICE APPLICATIONS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Connected mobile devices require updated programming models and design concepts to take advantage of their capabilities. We will explore applications primarily on the Apple iPhone and iPad but will also cover smart watches, Google Android and intelligent voice assistants like Amazon Echo and Google Home. We will briefly touch on the development of web services to support mobile applications. The course culminates with a large project taking up most of the second half of the semester. Although the curriculum centers around and teaches iOS and Xcode, final projects may be completed in any major mobile system including Android and Alexa, etc. Cross-list: ELEC 446. Recommended Prerequisite(s): COMP 310 or prior Object Oriented Programming experience highly recommended.

COMP 447 - INTRODUCTION TO COMPUTER VISION
Short Title: INTRO TO COMPUTER VISION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301 or ELEC 475 or COMP 314 or ELEC 322 or COMP 330
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Cross-list: ELEC 447. Graduate/Undergraduate Equivalency: COMP 546. Mutually Exclusive: Cannot register for COMP 447 if student has credit for COMP 345 COMP 546.
COMP 448 - CONCRETE MATHEMATICS
Short Title: CONCRETE MATHEMATICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182 or MATH 220 or MATH 221 or MATH 302 or MATH 354
Description: Concrete mathematics is a blend of continuous and discrete mathematics. Major topics include sums, recurrences, integer functions, elementary number theory, binomial coefficients, generating functions, discrete probability and asymptotic methods. Cross-list: MATH 448.

COMP 449 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: DSCI 435. Graduate/Undergraduate Equivalency: COMP 549. Mutually Exclusive: Cannot register for COMP 449 if student has credit for COMP 549. Repeatable for Credit.

COMP 450 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon sin life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today's robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: ELEC 450, MECH 450. Graduate/Undergraduate Equivalency: COMP 550. Mutually Exclusive: Cannot register for COMP 450 if student has credit for COMP 550.

COMP 451 - DESIGN AND ANALYSIS OF CYBER-PHYSICAL SYSTEMS
Short Title: DESIGN&ANALYSIS CYBER/PHYSICAL
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an introduction to cyber-physical systems, engineering artifacts in which computational components interact with and typically control physical components. Some common examples of cyber-physical systems include robots, Segways and lane-departure warning, LDW, systems in automobiles. Graduate/Undergraduate Equivalency: COMP 555. Mutually Exclusive: Cannot register for COMP 451 if student has credit for COMP 555.

COMP 460 - ADVANCED COMPUTER GAME CREATION
Short Title: ADV COMPUTER GRAPHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This project-based class involves teams of 2-4 CS and Visual Arts students designing and building computer games suitable for Xbox Live Arcade using C# and XNA. For CS students, Comp 160 or Comp 360 is recommended as a prerequisite. For Visual Arts students, previous experience in drawing using Photoshop is suggested. Instructor Permission Required. Cross-list: ARTS 460. Repeatable for Credit.
Course URL: www.owlnet.rice.edu/~comp460 (http://www.owlnet.rice.edu/~comp460/)

COMP 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics/requirements/credit hours may vary each semester. Contact Department for current semester’s topic(s). Repeatable for Credit.

COMP 480 - PROBABILISTIC ALGORITHMS AND DATA STRUCTURE
Short Title: PROBABILISTIC ALGORITHMS AND D
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will be ideal for someone wanting to build a strong foundation in the theory and practice of algorithms for processing Big-Data. We will discuss advanced data structures and algorithms going beyond deterministic setting and emphasize the role of randomness in getting significant, often exponential, improvements in computations and memory. Graduate/Undergraduate Equivalency: COMP 580. Recommended Prerequisite(s): COMP 382
COMP 481 - AUTOMATA, FORMAL LANGUAGES, AND COMPUTABILITY
Short Title: AUTOMATA/FORMAL LANG/COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Finite automata, regular expressions, regular languages, pushdown automata, context-free languages, Turing machines, recursive languages, computability, and solvability. It is strongly recommended that students complete three semesters of Mathematics before enrolling in this course. Graduate/Undergraduate Equivalency: COMP 581.
Mutually Exclusive: Cannot register for COMP 481 if student has credit for COMP 581.

COMP 485 - FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Cross-list: BIOE 485, ELEC 485. Recommended Prerequisite(s): MATH 211 and MATH 212.

COMP 486 - FUNDAMENTALS OF MEDICAL IMAGING II
Short Title: FUND MEDICAL IMAGING II
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 485 or BIOE 485 or COMP 485
Description: This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site in also planned to gain experience with nuclear medicine imaging. Cross-list: BIOE 486, ELEC 486.

COMP 487 - COMPUTATIONAL COMPLEXITY
Short Title: COMPUTATIONAL COMPLEXITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 382 or COMP 409 or COMP 509 or COMP 481 or COMP 581
Description: In Computational Complexity we study the computational resources (time, space, communication, etc.) that are required to solve computational problems via various computational needs. Specifically, we are interested in classifying computational problems with classes of other problems that require similar amount of resources to solve. Graduate/Undergraduate Equivalency: COMP 587. Mutually Exclusive: Cannot register for COMP 487 if student has credit for COMP 587.

COMP 490 - COMPUTER SCIENCE PROJECTS
Short Title: COMPUTER SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theoretical and experimental investigation under staff direction. Instructor Permission Required. Repeatable for Credit.

COMP 491 - COMPUTER SCIENCE TEACHING
Short Title: COMPUTER SCIENCE TEACHING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A combination of in-service teaching and a seminar. Department Permission Required. Repeatable for Credit.

COMP 496 - RTG CROSS-TRAINING IN DATA SCIENCE
Short Title: RTG CROSS-TRAINING IN DATA SCI
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Computer Science or Statistics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course to introduce students to topics in Data Science at the interface between Statistics and Computer Science. Students participate in the process of preparing, delivering and critiquing talks. Topics change each semester. Instructor Permission Required. Cross-list: STAT 496. Graduate/Undergraduate Equivalency: COMP 696. Mutually Exclusive: Cannot register for COMP 496 if student has credit for COMP 696. Repeatable for Credit.
COMP 498 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 402. Exclusive: Cannot register for COMP 498 if student has credit for COMP 501.

COMP 501 - PRODUCTION PROGRAMMING
Short Title: PRODUCTION PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 310 or COMP 411 or COMP 510 or COMP 511
Description: This course focuses on the principles and practices of test-driven software development, which have been popularized under the banner of "Extreme Programming." To provide students with practical experience, the course engages students in the development of open source production programs written in JAVA or C#. The DRJAVA programming courses was developed by students in this course. Some of the major topics covered in course lectures include design patterns for controlling concurrency and refactoring transformations to improve legacy code. Graduate/Undergraduate Equivalency: COMP 402. Mutually Exclusive: Cannot register for COMP 501 if student has credit for COMP 402.

COMP 502 - NEURAL MACHINE LEARNING I
Short Title: NEURAL MACHINE LEARNING I
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of major neural machine learning (Artificial Neural Network) paradigms. Analytical discussion of supervised and unsupervised learning algorithms and their relation to information theoretical methods. Practical applications to data analysis such as pattern recognition, clustering, classification, function approximation/ regression, non-linear PCA, projection pursuit, independent component analysis, with lots of examples from image and digital processing. Details are posted at www.ece.rice.edu/~erzsebet/ANNcourse.html. Cross-list: ELEC 502, STAT 502. Recommended Prerequisite(s): ELEC 430 and ELEC 431 or equivalent or permission of instructor.
Course URL: www.ece.rice.edu/~erzsebet/ANNcourse.html (http://www.ece.rice.edu/~erzsebet/ANNcourse.html)

COMP 503 - REASONING AND SOFTWARE
Short Title: REASONING ABOUT SOFTWARE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 382 and COMP 215) or COMP 482 or COMP 409 or COMP 509
Description: Our reliance on software of all forms is increasing by the day. As a result, it is more important than ever to ensure that programs function correctly and cannot be exploited by hostile adversaries. The field of formal methods takes on this challenge, developing algorithms and programming methodologies that can be used to formally reason about what happens when software executes on arbitrary inputs, often without actually executing the program. Such reasoning can be used, for example, to identify subtle bugs and vulnerabilities in programs, or to give mathematical proofs of program correctness. This is a hands-on introduction to the field of formal methods. In this class, you will learn the theoretical foundations of these systems; you will also implement a series of systems that can be used to reason about the correctness of C programs. Graduate/Undergraduate Equivalency: COMP 403. Mutually Exclusive: Cannot register for COMP 503 if student has credit for COMP 403.

COMP 504 - GRADUATE OBJECT-ORIENTED PROGRAMMING AND DESIGN
Short Title: GR OBJ-ORIENTED PROG & DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discover how stat-of-the-art object-orient programming and design techniques can create globe-spanning software systems that are both flexible and scalable. Learn how software design patterns are used in multiple programming paradigms. Explore highly decoupled systems with dynamically configurable behaviors. Highly recommended for anyone interested in building large systems and software engineering. Basic proficiency in Java is required. Students may not receive credit for both COMP 310/510 and COMP 404/504. Mutually Exclusive: Cannot register for COMP 504 if student has credit for COMP 310/COMP 404/COMP 510.

COMP 505 - ADVANCED TOPICS IN OBJECT-ORIENTED DESIGN
Short Title: ADV TOP OBJECT/ORIENTED DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 404 or COMP 504 or COMP 310
Description: A topics-driven exploration of cutting-edge object oriented design issues and concepts including mutable recursive data frameworks, design patterns for sorting, parsing and games, service-oriented architectures and cloud computing. Detailed knowledge and practice in abstract structure and behavioral representations, delegation model programming, design patterns and Java are required. Graduate/Undergraduate Equivalency: COMP 405. Mutually Exclusive: Cannot register for COMP 505 if student has credit for COMP 405.
COMP 506 - COMPILER CONSTRUCTION FOR GRADUATE STUDENTS
Short Title: COMPILER CONSTRUCTION - GR
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Description: Topics in the design of programming language translators, including parsing, run-time storage management, error recovery, code generation and optimization. Graduate/Undergraduate Equivalency: COMP 412. Mutually Exclusive: Cannot register for COMP 506 if student has credit for COMP 412.

COMP 507 - COMPUTER-AIDED PROGRAM DESIGN
Short Title: COMPUTER-AIDED PROGRAM DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 482 or ELEC 420) or COMP 481
Description: This course is a graduate-level introduction to computer-aided program design, a field that studies logical and algorithmic techniques for formally verifying programs, and mechanized derivation of programs that are correct by construction. Topics covered will include classical automated program verification in particular abstract interpretation and model checking - as well as recent developments in algorithmic program synthesis.

COMP 508 - DESIGN AND ANALYSIS OF SECURE EMBEDDED SYSTEMS FOR IoT ERA
Short Title: SECURE EMBEDDED SYS FOR IoT
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course emphasizes the security of small embedded devices that are central to the Internet of Things (IoT) Era. We discuss the practical security attacks, challenges, constraints, and opportunities that arise in the IoT domain. Covered topics include security engineering, real world attacks, practical and side channel attacks, and hands-on lab/ projects. Cross-list: ELEC 511. Repeatable for Credit.

COMP 509 - ADVANCED LOGIC IN COMPUTER SCIENCE
Short Title: ADV LOGIC IN COMPUTER SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Logic has been called "the calculus of computer science". The argument is that logic plays a fundamental role in computer science, similar to that played by calculus in the physical sciences and traditional engineering disciplines. Indeed, logic plays an important role in areas of Computer Science as disparate as artificial intelligence (automated reasoning), architecture (logic gates), software engineering (specification and verification), programming languages (semantics, logic programming), databases (relational algebra and SQL), algorithms (complexity and expressiveness), and theory of computation (general notions of computability). Graduate/Undergraduate Equivalency: COMP 409. Mutually Exclusive: Cannot register for COMP 509 if student has credit for COMP 409.

COMP 511 - PRINCIPLES OF PROGRAMMING LANGUAGES
Short Title: PRINCIPLES OF PROG LANGUAGES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 211 or COMP 310
Description: The design, definition and abstract implementation of programming languages including methods for precisely specifying syntax and semantics. Graduate/Undergraduate Equivalency: COMP 411. Mutually Exclusive: Cannot register for COMP 511 if student has credit for COMP 411.

COMP 512 - ADVANCED COMPILER CONSTRUCTION
Short Title: ADVANCED COMPILER CONSTRUCTION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics in the design of an optimizing compiler. This course will focus on analysis and optimization of programs for uniprocessor machines, including program analysis (data-flow analysis, construction of static single-assignment form) and program transformation (redundancies, constant values, strength reduction, etc.). The course uses a variety of readings from the literature and includes an implementation project. Recommended Prerequisite(s): COMP 412 or COMP 506.
Course URL: www.cs.rice.edu/~keith/512 (http://www.cs.rice.edu/~keith/512/)
COMP 513 - COMPLEXITY IN MODERN SYSTEMS
Short Title: COMPLEXITY IN MODERN SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A modern computer is a system with enormous complexity in both software and hardware. The course presents the principles for managing such complexity using examples from modern computing systems. It covers emergent issues from system complexity such as energy efficiency, bug finding, and heterogeneous hardware. It also covers designing experiments and writing systems papers. The course consists of lectures, student presentation of classic papers, and a final project.

COMP 514 - OPTIMIZATION: ALGORITHMS, COMPLEXITY, AND APPROXIMATIONS
Short Title: ALGORITHMS, COMPLEX. & APPROX
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The main focus of the course will be on smooth optimization techniques, with applications in machine learning and artificial intelligence. The course will introduce the basics of algorithms on continuous optimization, starting from the classical gradient descent algorithm in convex optimization, towards more sophisticated approaches in non-convex scenarios. The course will explore the fundamental theory, algorithms, complexity and approximations in nonlinear optimization. Graduate/Undergraduate Equivalency: COMP 414. Mutually Exclusive: Cannot register for COMP 514 if student has credit for COMP 414.

COMP 515 - ADVANCED COMPIILATION FOR VECTOR PARALLEL PROCESSORS
Short Title: ADV COMPILATION VECTOR PARALEL
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 412
Description: Advanced compilation techniques for vector and parallel computer systems, including the analysis of program dependence, program transformations to enhance parallelism, compiler management of the memory hierarchy, interprocedural data flow analysis, and parallel debugging. Recommended Prerequisite(s): COMP 412.

COMP 516 - CLOUD COMPUTING PRACTICUM
Short Title: CLOUD COMPUTING PRACTICUM
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 413 or COMP 420 or (COMP 520 or ELEC 520)
Description: This is a project-based class that provides students with the opportunity to apply their knowledge of distributed computing principles to designed and develop a single, large distributed application that utilizes the public cloud. Students will learn about the basic services for computing, storage, and commination that are supported by the new generation of “public utilities” that provide the infrastructure for the public cloud, and how to utilize these services to engineer a robust, scalable application.

COMP 517 - ADVANCED OPERATING SYSTEMS AND SECURITY
Short Title: ADVANCED OPERATING SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this seminar, we will investigate advanced topics in the design and implementation of operating systems, including: OS structure (including Web Browsers), concurrency and synchronization, memory management, file systems and storage, virtual machines, and information protection. We will explore both fundamental and hot topics through reading, discussing, and presenting key research findings. This course will also cover methods for critiquing, writing, and presenting research findings through a course long project. Graduate/Undergraduate Equivalency: COMP 417. Mutually Exclusive: Cannot register for COMP 517 if student has credit for COMP 417.

COMP 518 - IOT PROGRAMMING AND DATA ANALYSIS
Short Title: IOT PROGRAM. AND DATA ANALYSIS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to the Internet of Things (IoT). It will present the tools and techniques needed to develop complex IoT applications that encompass interaction with the physical world and data analysis across the IoT computing infrastructure. The topics range from programming microcontrollers (e.g., Arduino) and single-board computers (e.g., Raspberry Pi) to IoT automation and the efficient analysis of real-time IoT data. Graduate/Undergraduate Equivalency: COMP 418.
COMP 519 - GENOME-SCALE ALGORITHMS AND DATA STRUCTURES
Short Title: GENOME-SCALE ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Since the advent of Sanger Sequencing in 1977, computer scientists have been devising algorithms and software tools to interpret and analyze DNA sequences. The field of bioinformatics focuses on computational approaches to solving biological questions. This course will serve as an introduction to widely used algorithms in bioinformatics used for pattern searching, genome assembly, sequence alignment, and clustering of biological data. No prior knowledge of biology is assumed. The class involves several programming assignments. Graduate/Undergraduate Equivalency: COMP 416.

COMP 520 - DISTRIBUTED SYSTEMS
Short Title: DISTRIBUTED SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Course URL: www.cs.rice.edu/~alc/comp520/ (http://www.cs.rice.edu/~alc/comp520/)

COMP 521 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 552. Graduate/Undergraduate Equivalency: COMP 421. Mutually Exclusive: Cannot register for COMP 521 if student has credit for COMP 421.

COMP 522 - MULTI-CORE COMPUTING
Short Title: MULTI-CORE COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 425
Description: Multi-core microprocessors are becoming the norm. The course will focus on emerging multi-core processor architectures and challenges to using them effectively. Topics include multi-core microprocessors, memory hierarchy, synchronization, programming systems, scheduling, and transactional memory.
Course URL: www.cs.rice.edu/~johnmc/comp522/ (http://www.cs.rice.edu/~johnmc/comp522/)

COMP 523 - INTRODUCTION TO MATHEMATICAL CRYPTOGRAPHY
Short Title: INTRO TO MATH CRYPTOGRAPHY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 182 or COMP 448 or MATH 448 or MATH 365
Description: The course introduces students to modern cryptographic techniques, focusing mainly on mathematical tools. The course covers topics such as Diffie-Hellman key exchange, the ElGamal public key crypto system, integer factorization and RSA, and elliptic curves and lattices in cryptography. Graduate/Undergraduate Equivalency: COMP 323. Mutually Exclusive: Cannot register for COMP 523 if student has credit for COMP 323/MATH 323.

COMP 524 - MOBILE AND WIRELESS NETWORKING
Short Title: MOBILE AND WIRELESS NETWORKING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: Study of network protocols for mobile and wireless networking, particularly at the media access control, network, and transport protocol layers. Focus is on the unique problems and challenges presented by the properties of wireless transmission and host or router mobility. Cross-list: ELEC 524. Recommended Prerequisite(s): COMP 421 OR ELEC 421.

COMP 525 - VIRTUALIZATION AND CLOUD RESOURCE MANAGEMENT
Short Title: VIRTUAL & CLOUD RESOURCE MGMT
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ELEC 425 or COMP 425)
COMP 526 - HIGH PERFORMANCE COMPUTER ARCHITECTURE
Short Title: HIGH PERFORMANCE COMPUTER ARCH
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of high performance computer systems, including shared-memory and message-passing multiprocessors and vector systems. Hardware and software techniques to tolerate and reduce memory and communication latency. Case studies and performance simulation of high-performance systems. Cross-list: ELEC 526. Recommended Prerequisite(s): ELEC 425 or COMP 425

COMP 527 - COMPUTER SYSTEMS SECURITY
Short Title: COMPUTER SYSTEMS SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class will focus on computer security in real systems. We will cover theory and practice for the design of secure systems (formal modeling, hardware and compiler-enforced safety, software engineering processes, tamper-resistant and tamper-reactive hardware, firewalls, cryptography, and more). Recommended Prerequisite(s): (COMP 311 or COMP 412) and (COMP 421 or COMP 429).

COMP 528 - INTRODUCTION TO VIRTUALIZATION
Short Title: INTRODUCTION TO VIRTUALIZATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 421 or COMP 521
Description: System-level virtualization is an integral part of modern computer systems, spanning both hardware and software. This course will explore the various types of system-level virtualization and the hardware and software mechanisms that support them. The course will explore the interplay among hypervisors, operating systems, processors, memory, and I/O devices in modern virtualized systems.

COMP 529 - ADVANCED COMPUTER NETWORKS
Short Title: ADVANCED COMPUTER NETWORKS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: This course explores advanced solutions in computer networks that are driven by the need to go beyond the best-effort capabilities of the Internet. Topics include network fault tolerance, traffic engineering, scalable data center network architectures, network support for big data processing, network support for cloud computing, extensible network control via software defined networking, denial-of-service-attack defense mechanisms. Readings from original research papers. Also include design project and oral presentation components. This course assumes students already have a good understanding of the best-effort Internet. Cross-list: ELEC 529. Repeatable for Credit.
Course URL: www.clear.rice.edu/comp529/ (http://www.clear.rice.edu/comp529/)

COMP 530 - DATABASE SYSTEM IMPLEMENTATION
Short Title: DATABASE SYSTEM IMPLEMENTATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 321 and COMP 430
Description: This course covers database management system architecture, query processing and optimization, transaction processing, concurrent control and recover, storage, indexing structures and related topics. Students will build a database system from the ground up. Graduate students who have not had an introductory database course should enroll for 4 credits: all others should enroll for 3 credits.

COMP 531 - WEB DEVELOPMENT AND DESIGN
Short Title: WEB DEVELOPMENT AND DESIGN
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 310 or COMP 321
Recommended Prerequisite(s): COMP 431. Recommended Prerequisite(s): COMP 310 or COMP 321
Description: This project-based course explores Web application creation and design. Students are involved in the development of front-end and back-end systems while interfacing client-server communications technologies. Students will evaluate Web structural frameworks, Web development technologies, apply test driven development, and create multi-user Web applications. Graduate/Undergraduate Equivalency: COMP 431. Recommended Prerequisite(s): COMP 310 or COMP 321
Mutually Exclusive: Cannot register for COMP 531 if student has credit for COMP 431.
COMP 532 - INTRODUCTION TO DISTRIBUTED COMPUTER SYSTEMS
Short Title: INTRO TO DISTRIBUTED COMP SYS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 421 or COMP 521
Description: Introduction to distributed computer systems. The course covers concepts, architecture, algorithms, protocols, and implementation, focusing on distribution, scale, robustness in the face of failure, and security. Additional coursework required beyond the UG course requirements. Graduate/Undergraduate Equivalency: COMP 420. Mutually Exclusive: Cannot register for COMP 532 if student has credit for COMP 420.
Course URL: www.clear.rice.edu/comp420 (http://www.clear.rice.edu/comp420/)

COMP 533 - INTRODUCTION TO DATABASE SYSTEMS
Short Title: INTRO TO DATABASE SYSTEMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: COMP 504
Description: Introduction to relational and other database systems, SQL programming, Database application programming, and Database design. This course is designed for students without prior database experience. Graduate/Undergraduate Equivalency: COMP 430. Mutually Exclusive: Cannot register for COMP 533 if student has credit for COMP 430.

COMP 534 - PARALLEL COMPUTING
Short Title: PARALLEL COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321)
Description: COMP 422 is an undergraduate version of this course. COMP 422 students will have four programming assignments. COMP 534 students will have five. As part of their assignments, both COMP 422 and COMP 534 students will analyze the scalability and parallel efficiency of parallel programs they write. COMP 534 students will additionally use tools to qualify the root causes of scaling losses in their programs and document their findings. Graduate/Undergraduate Equivalency: COMP 422. Mutually Exclusive: Cannot register for COMP 534 if student has credit for COMP 422.

COMP 535 - APPROXIMATE COMPUTING SYSTEM FOR BIG DATA, SUPERCOMPUTING AND EMBEDDED SYSTEMS
Short Title: APPROX COMP SYS FOR BIG DATA
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey this radical concept of approximate (or inexact) computing with the goal of understanding both of the challenges and opportunities at all layers of the computing system ranging over programming languages, compilers and run-time, and architecture.

COMP 536 - SECURE AND CLOUD COMPUTING
Short Title: SECURE & CLOUD COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is "cloud computing?" How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today's services run inside the cloud – a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today's cloud systems. Cross-list: ELEC 510. Graduate/Undergraduate Equivalency: COMP 436. Mutually Exclusive: Cannot register for COMP 536 if student has credit for COMP 436.

COMP 538 - SECURITY OF HW EMBEDDED SYSTEMS
Short Title: EMBEDDED HW SYSTEMS SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course covers wide range of topics pertaining to security of Hardware Embedded system, including cryptographic processors, secure memory access, hardware IT protection by monitoring and watermarking FPGA security, physical and side-charmed attacks, Trojan horses. Cross-list: ELEC 528. Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Short Title</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Grade Mode</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 539</td>
<td>SOFTWARE ENGINEERING METHODOLOGY</td>
<td>Computer Science</td>
<td>SOFTWARE ENGINEER METHODOLOGY</td>
<td>Lecture</td>
<td>4</td>
<td>Standard Letter</td>
<td>Enrollment is limited to Graduate level students.</td>
</tr>
<tr>
<td>COMP 540</td>
<td>STATISTICAL MACHINE LEARNING</td>
<td>Computer Science</td>
<td>STATISTICAL MACHINE LEARNING</td>
<td>Lecture</td>
<td>4</td>
<td>Standard Letter</td>
<td>Enrollment is limited to Graduate level students.</td>
</tr>
<tr>
<td>COMP 541</td>
<td>INTRODUCTION TO COMPUTER SECURITY</td>
<td>Computer Science</td>
<td>INTRO TO COMPUTER SECURITY</td>
<td>Lecture</td>
<td>3</td>
<td>Standard Letter</td>
<td>Enrollment is limited to Graduate level students.</td>
</tr>
<tr>
<td>COMP 542</td>
<td>LARGE-SCALE MACHINE LEARNING</td>
<td>Computer Science</td>
<td>LARGE-SCALE MACHINE LEARNING</td>
<td>Lecture</td>
<td>3</td>
<td>Standard Letter</td>
<td>Enrollment is limited to Graduate level students.</td>
</tr>
<tr>
<td>COMP 543</td>
<td>GRADUATE TOOLS AND MODELS - DATA SCIENCE</td>
<td>Computer Science</td>
<td>DATA SCIENCE</td>
<td>Lecture</td>
<td>3</td>
<td>Standard Letter</td>
<td>Enrollment is limited to Graduate level students.</td>
</tr>
<tr>
<td>COMP 544</td>
<td>COMPUTER SCIENCE SECURITY</td>
<td>Computer Science</td>
<td>SOFTWARE SECURITY</td>
<td>Lecture</td>
<td>4</td>
<td>Standard Letter</td>
<td>Enrollment is limited to Graduate level students.</td>
</tr>
</tbody>
</table>
COMP 544 - FUNCTIONAL PROGRAMMING
Short Title: FUNCTIONAL PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to concepts, principles, and approaches of functional programming. Functional programming is a style of programming where the key means of computation is the application of functions to arguments (which themselves might be functions). This style of programming has become increasingly popular in recent years because it offers important advantages in designing, maintaining, and reasoning about programs in many modern contexts such as web services, multicores, and cluster computing. Course work consists of a series of programming assignments in the Scala programming language and various library extensions such as Apache Spark. Graduate/Undergraduate Equivalency: COMP 311. Mutually Exclusive: Cannot register for COMP 544 if student has credit for COMP 311.

COMP 545 - ADVANCED TOPICS IN OPTIMIZATION: FROM SIMPLE TO COMPLEX ML SYSTEMS
Short Title: ADV TOPICS IN OPTIMIZATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: COMP 545 is a graduate-level course on optimization techniques and algorithms, as these are used in modern ML/AI/SP tasks. During this course, we will learn and study the above topics (both in depth and breadth). The course i) will focus on different objective classes (convex vs. non-convex objectives, with constraints or not, etc.), ii) will cover different optimization strategies within each class, iii) will study algorithmic choices based on computational resources (e.g., use of low-dimensional structures (when/why), asynchronous vs. synchronous algorithms, distributed algorithms, etc.) and iv) lastly, will study schemes that handle some specific, but well-spread optimization constraints (sparsity, low-rankness). The main objective of the course is to highlight optimization as a vital part of contemporary research in ML/AI/SP and draw the attention of students to open questions in related topics. In particular, the aim for students is to i) learn how to distinguish differences in research papers of related fields, ii) understand the connection between them and how researchers advance each area, and iii) be able to consider possible extensions of these works, as part of the final (open-ended) project of the course. Repeatable for Credit.

COMP 546 - INTRODUCTION TO COMPUTER VISION
Short Title: INTRO TO COMPUTER VISION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 546. Graduate/Undergraduate Equivalency: COMP 447. Mutually Exclusive: Cannot register for COMP 546 if student has credit for COMP 345/COMP 447.

COMP 547 - COMPUTATIONAL GENOMICS FOR MICROBIAL FORENSICS
Short Title: COMP MICROBIAL FORENSICS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will review, critique, and discuss computational methods and approaches for microbial forensics and infectious disease monitoring in the genomics era. The seminar will be divided into topic-specific sessions, focusing on emerging research trends and open challenges in the field. Graduate/Undergraduate Equivalency: COMP 347. Mutually Exclusive: Cannot register for COMP 547 if student has credit for COMP 347.

COMP 548 - VERIFIED PROGRAMMING
Short Title: VERIFIED PROGRAMMING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will explore the mathematical underpinnings of reliable software. The students will learn how to use proof assistants to construct software along with a machine-checkable proof of its correctness. Basic concepts of logic, functional programming, static type systems and deductive verification will be covered. Graduate/Undergraduate Equivalency: COMP 408.
COMP 549 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: DSCI 535. Graduate/Undergraduate Equivalency: COMP 449. Mutually Exclusive: Cannot register for COMP 549 if student has credit for COMP 449. Repeatable for Credit.

COMP 550 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeons in life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanisms useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today's robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: ELEC 550, MECH 550. Graduate/Undergraduate Equivalency: COMP 450. Mutually Exclusive: Cannot register for COMP 550 if student has credit for COMP 450.

COMP 553 - BIG DATA MANAGEMENT FOR DATA SCIENCE
Short Title: BIG DATA MGMT FOR DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MDS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 614 and COMP 680
Description: This course is an introduction to "big" data, including storage, processing, and machine learning. It covers software tools (including an introduction to database programming using SQL), algorithms, and mathematical models used to prepare and extract knowledge from large datasets. Course material will cover different application problems and domains.

COMP 554 - COMPUTER SYSTEMS ARCHITECTURE
Short Title: COMPUTER SYSTEMS ARCHITECTURE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evolution of key architecture concepts found in advanced uniprocessor systems. Fundamental and advanced pipelining techniques and associated issues for improving processor performance. Illustrated with RISC processors such as the ARM processor. Examine several metrics for processor performance, such as Amdahl's law. Key concepts of data and program memory systems found in modern systems with memory hierarchies and caches. Perform experiments in cache performance analysis. Influence of technology trends, such as Moore's law, on processor implementation Approaches for exploiting instruction level parallelism, such as VLIW. Introduction to parallel and multicore architectures. Introduction to processor architectures targeted for imbedded applications. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 554. Graduate/Undergraduate Equivalency: COMP 425. Mutually Exclusive: Cannot register for COMP 554 if student has credit for COMP 425.

COMP 555 - DESIGN AND ANALYSIS OF CYBER-PHYSICAL SYSTEMS
Short Title: DESIGN&ANALYSIS CYBER/PHYSICAL
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to cyber-physical systems, engineering artifacts in which computational components interact with and typically control physical components. Some common examples of cyber-physical systems include robots, Segways and lane-departure warning, LDW, systems in automobiles. Graduate/Undergraduate Equivalency: COMP 451. Mutually Exclusive: Cannot register for COMP 555 if student has credit for COMP 451.

COMP 556 - INTRODUCTION TO COMPUTER NETWORKS
Short Title: INTRO TO COMPUTER NETWORKS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 221 or COMP 321
COMP 557 - ARTIFICIAL INTELLIGENCE
Short Title: ARTIFICIAL INTELLIGENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 310 and (STAT 310 or ECON 307 or ECON 382 or STAT 312 or STAT 331 or ELEC 331 or ELEC 303) and (MATH 354 or MATH 355 or CAAM 335)
Description: This is a foundational course in artificial intelligence, the discipline of designing intelligent agents. The course will cover the design and analysis of agents that do the right thing in the face of limited information and computational resources. The course revolves around two main questions: how agents decide what to do, and how they learn from experience. Tools from computer science, probability theory, and game theory will be used. Interesting examples of intelligent agents will be covered, including poker playing programs, bots for various games (e.g. WoW), DS1 -- the spacecraft that performed an autonomous flyby of Comet Borrely in 2001, Stanley -- the Stanford robot car that won the Darpa Grand Challenge, Google Maps and how it calculates driving directions, face and handwriting recognizers, FedEx package delivery planners, airline fare prediction sites, and fraud detectors in financial transactions. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 557. Graduate/Undergraduate Equivalency: COMP 440. Mutually Exclusive: Cannot register for COMP 557 if student has credit for COMP 440.
Course URL: www.owlnet.rice.edu/~comp440/ (http://www.owlnet.rice.edu/~comp440/)

COMP 560 - COMPUTER GRAPHICS AND GEOMETRIC MODELING
Short Title: COMPUTER GRAPHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of core topics in Computer Graphics and Geometric Modeling, including fractals, ray tracing, hidden surface Algorithmic, Bezier, B-spline, blossoming techniques and subdivision procedures. Graduate/Undergraduate Equivalency: COMP 360. Mutually Exclusive: Cannot register for COMP 560 if student has credit for COMP 360.

COMP 561 - GEOMETRIC MODELING
Short Title: GEOMETRIC MODELING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploration of curves and surfaces (e.g. parametric form, implicit form, and conversion between forms), the representation of solid (e.g., wireframes, octrees, boundary representations, and constructive solid geometry), and applications (e.g., graphics, motion planning, simulation, and finite element mesh generation. Graduate/Undergraduate Equivalency: COMP 361. Repeatable for Credit.

COMP 565 - COMPUTATIONAL HUMAN-ROBOT INTERACTION
Short Title: COMPUTATIONAL HRI
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 440 or COMP 450 or COMP 540 or STAT 525 or MECH 498
Description: The course provides an introduction to the budding field of human-robot interaction (HRI), with emphasis on its computational aspects. The course will cover models and algorithms for learning robot policies from human expertise, modeling human behavior using observational data, and enhancing human-robot coordination. Through problems grounded in HRI, students will also learn about general AI techniques for imitation learning (e.g., inverse reinforcement learning) and sequential decision-making under uncertainty (namely, partially observable MDPs).

COMP 571 - BIOINFORMATICS: SEQUENCE ANALYSIS
Short Title: BIOINFORMATICS: SEQUENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Pairwise and multiple sequence alignment, Markov chains and HMMs, Phylogenetic reconstruction, Haplotype inference, Computational models of RNA structure, Gene finding, Genome rearrangements, and comparative genomics.
Course URL: www.cs.rice.edu/~nakhleh/COMP571/ (http://www.cs.rice.edu/~nakhleh/COMP571/)

COMP 572 - BIOINFORMATICS: NETWORK ANALYSIS
Short Title: BIOINFORMATICS: NETWORKS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers computational aspects of biological network analysis, a major theme in the area of systems biology. The course discusses protein-protein interaction, signaling, metabolic, and functional networks, and covers issues related to constructing, analyzing various types of networks, as well as how they can be used for downstream applications. Cross-list: BIOE 564.
COMP 573 - PROFESSIONAL DEVELOPMENT FOR BIOMEDICAL INFORMATICS
Short Title: BIOMEDICAL INFORMATICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar introduces pre- and postdoctoral students in biomedical informatics to topics relevant to professional development in the discipline, which is no longer concentrated in labs as it was in its early days, but is now important in hospitals, outpatient clinics, companies and even the community. In these settings, researchers and practitioners are likely to encounter not only difficult technical challenges, but vexing problems of organizational change and development as well. We will consider some of these challenges, drawing on the insights of experts in psychology, organizational change, management and communications along with industry representatives and entrepreneurs. The seminar mixes lectures and readings with group and individual exercises. Instructor Permission Required. Repeatable for Credit.

COMP 576 - A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING
Short Title: INTRODUCTION TO DEEP LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Deep Machine Learning has recently made many advances in difficult perceptual tasks, including object and phoneme recognition, and natural language processing. However, the field has a steep learning curve, both conceptually and practically. The point of this course is to engage students by jumping into the deep end, and building their own architectures and algorithms. Cross-list: ELEC 576.

COMP 580 - PROBABILISTIC ALGORITHMS AND DATA STRUCTURE
Short Title: PROBABILISTIC ALGORITHMS AND DATA STRUCTURE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be ideal for someone wanting to build a strong foundation in the theory and practice of algorithms for processing Big-Data. We will discuss advanced data structures and algorithms going beyond deterministic setting and emphasize the role of randomness in getting significant, often exponential, improvements in computations and memory. Graduate/Undergraduate Equivalency: COMP 480.

COMP 581 - AUTOMATA, FORMAL LANGUAGES, AND COMPUTABILITY
Short Title: AUTOMATA/FORMAL LANG/COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Finite automata, regular expressions, regular languages, pushdown automata, context-free languages, Turing machines, recursive languages, computability, and solvability. It is strongly recommended that students complete three semesters of Mathematics before enrolling in this course. Graduate/Undergraduate Equivalency: COMP 481. Mutually Exclusive: Cannot register for COMP 581 if student has credit for COMP 481.

COMP 582 - GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS
Short Title: GR DESIGN ANALY OF ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 310 or ECON 307 or STAT 331 or ELEC 331 or ELEC 303 or STAT 312
Description: Methods for designing and analyzing computer algorithms and data structures. The focus of this course will be on the theoretical and mathematical aspects of algorithms and data structures. Cross-list: ELEC 512.

COMP 587 - COMPUTATIONAL COMPLEXITY
Short Title: COMPUTATIONAL COMPLEXITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 382 or COMP 409 or COMP 509 or COMP 481 or COMP 581
Description: In Computational Complexity we study the computational resources (time, space, communication, etc.) that are required to solve computational problems via various computational needs. Specifically, we are interested in classifying computational problems with classes of other problems that require similar amount of resources to solve. Graduate/Undergraduate Equivalency: COMP 487. Mutually Exclusive: Cannot register for COMP 587 if student has credit for COMP 487.

COMP 590 - COMPUTER SCIENCE PROJECTS
Short Title: COMPUTER SCIENCE PROJECTS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced theoretical and experimental investigations under staff direction. The student must have a full-time internship to receive 4 credits for this course. Instructor Permission Required. Repeatable for Credit.
COMP 591 - GRADUATE COMPUTER SCIENCE TEACHING
Short Title: GRAD COMPUTER SCIENCE TEACHING
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A combination of in-service teaching and a seminar. Instructor Permission Required. Repeatable for Credit.

COMP 598 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Additional work required for Graduate course. Cross-list: ELEC 598, MECH 598. Graduate/Undergraduate Equivalency: COMP 498. Mutually Exclusive: Cannot register for COMP 598 if student has credit for COMP 498.

COMP 600 - GRADUATE SEMINAR IN COMPUTER SCIENCE
Short Title: GRADUATE SEMINAR
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy or Master of Science degrees. Course Level: Graduate
Description: The seminar course meets weekly to discuss current research results by graduate students in the Computer Science Department. Senior Ph.D. Students are expected to present their research results. This course is open ONLY to MS and Ph.D. Students. MCS students may NOT take this course for credit without the consent of the instructor. Repeatable for Credit.
Course URL: www.clear.rice.edu/comp600/ (http://www.clear.rice.edu/comp600/)

COMP 601 - WRITING AND EDITING CONFERENCE PAPERS
Short Title: WRITING & EDITING CONF PAPERS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a seminar on technical writing and preparing publications for peer review. The focus is on conference papers, around 6-10 pages in length. The main topics are: 1) The structure of a conference publication, with guest lectures from the faculty. 2) Good daily writing habits with a group accountability system. 3) Editing techniques and the development a departmental "writing community" with interactive editing sessions. This course will cover a few topics from ENGI 600, but the main focus will be on short computer science conference documents and interactive peer editing. ENGI 600 is still the correct course to take for writing in general, thesis preparation, or journal publications. This course will complement COMP 600, and to develop the same community for writing as this class does for presentations. Repeatable for Credit.

COMP 602 - NEURAL MACHINE LEARNING AND DATA MINING II
Short Title: NEURAL MACHINE LEARNING II
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 502 or COMP 502 or STAT 502
Description: Advanced topics in ANN theories, with a focus on learning high-dimensional complex manifolds with neural maps (Self-Organizing Maps, Learning Vector Quantizers and variants). Application to data mining, clustering, classification, dimension reduction, sparse representation. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: ELEC 602, STAT 602. Repeatable for Credit.
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html (http://www.ece.rice.edu/~erzsebet/NMLcourseII.html)

COMP 607 - AUTOMATED PROGRAM VERIFICATION
Short Title: AUTOMATED PROGRAM VERIFICATION
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods, tools and theories for the computer-aided verification of concurrent systems. Repeatable for Credit.
Course URL: www.cs.rice.edu/~vardi/comp607/ (http://www.cs.rice.edu/~vardi/comp607/)
This course aims to provide a framework for understanding how to use deep learning in terms of a single approach or the syntax of one language. By using different paradigms, you will learn to think more deeply than in terms of a single approach or the syntax of one language. These concepts will be studied in the context of multiple languages that are critical to understanding and constructing software artifacts. This course will cover a selection of topics from the areas of programming languages and formal methods. All students will read classical and recent papers on the selected topics and give presentations on them. A student may elect to perform a semester-long project on a topics related to the content of the course and write a short report on their findings. Repeatable for Credit.

COMP 611 - TOPICS IN PROGRAMMING LANGUAGES AND FORMAL METHODS
Short Title: PROGRAMMING & FORMAL METHODS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover a selection of topics from the areas of programming languages and formal methods. All students will read classical and recent papers on the selected topics and give presentations on them. A student may elect to perform a semester-long project on a topics related to the content of the course and write a short report on their findings. Repeatable for Credit.

COMP 612 - COMPUTER PROGRAMMING FOR DATA SCIENCE
Short Title: PROGRAMMING FOR DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MDS, OMCS or OMDS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to computer programming designed to give an overview of programming and algorithmic topics commonly seen in Data Science, such as creating and manipulating data structures, graphs, dynamic programming, sorting and heuristic search algorithms. Students learn how to think about these problems and how to structure effective solutions to them using Python. No prior programming knowledge is required or expected.

COMP 620 - GRADUATE SEMINAR IN COMPUTER SYSTEMS
Short Title: GRAD SEMINAR COMP SYSTEMS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies at discretion of instructor. Repeatable for Credit.

COMP 621 - SYSTEMS SOFTWARE
Short Title: SYSTEMS SOFTWARE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMCS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 613
Description: Modern computer systems are designed and implemented in a layered fashion, wherein each layer builds upon those beneath it, providing abstractions for processing, memory, and I/O that are progressively more abstracted from the hardware and easier to use than those of the underlying layers. While this layered architecture has made building systems easier, it has also made understanding their behavior and performance more difficult. Every layer from the managed run-time environments used by modern programming languages to the hypervisor play a role in processor scheduling, memory management, and I/O, making it oftentimes difficult to pinpoint which layer of the system is interacting poorly with a program. This class will teach students about the fundamental characteristics of the abstractions for processing, memory, and I/O at each layer of a modern computer system, so that they might understand the functionality provided by each layer, and instruct them on the use of modern debugging, profiling, and tracing tools, so that they are equipped to characterize the behavior and performance of their programs.
COMP 622 - ETHICS AND ACCOUNTABILITY IN DATA SCIENCE
Short Title: DATA & INFORMATION ETHICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Computer Science or Master of Data Science degrees.
Course Level: Graduate
Description: Given their growing power in the twenty-first century, data scientists have duties both to society and their own profession to wield that power wisely and responsibly. In this discussion-and reflection-oriented course students will apply fundamentals of moral philosophy and social responsibility to current issues in data science.

COMP 625 - COMPUTER ARCHITECTURE
Short Title: COMPUTER ARCHITECTURE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMCS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: It has become increasingly important to understand the underlying properties of modern computer architectures. System organization, including memory hierarchies, parallel processor organization, and interconnection networks can have a large impact on the performance of software systems. This course aims to provide a foundational understanding of key computer architecture concepts and their impact on performance.

COMP 628 - CYBERSECURITY
Short Title: CYBERSECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This introductory cybersecurity course includes topics relevant to core components of cybersecurity technologies, processes, and practices designed to protect networks, computers, and data from attack, damage, and unauthorized access. Specifically how to identify, protect, detect, respond, and recover. Topics include threat landscape, cryptography, malware, network security, and cloud security.

COMP 630 - DATABASES
Short Title: DATABASES
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is an introduction to relational and other (NoSQL) database systems, SQL programming, and database design. This course will teach students how to understand trade-offs in database design, to create well-designed databases, and to develop proficiency in effectively managing data in a database. The course is focused on developing skills as a database designer and power-user. It also includes discussions of database implementation details to enable students to understand underlying system functionality and how that impacts decisions a database designer makes.

COMP 640 - GRADUATE SEMINAR IN MACHINE LEARNING
Short Title: GR SEM IN MACHINE LEARNING
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A reading course covering the latest developments in statistical machine learning and pattern recognition. Recommended Prerequisite(s): COMP 440. Repeatable for Credit.

COMP 641 - GRADUATE SEMINAR ON INTERACTIVE MACHINE LEARNING
Short Title: INTERACTIVE MACH LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many applications of machine learning involve humans in the loop (e.g., the programmer implementing the algorithm, the domain expert specifying the features/labels, or the end user making decisions using the learned model). This course is a discussion-based seminar focusing on the design, analysis, and evaluation of machine learning techniques with explicit emphasis on the human(s) in the loop. Topics include reinforcement learning with human teachers, active learning, interpretability, learning beyond labels, and human-in-the-loop Bayesian inference. Recommended Prerequisite(s): COMP 382 and STAT 315/DSCI 301 and CAAM 335 Repeatable for Credit.
COMP 642 - MACHINE LEARNING
Short Title: MACHINE LEARNING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 682
Description: Machine learning is the process of automatically inferring a function from a set of data. In essence, machine learning techniques seek to automate the inductive learning process that humans do so well. Furthermore, the availability of large training sets combined with significant computing power has made machine learning an extremely important body of knowledge across a large range of application domains. A small sample of some of the application domains include robotics, medicine, speech/facial recognition, and driving autonomous vehicles. This course will focus on providing a foundational understanding of modern algorithms in machine learning, focusing on practical applications.

COMP 643 - BIG DATA
Short Title: BIG DATA
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMCS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 630
Description: This course is an introduction to modern data science. Data science is the study of how to extract actionable, non-trivial knowledge from data. The course will focus on software tools used by practitioners of modern data science, the mathematical and statistical models that are employed in conjunction with such software tools and the applications of these tools and systems to different problems and domains. In particular, this class explores the use of these tools and models in the analysis of “big” data, that is datasets that are too large to be analyzed on a typical personal computer.

COMP 644 - DATA PRIVACY & SECURITY
Short Title: DATA PRIVACY & SECURITY
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover types of threats in data and computer systems. This includes foundational computer security material such as encryption, public-private key systems. In addition, foundations of data privacy and security, including models of disclosure, k-anonymity, and differential privacy, will be covered.

COMP 645 - ADVANCED TOPICS IN DISTRIBUTED SYSTEMS
Short Title: ADV TOPICS IN DISTRIBUTED SYST
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will learn about and discuss recent advances in various areas in computer systems, including topics on security, distributed systems, networking, operating systems, and databases. The seminar will be divided into several sections, with each section focusing on one research trend. In each class, students will read one classic paper on the topic, and present two recent papers that describe the state of the art. Students can also team up and do a semester-long research project on any relevant topics. All students will need to make a final presentation at the end of the class on a potential project idea; for students that choose to do a semester-long project, they will also submit a six-page report on their project, in addition to giving a final presentation. Instructor Permission Required. Cross-list: ELEC 692. Repeatable for Credit.

COMP 650 - PHYSICAL COMPUTING
Short Title: PHYSICAL COMPUTING
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods, tools and theories for reasoning about problems with physical constraints. The student may elect to perform a project to receive more than 1 credit hour. Instructor Permission Required. Repeatable for Credit.

COMP 655 - ADVANCED TOPICS IN ROBOTIC MANIPULATION;
Short Title: ROBOTIC MANIPULATION
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a survey of autonomous robotic manipulation systems. In particular, we are interested in the most influential recent research, as well as the necessary fundamental concepts that have paved the roads. By reading relevant papers from top journals and conferences, we will discuss problems including grasping, motion planning, prehensile and non-prehensile manipulation, affordance and task modeling, hand design, and perception. Centered around the recent rapid development of various sensor technology, we will try to bridge the gaps between sensing modalities to each of the major problems in manipulation, with an emphasis on understanding how sensing modalities interact with other components in the system. Upon the completion of this course, students should have gained a comprehensive understanding of robotic manipulation as a research field, and should be able to define, formulate and analyze relevant scientific problems on a research level. Repeatable for Credit.
COMP 665 - DATA VISUALIZATION
Short Title: DATA VISUALIZATION
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Data is being generated by humans and algorithms at an astounding rate. Having the ability to analyze and interpret this data visually is a key technique for coping with this explosion. This class will cover the basic ways that various types of data can be visualized and what properties distinguish useful visualizations from not so useful ones. The class will use Python as both the primary tool for processing the data as well creating visualizations of this data. To enhance the students’ depth of knowledge, the class will also cover some of the geometric algorithms used to create advanced visualizations.

COMP 670 - GRADUATE SEMINAR ON COMPUTATIONAL BIOLOGY
Short Title: GR SEM ON COMP BIOLOGY
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar covering recent advances in computational methods and tools in biomedical research. Repeatable for Credit.

COMP 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

COMP 680 - STATISTICS FOR COMPUTING AND DATA SCIENCE
Short Title: STATS COMPUTING DATA SCIENCE
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MDS, OMCS or OMDS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Probability and statistics are essential tools in computer science and data science. They are at the heart of areas such as efficiency analysis of algorithms and randomized algorithms and central to fields like bioinformatics, social informatics, and, of course, machine learning. Furthermore, probability and statistics are essential for data science, as they are the foundation for quantifying uncertainty and assessing support for hypotheses and derived models. This course covers topics in probability and statistics, including probability and random variables, basic stochastic processes, basic descriptive statistics, and various methods for statistical inference and measuring support.

COMP 682 - PRINCIPLES OF ALGORITHMS AND SOFTWARE AREA
Short Title: ALGORITHMS
Department: Computer Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MCS, MCSE or OMCS programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Algorithms are the recipes that underlie all computations executed by a computer. Designing new algorithms, proving their correctness, and analyzing their computational requirements are three foundational tasks in all areas of computer science. This course covers all these three aspects of algorithms. Topics covered include growth of functions, asymptotic notation and analysis, graphs and their properties, graph exploration, graph algorithms, greedy algorithms, divide-and-conquer algorithms, dynamic programming, NP-Completeness, and heuristic search algorithms.

COMP 690 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Computer Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
Data Science (DSCI)

DSCI 101 - INTRODUCTION TO DATA SCIENCE
Short Title: INTRO TO DATA SCIENCE
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students learn the fundamentals of data science and Python programming while working on teams to solve real data science challenges, design a data science pipeline, and derive and communicate valuable insights from data. This is a non-calculus based course with no prior background in statistics or programming required.

DSCI 301 - PROBABILITY AND STATISTICS FOR DATA SCIENCE
Short Title: STATISTICS FOR DATA SCIENCE
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102 or MATH 106 or MATH 112
Description: An introduction to mathematical statistics and computation for applications to data science. Topics include probability, random variables expectation, sampling distributions, estimation, confidence intervals, hypothesis testing and regression. A weekly lab will cover the statistical package, R, and data projects. Cross-list: STAT 315. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for DSCI 301 if student has credit for BUSI 395.

DSCI 302 - INTRODUCTION TO DATA SCIENCE TOOLS AND MODELS
Short Title: DATA SCIENCE TOOLS AND MODELS
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a minor in Data Science. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 140
Description: This course introduces key concepts in data management, preparation, and modeling and provides students with hands-on experience in performing these tasks using modern tools, including relational databases and Spark. Models covered include linear and logistic regression and gradient descent. For registration purposes, COMP 140 is a required prerequisite for this course. With instructor permission, students that have taken CAAM 210 (or another applicable course) may be allowed to special register for this course. Students seeking this instructor permission (to waive or substitute the COMP 140 prerequisite requirement) are expected to know the Python programming language, and may be required to demonstrate proficiency. Priority for this course is given to students enrolled in the data science minor. Other students may be permitted to enroll at the discretion of the instructor.
DSCI 303 - MACHINE LEARNING FOR DATA SCIENCE  
**Short Title:** MACHINE LEARNING FOR DS  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (DSCI 301 or STAT 315 or STAT 310) and (DSCI 302 or COMP 330)  
**Description:** This course is an introduction to concepts, methods, best practices, and theoretical foundations of machine learning. Topics covered include regression, classification, kernels, dimensionality reduction, clustering, decision trees, ensemble learning, regularization, learning theory, and neural networks. Recommended Prerequisite(s): CAAM 334 or CAAM 335 or MATH 355 Mutually Exclusive: Cannot register for DSCI 303 if student has credit for ELEC 478/ELEC 578.  

DSCI 304 - INTRODUCTION TO EFFECTIVE DATA VISUALIZATION  
**Short Title:** DATA VISUALIZATION  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (DSCI 301 or ECON 307 or STAT 310 or STAT 315) and (DSCI 302 (may be taken concurrently) or COMP 330 (may be taken concurrently))  
**Description:** This course teaches fundamental data visualization skills to undergraduate students in the Data Science minor. Students will learn how to create data visualizations in Python or R, how to design effective visualizations that account for visual perception, and how to explain and present data to technical and non-technical audiences.  

DSCI 305 - DATA, ETHICS, AND SOCIETY  
**Short Title:** DATA, ETHICS, AND SOCIETY  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An examination of the ethical implications and societal impacts of choices made by data science professionals. The course will provide practical guidance on evaluating ethical concerns, identifying the potential for harm, and applying best practices to protect privacy, design responsible algorithms, and increase the societal benefit of data science research.  

DSCI 400 - DATA SCIENCE AND MACHINE LEARNING SELF-GUIDED CAPSTONE LABORATORY  
**Short Title:** DATA SCIENCE CAPSTONE LAB  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (DSCI 301 or STAT 315 or STAT 310 or ECON 307) and (DSCI 302 or COMP 330) and (DSCI 303 or STAT 413 or COMP 540) and DSCI 304  
**Description:** In this project-based course, student teams will choose, define, and execute semester-long data-science and machine-learning research projects. These projects may be selected from a variety of disciplines and industries, where freedom is given in defining the projects. The course is about learning best practices in data science and machine learning while finding a suitable curiosity-driven project to build these methods and systems around.  

DSCI 415 - DATA SCIENCE CONSULTING  
**Short Title:** DATA SCIENCE CONSULTING  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** STAT 405 or COMP 140 or CAAM 210  
**Description:** Students in this course will advise clients at Rice and beyond in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Graduate/Undergraduate Equivalency: DSCI 515. Mutually Exclusive: Cannot register for DSCI 415 if student has credit for DSCI 515. Repeatable for Credit.  

DSCI 435 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS  
**Short Title:** DATA SCIENCE PROJECTS  
**Department:** Data Science  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: COMP 449. Graduate/Undergraduate Equivalency: DSCI 535. Repeatable for Credit.
DSCI 515 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: Students in this course will advise clients from across this Rice community in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Graduate/Undergraduate Equivalency: DSCI 415. Mutually Exclusive: Cannot register for DSCI 515 if student has credit for DSCI 415. Repeatable for Credit.

DSCI 535 - APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Data Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Cross-list: COMP 549. Graduate/Undergraduate Equivalency: DSCI 435. Repeatable for Credit.

Dissertation/Thesis Submission (DSRT)

DSRT 101 - HORIZONTAL PARKING
Short Title: HORIZONTAL PARKING
Department: Dean of Undergraduates
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Course Level: Undergraduate Lower-Level
Description: TEST COURSE - DO NOT REGISTER.

DSRT 519 - COVID-19 CONTINUATION
Short Title: COVID-19 CONTINUATION
Department: Dean Graduate/Postdoc Studies
Grade Mode: Study Away
Course Type: Independent Study
Credit Hours: 0-9
Restrictions: Enrollment is limited to Graduate level students.
Description: In the special circumstances of the COVID-19 pandemic of 2020, the university allowed for students to continue to register and access university services to fulfill the obligations from their Spring 2020 coursework. Repeatable for Credit.

DSRT 999 - DISSERTATION/THESIS SUBMISSION
Short Title: DISSERTATION/THESIS SUBMISSION
Department: Dean Graduate/Postdoc Studies
Grade Mode: Study Away
Course Type: Independent Study
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Description: Repeatable for Credit.

Earth, Environmental, and Planetary Sciences (EEPS)

EEPS 101 - THE EARTH
Short Title: THE EARTH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Study of Earth's systems over the past 4.6 billion years. Topics include evolution of life, continents, ocean basins and climate. Mutually Exclusive: Cannot register for EEPS 101 if student has credit for ENST 101/ESCI 115/ESCI 301.

EEPS 102 - HISTORY OF THE EARTH & LIFE
Short Title: HISTORY OF THE EARTH & LIFE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Study of the nature of the Earth and its processes. Mutually Exclusive: Cannot register for EEPS 102 if student has credit for ENST 102/ESCI 102.

EEPS 103 - FIELD TRIPS FOR THE EARTH
Short Title: FIELD TRIPS FOR THE EARTH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: In this course, students will gain a better appreciation of our planet, from how it formed and evolved through millions of years to how its surface environment has been shaped by life, including by humans. These concepts will be introduced through one or more field trips in Texas. Through this course, students will become better stewards of our planet. Mutually Exclusive: Cannot register for EEPS 103 if student has credit for ESCI 103.
EEPS 106 - INVESTIGATING EARTH'S SURFACE
Short Title: INVESTIGATING EARTH'S SURFACE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will be investigation-based course covering processes on Earth's surface, such as carbon cycling, ocean and atmospheric circulation, and climate change. Lectures will be minimal. Most work will be in-class assignments. Mutually Exclusive: Cannot register for EEPS 106 if student has credit for ESCI 201.

EEPS 107 - THE SCIENCE OF CLIMATE CHANGE
Short Title: SCIENCE OF CLIMATE CHANGE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This undergraduate course will introduce students to the fundamentals of natural and anthropogenic climate change. After briefly reviewing Earth's composition and its fluid envelopes, we will cover the basic physics of the climate system, providing tools to understand weather and climate phenomena (e.g. monsoons, El Niño), the greenhouse effect, and climate feedbacks. Building on this understanding, a succinct tour of geologic history will help us paint a more complete picture of Earth's climate variations and how they affected human evolution and history. With this context, we will be able to judge the anomalous character of recent climate change, establish its anthropogenic nature, and discuss solutions to the current climate crisis. Students from any major are encouraged to enroll and engage on important topic. Mutually Exclusive: Cannot register for EEPS 107 if student has credit for ENST 201/ESCI 201.

EEPS 108 - NATURAL DISASTERS
Short Title: NATURAL DISASTERS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course students will learn about the science behind natural disasters. The topics that will be discussed include earthquakes, tsunamis, volcanic eruptions, hurricanes, and tornadoes. We will cover the fundamental Earth Science concepts and processes required to understand these phenomena. Mutually Exclusive: Cannot register for EEPS 108 if student has credit for ESCI 108.

EEPS 109 - OCEANOGRAPHY
Short Title: OCEANOGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the oceans, with an emphasis on how the physics, chemistry, geology, and biology of the oceans are linked. Mutually Exclusive: Cannot register for EEPS 109 if student has credit for ESCI 109.

EEPS 110 - THE EARTH SYSTEM, ENVIRONMENT, AND SOCIETY
Short Title: EARTH, ENVIRONMENT, & SOCIETY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the Earth system, and explores how the environment has changed over time, and the physical, chemical and biological processes responsible for these changes. The course places special emphasis on human-Earth interactions, in the past, present, and future. Topics will include Earth's ecosystems, oceans, and atmosphere, natural resources, natural hazards including catastrophic events, as well as climate change and the role of humans in modifying Earth's environment. Mutually Exclusive: Cannot register for EEPS 110 if student has credit for ESCI 110.

EEPS 111 - INHABITING PLANET EARTH
Short Title: INHABITING PLANET EARTH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Why is Earth habitable? How do we sustain our existence on this unique planet? This course will introduce students to our species' interactions with Planet Earth. We will explore how Earth formed and what systems through time have made the planet habitable, how we use the rock record to investigate past surface environments and climate changes, and how humans are altering Earth's future. The first segment covers the building of Planet Earth and geologic factors that control habitability. The second segment covers rocks of the American Southwest as a case study for how we read the rock record to understand ancient surface environments and climate changes. The final segment of the course will focus on human impacts on our planet, environmental policy and reading the recently published National Climate Assessment. Mutually Exclusive: Cannot register for EEPS 111 if student has credit for ESCI 111.
**EEPS 113 - ENVIRONMENTAL CRISIS SEMINAR**  
**Short Title:** ENVIRONMENTAL CRISIS SEMINAR  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Discussion of environmental crises. Topics vary annually. Repeatable for Credit.  

**EEPS 114 - DISCOVERIES IN EARTH, ENVIRONMENTAL AND PLANETARY SCIENCES SEMINAR**  
**Short Title:** DISCOVERIES IN EEPS SEMINAR  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Overview of exciting discoveries, research and recent advances in Earth, Environmental, and Planetary Sciences, facilitated through discussions with graduate students and faculty, as well as laboratory visits and demonstrations. Topics may vary. Distribution Credit for ESCI/ENST 114 no longer eligible beginning Fall 2019. Mutually Exclusive: Cannot register for EEPS 114 if student has credit for ENST 114/ESCI 114.  

**EEPS 115 - THE PLANETS**  
**Short Title:** THE PLANETS  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** The physical, chemical, and geological development of the solar system from 4.6 billion years ago until today. All planets, their major satellites, comets, and asteroids will be discussed. Mutually Exclusive: Cannot register for EEPS 115 if student has credit for ESCI 214.  

**EEPS 116 - THE EARTH AND THE SOLAR SYSTEM**  
**Short Title:** EARTH AND THE SOLAR SYSTEM  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course will provide students with an understanding of how the Earth and Solar System formed and evolved, emphasizing the evidence supporting theories of formation and evolution and the history of these theories. The course includes formation of the Universe, the elements, the stars, the Sun and the Solar System, the early Earth and Earth history, the other planets and the history of modern space exploration.  

**EEPS 220 - INTRODUCTION TO COMPUTATION IN THE EARTH, ENVIRONMENT AND PLANETARY SCIENCES**  
**Short Title:** INTRO TO EEPS COMPUTATION  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** MATH 101 (may be taken concurrently) or MATH 105 or MATH 111 (may be taken concurrently) or MATH 112 (may be taken concurrently)  
**Description:** A broad introduction to solving earth, environmental, and planetary science problems using programming and basic computational methods. The course will consist of a series of two week modules using the MATLAB environment. Each module consists of lectures to present theory and labs to provide guidance with relevant programming techniques. Recommended Prerequisite(s): Math 102 or equivalent, and PHYS 101 and 102 or equivalents. May be taken concurrently. Mutually Exclusive: Cannot register for EEPS 220 if student has credit for ESCI 220.  

**EEPS 238 - SPECIAL TOPICS**  
**Short Title:** SPECIAL TOPICS  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.  

**EEPS 299 - EXPERIENTIAL EDUCATION IN EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES**  
**Short Title:** EXPERIENTIAL ED IN EARTH SCI  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Internship/Practicum  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course is designed to allow currently enrolled undergraduate students to gain experience in a department/faculty-approved internship/practicum with the goal of further developing their professional skills. Repeatable for Credit.
EEPS 307 - ENERGY AND THE ENVIRONMENT
Short Title: ENERGY AND THE ENVIRONMENT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the physical principles of energy use and its impacts on Earth’s environment and climate. Topics will include energy mechanics, climate change, and the environmental impacts and future prospects of various fossil fuel and alternative energy sources. Cross-list: CEVE 307, ENST 307. Mutually Exclusive: Cannot register for EEPS 307 if student has credit for ESCI 307.

EEPS 309 - VISUALIZING NATURE
Short Title: VISUALIZING NATURE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An experimental course combining the scientific disciplines of the earth sciences with the artistic disciplines of creative photography to study the natural landscape and related ecosystems. The course will combine classroom lectures and laboratory demonstrations in geoscience with classes in the use of digital and film-based cameras and illustrated lectures on recognized achievements in landscape photography. Extensive field trips will be scheduled. Students will travel frequently, at times in pairs, other times in larger groups and as a full class, accompanied by one or both professors. The budget for the course includes funding both for travel and for photography expenses. Instructor Permission Required. Cross-list: FOTO 390. Mutually Exclusive: Cannot register for EEPS 309 if student has credit for ESCI 380.

EEPS 321 - EARTH AND PLANETARY SURFACE ENVIRONMENTS
Short Title: EARTH AND PLANETARY SURFACES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 (may be taken concurrently) or ESCI 101 or ENST 101 (may be taken concurrently) or EEPS 107 (may be taken concurrently) or ENST 107 (may be taken concurrently) or ESCI 201 or ENST 201 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or ESCI 108 or ESCI 110 (may be taken concurrently) or ESCI 111 (may be taken concurrently) or EEPS 110
Description: This course introduces the processes that shape Earth and other planetary surfaces as well as how records of these processes are preserved on landscapes and in sediment deposits. This course will cover a range of topics including surface hydrology, erosion, sediment transport, and chemical weathering and connect them to the development and interpretation of the stratigraphic record. All topics will be treated using descriptive (qualitative) approaches as well as a range of quantitative methods. This course requires a once-a-week 3-hour lab. Prerequisites EEPS 101/ENST 101 or EEPS 107/ENST 107 or EEPS 108 or EEPS 110 or EEPS 111 can be taken concurrently or with permission of instructor. Recommended Prerequisite(s): MATH 101, 102, PHYS 101 or 111, CHEM 121 or 151. Mutually Exclusive: Cannot register for EEPS 321 if student has credit for ESCI 321.

EEPS 322 - EARTH AND PLANETARY CHEMISTRY AND MATERIALS
Short Title: EARTH AND PLANETARY MATERIALS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 (may be taken concurrently) or ESCI 107 (may be taken concurrently) or ESCI 110 (may be taken concurrently) or ESCI 115 (may be taken concurrently) or ESCI 301 (may be taken concurrently) or EEPS 101 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or EEPS 110 (may be taken concurrently) or EEPS 111 (may be taken concurrently)
Description: This course introduces chemistry of the Solar System materials and geochemical cycles in Earth and rocky planets through whole planet scale cycles. Specific topics include rock-forming processes related to the chemical and physical differentiation of the solid Earth and terrestrial planets into their main reservoirs, e.g., continental crust, oceanic crust, mantle, and core. Beginning with the bulk composition of planetary bodies, and an overview of the chemical and petrologic properties of the rocks that make up each of these reservoirs, the basic principles of petrology and geochemistry will be presented in the context of the rock cycle, plate tectonics, as well as the origin of economically and societally important ore deposits. Some basic concepts as to how the whole planet scale processes influence the chemistry of surface environment of Earth will be also be introduced. A laboratory and field trip, where students will see petrologic and geochemical principles applied, will be required. Recommended Prerequisite(s): MATH 101 and MATH 102, PHYS 101 or 111, and CHEM 121 or CHEM 151. Mutually Exclusive: Cannot register for EEPS 322 if student has credit for ESCI 322.
EEPS 323 - EARTH AND PLANETARY STRUCTURE AND DYNAMICS
Short Title: EARTH AND PLANETARY STRUCTURE
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 (may be taken concurrently) or ESCI 107 (may be taken concurrently) or ESCI 108 (may be taken concurrently) or ESCI 110 (may be taken concurrently) or ESCI 111 (may be taken concurrently) or ESCI 115 (may be taken concurrently) or ESCI 301 (may be taken concurrently) or EEPS 101 (may be taken concurrently) or EEPS 108 (may be taken concurrently) or EEPS 110 (may be taken concurrently) or EEPS 111 (may be taken concurrently)
Description: This course covers the formation and differentiation of Earth and planetary bodies, the resulting structure and composition of planetary interiors, and the geophysical tools that reveal these details. The mechanics and deformation of the Earth's crust and lithosphere are presented, emphasizing rock strength and rheology, earthquakes and faulting, brittle and ductile deformation mechanisms and processes, and an introduction to tectonic systems. A required 3-hour lab and field trip will further develop skills for recognition, interpretation, and analysis of Earth structures and deformation processes. Prerequisites: ESCI 101 or ESCI 107 or ESCI 108 or ESCI 110 or ESCI 111 or ESCI 115 or ESCI 301 can be taken concurrently or with permission of instructor. Recommended Prerequisite(s): MATH 101 and (PHYS 101 or 111). These may be taken concurrently. Mutually Exclusive: Cannot register for EEPS 323 if student has credit for ESCI 323.

EEPS 324 - EARTH’S INTERIOR
Short Title: EARTH’S INTERIOR
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 or ESCI 115 or EEPS 101
Description: Formation of Earth and solar system, Earth differentiation and geochronology. Structural seismology and the composition of Earth's interior. Density, Earth's gravity, and the geoid. Heat flow and Earth energetics. Earth's core and magnetic field. Mantle convection and plate tectonics. Oceanic and continental crust. Recommended Prerequisite(s): MATH 212 and (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) or (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142). Mutually Exclusive: Cannot register for EEPS 324 if student has credit for ESCI 324.

EEPS 325 - OCEANS, ATMOSPHERES AND CLIMATE
Short Title: OCEANS, ATMOSPHERES & CLIMATE
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 322 or EEPS 322 and (ESCI 323 (may be taken concurrently) or EEPS 323 (may be taken concurrently)) and (ESCI 101 or ESCI 107 or ESCI 109 or ESCI 110 or ESCI 111 or ESCI 201 or EEPS 101 or EEPS 109 or EEPS 110 or EEPS 111 or EEPS 107
Description: Earth's climate system is characterized by complex interactions between the ocean, atmosphere, and land surfaces that are constantly evolving. This course will cover the physics and chemistry of the ocean and atmosphere to explore the mechanisms that control global and regional climate. Topics include: Earth's energy balance, atmosphere and ocean circulation, and biogeochemical climate feedbacks. We will also explore records of past climate (historical and pre-historical) and projections of future climate. Students will engage in lab-based activities to understand fluid flow in the atmosphere and ocean and complete problem sets including programming assignments. Mutually Exclusive: Cannot register for EEPS 325 if student has credit for ESCI 325.

EEPS 334 - THE EARTH LABORATORY
Short Title: EARTH LABORATORY
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 322 or EEPS 322) and (ESCI 323 (may be taken concurrently) or EEPS 323 (may be taken concurrently)) and (ESCI 101 or ESCI 107 or ESCI 109 or ESCI 110 or ESCI 111 or ESCI 115 or ESCI 301 or EEPS 101 or EEPS 108 or EEPS 110 or EEPS 111)
Description: A capstone course aimed at the interpretation of the Earth's history through the integration of geological observations in the field. Includes the introduction to the basic methods of description, recording, and interpretation of geologic features in the field, including rock and outcrop description, geologic mapping and cross-section construction. The course includes a required seven-day excursion during Spring Break. Taught every Spring. ESCI 323 may be taken concurrently with ESCI 334. Mutually Exclusive: Cannot register for EEPS 334 if student has credit for ESCI 334.
EEPS 340 - GLOBAL BIOGEOCHEMICAL CYCLES
Short Title: GLOBAL BIOGEOCHEMICAL CYCLES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the coupled nature of the biosphere, atmosphere and hydrosphere using as focal points elemental cycles such as those of carbon and nitrogen. This is a writing-intensive class, and will include 3 required Saturday field trips. Mutually Exclusive: Cannot register for EEPS 340 if student has credit for EBIO 340/EBIO 540/ESCI 340.

EEPS 390 - GEOLOGY FIELD CAMP
Short Title: GEOLOGY FIELD CAMP
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Field course typically involving geologic mapping in one or more of sedimentary, metamorphic, igneous rocks and structures. Not offered by Rice University. Students must take an approved field camp from another university and transfer credit to Rice University. Recommended Prerequisite(s): ESCI 334 or EEPS 334 Mutually Exclusive: Cannot register for EEPS 390 if student has credit for ESCI 390.

EEPS 391 - EARTH SCIENCE FIELD EXPERIENCE
Short Title: EARTH SCIENCE FIELD EXPERIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Comprises participating in an earth science expedition or research experience, follow-up analysis of some aspect of the data acquired, and a written report. Must be approved in advance by one of the department undergraduate advisors. Instructor Permission Required. Mutually Exclusive: Cannot register for EEPS 391 if student has credit for ESCI 391.

EEPS 401 - SEMINAR: UNDERGRADUATE HONORS THESIS
Short Title: SEM: UG HONORS THESIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to and presentation of original undergraduate research for Earth Science Undergraduate Honors Thesis candidates. Students will be introduced to basic research protocols and approaches, and will learn how to give presentations on their research, and gain experience presenting their research. Repeatable for Credit.

EEPS 403 - SEMINAR: DEPARTMENT RESEARCH
Short Title: SEM: DEPARTMENT RESEARCH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to current research in the Earth Science department. Students will learn how to give a presentation and will get experience presenting their research. Graduate/Undergraduate Equivalency: EEPS 603. Repeatable for Credit.

EEPS 404 - SEMINAR: DEPARTMENT RESEARCH
Short Title: SEM: DEPARTMENT RESEARCH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to current research in the Earth, Environmental & Planetary Sciences department. Students will learn how to give a presentation and will get experience presenting their research. Graduate/Undergraduate Equivalency: EEPS 604. Repeatable for Credit.

EEPS 405 - SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE
Short Title: SEM: CURR RESRCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 605. Repeatable for Credit.

EEPS 406 - SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE
Short Title: SEM: CURR RESRCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 606. Repeatable for Credit.
EEPS 410 - OPTICAL MINERALOGY AND PETROGRAPHY
Short Title: OPTICAL MINERALOGY & PETROGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, undergraduate professional or visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 322 or EEPS 322
Description: This is a lab course focused on the identification of minerals with petrographic microscopy. Principles of crystallography, mineral optics, and mineral chemistry will be covered in the first third of the course. The second third of the course will focus on the identification of minerals in igneous, metamorphic, and sedimentary rocks with emphasis on petrogenetic interpretation. The last third of the course will involve each student working on specific petrologic themes in the context of regional tectonics or magmatic processes. Taught every other Fall.
Graduate/Undergraduate Equivalency: EEPS 610. Mutually Exclusive: Cannot register for EEPS 410 if student has credit for EEPS 610/ESCI 410/ESCI 610.

EEPS 411 - CHARACTERIZATION OF EARTH, ENVIRONMENTAL, AND PLANETARY MATERIALS
Short Title: EARTH MATERIALS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, undergraduate professional or visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 111 or CHEM 121 or CHEM 151
Description: This course will provide an overview of various characterization methods used in geological, chemical, material science and other natural science and engineering research. The techniques that will be discussed include but not limited to electron beam methods (imaging and spectroscopy), X-ray methods, ion-beam analysis, vibrational spectroscopies, and Synchrotron-based techniques. Graduate/Undergraduate Equivalency: EEPS 611. Mutually Exclusive: Cannot register for EEPS 411 if student has credit for EEPS 611/ESCI 411/ESCI 611.

EEPS 412 - ADVANCED PETROLOGY
Short Title: ADVANCED PETROLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, undergraduate professional or visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 322 or EEPS 322
Description: Evaluation of the evolution of igneous rocks in the Earth's crust and mantle. Topics will include phase equilibria, experimental studies, and geochemistry. Labs will stress thin section petrography. Graduate/Undergraduate Equivalency: EEPS 612. Repeatable for Credit.

EEPS 413 - ADVANCED PETROLOGY II
Short Title: ADVANCED PETROLOGY II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, undergraduate professional or visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will bring together constraints from field geology, petrography, petrology, geochemistry, and geodynamics to tackle advanced A87 research questions of whole Earth processes that are relevant in the 21st century. The topics that may be covered include, but are not limited to, interplay between magmatic and tectonic processes, magma generation, migration, extraction, and dynamic stability in various settings, magmatic differentiation, volatiles and fluids exchange between various reservoirs and effects on long-term climate, ore genesis, and formation and modification of continents. Graduate/Undergraduate Equivalency: EEPS 613. Mutually Exclusive: Cannot register for EEPS 413 if student has credit for EEPS 613/ESCI 411/ESCI 611.

EEPS 414 - GEOCHEMISTRY OF EARTH'S SURFACE
Short Title: GEOCHEM EARTH'S SURFACE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, undergraduate professional or visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will cover concepts in aqueous geochemistry in the context of chemical weathering and Earth's major biogeochemical cycles. Central to this course will be weekly student-led discussions of scientific literature. Students will also learn basic numerical modeling and data analysis techniques using MATLAB, field methods, and basic analytical chemistry. Graduate/Undergraduate Equivalency: EEPS 615. Mutually Exclusive: Cannot register for EEPS 415 if student has credit for EEPS 615/ESCI 407/ESCI 607.

EEPS 415 - TRACE-ELEMENT AND ISOTOPE GEOCHEMISTRY FOR EARTH AND ENVIRONMENTAL SCIENCE
Short Title: TRACE-ELEMENT& ISOPILE GEOCHEM
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, undergraduate professional or visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the principles of trace-element and isotope geochemistry and their applications to high and low temperature processes in the earth. Topics to be covered are trace-element partitioning, basic quantum physics, radiogenic isotopic systems and stable isotope fractionation. Graduate/Undergraduate Equivalency: EEPS 617. Recommended Prerequisite(s): ESCI 322 or EEPS 322. Mutually Exclusive: Cannot register for EEPS 417 if student has credit for EEPS 617/ESCI 430/ESCI 630.
EEPS 418 - ISOTOPE GEOCHEMISTRY
Short Title: ISOTOPE GEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the principles and techniques of stable and radiogenic geochemistry in the geosciences. The course will begin by examining the fundamental physics relevant to isotope partitioning and decay, followed by a survey of different isotope systems and how they are used to study surface processes, element cycling, climate, and planetary science. Graduate/Undergraduate Equivalency: EEPS 618. Recommended Prerequisite(s): ESCI 322 or EEPS 322. Mutually Exclusive: Cannot register for EEPS 418 if student has credit for EEPS 618/ESCI 433/ESCI 633.

EEPS 420 - ORGANIC GEOCHEMISTRY
Short Title: ORGANIC GEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers the organic geochemistry of the natural environment. Topics include: production, transport, decomposition, and storage of organic matter in the marine and terrestrial environments, use of isotopes to track biogeochemical processes and natural and perturbed carbon cycle issues, including past and recent climate shifts. Graduate/Undergraduate Equivalency: EEPS 620. Mutually Exclusive: Cannot register for EEPS 420 if student has credit for EEPS 620/ESCI 425/ESCI 625.

EEPS 426 - GEOMORPHOLOGY
Short Title: GEOMORPHOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 321 or EEPS 321
Description: This course will investigate physical, chemical, and biological processes that contribute to the development and shaping of Earth's surface across a continuum of subaerial and subaqueous environments. Mandatory 4-day field trip is associated with this class. Graduate/Undergraduate Equivalency: EEPS 626. Mutually Exclusive: Cannot register for EEPS 426 if student has credit for EEPS 626/ESCI 431/ESCI 631. Repeatable for Credit.

EEPS 427 - MECHANICS OF SEDIMENT TRANSPORT
Short Title: MECHANICS-SEDIMENT TRANSPORT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Evaluation of sedimentary transport dynamics: physical interaction between fluid flow and sediment mobility, from grain to bedform scale; exploration of environments including rivers, estuaries, deltas, coastlines, and deserts. Examination of sediment transport for geology, environmental, and engineering applications; formation of diagnostic sedimentary features recognized in the stratigraphic record. Graduate/Undergraduate Equivalency: EEPS 627. Mutually Exclusive: Cannot register for EEPS 427 if student has credit for EEPS 627/ESCI 435/ESCI 635.

EEPS 428 - ANTARCTIC MARINE GEOLOGY
Short Title: ANTARCTIC MARINE GEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The study of marine geologic principles and processes using examples from the Southern Oceans. Graduate/Undergraduate Equivalency: EEPS 628. Recommended Prerequisite(s): ESCI 321 or EEPS 321. Mutually Exclusive: Cannot register for EEPS 428 if student has credit for EEPS 628/ESCI 425/ESCI 625.

EEPS 429 - PALEOCEANOGRAPHY
Short Title: PALEOCEANOGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 321 or EEPS 321
Description: The evolution of the ocean, climate and the global carbon cycle over the last 100 million years as recorded by the biology, chemistry and composition of deep-sea sediment. Graduate/Undergraduate Equivalency: EEPS 629. Recommended Prerequisite(s): ESCI 109 or EEPS 109. Mutually Exclusive: Cannot register for EEPS 429 if student has credit for EEPS 629/ESCI 421/ESCI 621.
EEPS 430 - SEQUENCE STRATIGRAPHY
Short Title: SEQUENCE STRATIGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 101 or ESCI 107 or ESCI 115 or ESCI 201 or ESCI 301 or ESCI 321 or ESCI 340 or EEPS 101 or EEPS 109 or EEPS 107 or EEPS 321 or EEPS 340
Description: This course introduces students to the concepts of sequence stratigraphy, including the theory behind this correlation technique. The course is divided between classic sequence stratigraphy using cores, well-logs, and outcrop examples and seismic sequence stratigraphy. Graduate/Undergraduate Equivalency: EEPS 630. Mutually Exclusive: Cannot register for EEPS 430 if student has credit for EEPS 630/ESCI 427/ESCI 627.

EEPS 432 - QUANTITATIVE HYDROGEOLOGY
Short Title: QUANTITATIVE HYDROGEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced course that will provide a quantitative overview of groundwater hydrology. Emphasis will be placed on mastering concepts in fluid mechanics and applying these concepts to water supply, environmental, and geological problems. Graduate/Undergraduate Equivalency: EEPS 632. Mutually Exclusive: Cannot register for EEPS 432 if student has credit for EEPS 632/ESCI 418/ESCI 618.

EEPS 433 - CLIMATE DYNAMICS
Short Title: CLIMATE DYNAMICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 or ESCI 101 or ENST 101 or EEPS 107 or ESCI 201 or ENST 201 or EEPS 109 or ESCI 109 or EEPS 321 or ESCI 321 or EEPS 340 or ESCI 340 or EEPS 448 or ESCI 442
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing. Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 434 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): EEPS 101 or ESCI 101 or ENST 101 or EEPS 107 or ESCI 201 or ENST 201 or EEPS 109 or ESCI 109 or EEPS 321 or ESCI 321 or EEPS 340 or ESCI 340 or EEPS 448 or ESCI 442
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing. Graduate/Undergraduate Equivalency: EEPS 634.

EEPS 435 - REMOTE SENSING
Short Title: REMOTE SENSING
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to electromagnetic remote sensing of the earth and other planets using passive and active methods. The course includes a computer lab component involving processing and interpretation of remote sensing imagery, and an individual project. Graduate/Undergraduate Equivalency: EEPS 635. Mutually Exclusive: Cannot register for EEPS 435 if student has credit for CEVE 450/EEPS 635/ESCI 450/ESCI 650.

EEPS 436 - GIS FOR SCIENTISTS AND ENGINEERS
Short Title: GIS FOR SCIENTISTS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Basic principles of Geographic Information Systems, with a focus on effectively applying the technology to the geosciences. Main platform of the class will be ESRI's ArcGIS, but a wide array of other tools will also be introduced. Material will be delivered via a blend of lecture and hands-on exercises. Graduate/Undergraduate Equivalency: EEPS 636. Mutually Exclusive: Cannot register for EEPS 436 if student has credit for EEPS 636/ESCI 452/ESCI 652.
EEPS 445 - EARTH AND PLANETARY INTERIORS
Short Title: EARTH AND PLANETARY INTERIORS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 101 or EEPS 101 or ESCI 107 or ESCI 108 or EEPS 108 or ESCI 110 or EEPS 110 or ESCI 111 or EEPS 111 or ESCI 115 or ESCI 301) and (ESCI 323 or EEPS 323) and MATH 211 and (PHYS 101 or PHYS 111 or PHYS 102 or PHYS 112)

EEPS 446 - SEISMOLOGY I
Short Title: SEISMOLOGY I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ESCI 101 or EEPS 101 or ESCI 107 or ESCI 108 or EEPS 108 or ESCI 110 or EEPS 110 or ESCI 111 or EEPS 111 or ESCI 115 or ESCI 301) and (ESCI 323 or EEPS 323) and MATH 211 and (PHYS 101 or PHYS 111 or PHYS 102 or PHYS 112)
Description: Principles of elastic wave propagation, the determination of Earth structure, and the understanding of earthquake physics. Graduate/Undergraduate Equivalency: EEPS 646. Mutually Exclusive: Cannot register for EEPS 446 if student has credit for EEPS 646/ESCI 461/ESCI 661.

EEPS 448 - EXPLORATION GEOPHYSICS
Short Title: EXPLORATION GEOPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 101 and (PHYS 101 or PHYS 102 or PHYS 111 or PHYS 112)
Description: Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of seismic, ground-penetrating radar, gravity, magnetic, and electrical data. Graduate/Undergraduate Equivalency: EEPS 648. Mutually Exclusive: Cannot register for EEPS 448 if student has credit for EEPS 648/ESCI 442/ESCI 642.

EEPS 450 - GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 101 and MATH 102
Description: Data sampling, aliasing, discrete Fourier transform, digital filter design techniques, z-transform, and discrete Hilbert transform are introduced. Deconvolution, velocity filters, polarization filter, stacking, beam forming and migration techniques will be taught together with their application in geophysical studies. Graduate/Undergraduate Equivalency: EEPS 650. Mutually Exclusive: Cannot register for EEPS 450 if student has credit for EEPS 650/ESCI 440/ESCI 640.

EEPS 451 - GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211

EEPS 454 - INTRODUCTION TO SEISMIC INTERPRETATION: STRUCTURAL STYLES AND SEISMIC STRATIGRAPHY
Short Title: 2D SEISMIC STRUCTURE AND STRAT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ESCI 442 (may be taken concurrently) or EEPS 448 (may be taken concurrently)
Description: This course will introduce students to analysis of sub-regional structural and stratigraphic frameworks. We will utilize the interpretation of 2D seismic profiles to reconstruct basin history and discuss implications for petroleum systems. Students will gain an understanding of a variety of structural and stratigraphic styles, as expressed on seismic data. Instructor Permission Required. Graduate/Undergraduate Equivalency: EEPS 654. Mutually Exclusive: Cannot register for EEPS 454 if student has credit for EEPS 654.
EEPS 455 - REFLECTION SEISMIC DATA PROCESSING  
Short Title: REFLEC SEISMIC DATA PROCESSING  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ESCI 442 or EEPS 448  
Description: Experience with processing reflection seismic data. Includes seismic data organization, velocity analysis, stacking, filtering, deconvolution, migration, and display, using the Center for Computational Geophysics facility's seismic processing system(s).

EEPS 456 - 3D SEISMIC REFLECTION DATA INTERPRETATION  
Short Title: 3D SEISMIC INTERPRETATION  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Course Level: Undergraduate Upper-Level  
Description: Workstation-based geologic interpretation of 3D seismic reflection data. The course will focus on interpreting horizons and faults tying interpretation to well data, analyzing seismic attributes, and other relevant topics. Emphasis will be placed on workflows utilized in hydrocarbon exploration. Mutually Exclusive: Cannot register for EEPS 456 if student has credit for ESCI 428.

EEPS 457 - ENVIRONMENTAL & APPLIED ROCK PHYSICS  
Short Title: APPLIED ROCK PHYSICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (MATH 101 or MATH 102) and (PHYS 101 or PHYS 102 or PHYS 111) and CAAM 210  
Description: Rock physics, the study of the impact of rock microstructure, mineralogy, fluids, stress state, and diagenetic features on wave propagation in porous media. Understanding the use of such relationships for quantitative analysis of seismic datasets. Applications to geologic carbon storage, permafrost characterization, geothermal systems, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 658. Recommended Prerequisite(s): Knowledge of applied geophysics, seismology, continuum mechanics, differential equations, and petrology will expand the value of the material. Mutually Exclusive: Cannot register for EEPS 458 if student has credit for EEPS 658/ESCI 456/ESCI 665.

EEPS 458 - ENVIRONMENTAL & APPLIED ROCK PHYSICS  
Short Title: APPLIED ROCK PHYSICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (MATH 101 or MATH 102) and (PHYS 101 or PHYS 102 or PHYS 111) and CAAM 210  
Description: Rock physics, the study of the impact of rock microstructure, mineralogy, fluids, stress state, and diagenetic features on wave propagation in porous media. Understanding the use of such relationships for quantitative analysis of seismic datasets. Applications to geologic carbon storage, permafrost characterization, geothermal systems, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 658. Recommended Prerequisite(s): Knowledge of applied geophysics, seismology, continuum mechanics, differential equations, and petrology will expand the value of the material. Mutually Exclusive: Cannot register for EEPS 458 if student has credit for EEPS 658/ESCI 456/ESCI 665.

EEPS 459 - WELL LOGGING AND PETROPHYSICS  
Short Title: WELL LOGGING AND PETROPHYSICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Basics of wireline logging and logging while drilling including borehole environment, resistivity, radiation, thermal, and elastic wave measurements and measuring tools. Building from this introduction, basic interpretation of logging data and formation evaluation will be studied. Graduate/Undergraduate Equivalency: EEPS 659.

EEPS 460 - GLOBAL TECTONICS  
Short Title: GLOBAL TECTONICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Geometrical aspects of plate tectonics, the 3 traditional types of plate boundaries, instantaneous plate motions, earthquakes and faulting, space geodesy, geomagnetic reversals, paleomagnetic poles, "absolute" plate motion, true polar wander, driving forces, diffuse plate boundaries, plate nonrigidity, and rheology of the lithosphere. Graduate/Undergraduate Equivalency: EEPS 660.

EEPS 461 - STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS  
Short Title: TECTONIC SYSTEMS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ESCI 323 or EEPS 323  
Description: The distribution, origin, and evolution of various tectonic systems, and characterization of their structural and geophysical signatures, emphasizing crustal and lithospheric processes associated with tectonic deformation. Review of representative global examples of convergent and collisional margins, divergent and passive margins, and transform margins. Graduate/Undergraduate Equivalency: EEPS 661.

EEPS 462 - TECTONOPHYSICS  
Short Title: TECTONOPHYSICS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 102 or MATH 106 or PHYS 102 or PHYS 112  
Description: Applications of continuum physics to the deformation, flexure, heat transfer, and gravity field of the lithosphere. Graduate/Undergraduate Equivalency: EEPS 662. Recommended Prerequisite(s): MATH 212.
EEPS 464 - INTRODUCTION TO THE HEAT AND MASS TRANSPORT PROCESSES OF PLANETARY INTERIORS
Short Title: GEODYNAMICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the use of continuum mechanics to solve fundamental problems related to mass and energy transport problems arising in the study of the solid Earth, planets and moons. Topics include: heat conduction, convective heat transfer, planetary thermal evolution, geological fluid dynamics, flow through porous media, rheology of planetary materials. Graduate/Undergraduate Equivalency: EEPS 664.

EEPS 465 - ROCK DEFORMATION AND RHEOLOGY
Short Title: ROCK DEFORMATION AND RHEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MATH 212
Description: Advanced course in the foundations of fluid mechanics and its application to Earth science. Aspects of continuum mechanics, heat and mass transfer, and the rheologic behavior of materials will be covered in developing the fundamental laws that describe fluid motion. Applications include atmospheric dynamics, mantle and lithospheric dynamics, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 665. Mutually Exclusive: Cannot register for EEPS 465 if student has credit for EEPS 665/ESCI 460/ESCI 660.

EEPS 466 - GEOMECHANICS
Short Title: GEOMECHANICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 667.

EEPS 467 - GEOMECHANICS
Short Title: GEOMECHANICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 667.

EEPS 468 - VOLCANOES
Short Title: VOLCANOES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to volcanoes and associated physical processes. Conceptual and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 668.

EEPS 469 - PLANETARY VOLCANISM
Short Title: PLANETARY VOLCANISM
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will cover the broad range of volcanic phenomena in the solar system, via weekly readings of, and student presentations on, classic and recent papers. Topics include: Composition (basaltic, silicic, unusual, carbonatite), cryovolcanism, structure (caldera, rift zones, volcanic spreading radiating dike systems, magma chambers, and sill complexes), and dynamics (eruption mechanism, effusive vs. explosive, volatiles and atmospheres/oceans). The planetary settings to be considered include Earth, Venu, Mars, Mercury, Moon, large asteroids and outer planet satellites. Graduate/Undergraduate Equivalency: EEPS 669.

EEPS 471 - EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS
Short Title: EARTH SYSTEMS MODELING I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 111 or CHEM 121 or PHYS 101 or PHYS 102
Description: A model is a simplified representation of something. Scientific models range from conceptual to physical to mathematical. In Earth and planetary science, one is often concerned with modeling interactions between physical, chemical, and biological components, i.e., with modeling systems. This class will cover the fundamentals of scientific modeling with a focus on Earth systems. Graduate/Undergraduate Equivalency: EEPS 671. Recommended Prerequisite(s): MATH 211. Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 472</td>
<td>EARTH SYSTEMS MODELING: NUMERICAL TECHNIQUES AND APPLICATIONS</td>
<td>Short Title: NUMERICAL METHODS EARTH SYSTEM</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>CHEM 111 or CHEM 121 or PHYS 101 or PHYS 102</td>
<td>Introduction to numerical methods with applications in Earth Science using Matlab and COMSOL. Much of the class is spent in the computer lab learning Matlab and COMSOL, followed by hands-on exercises. Graduate/Undergraduate Equivalency: EEPS 672. Recommended Prerequisite(s): MATH 211. Mutually Exclusive: Cannot register for EEPS 472 if student has credit for EEPS 672/ESCI 472/ESCI 672.</td>
</tr>
<tr>
<td>EEPS 477</td>
<td>SPECIAL TOPICS</td>
<td>Short Title: SPECIAL TOPICS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Independent Study, Seminar, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory</td>
<td>1-4</td>
<td></td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Topics and credit hours vary each semester. Contact the department for current semester's topic(s). Repealable for Credit.</td>
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<tr>
<td>EEPS 481</td>
<td>UNDERGRADUATE RESEARCH IN EARTH SCIENCE</td>
<td>Short Title: UNDERGR Resarch EARTH SCIENCE</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Research</td>
<td>1-6</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Advanced work adapted to the needs of the individual undergraduate student reading. Instructor Permission Required. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 484</td>
<td>DECISION MAKING AND ECONOMICS IN THE ENERGY INDUSTRY</td>
<td>Short Title: DECISION MAKING AND ECONOMICS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>This course will provide students with an understanding of how energy projects are evaluated. Topics include resource-size determination, geologic and economic risk, discounted cash-flow economics, and other common methods used in decision making. Emphasis will be placed on working in teams to understand basic concepts and sensitivities. Graduate/Undergraduate Equivalency: EEPS 684. Recommended Prerequisite(s): (EEPS 321 or ESCI 321) and (EEPS 323 or ESCI 323).</td>
</tr>
<tr>
<td>EEPS 486</td>
<td>PETROLEUM INDUSTRY ECONOMICS AND MANAGEMENT</td>
<td>Short Title: PETROLEUM IND ECONOMICS MGMT</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Topics covered include resource size determination; geologic risk analysis; establishing minimum economic thresholds; economic chance factors; the concepts of present worth, investment efficiency, rates of return. Price forecasting, cost inflation are discussed. Graduate/Undergraduate Equivalency: EEPS 686. Recommended Prerequisite(s): ESCI 415 or EEPS 484</td>
</tr>
<tr>
<td>EEPS 488</td>
<td>ECONOMIC GEOLOGY MINERAL DEPOSITS</td>
<td>Short Title: ECON GEO MINERAL DEPOSITS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>An overview of metallic and nonmetallic mineral deposits, theories of their origin, and classification. The impact of government regulation, economics, production practices, and exploration will be considered. Graduate/Undergraduate Equivalency: EEPS 688.</td>
</tr>
<tr>
<td>EEPS 491</td>
<td>SPECIAL STUDIES FOR UNDERGRADS</td>
<td>Short Title: SPECIAL STUDY FOR UNDERGRADS</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Research</td>
<td>1-6</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>Work in Earth Science adapted to the needs of individual undergraduate research. Instructor Permission Required. Repeatable for Credit.</td>
</tr>
<tr>
<td>EEPS 499</td>
<td>GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS</td>
<td>Short Title: GRAPHIC AND VISUAL DESIGN</td>
<td>Earth/Environmnt/Planetary Sci</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td></td>
<td>A significant portion of a scientist's time is spent solving visual design problems (graphics for papers, visual layouts for seminars, posters, teaching). Effective communication of scientific information is part of a scientist's skill set. This class is designed to enhance that skill set in terms of presenting visual information clearly, simply, and effectively. Graduate/Undergraduate Equivalency: EEPS 699. Repeatable for Credit.</td>
</tr>
</tbody>
</table>
EEPS 501 - SPECIAL STUDIES FOR GRADUATE STUDENTS
Short Title: SPECIAL STUDIES GRAD STUDENTS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced work in Earth science adapted to the needs of individual graduate students. Instructor Permission Required. Repeatable for Credit.

EEPS 510 - ADVANCED BIOGEOCHEMISTRY
Short Title: ADVANCED BIOGEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore carbon, nitrogen, and water cycling at the advanced level. Repeatable for Credit.

EEPS 511 - ADVANCED TOPICS IN GEOCHEMISTRY
Short Title: ADVANCED TOPICS IN GEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar Topics will vary.

EEPS 514 - SEMINAR: SPECIAL TOPICS IN HIGH TEMPERATURE GEOCHEMISTRY
Short Title: SEM:SPEC TOPICS HIGH TEMP
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 516 - FIELD TRIP FOR ADVANCED GEOLOGY AND PETROLOGY
Short Title: FIELD TRIP-ADV GEOL & PETROL
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ESCI 322 or EEPS 322) and ESCI 324 or EEPS 324
Description: A field trip course centered on weekly readings and several mapping projects carried out over the course of 1 week. The course will focus on western North American geology with emphasis on igneous and metamorphic petrology and structural geology in the context of regional tectonics. Field studies will be accompanied by quantitative data collection and analysis. Each student will be responsible for a small field-based project. Repeatable for Credit.

EEPS 525 - APPLIED SEDIMENTOLOGY I
Short Title: APPLIED SEDIMENTOLOGY I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics will vary.

EEPS 526 - APPLIED SEDIMENTOLOGY II
Short Title: APPLIED SEDIMENTOLOGY II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 505
Description: Advanced field studies in sedimentary geology. This course is intended to provide graduate students with experience working in sedimentary rocks by working on projects of their own design.

EEPS 527 - CARBONATE DEPOSITIONAL SYSTEMS
Short Title: CARBONATE DEPOSITIONAL SYSTEMS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 321 or EEPS 321
Description: Characterization of modern and ancient, shallow and deep sedimentary environments and facies. Includes examination of different depositional models in relation both to climate and to hydrographic and geographic settings, as well as three field trips. Meeting times will be determined after registration.

EEPS 528 - TOPICS ON CARBONATES
Short Title: TOPICS ON CARBONATES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): Math 211
Description: Topics may vary. 7-day field trip is required. Recommended Prerequisite(s): Math 211. Repeatable for Credit.

EEPS 530 - SILICICLASTIC DEPOSITIONAL SYSTEMS
Short Title: SILICICLASTIC DEPOSITION SYST
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of modern and ancient sedimentary environments with emphasis on field work. Depositional models examined in relation to climatic, oceanographic, and tectonic influences. Mutually Exclusive: Cannot register for EEPS 530 if student has credit for ESCI 504.
EEPS 531 - ADVANCED TOPICS IN BASIN SEDIMENTOLOGY AND STRATIGRAPHY
Short Title: ADV TOPICS: BASIN SEDIM & STRAT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate the processes that lead to the development of sedimentary stratigraphy across a continuum of depositional environments, including: fluvial, deltaic, coastal near-shore, continental shelf and slope and abyssal settings. Material will include transport linkages based on studies from modern settings, and will also cover the unique stratigraphic signatures preserved in ancient depositional systems.

EEPS 532 - ADVANCED TOPICS IN FLUVIAL-DELTAIC SEDIMENTOLOGY AND STRATIGRAPHY
Short Title: ADV TOPICS FLUVIAL-DELTAIC
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate physical and biological processes that contribute to the development of fluvial-deltaic environments. Materials will include deriving physical erosion, transport, and deposition laws, in order to evaluate modern processes that shape deltas and coastlines. The course will also focus on sedimentary deposits of fluvial-deltaic systems and preservation potential of the stratigraphy, by examining ancient depositional systems that are preserved in the rock record. The course will explore these topics by reviewing science literature that utilizes numerical, experimental, and field studies, to further theory on the development of fluvial-deltaic systems. Repeatable for Credit.

EEPS 533 - CLASTIC DEPOSITIONAL SYSTEMS FIELD TRIP
Short Title: FIELD TRIP CLASTIC DEP SYSTEMS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 504 or EEPS 530
Description: This is a five day trip that takes place in northwestern New Mexico. The trip is intended for students with strong interests in sedimentology and stratigraphy and focuses on field methods in interpretation of clastic sedimentary deposits in terms of their depositional environment, sequence stratigraphic occurrence and reservoir and source rock potential. The field area includes four different basins, which provides further opportunity for discussion of sedimentary basin evolution. The course also includes reading assignments and class presentations on topics related to the trip. Repeatable for Credit.

EEPS 535 - FIELD COURSE: APPLIED STRATIGRAPHY AND STRUCTURAL GEOLOGY
Short Title: FIELD COURSE: APPLIED STRAT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focus on how to interpret stratigraphy and structure from outcrop and subsurface data using a field transect from the orogenic belt to the foreland basin. By the end of the class, students should be able to measure/describe stratigraphic sections, construct a structural-stratigraphic framework, interpret structural profiles and integrate paleontology.

EEPS 537 - SEMINAR: TOPICS IN SEDIMENTOLOGY
Short Title: SEM: TOPICS SEDIMENTOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 538 - SEMINAR: CARIBBEAN
Short Title: SEM: CARIBBEAN
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 540 - CRYOSPHERE
Short Title: CRYOSPHERE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 321 or EEPS 321
Description: The growth and decay of glaciers play a large role in modulating Earth's climate system. This course focuses on physical glaciology, glacial geomorphology, the geologic record of glaciation, and glacier-climate interactions in the past, present, and future. Mutually Exclusive: Cannot register for EEPS 540 if student has credit for ESCI 503.
EEPS 541 - MOUNTAINS, CLIMATE AND GLOBAL CARBON CYCLING  
Short Title: CARBON CYCLE  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The purpose of this course is to discuss the origins of high elevations, such as mountains and epeirogenic uplifts, and their impacts of climate, global carbon cycling, and sedimentary processes. We will discuss the physics and chemistry of building mountains by magmatism and tectonic thickening as well as destroying them by erosion, chemical weathering, and delamination. We will explore perspectives from the deep Earth to the atmosphere. The seminar will meet once a week for two hours with the first hour being a thematic overview given by faculty or students and the second hour devoted to discussion of assigned papers. Recommended Prerequisite(s): (ESCI 321 or EEPS 321) and (ESCI 322 or EEPS 322) Repeatable for Credit.

EEPS 542 - MARINE GEOLOGY SYSTEMS  
Short Title: MARINE GEOLOGY SYSTEMS  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course examines areas of the seafloor recently targeted by large-scale science projects, such as the ocean drilling program. The purpose is to understand current ocean geoscience problems, the research being conducted to address these problems, and preliminary results.

EEPS 543 - EARTH'S ATMOSPHERE  
Short Title: EARTH'S ATMOSPHERE  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: How and why has Earth's atmosphere evolved over time? We will begin with an understanding of the atmosphere today - its physics, chemistry, and dynamics - work backwards in time to frontiers that are comparatively data-poor. We focus on empirical/observational constraints that drive theories of atmospheric evolution on Earth and other planets. Recommended Prerequisite(s): MATH 211 Repeatable for Credit.

EEPS 544 - SEMINAR: ADVANCED TOPICS IN HYDROGEOLOGY  
Short Title: SEM ADV TOPICS HYDROGEOLOGY  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 545 - THEORETICAL GLOBAL SEISMOLOGY I  
Short Title: THEORETICAL GLBL SEISMOLOGY I  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The course provides a path through theoretical seismology from a comprehensive analysis perspective. It consists of five parts: (i) The introduction of Earth's elastic-gravitational deformations through the calculus of variations, and the introduction of fluid-solid boundaries involving Earth's core using an action integral. (ii) The variational linearized or weak formulation of Earth's elastic-gravitational deformations. (iii) Energy estimates and well-posedness under appropriate conditions (that, for example, constrain the shapes of the major boundaries) of the system of elastic-gravitational equations describing the oscillations of the earth, and a Volterra equation justifying the extraction of the system describing acousto-elastic waves. (iv) The characterization of the spectrum of the earth, seismic normal modes and the essential spectrum associated with internal or gravity modes and embedded eigenfrequencies. The "asymptotic" resolution of the identity or seismic normal mode summation. In radial models such as PREM, a discussion of the Einstein-Brioullin-Keller quantization, trace formula and length spectrum. (v) Incorporation of dynamic ruptures, using rate- and state-dependent friction laws, generating seismic waves through an iterative coupling scheme and viscosity solutions. All parts will be illustrated with computational simulations using numerical formulations closely related to the analysis.

EEPS 546 - SEISMOLOGY II  
Short Title: SEISMOLOGY II  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Review of elastodynamics. Calculation of synthetic seismograms using asymptotic and finite-difference methods, wave propagation in layered and random media. Seismic migration and inversion using finite-difference. Kirchoff, and frequency-wave number methods.

EEPS 548 - 3D SEISMIC REFLECTION DATA INTERPRETATION  
Short Title: 3D SEISMIC REFLECTION DATA  
Department: Earth/Environmnt/Planetary Sci  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): ESCI 442 or ESCI 642 (may be taken concurrently) or EEPS 448 or EEPS 648 (may be taken concurrently)  
Description: Workstation-based geologic interpretation of 3D seismic reflection data. The course will focus on interpreting horizons and faults tying interpretation to well data, analyzing seismic attributes, and other relevant topics. Emphasis will be placed on workflows utilized in hydrocarbon exploration. Mutually Exclusive: Cannot register for EEPS 548 if student has credit for ESCI 558.
EEPS 550 - ADVANCED TOPICS IN THE SOLID EARTH I
Short Title: ADV TOPICS - SOLID EARTH I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary.

EEPS 551 - ADVANCED TOPICS IN THE SOLID EARTH II
Short Title: ADV TOPICS - SOLID EARTH II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 552 - ADVANCED TOPICS IN GEOPHYSICS
Short Title: ADV TOPICS IN GEOPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 555 - SEMINAR: SEISMOLOGY
Short Title: SEM: SEISMOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 556 - SEMINAR: SEISMIC MODELING AND INVERSE METHODS
Short Title: SEM:SEISMICMODEL&INVERSEMETHOD
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 557 - SEMINAR: GLOBAL SEISMOLOGY
Short Title: SEM:GLOBAL SEISMOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 560 - ADVANCED TECTONOPHYSICS/GLOBAL TECTONICS
Short Title: ADV TECTONOPHY/GLOBL TECTONICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 561 - TOPICS IN PLANETARY DYNAMICS AND MAGMATIC PROCESSES
Short Title: TOPICS IN PLANETARY DYNAMICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Instructor Permission Required. Repeatable for Credit.

EEPS 563 - THE PLANET MARS: FORMATION, DIFFERENTIATION, STRUCTURE AND EVOLUTION
Short Title: PLANET MARS: FORM, STRUCT, EVO
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar addresses fundamental issues in Mars science, spanning the disciplines of geology, geophysics, geochemistry and petrology. Sources range over six decades of data from flybys and orbiting spacecraft, landed stations and rovers, and laboratory analysis of meteorites and experiments. Readings will be supplemented by presentations from active Mars researchers.

EEPS 564 - THE MOON: ORIGIN AND EVOLUTION OF EARTH'S COMPANION
Short Title: THE MOON: ORIGIN & EVOLUTION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar addresses fundamental issues in Mars science, spanning the disciplines of geology, geophysics, geochemistry and petrology. Sources range from classic studies to recent results from orbiting spacecraft and laboratory analysis. Readings will be supplemented by presentations from active researchers in the field.
EEPS 567 - SEMINAR: ADVANCED TOPICS IN EARTH STRUCTURE AND DEFORMATION
Short Title: SEM:ADV TOPICS EARTH STRUCTURE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Please contact the department for more details. Repeatable for Credit.

EEPS 568 - SEMINAR: DEVELOPMENTS IN STRUCTURAL GEOLOGY
Short Title: SEM: DEV STRUCTURAL GEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 569 - SEMINAR: TECTONICS OF CONTINENTAL MARGINS
Short Title: SEM:TECTONICS-CONTINEN-MARGINS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Repeatable for Credit.

EEPS 571 - SEMINAR: TOPICS IN VOLCANOLOGY, MAGMATIC, AND HYDROTHERMAL PROCESSES
Short Title: SEM:PHYSICAL VOLCANOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Reading and discussions about current topics related to magma generation, migration, accumulation and eruption, as well as hydrothermal systems. Repeatable for Credit.

EEPS 572 - SEMINAR: ADVANCED TOPICS IN GEOFLUIDS, GEOTHERMICS, AND PLANETARY EVOLUTION
Short Title: SEM:GEOFLUIDS/HERMICS, PLANET
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary.

EEPS 578 - HYDROCARBON EXPLORATION
Short Title: HYDROCARBON EXPLORATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A student team will analyze and assess petroleum prospects in a sedimentary basin. Using a dataset of industry well/seismic data, the team will analyze data, identify/prioritize exploration targets, and prepare a formal presentation. Team will review their findings to industry judges for AAPG Imperial Barrel Award competition. Instructor Permission Required.

EEPS 579 - HYDROCARBON SYSTEMS ANALYSIS
Short Title: HYDROCARBON SYSTEMS ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course has lecture, lab, and field components. Students will learn about the components of the hydrocarbon system and how to rank areas of a basin for prospectively. Activities will be organized on a class and small group basis. Recommended Prerequisite(s): ESCI 323 or EEPS 323 or ESCI 427 or EEPS 430 or ESCI 627 or EEPS 630

EEPS 580 - SEMINAR: QUANTITATIVE PETROLEUM SYSTEMS ANALYSIS
Short Title: QUANT PETROLEUM SYS ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Course taught at the University of Houston. Repeatable for Credit.

EEPS 581 - MODERN EXPLORATION TECHNOLOGY
Short Title: MODERN EXPLORATION TECHNOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 442 or ESCI 642 or EEPS 448 or EEPS 648
Corequisite: EEPS 455
Description: Modern petroleum exploration techniques using geology, geophysics, and information technology methods. As new techniques emerge, the course will change to ensure that the course material mirrors the exploration industry.
EEPS 583 - DATA MANAGEMENT AND DATA GOVERNANCE
Short Title: DATA MANAGEMENT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An organization's data is recognized as the most vital asset of an enterprise, yet far too many fail to appreciate the legal and fiscal responsibilities and liabilities associated with it. This course covers the foundations, principles and methodology of data management and data governance to ensure such high quality data. Mutually Exclusive: Cannot register for EEPS 583 if student has credit for ESCI 549.

EEPS 584 - DATA SCIENCE ENVIRONMENTAL AND GEOSCIENCES
Short Title: DATA SCIENCE GEO-HYDRO-ENV APP
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on practical applications of common data science techniques to extract information from environmental, hydrologic and geological data. Lectures cover theories and examples with biweekly course work assignments. Students are required to complete a group project and presentation at the end of the course.

EEPS 585 - COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY
Short Title: COMP&DATA SCI ENERGY INDUSTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will be dedicated to problems and topics occurring in the energy industry, both in R&D and in operations. It has three main components: 1. Computational Geophysics 2. Reservoir Simulation Fundamentals 3. Machine Learning The first two components will be taught together in the first 10 weeks by dedicating half of the class-time to each subject. The Machine Learning component will, in part, build on the first two fundamental components and will be taught using the full class time. Computational Geophysics The participants in this geophysics part of the course are expected to be interested into learn how to use modern seismic data to image the subsurface with awareness of the computational costs of the techniques involved. The main focus will be given to current seismic imaging tools including cutting-edge Machine Learning (ML) applications. As the result of the successful completion of this course part, the course participants should be able to: (1) Understand the context and value of imaging tools for the hydrocarbon exploration business. (2) Relate the imaging tools with their computational costs for modern computer resources. (3) Properly use wave-based geophysical imaging and ML-based tools and (4) Understand main seismic processing and interpretation decisions. Applied Reservoir Simulation This component of the course will introduce participants to the practice of reservoir simulation. This class will be an applied course on reservoir simulation. Theoretical descriptions will be provided as warranted but will be kept to minimum. Class participants will learn about the fundamentals of applied reservoir simulation, use of a reservoir simulator, and how to select the proper model for a simulation study. This course will also cover data preparation, grid design, calibration of the reservoir model, forecasting of future performance, and interpretation of simulation results. Participants will also be introduced to the role of simulation in reservoir management, limitations of reservoir simulation, and the structural aspects of the models. Upscaling and recent advances simulation techniques will also be discussed. A realistic open-source reservoir simulation software will be used during the tutorials and computer projects. Machine Learning for Oil & Gas This part of the course will introduce the fundamentals of statistical learning, present a few of the popular learning paradigms and algorithms, and culminate in a small student project applying them to an oil reservoir data set using the R programming language (solutions to class problems will be accepted in any programming language or system). Much of the material presented here is also known under the names “Big Data”, “Data Analytics”, “Artificial Intelligence”, “Data Mining”, “Petroleum Data Driven Analytics” and other terms. Weeks 11 and 12 are theory only, weeks 13-15 will have small hands-on exercises incorporated and week 16 and 17 are dedicated to solving a simple oil reservoir problem using machine learning. Mutually Exclusive: Cannot register for EEPS 585 if student has credit for ESCI 570.
EEPS 586 - DATA SCIENCE METHODS AND DATA MANAGEMENT
Short Title: METHODS DATA SCIENCE/MGMT
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Data has become a critical asset for enabling organizations to be competitive, make better decisions and support diverse stakeholders. In recent years, new methods, tools and techniques for data management and processing have been developed. In this vein, ensuring that users have the knowledge and skills to profit from this wealth of information is critical. In this course, participants will learn a holistic overview about infrastructure, data life cycles, metadata standards, policies and techniques for successfully managing and using data for decision-making. The emphasis of the course will be from the perspective of the Oil & Gas and Energy Industries. Recommended Prerequisite(s): Basic programming, introductory statistics

EEPS 587 - SEM: PETROLEUM GEOCHEMISTRY - PRINCIPALS AND PRACTICE
Short Title: SEM: PETROLEUM GEOCHEMISTRY
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Course taught at the University of Houston. Repeatable for Credit.

EEPS 589 - TOPICS IN GEOMATHEMATICS
Short Title: TOPICS IN GEOMATHEMATICS
Department: Earth/Environment/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Content varies from year to year. Recommended Prerequisite(s): CAAM 335 and CAAM 336

EEPS 590 - SEMINAR: DEPARTMENT TYPE-LOCAL FIELD TRIPS
Short Title: SEM:DEPT-LOCAL-FIELD TRIPS
Department: Earth/Environment/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics vary depending on location of field trip. This is a Seminar/Trip type course combination. Undergraduates are required to take prerequisites to register for this course. Prerequisites do not apply for graduate students. Prerequisites may be taken concurrently. Additional fee may be required for this course. Instructor Permission Required. Repeatable for Credit.

EEPS 591 - SEMINAR: DEPARTMENT TYPE - LOCALE FIELD TRIP
Short Title: SEM: LOCALE FIELD TRIP
Department: Earth/Environment/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (ESCI 321 (may be taken concurrently) or EEPS 321 (may be taken concurrently)) and (ESCI 322 (may be taken concurrently) or EEPS 322 (may be taken concurrently)) and (ESCI 323 (may be taken concurrently) or EEPS 323 (may be taken concurrently)) and (ESCI 324 (may be taken concurrently) or EEPS 324 (may be taken concurrently))
Description: Seminar topics vary depending on location of field trip. This is a Seminar/Trip type course combination. Undergraduates are required to take prerequisites to register for this course. Prerequisites do not apply for graduate students. Prerequisites may be taken concurrently. Additional fee may be required for this course. Instructor Permission Required. Repeatable for Credit.

EEPS 592 - SPECIAL TOPICS IN EARTH, ENVIRONMENTAL & PLANETARY SCIENCES
Short Title: SPECIAL TOPICS IN EEPS
Department: Earth/Environment/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course deals with miscellaneous special topics not covered in other courses. Please contact the Earth Science department for the specific topics. Topics change each semester. Repeatable for Credit.

EEPS 594 - INTRODUCTION TO SCIENCE COMMUNICATION
Short Title: INTRO TO SCIENCE COMMUNICATION
Department: Earth/Environment/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the methods of communicating science to the public, by exposing them to professionals and researchers from various communication careers. It will teach students to convey science to the lay audience through several methods, such as media reporting, museum programming, and general public outreach.
EEPS 595 - PITCHING YOUR SCIENCE
Short Title: PITCHING YOUR SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for senior level graduate students who will be facing high-stakes professional speaking opportunities, such as impromptu job conversations, formal academic and professional presentations, conversations with journalists, and/or industrial job interviews. Students will construct and practice 90-second, 5-minute, and 15-minute presentations. Most assignments will take place in-class, with limited work occurring outside of the classroom. Requirement: Participation in the Rice University 90-second thesis competition. Instructor Permission Required.

EEPS 597 - GEOPHYSICAL FIELD WORK FOR EDUCATORS
Short Title: GEOPHYS FLD WK FOR EDUCATORS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for in-service K-12 teachers. Instructor Permission Required. Repeatable for Credit.

EEPS 604 - SEMINAR: DEPARTMENT RESEARCH
Short Title: SEM: DEPARTMENT RESEARCH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course consists of 2 weeks of geophysical field work and is designated for in-service K-12 teachers. Instructor Permission Required. Repeatable for Credit.

EEPS 605 - SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE
Short Title: SEM: CURR RESEARCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 405. Repeatable for Credit.

EEPS 606 - SEMINAR: CURRENT RESEARCH IN EARTH SCIENCE
Short Title: SEM: CURR RESEARCH EARTH SCIENCE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of lectures and paper discussions in various areas of Earth science. Graduate/Undergraduate Equivalency: EEPS 406. Repeatable for Credit.

EEPS 610 - OPTICAL MINERALOGY AND PETROGRAPHY
Short Title: OPTICAL MINERALOGY & PETROGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a lab course focused on the identification of minerals with petrographic microscopy. Principles of crystallography, mineral optics, and mineral chemistry will be covered in the first third of the course. The second third of the course will focus on the identification of minerals in igneous, metamorphic, and sedimentary rocks with emphasis on petrogenetic interpretation. The last third of the course will involve each student working on specific petrologic themes in the context of regional tectonics or magmatic processes. Taught every other Fall. Graduate/Undergraduate Equivalency: EEPS 410. Mutually Exclusive: Cannot register for EEPS 610 if student has credit for EEPS 410/ESCI 410/ESCI 610.
EEPS 611 - CHARACTERIZATION OF EARTH, ENVIRONMENTAL, AND PLANETARY MATERIALS
Short Title: MATERIALS CHARACTERIZATION
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide an overview of various characterization methods used in geological, chemical, material science and other natural science and engineering research. The techniques that will be discussed include but not limited to electron beam methods (imaging and spectroscopy), X-ray methods, ion-beam analysis, vibrational spectroscopies, and Synchrotron-based techniques. Graduate/Undergraduate Equivalency: EEPS 411. Mutually Exclusive: Cannot register for EEPS 611 if student has credit for EEPS 411/ESCI 419/ESCI 619.

EEPS 612 - ADVANCED PETROLOGY
Short Title: ADVANCED PETROLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evaluation of the evolution of igneous rocks in the Earth's crust and mantle. Topics will include phase equilibria, experimental studies, and geochemistry. Labs will stress thin section petrography. Graduate/Undergraduate Equivalency: EEPS 412. Repeatable for Credit.

EEPS 613 - ADVANCED PETROLOGY II
Short Title: Advanced Petrology II
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will bring together constraints from field geology, petrography, petrology, geochemistry, and geodynamics to tackle advanced A87 research questions of whole Earth processes that are relevant in the 21st century. The topics that may be covered include, but are not limited to, interplay between magmatic and tectonic processes, magma generation, migration, extraction, and dynamic stability in various settings, magmatic differentiation, volatiles and fluids exchange between various reservoirs and effects on long-term climate, ore genesis, and formation and modification of continents. Graduate/Undergraduate Equivalency: EEPS 413. Mutually Exclusive: Cannot register for EEPS 613 if student has credit for EEPS 413.

EEPS 615 - GEOCHEMISTRY OF EARTH'S SURFACE
Short Title: GEOCHEM EARTH'S SURFACE
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the principles and techniques of stable and radiogenic isotopes in the geosciences. The course will begin by examining the fundamental physics relevant to isotope partitioning and decay, followed by a survey of different isotope systems and how they are used to study surface processes, element cycling, climate, and planetary science. Graduate/Undergraduate Equivalency: EEPS 415. Recommended Prerequisite(s): ESCI 322 or EEPS 322 Mutually Exclusive: Cannot register for EEPS 618 if student has credit for EEPS 418/ESCI 433/ESCI 633.
**EEPS 620 - ORGANIC GEOCHEMISTRY**
Short Title: ORGANIC GEOCHEMISTRY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the organic geochemistry of the natural environment. Topics include: production, transport, decomposition, and storage of organic matter in the marine and terrestrial environments, use of isotopes to track biogeochemical processes and natural and perturbed carbon cycle issues, including past and recent climate shifts. Graduate/Undergraduate Equivalency: EEPS 420. Mutually Exclusive: Cannot register for EEPS 620 if student has credit for EEPS 420/ESCI 425/ESCI 625.

**EEPS 625 - PLANETARY SURFACE PROCESSES**
Short Title: PLANETARY SURFACE PROCESSES
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to expand understanding of geologic processes by considering how common or distinctive different geologic processes are on Earth compared to other bodies throughout the solar system. Students will leave the course with an appreciation for the types of surface processes that dominate different bodies throughout the solar system. How does the surface of Earth compare to the surfaces of other bodies in our solar system? How can we best extrapolate our understanding of Earth to other bodies? What do we learn about Earth from such comparisons? Mutually Exclusive: Cannot register for EEPS 625 if student has credit for ESCI 425/ESCI 625.

**EEPS 626 - GEOMORPHOLOGY**
Short Title: GEOMORPHOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate physical, chemical, and biological processes that contribute to the development and shaping of Earth’s surface across a continuum of subaerial and subaqueous environments. Mandatory 4-day field trip is associated with this class. Graduate students will be assigned exercises more challenging than those assigned to undergraduate students. Graduate/Undergraduate Equivalency. EEPS 426. Mutually Exclusive: Cannot register for EEPS 626 if student has credit for EEPS 426/ESCI 431/ESCI 631. Repeatable for Credit.

**EEPS 627 - MECHANICS OF SEDIMENT TRANSPORT**
Short Title: MECHANICS-SEDIMENT TRANSPORT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the concepts of sequence stratigraphy and the power behind this correlation technique. The course is divided between classic sequence stratigraphy using cores, well-logs, and outcrop examples and seismic sequence stratigraphy. Graduate/Undergraduate Equivalency: EEPS 430. Mutually Exclusive: Cannot register for EEPS 620 if student has credit for EEPS 420/ESCI 435/ESCI 635.

**EEPS 628 - ANTARCTIC MARINE GEOLOGY**
Short Title: ANTARCTIC MARINE GEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of marine geologic principles and processes using examples from the Southern Oceans. Graduate/Undergraduate Equivalency.EEPS 428. Mutually Exclusive: Cannot register for EEPS 628 if student has credit for EEPS 428/ESCI 423/ESCI 623.

**EEPS 629 - PALEOCEANOGRAPHY**
Short Title: PALEOCEANOGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The evolution of the ocean, climate and the global carbon cycle over the last 100 million years as recorded by the biology, chemistry and composition of deep-sea sediment. Graduate/Undergraduate Equivalency. EEPS 429. Mutually Exclusive: Cannot register for EEPS 629 if student has credit for EEPS 429/ESCI 421/ESCI 621.

**EEPS 630 - SEQUENCE STRATIGRAPHY**
Short Title: SEQUENCE STRATIGRAPHY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will investigate physical, chemical, and biological processes that contribute to the development and shaping of Earth’s surface across a continuum of subaerial and subaqueous environments. Mandatory 4-day field trip is associated with this class. Graduate students will be assigned exercises more challenging than those assigned to undergraduate students. Graduate/Undergraduate Equivalency. EEPS 426. Mutually Exclusive: Cannot register for EEPS 626 if student has credit for EEPS 426/ESCI 431/ESCI 631. Repeatable for Credit.
EEPS 632 - QUANTITATIVE HYDROGEOLOGY
Short Title: QUANTITATIVE HYDROGEOLOGY
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced course that will provide a quantitative overview of groundwater hydrology. Emphasis will be placed on mastering concepts in fluid mechanics and applying these concepts to water supply, environmental, and geological problems. Graduate/Undergraduate Equivalency: EEPS 432. Mutually Exclusive: Cannot register for EEPS 632 if student has credit for EEPS 432/ESCI 418/ESCI 618.

EEPS 633 - CLIMATE DYNAMICS
Short Title: CLIMATE DYNAMICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Earth's climate is a chaotic system, characterized by nonlinear interactions between the ocean, atmosphere, and land surfaces. This course will focus on the dynamics of the ocean and atmosphere, including the drivers of large-scale circulation, heat transport, and modes of natural variability. We will also explore projections of future climate change scenarios and records of historical climate change. Students will learn to post-process climate model output, analyze, and map these data using Python. Graduate/Undergraduate Equivalency: EEPS 433. Mutually Exclusive: Cannot register for EEPS 633 if student has credit for EEPS 433/ESCI 418/ESCI 618.

EEPS 634 - CLIMATE OF THE COMMON ERA
Short Title: CLIMATE OF THE COMMON ERA
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores climate variability and change over the past two thousand years to contextualize current rates and magnitudes of anthropogenic climate change on Earth. This reading and discussion-focused seminar course will cover paleoclimate archives such as corals, tree rings, and ice cores, as well as climate reconstruction methods, detection and attribution. Students will be provided with an overview of methods and key findings in paleoclimatology and paleoceanography, using high-resolution archives to explore past changes in global climate. Students will read 3-4 scientific papers each week, provide summaries and volunteer to lead discussions surrounding topics of their choosing. Graduate/Undergraduate Equivalency: EEPS 434.

EEPS 635 - REMOTE SENSING
Short Title: REMOTE SENSING
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to electromagnetic remote sensing of the Earth and other planets using passive and active methods. The course includes a computer lab component involving processing and interpretation of remote sensing imagery, and an individual project. Graduate/Undergraduate Equivalency: EEPS 435. Mutually Exclusive: Cannot register for EEPS 635 if student has credit for EEPS 435.

EEPS 636 - GIS FOR SCIENTISTS AND ENGINEERS
Short Title: GIS FOR SCIENTISTS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic principles of Geographic Information Systems, with a focus on effectively applying the technology to the geosciences. Main platform of the class will be ESRI's ArcGIS, but a wide array of other tools will also be introduced. Material will be delivered via a blend of lecture and hands-on exercises. Graduate/Undergraduate Equivalency: EEPS 436. Mutually Exclusive: Cannot register for EEPS 636 if student has credit for EEPS 436.

EEPS 645 - EARTH AND PLANETARY INTERIORS
Short Title: EARTH AND PLANETARY INTERIORS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

EEPS 646 - SEISMOLOGY I
Short Title: SEISMOLOGY I
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Principles of elastic wave propagation, the determination of Earth structure, and the understanding of earthquake physics. Graduate/Undergraduate Equivalency: EEPS 446. Mutually Exclusive: Cannot register for EEPS 646 if student has credit for EEPS 446/ESCI 461/ESCI 661.
EEPS 648 - EXPLORATION GEOPHYSICS
Short Title: EXPLORATION GEOPHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of seismic, ground-penetrating radar, gravity, magnetic, and electrical data. Graduate/Undergraduate Equivalency: EEPS 448. Mutually Exclusive: Cannot register for EEPS 648 if student has credit for EEPS 448/ESCI 442/ESCI 642.

EEPS 650 - GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of seismic, ground-penetrating radar, gravity, magnetic, and electrical data. Graduate/Undergraduate Equivalency: EEPS 448. Mutually Exclusive: Cannot register for EEPS 648 if student has credit for EEPS 448/ESCI 442/ESCI 642.

EEPS 651 - GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS
Short Title: GEOPHYSICAL DATA ANALYSIS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of seismic, ground-penetrating radar, gravity, magnetic, and electrical data. Graduate/Undergraduate Equivalency: EEPS 448. Mutually Exclusive: Cannot register for EEPS 648 if student has credit for EEPS 448/ESCI 442/ESCI 642.

EEPS 654 - INTRODUCTION TO SEISMIC INTERPRETATION: STRUCTURAL STYLES AND SEISMIC STRATIGRAPHY
Short Title: 2D SEISMIC STRUCTURE AND STRAT
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ESCI 642 or EEPS 648 (may be taken concurrently)
Description: This course will introduce students to analysis of sub-regional structural and stratigraphic frameworks. We will utilize the interpretation of 2D seismic profiles to reconstruct basin history and discuss implications for petroleum systems. Students will gain an understanding of a variety of structural and stratigraphic styles, as expressed on seismic data. Instructor Permission Required. Graduate/Undergraduate Equivalency: EEPS 454. Mutually Exclusive: Cannot register for EEPS 654 if student has credit for EEPS 454.

EEPS 658 - ENVIRONMENTAL & APPLIED ROCK PHYSICS
Short Title: APPLIED ROCK PHYSICS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the principles and procedures involved in geophysical exploration. Includes acquisition, processing, and interpretation of seismic, ground-penetrating radar, gravity, magnetic, and electrical data. Graduate/Undergraduate Equivalency: EEPS 448. Mutually Exclusive: Cannot register for EEPS 648 if student has credit for EEPS 448/ESCI 442/ESCI 642.
EEPS 662 - TECTONOPHYSICS  
**Short Title:** TECTONOPHYSICS  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Applications of continuum physics to the deformation, flexure, heat transfer, and gravity field of the lithosphere. Graduate/Undergraduate Equivalency: EEPS 462.  

EEPS 664 - INTRODUCTION TO THE HEAT AND MASS TRANSPORT PROCESSES OF PLANETARY INTERIORS  
**Short Title:** GEODYNAMICS  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction to the use of continuum mechanics to solve fundamental problems related to mass and energy transport problems arising in the study of solid Earth, planets and moons. Topics include: heat conduction, convective heat transfer, planetary thermal evolution, geological fluid dynamics, flow through porous media, rheology of planetary materials. Graduate/Undergraduate Equivalency: EEPS 464.  

EEPS 665 - ROCK DEFORMATION AND RHEOLOGY  
**Short Title:** ROCK DEFORMATION AND RHEOLOGY  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Advanced course in the foundations of fluid mechanics and its application to Earth science. Aspects of continuum mechanics, heat and mass transfer, and the rheologic behavior of materials will be covered in developing the fundamental laws that describe fluid motion. Applications include atmospheric dynamics, mantle and lithospheric dynamics, and hydrogeology. Graduate/Undergraduate Equivalency: EEPS 465. Mutually Exclusive: Cannot register for EEPS 665 if student has credit for EEPS 465.  

EEPS 666 - GEOMECHANICS  
**Short Title:** GEOMECHANICS  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An examination of deformation and failure processes within the Earth's shallow crust, with a focus on rock and sediment mechanics, and associated fluid processes. Emphasis will be on geologic applications, including sediment consolidation, slope stability, fault mechanics, and earthquake nucleation and rupture. Graduate/Undergraduate Equivalency: EEPS 467.  

EEPS 668 - VOLCANOES  
**Short Title:** VOLCANOES  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction to volcanoes and associated physical processes. Conceptual and quantitative discussion of topics related to magma transport, magma storage, and volcanic eruptions. The course includes a 4-6 day field trip to California and Oregon. Graduate/Undergraduate Equivalency: EEPS 468.  

EEPS 669 - PLANETARY VOLCANISM  
**Short Title:** PLANETARY VOLCANISM  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 2  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This seminar will cover the broad range of volcanic phenomena in the solar system, via weekly readings of, and student presentations on, classic and recent papers. Topics include: Composition (basaltic, silicic, unusual, carbonatite), cryovolcanism, structure (caldera, rift zones, volcanic spreading radiating dike systems, magma chambers, and sill complexes), and dynamics (eruption mechanism, effusive vs. explosive, volatiles and atmospheres/oceans). The planetary settings to be considered include Earth, Venu, Mars, Mercury, Moon, large asteroids and outer planet satellites. Graduate/Undergraduate Equivalency: EEPS 469.  

EEPS 671 - EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS  
**Short Title:** EARTH SYSTEMS MODELING I  
**Department:** Earth/Environmnt/Planetary Sci  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A model is a simplified representation of something. Scientific models range from conceptual to physical to mathematical. In Earth and planetary science, one is often concerned with modeling interactions between physical, chemical, and biological components, i.e., with modeling systems. This class will cover the fundamentals of scientific modeling with a focus on Earth systems. Graduate/Undergraduate Equivalency: EEPS 471. Repeatable for Credit.
EEPS 688 - ECONOMIC GEOLOGY MINERAL DEPOSITS
Short Title: ECON GEOL MINERAL DEPOSITS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: An overview of metallic and nonmetallic mineral deposits, theories of their origin, and classification. The impact of government regulation, economics, production practices, and exploration will be considered. Graduate/Undergraduate Equivalency: EEPS 488.

EEPS 695 - GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS
Short Title: VISUAL DESIGN FOR SCIENTISTS
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Graduate
Description: A significant portion of a scientists time is spent solving visual design problems (graphics for papers, visual layouts for seminars, posters, teaching). Effective communication of scientific information is part of a scientist's skill set. This class is designed to enhance that skill set in terms of presenting visual information clearly, simply, and effectively. Repeatable for Credit.

EEPS 699 - GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS
Short Title: GRAPHIC AND VISUAL DESIGN
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Description: A significant portion of a scientists time is spent solving visual design problems (graphics for papers, visual layouts for seminars, posters, teaching). Effective communication of scientific information is part of a scientist's skill set. This class is designed to enhance that skill set in terms of presenting visual information clearly, simply, and effectively. Graduate/Undergraduate Equivalency: EEPS 499. Repeatable for Credit.

EEPS 800 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Earth/Environmnt/Planetary Sci
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Description: Thesis research. Recommended Prerequisite(s): Students must pass the preliminary exam before taking this course. Repeatable for Credit.
Economics (ECON)

ECON 100 - PRINCIPLES OF ECONOMICS
Short Title: PRINCIPLES OF ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the basic concepts of microeconomics and macroeconomics. Microeconomics component includes analysis of supply and demand, consumer and producer behavior, and competitive and noncompetitive market equilibria, with applications to current policy issues. Macroeconomics component provides an overview of the determination of national output, employment, interest rates, and inflation, and analyzes monetary fiscal policies and international trade. Designed for both non-majors and majors.

ECON 101 - INTRODUCTION TO MICROECONOMICS
Short Title: INTRODUCTION TO MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to microeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 111. Mutually Exclusive: Cannot register for ECON 101 if student has credit for ECON 111.

ECON 103 - INTRODUCTION TO MACROECONOMICS
Short Title: INTRODUCTION TO MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to macroeconomic analysis at a level suitable for non-majors. Applies only for transfer credit and requires departmental approval. Approved credit counts toward total credit hours required for graduation and for distribution, but does not count toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 112/ECON 113. Mutually Exclusive: Cannot register for ECON 103 if student has credit for ECON 112/ECON 113.

ECON 111 - AP/OTH CREDIT IN MICROECONOMICS
Short Title: AP/OTH CREDIT MICROECONOMICS
Department: Economics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in microeconomics, such as the Advanced Placement microeconomics exam, the International Baccalaureate higher-level economics exams, or the A-Level economics exam, or for an approved introductory microeconomics course. Approved credit counts toward total credit hours required for graduation, but does not count for distribution or toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 101. Mutually Exclusive: Cannot register for ECON 111 if student has credit for ECON 101.

ECON 113 - AP/OTH CREDIT IN MACROECONOMICS
Short Title: AP/OTH CREDIT MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in macroeconomics, such as the Advanced Placement macroeconomics exam, the International Baccalaureate higher-level economics exams, or the A-Level economics exam, or for an approved introductory macroeconomics course. Approved credit counts toward total credit hours required for graduation, but does not count for distribution or toward the ECON or MTEC majors. Mutually Exclusive: Cannot register for ECON 113 if student has credit for ECON 103. Mutually Exclusive: Cannot register for ECON 113 if student has credit for ECON 103.

ECON 200 - MICROECONOMICS
Short Title: MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 and (MATH 102 (may be taken concurrently) or MATH 106)
Description: Intermediate level analysis of theories of household behavior, including demand for consumer goods, labor supply, and savings/ investment decisions, and producer behavior including the supply of output and demands for labor, capital and other production inputs. Emphasizes individual and interactive decision making under resource constraints and discusses equilibria in competitive markets. MATH 102 may be taken concurrently with ECON 200. As much of the analysis in ECON 200 involves partial differentiation, MATH 212 is strongly recommended. Recommended Prerequisite(s): MATH 212 Mutually Exclusive: Cannot register for ECON 200 if student has credit for ECON 301.
ECON 203 - MACROECONOMICS  
**Short Title:** MACROECONOMICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 100  
**Description:** Analyzes aggregate performance of the national economy including output, inflation, interest rates, employment, the business cycle, monetary and fiscal policy, and more generally the role of government in influencing aggregate economic performance. Introduces both the traditional aggregate only approach to Macroeconomics and the more recent New Classical and New Keynesian micro-foundations approaches. Mutually Exclusive: Cannot register for ECON 203 if student has credit for ECON 303.

ECON 205 - INTRODUCTION TO GAME THEORY  
**Short Title:** INTRODUCTION TO GAME THEORY  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course provides an introduction to game theory, a branch of mathematics that studies decision-making by agents in situations where the outcome for each depends on the actions taken by all. Students will develop a familiarity with analytical tools that have found applications in, for example, economics and other social sciences, biology, computer science, and philosophy. Designed for students who do not wish to major in ECON or MTEC and does not apply to ECON or MTEC major requirements. Mutually Exclusive: Cannot register for ECON 205 if student has credit for ECON 300.

ECON 209 - APPLIED ECONOMETRICS  
**Short Title:** APPLIED ECONOMETRICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** (ECON 100 or ECON 200) and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)  
**Description:** Applied econometric methods: econometric theory with practical emphasis on modeling, estimation, and hypothesis testing. A computer lab one day a week focuses on empirical implementation of econometric methods using STATA software. Mutually Exclusive: Cannot register for ECON 209 if student has credit for ECON 309/ECON 446.

ECON 210 - BEHAVIORAL ECONOMICS  
**Short Title:** BEHAVIORAL ECONOMICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 100 or ECON 200  
**Description:** Examines behavioral economics, which seeks to insert more behavioral realism into economic theory by incorporating into economic models insights based on empirical observations from psychology, sociology, and neuroscience. Emphasizes attempts by behavioral economists to explain anomalies that depart from the predictions of standard economic theory. Topics include temptation and self-control, fairness and reciprocity, reference dependence, bounded rationality and choice under risk and uncertainty.

ECON 238 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ECON 239 - LAW AND ECONOMICS  
**Short Title:** LAW AND ECONOMICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 100 or ECON 200  
**Description:** Examines behavioral economics, which seeks to insert more behavioral realism into economic theory by incorporating into economic models insights based on empirical observations from psychology, sociology, and neuroscience. Emphasizes attempts by behavioral economists to explain anomalies that depart from the predictions of standard economic theory. Topics include temptation and self-control, fairness and reciprocity, reference dependence, bounded rationality and choice under risk and uncertainty.

ECON 248 - BUSINESS ECONOMICS  
**Short Title:** BUSINESS ECONOMICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** ECON 100 or ECON 200  
**Description:** Examines behavioral economics, which seeks to insert more behavioral realism into economic theory by incorporating into economic models insights based on empirical observations from psychology, sociology, and neuroscience. Emphasizes attempts by behavioral economists to explain anomalies that depart from the predictions of standard economic theory. Topics include temptation and self-control, fairness and reciprocity, reference dependence, bounded rationality and choice under risk and uncertainty.
ECON 260 - MICROECONOMICS AND PUBLIC POLICY
Short Title: MICROECONOMIC & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the microeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 270 - MACROECONOMICS AND PUBLIC POLICY
Short Title: MACROECONOMIC & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the macroeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 275 - INTERNATIONAL MACROECONOMICS AND PUBLIC POLICY
Short Title: INT MACRO & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: Applies insights learned from the macroeconomic component of ECON 100 to the analysis of public policy issues, stressing economic intuition rather than mathematical formulations. Designed for students who do not wish to major in ECON or MTEC, and does not apply toward ECON or MTEC major requirements.

ECON 280 - TRANSPORTATION, INFRASTRUCTURE AND LOGISTICS
Short Title: TRANSPORT, INFRASTRU & LOGISTS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 100 or ECON 200
Description: The health of an economy depends critically on the efficient flow of goods and products. This course will analyze the economic impacts of transportation, infrastructure and logistics from a policy perspective. Topics will include technological change, regulation versus deregulation, the impact of globalization, and the roles of government and agencies at various levels. Readings will include specific case studies as well as one or two books giving a broad overview of the importance of transportation policy. It is open to majors and non-majors, has a pre-requisite of ECON 100 or ECON 200, and provides three hours of university credit but does not count toward the ECON or MTEC majors.

ECON 299 - EXPERIENTIAL EDUCATION IN ECONOMICS
Short Title: EXPERIENTIAL EDUC IN ECONOMICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Economics or Mathematical Economic Analysis. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ECON 200
Description: Provides one hour of university credit for faculty-approved internship. Students must obtain approval from a member of the department’s undergraduate committee and must submit an offer letter from the internship provider as well as a letter indicating completion and satisfactory performance. Instructor Permission Required. Repeatable for Credit.

ECON 300 - GAME THEORY AND OTHER MICRO TOPICS FOR ECON MAJORS
Short Title: GAME THEORY, MICRO TOPICS/ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Advanced applied analysis of topics in microeconomics designed for students in the ECON major. Topics include the foundations and applications of game theory, the economics of choice under uncertainty, and information economics including issues of asymmetric information. Additional topics may include auction theory and mechanism design. Open to all majors other than MTEC. Mutually Exclusive: Cannot register for ECON 300 if student has credit for ECON 205.
ECON 305 - GAME THEORY AND OTHER MICRO TOPICS FOR MTEC MAJORS
Short Title: GAME THEORY, MICRO TOPICS/MTEC
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 307 or STAT 310 or STAT 315 or DSCI 301) and ECON 308
Description: Advanced theoretical analysis of topics in microeconomics, focusing on mathematical modeling. Topics include the foundations and applications of game theory, general equilibrium theory and applications, the economics of choice under uncertainty, and information economics including issues of asymmetric information. Additional topics may include auction theory and mechanism design. Open to all majors but designed for students in the MTEC major. Mutually Exclusive: Cannot register for ECON 305 if student has credit for ECON 405.

ECON 307 - PROBABILITY AND STATISTICS
Short Title: PROBABILITY & STATISTICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 102 or MATH 106
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Cross-list: STAT 310. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for ECON 307 if student has credit for BUSI 395.

ECON 308 - MATHEMATICAL ECONOMICS
Short Title: MATHEMATICAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (MATH 212 or (MATH 221 and MATH 222))
Description: Coverage of mathematical topics used in economics, such as linear algebra, optimization, and real analysis, with applications to fundamental topics in economic theory, constrained optimization, labor market dynamics, game theory and Leontief input-output model. Emphasizes logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs. Students must have either (1) made a grade of B- or higher in MATH 212 or MATH 221/MATH 222 taken at Rice, or (2) received transfer credit for MATH 212 or MATH 221/ MATH 222 and received approval of the course instructor. Mutually Exclusive: Cannot register for ECON 308 if student has credit for ECON 401.

ECON 310 - ECONOMETRICS
Short Title: ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 209 and ECON 308
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: STAT 376. Mutually Exclusive: Cannot register for ECON 310 if student has credit for ECON 409/STAT 400.

ECON 320 - PUBLIC POLICY AND SOCIAL PROGRAM EVALUATION
Short Title: EVALUATION OF SOCIAL PROGRAMS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 307 or STAT 310 or STAT 315 or SOSC 302
Description: This course covers quantitative methods to evaluate three aspects of public policy and social programs. The first aspect is the quality of the implementation: are public policy and social programs implemented according to plan? The second aspect is impact: are interventions impacting the populations or issues for which they were designed? The third aspect is cost: do the program benefits justify the costs? The course audience are students interested in innovation in public policy and the design of social programs that aim to reduce inequality and to increase prosperity.

ECON 343 - CORPORATE FINANCE
Short Title: CORPORATE FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 100 or ECON 200) and (STAT 280 or STAT 305 or STAT 310 or STAT 315 or ECON 307 or STAT 312 or POLI 395 or PSYC 339 or SOSC 302) and BUSI 305
Description: Corporate financial management including tools used to evaluate and select investment projects and the method of financing those investments. The influence of corporate control on investment decisions. The valuation of stocks, bonds and options using the time value of money, the trade-off between risk and return, and arbitrage. Mutually Exclusive: Cannot register for ECON 343 if student has credit for BUSI 343.
**ECON 355 - FINANCIAL MARKETS**

**Short Title:** FINANCIAL MARKETS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200  
**Description:** Principles governing U.S. and international equity and debt markets, and the interactions between such markets and national monetary and exchange rate policies. Focuses on the role of financial markets and institutions in the allocation and transfer of credit and risk, and examines various existing and suggested regulatory frameworks.

**ECON 365 - WORLD ECONOMIC HISTORY**

**Short Title:** WORLD ECONOMIC HISTORY  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 100 and ECON 200 and ECON 203  
**Description:** Study and analysis of world economy focusing on the economic expansion of Western countries between the 14th and 21st centuries. Emphasis on contextual changes in economy, geography, history, society, culture, religion and politics in determining economic leadership of certain economies, such as Italy, Portugal, Spain, the United Kingdom, Belgium, the Netherlands, France, Germany, Sweden, the United States and Japan. Cross-list: HIST 365.

**ECON 399 - INDEPENDENT RESEARCH**

**Short Title:** INDEPENDENT RESEARCH  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 203 and ECON 209 and (ECON 300 or ECON 305)  
**Description:** Independent research project under the supervision of a faculty member who must approve the topic. Consult the department website under "Independent Research" for additional details. Students must have a GPA of 3.0 or higher in the prerequisite courses and must have taken the 400-level course or courses most relevant to the research topic. Faculty advisors may require additional prerequisites. Instructor and department permission required. Not offered during the summer. Instructor Permission Required.

**ECON 415 - LABOR ECONOMICS**

**Short Title:** LABOR ECONOMICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 200  
**Description:** Empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and "hedonic" equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 515. Mutually Exclusive: Cannot register for ECON 415 if student has credit for ECON 515.

**ECON 418 - ECONOMIC FORECASTING**

**Short Title:** ECONOMIC FORECASTING  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 203 and ECON 209  
**Description:** Application of econometric techniques to problems in macroeconomics and financial economics. The course focuses on macroeconomic forecasting and test of economic theories using stationary and non-stationary time-series data. Methods include predictive regressions, vector autoregressions, impulse response functions, and variance decomposition. Tests and comparisons of forecast accuracy are also included. Projects will be completed in STATA.

**ECON 419 - ADVANCED TOPICS IN ECONOMETRICS**

**Short Title:** ADV TOPICS IN ECONOMETRICS  
**Department:** Economics  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ECON 310 or STAT 376  
**Description:** Introduction to advanced econometrics, with an emphasis on methods used in microeconomic applications. Methods covered are used in the estimation of the demand for goods and services, production functions, and for analyzing the impact of social programs.
ECON 422 - INTERNATIONAL ECONOMICS AND FINANCE
Short Title: INTERNATIONAL ECON & FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 203
Description: Studies the economic relationships among countries. Explores the sources of comparative advantage and reasons for trade policies. Examines foreign exchange and international capital markets and linkages between exchange rates, interest rates, and prices. Includes trade theory, tariffs, and other trade restrictions, an overview of historical and institutional developments, and current policy issues. Mutually Exclusive: Cannot register for ECON 422 if student has credit for ECON 420/ECON 421.

ECON 432 - POLITICAL ECONOMY
Short Title: POLITICAL ECONOMY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 300 or ECON 305)
Description: Analyzes income redistribution, taxation, the production of public goods, and other actions of the public sector as determined by a political process simultaneously with the economic process of exchange and production. Investigates the connection between public policies and the political forces that shape them.

ECON 435 - INDUSTRIAL ORGANIZATION
Short Title: INDUSTRIAL ORGANIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 300 or ECON 305) and (ECON 209 or ECON 310)
Description: A mathematical approach to topics in industrial organization and market design, including price discrimination, oligopoly, collusion, and auctions.

ECON 437 - ENERGY ECONOMICS
Short Title: ENERGY ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Cross-list: ENST 437. Graduate/Undergraduate Equivalency: ECON 601. Mutually Exclusive: Cannot register for ECON 437 if student has credit for ECON 601.

ECON 439 - ADVANCED TOPICS IN LAW AND ECONOMICS
Short Title: ADV TOPICS IN LAW AND ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Addresses the role of economics in understanding the legal system, in particular how the law allocates entitlements and risk in property, tort and contract law. Intended primarily for students who are considering attending law school and uses instruction methods appropriate for that goal.

ECON 441 - EMPIRICAL METHODS FOR INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL METHODS FOR IO
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 209
Description: Covers empirical methods for the analysis of markets and industries. Focuses on various topics related to incomplete information in industrial organization. Topics include markets, strategy, interactions among firms, and the pricing of products, including non-linear pricing.
ECON 443 - FINANCIAL ECONOMICS  
Short Title: FINANCIAL ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 305 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)  
Description: Economic analysis of the operation of financial markets from a mathematical and theoretical perspective. Topics include asset pricing, risk management, portfolio theory, arbitrage theory, and market efficiency. Emphasizes the application of the financial concepts to decisions faced by households and firms.

ECON 445 - MANAGERIAL ECONOMICS  
Short Title: MANAGERIAL ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200  
Description: Application of economics to the determination of the profitability of the firm. Includes organization theory and problems of control. A student may not receive credit for ECON 445 and ECON 245/ POLI 245.

ECON 449 - PRINCIPLES OF FINANCIAL ENGINEERING  
Short Title: FINANCIAL ENGINEERING  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (ECON 308 or MATH 211) and MATH 212 and (ECON 310 or STAT 376)  
Description: Covers the use of financial securities and derivatives to take or hedge financial risk positions, including most commonly used instruments, from simple forwards and futures to exotic options and swaptions. Studies the pricing of derivative securities with emphasis on the mechanics and uses of financial engineering methods. Mutually Exclusive: Cannot register for ECON 449 if student has credit for STAT 449.

ECON 450 - ECONOMIC DEVELOPMENT  
Short Title: ECONOMIC DEVELOPMENT  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and ECON 203  
Description: This course covers different dimensions of economic development, focusing on poverty, inequality, demography, and health. It provides an overview of the economies of less developed countries, the lives of the poor, and the theories for why some countries are rich and others are poor. It also describes how labor and credit markets function in poor countries, the consequences for health and education, and the role of institutions.

ECON 452 - RELIGION, ETHICS, AND ECONOMICS  
Short Title: RELIGION, ETHICS, & ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)  
Description: Reviews economic models of the demand, supply, and markets for religion, including the effects of economic conditions on religious choice and vice versa. Students will write a term paper on topics of their choosing, subject to professor's approval. Recommended Prerequisite(s): ECON 209 or ECON 310 or STAT 376.

ECON 455 - MONEY AND BANKING  
Short Title: MONEY AND BANKING  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ECON 200 and ECON 203  
Description: Micro-foundations of monetary, fiscal and financial theory. Examines the unique roles of money and of banking in providing the transactions mechanism and in the functioning of financial markets. Examines the use of valued fiat, unbacked money which appears to violate basic microeconomics, in the context of Samuelson's overlapping generations model, including the implications for monetary and fiscal policy and for inflation. Discusses bank runs and financial instability.
ECON 460 - ADVANCED TOPICS IN ECONOMIC DEVELOPMENT
Short Title: ADV TOPICS ECON DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and ECON 450
Description: Focuses on role of taxation, finance and international trade, foreign investment and foreign aid in economic development.

ECON 462 - ECONOMICS OF HUMAN CAPITAL
Short Title: ECONOMICS OF HUMAN CAPITAL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 320
Description: This course covers theory that describes the central role of human capital in determining economic growth and inequality, uses advanced econometric techniques to test if the theory is consistent with data, and presents insights for public policy that can improve human capital formation, increase economic growth and reduce social inequality.

ECON 470 - MARKET DESIGN
Short Title: MARKET DESIGN
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 307 or STAT 310 or STAT 315 or DSCI 301)
Description: Regulators, entrepreneurs and economists have recently been involved in the design of novel markets for radio spectrum, kidneys, on-line advertising, school choice, etc. This course utilizes game theory to provide the theoretical underpinning of such markets via real world examples, including the study of institutional details that can determine the success or failure of a market.

ECON 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture, Laboratory, Internship/Practicum, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ECON 479 - ECONOMIC MODELING AND PUBLIC POLICY
Short Title: ECONOMIC MODLG & PUBLIC POLICY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Examines the use of computational dynamic models to analyze the effects of economic policy reforms. Introduces computer programming methods to simulate household and firm behavior in partial and general equilibrium frameworks. Policy evaluation includes personal and corporate income taxes, Social Security, retirement savings incentives, and social insurance programs.

ECON 480 - ENVIRONMENTAL ECONOMICS
Short Title: ENVIRONMENTAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Uses economic theories of externalities and common property resources to analyze how markets, legal institutions, regulations, taxes and subsidies, and voluntary activity can affect the supply of environmental amenities, such as clean air, clean water, and wilderness areas. Also discusses methods for determining the demand for environmental amenities. Cross-list: ENST 480.

ECON 481 - HEALTH ECONOMICS
Short Title: HEALTH ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and (ECON 209 or ECON 310 or STAT 376)
Description: Study of determinants of health, including behavioral, economic and social factors and access to health care. Application of economics to understand health insurance, the hospital and physician markets, pharmaceuticals, and the health care system. Effects of regulation and methods of payment. Graduate/Undergraduate Equivalency: ECON 565. Mutually Exclusive: Cannot register for ECON 481 if student has credit for ECON 565.
ECON 483 - PUBLIC FINANCE
Short Title: PUBLIC FINANCE
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: Provides an economic analysis of tax policy, focusing on the current national debate regarding the relative merits of income and consumption-based taxes in terms of equity, efficiency, and simplicity. Analyzes tax effects on individual and business behavior and discusses general equilibrium modeling of the economic and distributional effects of alternative tax reforms. Special topics include optimal taxation, taxation of the family, estate taxation, taxation of electronic commerce, and state and local public finance.

ECON 484 - PUBLIC ECONOMICS
Short Title: PUBLIC ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200 and MATH 212
Description: Theory and evidence on government expenditure policy. Topics include the theory of public goods, education, state and local public goods, redistribution and welfare policy, cost-benefit analysis, social insurance programs such as social security and unemployment insurance, and health care policy.

ECON 485 - THE ECONOMICS OF SUSTAINABILITY, CONSERVATION, AND PANDEMICS
Short Title: ECON, CONSERVATION & PANDEMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 200
Description: This course will cover issues related to conservation, sustainability and pandemics from an economics point of view. Topics will include the need for conservation policies and planning, how science informs conservation strategies, incentives and the design of conservation agreements, and the role of deforestation and wildlife markets in pandemic emergence. Policies to reduce the likelihood of pandemic emergence, as well as the effects of pandemics like influenza, HIV, and COVID-19 on the global economy will also be discussed. Recommended Prerequisite(s): MATH 212

ECON 487 - RESEARCH IN ECONOMETRICS
Short Title: RESEARCH IN ECONOMETRICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 310 or STAT 376) and ECON 305
Description: Capstone course for MTEC majors whose primary interest is in econometrics. Review and analysis of seminal and current research in econometrics, including independent analysis by the student. Topics vary from year to year.
ECON 498 - HONORS PROGRAM IN ECONOMICS-I
Short Title: HONORS PROGRAM IN ECONOMICS-I
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 203 and (ECON 209 or ECON 310) and (ECON 300 or ECON 305)
Description: Research workshop open to ECON and MTEC majors. Students must have a GPA of at least 3.67 in all courses taken toward satisfying major requirements, and must have taken all ECON courses directly related to the topic of their research. Students develop a research idea, construct an economic model with testable hypotheses, test those hypotheses, and write and present an academic quality paper. Econometrics pre-requisite is ECON 209 for ECON majors and ECON 310 for MTEC majors.

ECON 499 - HONORS PROGRAM IN ECONOMICS-II
Short Title: HONORS PROGRAM IN ECONOMICS-II
Department: Economics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 498
Description: Continuation of ECON 498. University credit only.

ECON 501 - MICROECONOMICS I
Short Title: MICROECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Formal mathematical treatments of the classic topics in microeconomics: consumer and producer theory, choice under risk and uncertainty, revealed preference theory and general equilibrium theory. Introduces and uses mathematical tools that are the workhorses of economic theory: real analysis, constrained optimization, monotone comparative statics and fixed point theorems.

ECON 502 - MACROECONOMICS
Short Title: MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of static general equilibrium theory; elements of functional analysis for optimization; deterministic and stochastic difference equations, local stability analysis; introduction to Markov processes; dynamic optimization techniques, including stochastic optimal control theory, dynamic programing, and robust control; applications to growth theory, search, industrial organization, and monetary economics; dynamic stochastic general equilibrium modeling.

ECON 504 - COMPUTATIONAL ECONOMICS
Short Title: COMPUTATIONAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 505 and ECON 508 and ECON 510 and ECON 511 and MATH 321
Description: Numerical methods most commonly used in economics and their application to frontier research projects in economic modeling. Topics include optimization theory and numerical integration. Cross-list: STAT 604.

ECON 505 - FINANCIAL ECONOMICS I
Short Title: FINANCIAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502
Description: Introduction to asset pricing and portfolio choice theory. Covers mathematical analysis of single-period and dynamic models, including pricing by arbitrage, mean-variance analysis, factor models, dynamic optimization, recursive utility, and an introduction to continuous-time finance. Cross-list: BUSI 521.

ECON 507 - MATHEMATICAL ECONOMICS I
Short Title: MATHEMATICAL ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of this course is to provide the first-year PhD students in Economics with the essential mathematical tools. The course covers topics in real analysis, topology, linear algebra, etc. Aside from providing the mathematical tools, a primary aim of this course is to develop the level of mathematical sophistication necessary to conduct research in modern economics. The course will therefore emphasize logical clarity and mathematical rigor, along with the ability to follow and construct mathematical proofs.

ECON 508 - MICROECONOMICS II
Short Title: MICROECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and MATH 321
Description: Two modules: (1) Introduces students to the mathematical tools of game theory and the modeling of economic settings as games. Covers normal form games, extensive form games with perfect information, Bayesian games, and extensive form games with imperfect information; (2) introduces students to information economics and the theory of mechanism design. Applies tools from game theory and linear and non-linear
ECON 509 - TOPICS IN MICROECONOMICS
Short Title: TOPICS IN MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Discussion of selected topics in microeconomic theory. Repeatable for credit. The Spring 2021 topic was Psychology and Economics, especially individual choice under risk and uncertainty, reference-dependent preferences, temptation and self-control, other-regarding preferences, behavioral game theory, and bounded rationality. Repeatable for Credit.

ECON 510 - ECONOMETRICS I
Short Title: ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on critical analysis of the literature. Cross-list: STAT 610.

ECON 511 - ECONOMETRICS II
Short Title: ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: STAT 611.

ECON 512 - INTERNATIONAL TRADE THEORY
Short Title: INTERNATIONAL TRADE THEORY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Exploration of classical, neoclassical, and modern trade theory. Includes welfare aspects of trade such as the theory of commercial policy, with emphasis on applications.

ECON 514 - EMPIRICAL INDUSTRIAL ORGANIZATION
Short Title: EMPIRICAL INDUSTRIAL ORGANIZATION
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include structural analysis of auction, nonlinear pricing, insurance and bargaining data. Emphasizes the use of advanced econometric methods (nonparametric and semiparametric) to estimate and test models under incomplete information.

ECON 515 - LABOR ECONOMICS
Short Title: LABOR ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508
Description: Mathematical and statistical analysis of empirical evidence and theories relating to several features of labor markets. Topics covered may include fertility, health, criminal behavior, labor force participation, hours of work, education and training, geographical and inter-firm labor mobility, static and dynamic labor demand, unions, discrimination, government intervention in labor markets, and “hedonic” equilibria in labor markets. Graduate/Undergraduate Equivalency: ECON 415. Mutually Exclusive: Cannot register for ECON 515 if student has credit for ECON 415.

ECON 516 - EMPIRICAL MICROECONOMICS
Short Title: EMPIRICAL MICROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 511
Description: Overview of methods used in empirical microeconomic research. Examples are drawn from health economics, labor economics, and business economics. Emphasis is placed on designing econometric and statistical analyses to test economic hypotheses. Class projects will expand on analyses from previously published studies.

ECON 517 - EMPIRICAL INDUSTRIAL ORGANIZATION II
Short Title: EMPIRICAL INDUSTRIAL ORG II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines economic models of competition and industry structure. These include models of demand, supply, investment and entry. Special attention is paid to economic statistical modeling of industries and the use of price and game theory in industrial organization. Matching and market design are also covered.
ECON 518 - INTERNATIONAL MACROECONOMICS  
Short Title: INTERNATIONAL MACROECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Effects of fiscal and monetary policies on exchange rates and the current account and balance of payments. Includes exchange market efficiency, exchange rates and prices, LDC debt, and policy coordination.

ECON 519 - ECONOMIC GROWTH AND DEVELOPMENT  
Short Title: ECONOMIC GROWTH & DEVELOPMENT  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511  
Course Level: Graduate  
Description: Mathematical and statistical analysis of topics in microeconomic development and introduction to some frequently used applied econometric methods. Topics covered include poverty and inequality, health, education, fertility, marriage markets, and other gender issues. Special focus is given to intra-household bargaining models and their applications.

ECON 521 - MATCHING AND MARKET DESIGN  
Short Title: MATCHING AND MARKET DESIGN  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Prerequisite(s): ECON 501 and ECON 508 and ECON 510 and ECON 511  
Course Level: Graduate  
Description: This course begins with an overview of different matching markets (e.g., one-to-one or many-to-one AND with or without transfers AND centralized or decentralized) and the common empirical models; it then provides a relatively in-depth discussion of market design, both theoretical and empirical, for school choice and kidney transplants.

ECON 522 - PUBLIC ECONOMICS: TAX POLICY  
Short Title: PUBLIC ECONOMICS: TAX POLICY  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of the effects of taxation on individual and firm behavior, general equilibrium tax incidence analysis, optimal taxation theory, optimal implementation of tax reform, analysis of comprehensive income, and consumption taxes.

ECON 523 - DYNAMIC OPTIMIZATION  
Short Title: DYNAMIC OPTIMIZATION  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of dynamic optimization in discrete and continuous time, including numerical methods and applications to macroeconomics, finance and resource and energy economics.

ECON 547 - ADVANCED TOPICS IN ENERGY ECONOMICS  
Short Title: ADV TOPICS IN ENERGY ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Prerequisite(s): (ECON 301 or ECON 370) and (ECON 309 or ECON 446 or ECON 409 or ECON 400 or STAT 400) and ECON 437  
Course Level: Graduate  
Description: A detailed development and analysis of topics in energy modeling. Topics include optimal extraction of depletable resources, models of storables energy commodities, energy demand by end-use sector, models of non-competitive behavior, energy security and the relationship between energy and commodity prices. ECON 547 requires an additional assignment in addition to the assignments of ECON 447. Recommended Prerequisite(s): ECON 477 or ECON 401. Mutually Exclusive: Cannot register for ECON 547 if student has credit for ECON 447/ECON 604.

ECON 565 - HEALTH ECONOMICS  
Short Title: HEALTH ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Application of empirical and theoretical economic models to health and healthcare. Includes production, cost, demand and supply factors; methods of payment and effects of regulation. Topics include optimal design of health insurance markets, cost-benefit analysis of healthcare technologies, econometric evaluation of government regulations and reimbursement in the healthcare sector, and testing of hypothesis that explain rising prices and costs of healthcare. Graduate/Undergraduate Equivalency: ECON 481. Mutually Exclusive: Cannot register for ECON 565 if student has credit for ECON 481.
ECON 575 - TOPICS IN FINANCIAL ECONOMICS
Short Title: TOPICS IN FINANCIAL ECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 505
Description: Topics in asset pricing, corporate financial theory, and market microstructure, including asymmetric information, learning, heterogeneous priors, market frictions, nonstandard preferences, production models, q theory, real options, dynamic capital structure, quote-driven markets, order-driven markets, and dealer markets. Repeatable for Credit.

ECON 576 - TOPICS IN MACROECONOMICS
Short Title: TOPICS IN MACROECONOMICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion topics in macroeconomics. Repeatable for Credit.

ECON 577 - TOPICS IN ECONOMIC THEORY I
Short Title: TOPICS IN ECONOMIC THEORY I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of topics in advanced economic theory. Repeatable for Credit.

ECON 578 - TOPICS IN ECONOMETRICS I
Short Title: TOPICS IN ECONOMETRICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics in advanced econometrics. Repeatable for Credit.

ECON 579 - TOPICS IN ECONOMETRICS II
Short Title: TOPICS IN ECONOMETRICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 511
Description: Discussion of selected topics in advanced econometrics that focus on the mathematical and statistical modeling of such phenomena as (1) extended panel data methods; (2) spatial econometrics; (3) bootstrapping; (4) factor models, wavelets, smoothing-splines, sieves; (5) model averaging; (6) continuous and discrete dynamic programming models; (7) econometrics of auctions; (8) BLP methods of demand estimation; (9) structural and non-structural models of producer behavior; (10) point and set identification; (11) Bayesian Econometrics/Metropolis-Hastings MCMC algorithms. Repeatable for Credit.

ECON 592 - TOPICS IN POLICY AND APPLIED ECONOMICS
Short Title: TOP-POLICY&APPL'D ECON
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics and applied economics. Repeatable for Credit.

ECON 593 - WORKSHOP IN MICROECONOMICS
Short Title: WORKSHOP IN ECONOMICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 510 and ECON 505 and ECON 508 and ECON 511
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit. Repeatable for Credit.

ECON 594 - WORKSHOP IN ECONOMICS II
Short Title: WORKSHOP IN ECONOMICS II
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 508 and ECON 510
Description: Seminars on advanced topics in macroeconomics, microeconomics, econometrics and applied microeconomic theory, presented through guest lectures by leading researchers. Repeatable for credit. Repeatable for Credit.
ECON 596 - RESEARCH SEMINAR
Short Title: RESEARCH SEMINAR
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervises fourth-year and fifth-year Ph.D. students in their quantitative dissertation research in preparation for graduation. Students must present their own research at least once during the semester. Repeatable for Credit.

ECON 597 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Workshop prepares graduate students for completing innovative and original research. All second year graduate students must attend the workshop. Each week, a faculty member will give a brief lecture about their experience with research. Possible topics include how they came up with ideas, how those ideas evolved and became papers, how these papers proceeded through the publication process, etc. Alternatively, faculty members can present a broad overview of particular research areas and discuss outstanding questions in those areas. Instructor Permission Required. Repeatable for Credit.

ECON 598 - READINGS IN ADVANCED TOPICS
Short Title: READINGS IN ADVANCED TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Prepares second-year Ph.D. students to conduct quantitative research. After a critical review of existing economic models, statistical analysis of data and economic evaluations, students develop their own research agenda. Repeatable for Credit.

ECON 599 - SEMINAR WORKSHOP
Short Title: SEMINAR WORKSHOP
Department: Economics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Promotes graduate students’ attendance and active participation in the Econ 593 and Econ 594 seminar workshops. Each student is required to attend at least fifteen ECON 593/594 seminars per semester, write a brief report on each seminar presentation they attend, prepare to present a background paper for three of the seminars they plan to attend, and participate in post seminar discussions. Repeatable for Credit.

ECON 601 - ENERGY ECONOMICS I
Short Title: ENERGY ECONOMICS I
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces the energy sector to students, discusses key aspects of energy supply, demand and pricing, and is foundational for the MEECON degree. Topics include optimal extraction of depletable resources, investment in energy-using capital, trade of energy commodities, storage, end-use demand and energy efficiency, and the relationship between economic activity, energy and the environment. Students learn to apply dynamic optimization, linear programming and econometric techniques in addressing the course topics. Graduate/Undergraduate Equivalency: ECON 437. Mutually Exclusive: Cannot register for ECON 601 if student has credit for ECON 437.

ECON 602 - MICROECONOMICS OF THE ENERGY SECTOR
Short Title: MICROECONOMICS - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Covers basic microeconomic concepts and applies them to contemporary issues in the energy sector. Topics covered include demand and supply analysis, market equilibrium and different market structures, international trade, investment and capacity expansion, risk and investment finance, and economic analysis of energy policy including environmental policy. This course enables students to apply quantitative microeconomic theory in order to make data-driven recommendations to case studies presented by industry partners.

ECON 603 - APPLIED ECONOMETRICS FOR ENERGY MARKETS
Short Title: APPLIED ECONOMETRICS ENGY MKTS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Students will be introduced to basic concepts in statistical analysis and how to use statistical tools to analyze economic data and test economic theories. The course includes a laboratory session where students practice using the tools discussed in lectures with data that is particularly relevant to the energy industry.
ECON 604 - ENERGY ECONOMICS II
Short Title: ENERGY ECONOMICS II
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Explores a variety of topics in energy modeling and energy data analysis. Topics include optimal extraction of depletable resources, game theoretic approaches to OPEC behavior, national oil company behavior, models of storable energy commodities and energy demand by end-use sector, energy security and fundamental drivers of commodity prices. This course tasks students to expand on the dynamic optimization problems and econometric techniques applied to energy economics. Mutually Exclusive: Cannot register for ECON 604 if student has credit for ECON 547.

ECON 605 - TAXATION IN THE ENERGY SECTOR
Short Title: TAXATION IN THE ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Introduces basic principles of taxation, and general equilibrium modeling of the economic effects of taxes, and applies them to federal and state taxes on the energy sector. Topics include royalties resource rent taxes, corporate income taxes including international tax issues such as transfer pricing and income shifting, excess profit taxes, production-sharing agreements, and environmental taxes. Students will formulate, implement, and use quantitative models to solve problems related to private and public decision making in the context of taxes applied to U.S. energy systems.

ECON 606 - CORPORATE FINANCE FOR THE ENERGY SECTOR
Short Title: CORP FINANCE - ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Examines the investment decisions of corporations, the valuation of stock, bonds and options investments by individual investors. The implications of investor decisions for corporations, and specifically the manner in which they evaluate investment projects and finance investments are a core focus. Examples and case studies focus on the energy sector. Students will increase their understanding of financing and investment decision as the relate to energy companies and energy related projects using analytical and mathematical techniques to make data-driven recommendation to real-world problems.

ECON 607 - THE ECONOMICS OF ENERGY AND THE ENVIRONMENT
Short Title: ECON OF ENERGY & ENVIRONMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course provides students with an introduction to, and overview of, policies to protect environmental resources against emissions from energy production and use and hazardous wastes. The first part of the course will present an economic analysis of the costs and benefits of using different types of policies to control emissions from fossil fuel use. The remainder of the course, taught from a practitioner’s perspective, will discuss the interrelationship between science, institutions and politics when designing environmental policy. The focus will be on problems associated with oil and gas production - especially water contamination and use - and hazardous waste disposal.

ECON 608 - RISK MANAGEMENT IN THE ENERGY INDUSTRY
Short Title: RISK MANAGEMENT/ENERGYINDUSTRY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course introduces quantitative risk management techniques often employed in the energy industry. It covers topics such as real options, value at risk, conditional value at risk, and expected shortfall, as well as the use of derivatives for trading and hedging various risk exposures. The course is methodologically self-contained and provides students with hands-on experience with state-of-the-art software to measure and manage risk-adjusted returns of heterogeneous asset portfolios.

ECON 610 - ENERGY AND THE MACROECONOMY
Short Title: ENERGY & THE MACROECONOMY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Discusses connections between energy and economic activity at the regional, national, and international level, and especially the role of energy shocks in economic fluctuations, innovations in energy supply as drivers of regional economic growth, and the role of energy commodities in transportation and international trade.
ECON 611 - GEOPOLITICS OF ENERGY
Short Title: GEOPOLITICS OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Explores the geopolitical issues around energy security and trade by focusing on role of energy as the world’s largest business and a strategic requirement of the modern nation-state, a source of power in international relations, and a major influence on national politics and institutions. This course equips students with the analytical skills to inform policy debates, advocate for the interests of principals, and advise policy makers and firms amid rapid changes in energy markets. Students learn both to produce sound empirical analysis by employing state of the art econometric techniques and to be discerning consumers of empirical research.

ECON 612 - ENERGY PROJECT DEVELOPMENT
Short Title: ENERGY PROJECT DEVELOPMENT
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course will cover the development of energy projects, especially electric power projects, from inception through to financing. It examines key issues such as: siting/permitting, including compliance with federal, state and local environmental and regulatory issues; fuel supply agreements; capital cost pricing; off-take agreements; and the various methods of project financing. Microsoft Excel is used for project financial analysis, including revenue and cost modeling, debt management, project net cash flow, project internal rate of return and net present value. The course also will cover strategies to monetize the project including development fees, carried equity, and private and public sale of equity, including initial public offerings ("IPOs").

ECON 613 - INTERNATIONAL TRADE IN ENERGY
Short Title: INTERNATIONAL TRADE IN ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course explores the effects of international trade and the determinants of the amount of trade between countries in energy commodities, and the role of international capital flows in financing energy projects, in particular. It will also discuss the many ways that governments can alter international trade through various policies.

ECON 614 - POLITICAL ECONOMY OF OIL IN DEVELOPING COUNTRIES
Short Title: POLITICAL ECONOMY OF OIL
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: This course evaluates the political and economic determinants of oil and gas policies in developing countries and their impact on world markets, the interaction between states and oil companies, the challenges of oil wealth management, and the causal links between resource dependency, development, institutions, and political regimes. Although the main focus is on oil production, natural gas is also analyzed, and both are compared to other natural resources. Emphasis is on the analysis of institutional change and the functions of institutional change in the energy industry using data-driven methods to examine case studies.

ECON 615 - SOCIAL STUDIES OF ENERGY
Short Title: SOCIAL STUDIES OF ENERGY
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: Investigate the ways in which energy production and consumption impacts social life. By studying the implementation and use of renewable and on-renewable energy infrastructures in different parts of the world, the students will develop a contextual, self-reflexive and critical lens that will help them make decisions in later stages of their careers.

ECON 620 - INDUSTRIAL ORGANIZATION AND THE ENERGY SECTOR
Short Title: INDUSTRIAL ORG & ENERGY SECTOR
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.
Course Level: Graduate
Description: The course will discuss monopoly, oligopoly, and the underlying sources of monopoly power in energy industries and how the industries can be restructured to isolate the monopoly elements from the more competitive ones. Other topics include price discrimination, vertical control, mergers and acquisitions, and strategic behavior between firms.
ECON 621 - THE ECONOMICS OF THE ELECTRICITY INDUSTRY  
Short Title: ELECTRICITY INDUSTRY ECONOMICS  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: Discusses the determinants of the cost of electricity, the effects of organizing the industry in different ways, the need to encourage sufficient investment in reserve capacity, and the use of information technology to allow for new ways of pricing electricity, operating the network and coordinating supply and demand. Students will learn to analyze the behavior of power markets, the effect of different policies, and draw empirical solutions to the real-world issues.

ECON 699 - PRACTICUM  
Short Title: PRACTICUM  
Department: Economics  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Energy Economics degree.  
Course Level: Graduate  
Description: Projects developed by an industry advisory group to be researched and presented to participating industry at completion of all course work. Internships with an approved employer may be substituted. Emphasis on skill building components may include: analyzing data for accuracy and reconciliation across different sources, quantitative analysis and risk assessment of a firm's portfolio of assets and capital investment opportunities, and briefing expert and non-expert audiences.

ECON 700 - DEPARTMENTAL SERVICE COURSE  
Short Title: DEPARTMENTAL SERVICE COURSE  
Department: Economics  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: In each semester in which students perform departmental service, they need to register in the departmental service course Econ 700. Students must meet their faculty supervisors as early as possible before the semester starts and regularly during the semester to ensure there is a mutual understanding of the job responsibilities.

ECON 800 - GRADUATE RESEARCH  
Short Title: GRADUATE RESEARCH  
Department: Economics  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Research  
Credit Hours: 1-12  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Assists students in the dissertation writing process. Students must write an independent and original piece of quantitative research that is of sufficient quality to merit publication in an academic economics journal. Towards this objective, faculty mentor evaluate and critique the research of PhD students who are either preparing research before formally selecting a dissertation topic or actively engaged in dissertation research. Repeatable for Credit.
Education (EDUC)

EDUC 101 - SCIENCE EDUCATION AND CAREER EXPLORATION: INTRODUCTION TO AEROSPACE AND AVIATION
Short Title: INTRO TO AEROSPACE & AVIATION
Department: Education
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course enables students to survey the fields of aerospace and aviation and various career options within each. Student will explore career trajectories and supporting educational pathways; engage with engineering faculty from Rice University and practicing professionals during an interactive exploration through all of the phases of product creation; tour a rocket propulsion research facility; experience a mini-ground school simulation at a flight museum; and compete in both a high altitude weather balloon launch and rocket man challenge (each designed to apply learnings from classroom teachings). Department Permission Required.

EDUC 202 - CONTEMPORARY ISSUES IN EDUCATION
Short Title: CONTEMPORARY ISSUES IN EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course examines the way globalization, immigration, privatization and the increasing diversity in our student population is shaping, and being shaped, by America's schools. An exploration of these and other issues from both micro- (student) and macro- (systemic) levels, will be the mainstay of the course. The lenses of sociology, psychology and political economy will be used throughout the semester. The course is open to students in these fields and to students exploring a career in teaching, and is recommended for students entering the teacher education program. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 502. Mutually Exclusive: Cannot register for EDUC 202 if student has credit for EDUC 502.

EDUC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EDUC 267 - CAREER PRACTICUM
Short Title: CAREER PRACTICUM
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This experiential learning course provides academic content and guided career and professional development for undergraduate students in a real-world, professional context. It is designed for students to gain experience in a work-place setting while engaging with relevant, focused academic course content. The course provides an opportunity for students to apply the theoretical knowledge learned in the classroom and further develop practical experiences and professional skills in their field of interest while under the supervision and guidance of a field-based, industry-focused mentor and academic instructor. Department Permission Required. Repeatable for Credit.

EDUC 301 - PHILOSOPHICAL, HISTORICAL, AND SOCIAL FOUNDATIONS OF EDUCATION
Short Title: PHIL,HIST,&SOC FOUNDTN OF EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course students analysis events and ideas that have shaped the philosophy and practice of American schools today. It is appropriate for all students interested in the influences and stresses that have created a unique educational system in our culturally diverse country. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 501. Mutually Exclusive: Cannot register for EDUC 301 if student has credit for EDUC 501.

EDUC 304 - RACE, CLASS, GENDER IN EDUCATION
Short Title: RACE, CLASS, GENDER IN EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the complex ways in which race, ethnicity, gender, and class intersect and influence the educational experience of students in American schools. By employing an interdisciplinary approach centered both on individuals’ lived experiences and educational system as a whole; EDUC 304 explores and critiques these critical issues and their impact on student learning. Likely topics include the historical foundations of race, class and gender in education, segregation, Title IX, and other contemporary topics. Graduate/Undergraduate Equivalency: EDUC 504. Mutually Exclusive: Cannot register for EDUC 304 if student has credit for EDUC 504.

2021-2022 General Announcements PDF Generated 09/22/21
EDUC 305 - EDUCATIONAL PSYCHOLOGY
Short Title: EDUCATIONAL PSYCHOLOGY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The goal of this course is to introduce students to a psychological understanding of teaching and learning through an overview of principles, issues, and related research in educational psychology. Students in this course will examine theories of learning, complex cognitive processes, cognitive and emotional development, and motivation. These constructs will be applied to effective instruction, the design of optimum learning environments, assessment of student learning, and teaching in diverse classrooms. Required for those seeking teacher certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 505.

EDUC 310 - INTRODUCTION TO SPECIAL EDUCATION
Short Title: INTRODUCTION SPECIAL EDUCATION
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce and expose students to the field of Special Education. Students will learn about the various individuals who receive special education as well as other types of exceptionality, including giftedness. Controversial issues in this field will be examined along with pertinent legislation. This course will familiarize students with instructional approaches in special education and the social issues impacting the field. Students will visit area schools. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 510.

EDUC 315 - ADOLESCENT DEVELOPMENT
Short Title: ADOLESCENT DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The goal of this course is to introduce students to basic theories of adolescent development and cognition. The course will examine principles and concepts in the areas of physical, emotional and psychological development, identity formation, sexuality, and family and peer relations. Other 'hot topics' such as substance abuse, eating disorders, and teenagers and the media will also be examined. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 515.

EDUC 316 - ASSESSMENT
Short Title: ASSESSMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, students will use formative and summative assessment to drive instructional decisions. Disaggregation of student data growth in the classroom and on standardized tests will foster academic achievement. Graduate/Undergraduate Equivalency: EDUC 516.

EDUC 319 - TEACHING AND LEARNING WITH INQUIRY
Short Title: TEACHING & LEARNING W/INQUIRY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Education for the 21st Century of change and innovation demands problem-solving and critical thinking skills. This course approaches the teaching of context areas with a student-focused lens that engages inquiring minds with the small group exploration of open-ended problems. Lesson structure, activities, and assessment will be integral to the course. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 519.

EDUC 320 - TEACHING DIVERSE LEARNERS
Short Title: TEACHING DIVERSE LEARNERS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers pedagogies for learners who have different ways of seeing the world, different experiences, and different learning needs. A variety of teaching methods and strategies help special needs students, gifted and talented students and English language learners succeed in the classroom. This course also addresses effective communication in ARDS, LPACS, and staffing within classrooms. Students learn about the support personnel who can assist the classroom teacher. Required for certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 520.
### EDUC 323 - CREATING WRITING IN THE CLASSROOM

**Course Title:** CREATING WRITING IN CLASSROOM  
**Department:** Education  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Rice students enrolled in this intensive summer internship will work alongside master teachers and professional writers to promote creative thinking and writing with middle and high school students. Students in this course will explore arts integration pedagogy, engage in the classroom planning process, lead lessons, facilitate student writing, and develop anthologies to showcase student voices. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 523.  
**Mutually Exclusive:** Cannot register for EDUC 323 if student has credit for EDUC 523. Repeatable for Credit.

### EDUC 325 - ADOLESCENT LITERATURE

**Course Title:** ADOLESCENT LITERATURE  
**Department:** Education  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Distribution Group:** Distribution Group 1  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The nature of adolescence in an increasingly complex and diversity society is examined through literature written for and about adolescents and young adults. This study of the cultural, literary and developmental issues in adolescent literature is relevant to students of literature, psychology, child development, anthropology and sociology, and is recommended for students preparing to become teachers. This course requires five hours of observation in a local secondary school.  
**Graduate/Undergraduate Equivalency:** EDUC 525.  
**Mutually Exclusive:** Cannot register for EDUC 325 if student has credit for EDUC 525.

### EDUC 330 - THE AMERICAN HIGH SCHOOL

**Course Title:** THE AMERICAN HIGH SCHOOL  
**Department:** Education  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Historically one of the few universally experienced institutions in the U.S., the American high school has been an essential rite of passage for youth and an essential building block of democracy. Students in this course will study the historical origins of the high school and examine its roles in the economy, culture, and the lives of youth. Using field study of an urban high school (15 hours of observation required for undergraduates), students will analyze the contemporary high school and debate about its future.  
**Graduate/Undergraduate Equivalency:** EDUC 530.  
**Mutually Exclusive:** Cannot register for EDUC 330 if student has credit for EDUC 530.

### EDUC 335 - URBAN EDUCATION: ISSUES, POLICY, AND PRACTICE

**Course Title:** URBAN ED: ISSUES, POLICY & PRACTICE  
**Department:** Education  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course focuses on the major issues facing urban education, including poverty, the implications of racial and ethnic diversity for educational institutions, and strategies for improving academic achievement in urban schools. Students will examine sociological, political, cultural and educational research and theory, as well as explore strategies for improvement of urban education at the classroom, school, and city levels. This course requires five hours of observation in a local secondary school.  
**Graduate/Undergraduate Equivalency:** EDUC 535.  
**Mutually Exclusive:** Cannot register for EDUC 335 if student has credit for EDUC 535.

### EDUC 345 - EDUCATIONAL TECHNOLOGIES & DIGITAL LEARNING

**Course Title:** EDUC TECH & DIGITAL LRNING  
**Department:** Education  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The primary purposes of this course is to prepare teachers to identify and evaluate effective, appropriate data and curriculum management systems/programs that improve student achievement; to determine how technologies can personalize and accelerate learning goals for students; and understand how technology can be used to change communication and pedagogical practices in the classroom.  
**Graduate/Undergraduate Equivalency:** EDUC 545.  
**Mutually Exclusive:** Cannot register for EDUC 345 if student has credit for EDUC 545.

### EDUC 350 - EDUCATION POLICY: FROM LEGISLATURES TO CLASSROOMS

**Course Title:** EDUCATION POLICY  
**Department:** Education  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Policy issues in this course include school funding, curriculum decisions, accountability systems, discipline policies, and other areas. What are the major policy discussions affecting K-12 education today, and how are they resolved in the political arena? Who drives policy in each of these areas and what role can or does research-based analysis play? We will answer these questions and more as we explore the political arena of educational policy. This class requires five hours of observation in a local secondary school.  
**Graduate/Undergraduate Equivalency:** EDUC 550.  
**Mutually Exclusive:** Cannot register for EDUC 350 if student has credit for EDUC 550/POST 340.
EDUC 421 - CURRICULUM DEVELOPMENT
Short Title: CURRICULUM DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is the first of a two-part series for preservice teachers. It offers a reflective study of classroom practice through seventy-five (75) hours of observation in secondary schools and teaching activities under the guidance of cooperating teachers and education team members in an actual classroom setting. This course includes opportunities to structure lessons for diverse student populations with whole group and small group lessons. This course is required for certification. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 521. Mutually Exclusive: Cannot register for EDUC 421 if student has credit for EDUC 521.

EDUC 422 - LITERACY ACROSS THE CURRICULUM
Short Title: LITERACY ACROSS THE CURRICULUM
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How students are taught to read and write in all academic and elective disciplines is critical to the academic development of adolescents. In this course multiple literacies will be discussed in terms of theory and practice. Students will examine reading, writing, listening, speaking and thinking strategies across the curriculum and their impact on learning. Additionally students will investigate, plan, and practice the skills of using literacy strategies for the specific discipline. Required for certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 522. Mutually Exclusive: Cannot register for EDUC 422 if student has credit for EDUC 522.

EDUC 461 - THEORY AND METHODS: ENGLISH LANGUAGE ARTS & READING (ELAR)
Short Title: THEORY AND METHODS: ELAR
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 561. Mutually Exclusive: Cannot register for EDUC 461 if student has credit for EDUC 561.

EDUC 462 - THEORY AND METHODS: LOTE
Short Title: THEORY AND METHODS: LOTE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 562. Mutually Exclusive: Cannot register for EDUC 462 if student has credit for EDUC 562.

EDUC 463 - THEORY AND METHODS: MATHEMATICS
Short Title: THEORY AND METHODS: MATHEMATICS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 563. Mutually Exclusive: Cannot register for EDUC 463 if student has credit for EDUC 563.
EDUC 464 - THEORY AND METHODS: PHYSICAL EDUCATION
Short Title: THEORY AND METHODS: PHYSICAL ED
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 564. Mutually Exclusive: Cannot register for EDUC 464 if student has credit for EDUC 564.

EDUC 465 - THEORY AND METHODS: SCIENCE
Short Title: THEORY AND METHODS: SCIENCE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 565. Mutually Exclusive: Cannot register for EDUC 465 if student has credit for EDUC 565.

EDUC 466 - THEORY AND METHODS: SOCIAL STUDIES
Short Title: THEORY AND METHODS: SOCIAL STUD
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 566. Mutually Exclusive: Cannot register for EDUC 466 if student has credit for EDUC 566.

EDUC 467 - PRACTICUM FOR PRESERVICE TEACHERS
Short Title: PRACT FOR PRESERVICE TEACHERS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (EDUC 460 or EDUC 461 or EDUC 462 or EDUC 463 or EDUC 464 or EDUC 465 or EDUC 466) and EDUC 421
Description: This is the second course in the two-part series for preservice teachers. In this field-based practicum. The preservice teacher will have a concentrated experience in student teaching based on the lesson development, pedagogical explorations, and field-based work of the previous semester. Students are expected to follow the assigned district/campus academic calendar for the semester of student teaching. This course is required for certification. Graduate/Undergraduate Equivalency: EDUC 567. Mutually Exclusive: Cannot register for EDUC 467 if student has credit for EDUC 567.

EDUC 470 - FIELD-BASED STUDIES IN TEACHING AND LEARNING
Short Title: FLD-BASED STDY TEACH & LRNG
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Students with a class of Freshman or Sophomore may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The study of critical issues in urban education uses ethnographic research methods to study a wide range of educational subjects, from policy impact to classroom practice, from curriculum and pedagogy to the cultures of the children. The course includes a seminar on research methodologies, with a focus on ethnography; independent research projects in a local school setting; and directed case studies. It is open particularly to students in education, sociology, psychology, anthropology and cultural studies. Graduate/Undergraduate Equivalency: EDUC 570. Mutually Exclusive: Cannot register for EDUC 470 if student has credit for EDUC 570.

EDUC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Laboratory, Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
EDUC 491 - INDEPENDENT STUDY AND RESEARCH
Short Title: INDEPENDENT STUDY AND RESEARCH
Department: Education
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course uses ethnographic and quantitative research methods to study a specific issue in education. Independent research projects may include literature reviews and analysis, and/or case studies in school settings. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 591. Mutually Exclusive: Cannot register for EDUC 491 if student has credit for EDUC 591. Repeatable for Credit.

EDUC 501 - PHILOSOPHICAL, HISTORICAL, AND SOCIAL FOUNDATIONS OF EDUCATION
Short Title: PHIL,HIST,&SOC FOUNDTN OF EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course students analysis events and ideas that have shaped the philosophy and practice of American schools today. It is appropriate for all students interested in the influences and stresses that have created a unique educational system in our culturally diverse country. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 301. Graduate/Undergraduate Equivalency: EDUC 301. Mutually Exclusive: Cannot register for EDUC 501 if student has credit for EDUC 301.

EDUC 502 - CONTEMPORARY ISSUES IN EDUCATION
Short Title: CONTEMPORARY ISSUES IN EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the complex ways in which race, ethnicity, gender, and class intersect and influence the educational experience of students in American schools. By employing an interdisciplinary approach centered both on individuals' lived experiences and educational system as a whole, EDUC 504 explores and critiques these critical issues and their impact on student learning. Likely topics include the historical foundations of race and gender in education, segregation, Title IX, and other contemporary topics. This graduate equivalent of EDUC 304 requires additional assignments. Graduate/Undergraduate Equivalency: EDUC 304. Mutually Exclusive: Cannot register for EDUC 504 if student has credit for EDUC 304.

EDUC 504 - RACE, CLASS, GENDER IN EDUCATION
Short Title: RACE, CLASS, GENDER IN EDUC
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the complex ways in which race, ethnicity, gender, and class intersect and influence the educational experience of students in American schools. By employing an interdisciplinary approach centered both on individuals' lived experiences and educational system as a whole, EDUC 504 explores and critiques these critical issues and their impact on student learning. Likely topics include the historical foundations of race, class and gender in education, segregation, Title IX, and other contemporary topics. This graduate equivalent of EDUC 304 requires additional assignments. Graduate/Undergraduate Equivalency: EDUC 304. Mutually Exclusive: Cannot register for EDUC 504 if student has credit for EDUC 304.

EDUC 505 - EDUCATIONAL PSYCHOLOGY
Short Title: EDUCATIONAL PSYCHOLOGY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to introduce students to a psychological understanding of teaching and learning through an overview of principles, issues, and related research in educational psychology. Students in this course will examine theories of learning, complex cognitive processes, cognitive and emotional development, and motivation. These constructs will be applied to effective instruction, the design of optimum learning environments, assessment of student learning, and teaching in diverse classrooms. Required for those seeking teacher certification. This course requires five hours of observation in a local secondary school. Graduate/Undergraduate Equivalency: EDUC 305. Mutually Exclusive: Cannot register for EDUC 505 if student has credit for EDUC 305.

EDUC 510 - INTRODUCTION TO SPECIAL EDUCATION
Short Title: INTRODUCTION SPECIAL EDUCATION
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce and expose students to the field of Special Education. Students will learn about the various individuals who receive special education as well as other types of exceptionality, including giftedness. Controversial issues in this field will be examined along with pertinent legislation. This course will familiarize students with instructional approaches in special education and the social issues impacting the field. Students will visit area schools. This course requires five hours of observation in a local secondary school. Recommended for certification. Additional assignments are required beyond those for EDUC 310. Graduate/Undergraduate Equivalency: EDUC 310. Mutually Exclusive: Cannot register for EDUC 510 if student has credit for EDUC 310.
EDUC 519 - ADOLESCENT DEVELOPMENT
Short Title: ADOLESCENT DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to introduce students to basic theories of adolescent development and cognition. The course will examine principles and concepts in the areas of physical, emotional and psychological development, identity formation, sexuality, and family and peer relations. Other 'hot topics' such as substance abuse, eating disorders, and teenagers and the media will also be examined. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 315 Graduate/Undergraduate Equivalency: EDUC 315. Mutually Exclusive: Cannot register for EDUC 519 if student has credit for EDUC 315.

EDUC 516 - ASSESSMENT
Short Title: ASSESSMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, students will use formative and summative assessment to drive instructional decisions. Disaggregation of student data growth in the classroom and on standardized tests will foster academic achievement. Additional requirements are required beyond those for EDUC 316. Graduate/Undergraduate Equivalency: EDUC 316. Mutually Exclusive: Cannot register for EDUC 516 if student has credit for EDUC 316.

EDUC 519 - TEACHING AND LEARNING WITH INQUIRY
Short Title: TEACHING & LEARNING W/INQUIRY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How students are taught to read and write in all academic and elective disciplines is critical to the academic development of adolescents. In this course multiple literacies will be discussed in terms of theory and practice. Students will examine reading, writing, listening, speaking and thinking strategies across the curriculum and their impact on learning. Additionally students will investigate, plan, and practice the skills of using literacy strategies for the specific discipline. Required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 422. Graduate/Undergraduate Equivalency: EDUC 422. Mutually Exclusive: Cannot register for EDUC 519 if student has credit for EDUC 319.

EDUC 520 - TEACHING DIVERSE LEARNERS
Short Title: TEACHING DIVERSE LEARNERS
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers pedagogies for learners who have different ways of seeing the world, different experiences, and different learning needs. A variety of teaching methods and strategies help special needs students, gifted and talented students and English language learners succeed in the classroom. This course also addresses effective communication in ARDS, LPACS, and staffing within classrooms. Students learn about the support personnel who can assist the classroom teacher. Required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 320. Graduate/Undergraduate Equivalency: EDUC 320. Mutually Exclusive: Cannot register for EDUC 520 if student has credit for EDUC 320.

EDUC 521 - CURRICULUM DEVELOPMENT
Short Title: CURRICULUM DEVELOPMENT
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is the first of a two-part series for preservice teachers. It offers a reflective study of classroom practice through seventy-five (75) hours of observation in secondary schools and teaching activities under the guidance of cooperating teachers and education team members in an actual classroom setting. This course includes opportunities to structure lessons for diverse student populations with whole group and small group lessons. This course is required for certification. Additional assignments are required beyond those for EDUC 421. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 421. Mutually Exclusive: Cannot register for EDUC 521 if student has credit for EDUC 421.

EDUC 522 - LITERACY ACROSS THE CURRICULUM
Short Title: LITERACY ACROSS THE CURRICULUM
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers pedagogies for learners who have different ways of seeing the world, different experiences, and different learning needs. A variety of teaching methods and strategies help special needs students, gifted and talented students and English language learners succeed in the classroom. This course also addresses effective communication in ARDS, LPACS, and staffing within classrooms. Students learn about the support personnel who can assist the classroom teacher. Required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 422. Graduate/Undergraduate Equivalency: EDUC 422. Mutually Exclusive: Cannot register for EDUC 522 if student has credit for EDUC 422.
EDUC 523 - CREATIVE WRITING IN THE CLASSROOM

Short Title: CREATIVE WRITING IN CLASSROOM

Department: Education

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Rice students enrolled in this intensive summer internship will work alongside master teachers and professional writers to promote creative thinking and writing with middle and high school students. Students in this course will explore arts integration pedagogy, engage in the classroom planning process, lead lessons, facilitate student writing, and develop anthologies to showcase student voices. Additional assignments are required beyond those for EDUC 323. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 323. Mutually Exclusive: Cannot register for EDUC 523 if student has credit for EDUC 323. Repeatable for Credit.

EDUC 525 - ADOLESCENT LITERATURE

Short Title: ADOLESCENT LITERATURE

Department: Education

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: The nature of adolescence in an increasingly complex and diverse society is examined through literature written for and about adolescents and young adults. This study of the cultural, literary and developmental issues in adolescent literature is relevant to students of literature, psychology, child development, anthropology and sociology, and is recommended for students preparing to become teachers. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 325. Graduate/Undergraduate Equivalency: EDUC 325. Mutually Exclusive: Cannot register for EDUC 525 if student has credit for EDUC 325.

EDUC 530 - THE AMERICAN HIGH SCHOOL

Short Title: THE AMERICAN HIGH SCHOOL

Department: Education

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Historically one of the few universally experienced institutions in the U.S., the American high school has been an essential rite of passage for youth and an essential building block of Democracy. This course will study the historical origins of the high school; examine its roles in the economy, our culture, and the lives of youth. We will examine the contemporary high school and debates about its future, through the field of study of an urban high school (20 hours of observation required for graduates). Required for certification unless EDUC 501 is substituted. Additional assignments are required. Graduate/Undergraduate Equivalency: EDUC 330. Mutually Exclusive: Cannot register for EDUC 530 if student has credit for EDUC 330.

EDUC 535 - URBAN EDUCATION: ISSUES, POLICY, AND PRACTICE

Short Title: URBAN ED:ISSUES, POLICY & PRAC

Department: Education

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course focuses on the major issues facing urban education, including poverty, the implications of racial and ethnic diversity for educational institutions, and strategies for improving academic achievement in urban schools. Students will examine sociological, political, cultural and educational research and theory, as well as explore strategies for improvement of urban education at the classroom, school and policy levels. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 335. Graduate/Undergraduate Equivalency: EDUC 335. Mutually Exclusive: Cannot register for EDUC 535 if student has credit for EDUC 335.

EDUC 540 - SEMINAR FOR FIRST-YEAR TEACHERS

Short Title: SEMINAR FOR FIRST YR TEACHERS

Department: Education

Grade Mode: Standard Letter

Course Type: Internship/Practicum

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: In this single-year internship, first year teachers will be supported in their work by field supervisors. In a weekly seminar, teachers will analyze their practice with current theories in education. Teachers will also develop and defend portfolios of their work. This course is required for stand certification and for the Master of Arts in Teaching. Repeatable for Credit.

EDUC 545 - EDUCATIONAL TECHNOLOGIES & DIGITAL LEARNING

Short Title: EDUC TECH & DIGITAL LRNING

Department: Education

Grade Mode: Standard Letter

Course Type: Lecture/Laboratory

Credit Hours: 3

Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: The primary purposes of this course is to prepare teachers to identify and evaluate effective, appropriate data and curriculum management systems/programs that improve student achievement; to determine how technologies can personalize and accelerate learning goals for students; and understand how technology can be used to change communication and pedagogical practices in the classroom. This course is required for certification. This course requires five hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 345. Graduate/Undergraduate Equivalency: EDUC 345. Mutually Exclusive: Cannot register for EDUC 545 if student has credit for EDUC 345.
EDUC 550 - EDUCATION POLICY: FROM LEGISLATURES TO CLASSROOMS
Short Title: EDUCATION POLICY
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 460. Graduate/Undergraduate Equivalency: EDUC 460. Mutually Exclusive: Cannot register for EDUC 550 if student has credit for EDUC 450/POST 340.

EDUC 560 - THEORY AND METHODS: ART
Short Title: THEORY AND METHODS: ART
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 460. Graduate/Undergraduate Equivalency: EDUC 460. Mutually Exclusive: Cannot register for EDUC 560 if student has credit for EDUC 460.

EDUC 561 - THEORY AND METHODS: ENGLISH LANGUAGE ARTS & READING (ELAR)
Short Title: THEORY AND METHODS: ELAR
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 461. Graduate/Undergraduate Equivalency: EDUC 461. Mutually Exclusive: Cannot register for EDUC 561 if student has credit for EDUC 461.

EDUC 562 - THEORY AND METHODS: LOTE
Short Title: THEORY AND METHODS: LOTE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 462. Graduate/Undergraduate Equivalency: EDUC 462. Mutually Exclusive: Cannot register for EDUC 562 if student has credit for EDUC 462.

EDUC 563 - THEORY AND METHODS: MATHEMATICS
Short Title: THEORY AND METHODS: MATHEMATICS
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 463. Graduate/Undergraduate Equivalency: EDUC 463. Mutually Exclusive: Cannot register for EDUC 563 if student has credit for EDUC 463.

EDUC 564 - THEORY AND METHODS: PHYSICAL EDUCATION
Short Title: THEORY AND METHODS: PHYSICAL ED
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 464. Graduate/Undergraduate Equivalency: EDUC 464. Mutually Exclusive: Cannot register for EDUC 564 if student has credit for EDUC 464.
EDUC 565 - THEORY AND METHODS: SCIENCE

Short Title: THEORY AND METHODS: SCIENCE
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 465. Graduate/Undergraduate Equivalency: EDUC 465. Mutually Exclusive: Cannot register for EDUC 565 if student has credit for EDUC 465.

EDUC 566 - THEORY AND METHODS: SOCIAL STUDIES

Short Title: THEORY AND METHODS: SOCIAL STUD
Department: Education
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves the study and integration of theory and methods with observation and practice in the classroom through the facilitation of student-led, student-centered activities. Under the guidance of education support team members, the course offers multiple methods for implementing curriculum with diverse students. Required for certification. This course includes a minimum of 5 hours of observation in a local secondary school. Additional assignments are required beyond those for EDUC 466. Graduate/Undergraduate Equivalency: EDUC 466. Mutually Exclusive: Cannot register for EDUC 566 if student has credit for EDUC 466.

EDUC 567 - PRACTICUM FOR PRESERVICE TEACHERS

Short Title: PRACT FOR PRESERVICE TEACHERS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (EDUC 560 or EDUC 561 or EDUC 562 or EDUC 563 or EDUC 564 or EDUC 565 or EDUC 566) and EDUC 521
Description: This is the second course in the two-part series for preservice teachers. In this field-based practicum, the preservice teacher will have a concentrated experience in student teaching based on the lesson development, pedagogical explorations, and field-based work of the previous semester. Students are expected to follow the assigned district/campus academic calendar for the semester of student teaching. This course is required for certification. Additional assignments are required beyond those for EDUC 467. Graduate/Undergraduate Equivalency: EDUC 467. Mutually Exclusive: Cannot register for EDUC 567 if student has credit for EDUC 467. Repeatable for Credit.

EDUC 570 - FIELD-BASED STUDIES IN TEACHING AND LEARNING

Short Title: FLD-BASED STDY TEACH & LRNG
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of critical issues in urban education uses ethnographic research methods to study a wide range of educational subjects, from policy impact to classroom practice, from curriculum and pedagogy to the cultures of the children. The course includes a seminar on research methodologies, with a focus on ethnography; independent research projects in a local school setting; and directed case studies. It is open particularly to students in education, sociology, psychology, anthropology and cultural studies. Additional assignments are required beyond those for EDUC 470. Graduate/Undergraduate Equivalency: EDUC 470. Mutually Exclusive: Cannot register for EDUC 570 if student has credit for EDUC 470.

EDUC 590 - INSTRUCTIONAL LEADERSHIP

Short Title: INSTRUCTIONAL LEADERSHIP
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): EDUC 516 and EDUC 519 and EDUC 520 and EDUC 522
Description: A focus on professional student-centered coaching techniques empowers students in this course to become catalysts for instructional improvement and student achievement. As current practitioners in the field, students use their personal experiences while adding foundational and progressive research, advanced methodologies, and curriculum tools to enhance the capacity of leaders in the educational arena. Repeatable for Credit.

EDUC 591 - INDEPENDENT STUDY AND RESEARCH

Short Title: INDEPENDENT STUDY AND RESEARCH
Department: Education
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course uses ethnographic and quantitative research methods to study a specific issue in education. Independent research projects may include literature reviews and analysis, and/or case studies in school settings. Additional assignments are required beyond those for EDUC 491. Instructor Permission Required. Graduate/Undergraduate Equivalency: EDUC 491. Mutually Exclusive: Cannot register for EDUC 591 if student has credit for EDUC 491. Repeatable for Credit.
EDUC 595 - CAPSTONE
Short Title: CAPSTONE
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Capstone Project is the culmination of the program as the student melds the MAT course of study specialization with classroom experience. The work in this two-semester course is showcased in a portfolio to be defended before an academic committee. Repeatable for Credit.

EDUC 596 - ORGANIZATIONAL LEADERSHIP
Short Title: ORGANIZATIONAL LEADERSHIP
Department: Education
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: EDUC 590
Description: Students will be challenged in workshops that test a leader's ability to solve problems that include school finance management, student demographics and test scores, teachers' effectiveness, and the community's needs. Department Permission Required.

EDUC 597 - PRACTICUM FOR PRINCIPALS
Short Title: PRACTICUM FOR PRINCIPALS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): EDUC 504 and EDUC 516 and EDUC 590 and EDUC 596
Description: During this two-semester course students will be implementing the knowledge gained from classroom experiences into tasks in their home schools under guidance of a school mentor and a field supervisor. Department Permission Required. Repeatable for Credit.

EDUC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Education
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Electrical & Comp. Engineering (ELEC)

ELEC 101 - ELEMENTS OF ELECTRICAL ENGINEERING
Short Title: ELEMENTS OF ELECT ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to fundamentals of electrical engineering through the hands-on design of a micro-controlled model electric car. Topics from fields of circuits, signals, computing, and sensing are covered as needed to support the student in designing systems to power, monitor, and control the vehicle's speed, and to guide its trajectory, in order to pass a series of vehicle tests. Instructor Permission Required.

ELEC 220 - FUNDAMENTALS OF COMPUTER ENGINEERING
Short Title: FUND COMPUTER ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Computer Science, Engineering Division, Electrical & Computer Eng. or Electrical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An overview of computer engineering, starting with fundamental building blocks including transistors, bits, data representation, logic and state machines, progressing to computer organization, instruction sets, interrupts, input/output, assembly language programming, and linkage conventions, and ending with an introduction to architectural performance enhancements and computing services.
Course URL: www.owlnet.rice.edu/~elec220 (http://www.owlnet.rice.edu/~elec220/)

ELEC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.
ELEC 240 - FUNDAMENTALS OF ELECTRICAL ENGINEERING I LABORATORY
Short Title: FUND EE I LAB
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Corequisite: ELEC 241
Description: Laboratory course that introduces basic electronic measurement techniques and demonstrates the principles of information management by electronic means. Lectures supplement the laboratory experiments.

ELEC 241 - FUNDAMENTALS OF ELECTRICAL ENGINEERING I
Short Title: FUND ELECTRICAL ENGINEERING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Corequisite: ELEC 240
Description: The creation, manipulation, transmission, and extraction of information by electronic and computational means. Elementary signal theory; time and frequency-domain analysis; sampling theorem. Introduction to data science. Information theory; digital communication systems; error-correcting codes.

ELEC 242 - SIGNALS, SYSTEMS, AND TRANSFORMS
Short Title: SIGNALS, SYSTEMS, & TRANSFORMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ELEC 241
Corequisite: ELEC 244
Description: Transforms between the time and frequency domains. Linear time-invariant systems: convolutions, impulse response, and eigenfunctions. Delta functions, their nature, and their uses. Fourier series and the Fourier transform for continuous signals. Fourier transform for discrete-time signals. Sampling and aliasing. Laplace transform: poles and zeros, and system stability. Students must register for both ELEC 242 and ELEC 244.

ELEC 243 - ELECTRONIC MEASUREMENT SYSTEMS
Short Title: ELECTRONIC MEASUREMENT SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
(Phys 102 or Phys 112 or Phys 126)
Description: The course will give students the skills to design, construct, and assess electronic systems to measure, monitor, and control physical properties and events; spans the areas of circuits, signals, systems, and digital processing. Intended for non-ECE majors.

ELEC 244 - ANALOG CIRCUITS LABORATORY
Short Title: ANALOG CIRCUITS LABORATORY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: ELEC 242
Description: Lab skills covered including breadboarding, use of oscilloscopes, and circuit debugging. Topics covered include design, construction, and testing of basic electronic circuits; RLC networks; diodes; transistors; operational amplifiers; comparators; interfacing digital and analog circuits; pulse width modulation; motors; and feedback control. Students must register for both ELEC 242 and ELEC 244.

ELEC 245 - FUNDAMENTALS OF ELECTRICAL ENGINEERING II
Short Title: FUND ELECTRICAL ENGINEERING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
(Phys 102 or Phys 112 or Phys 126)
Description: The course will give students the skills to design, construct, and assess electronic systems to measure, monitor, and control physical properties and events; spans the areas of circuits, signals, systems, and digital processing. Intended for non-ECE majors.

ELEC 247 - INTRODUCTION TO PHYSICAL ELECTRONICS I
Short Title: INTRO PHYSICAL ELECTRONICS I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ELEC 241
Corequisite: ELEC 244
Description: The objective of this course is an understanding of the physics and operation of semiconductor devices. The first part of 247 is focused on understanding of semiconductor materials in terms of crystal structure, energy bands, density of states, dopants, and electronic transport, and finally the basics of pn junctions and pn junction diodes. The second part of 247 is focused on understanding the operation and design of semiconductor devices including metal-semiconductor contacts, metal-oxide semiconductor capacitors and transistors (MOSFETs), and bipolar junction transistors (BJTs). In addition, 247 will also introduce the basic concepts of advanced devices such as junction field effect transistors, optical devices, microwave and power devices. ELEC 247 will lay the foundation for follow-on PEN and circuits courses such as ELEC 305.
ELEC 262 - INTRODUCTION TO WAVES AND PHOTONICS  
Short Title: INTRO TO WAVES AND PHOTONICS  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)  
Description: Introduction to the concepts of waves and oscillatory motion with a particular focus on electromagnetic waves and their interaction with dielectric materials, and on the use of these ideas in the fields of optical fiber communications, laser design, non-linear optics, and Fourier optics.

ELEC 301 - SIGNALS, SYSTEMS, AND LEARNING  
Short Title: SIGNALS, SYSTEMS, AND LEARNING  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ELEC 241 and (MATH 354 or MATH 355 or CAAM 334 or CAAM 335)  
Corequisite: ELEC 303  
Description: Analytical framework for analyzing signals and systems. Time and frequency domain analysis of continuous and discrete time signals and systems, convolution, and the Laplace and Z transforms. Introduction to algorithms for machine learning on signals, including clustering, regression, and classification. Instructor Permission Required.

ELEC 303 - RANDOM SIGNALS IN ELECTRICAL ENGINEERING SYSTEMS  
Short Title: RANDOM SIGNALS  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ELEC 301 (may be taken concurrently)  
Description: Introduction to probability theory and statistics with applications to electrical engineering problems in signal processing, communications and control; probability spaces, conditional probability, independence, random variables, distribution and density functions, random vectors, signal detection and parameter estimation. ELEC 301 may be taken concurrently with ELEC 303.

ELEC 305 - INTRODUCTION TO PHYSICAL ELECTRONICS II  
Short Title: INTRO PHYSICAL ELECTRONICS II  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ELEC 261 and (MATH 212 or MATH 222)  
Description: Physical principles and practical applications of devices used in modern electronic systems, with an emphasis on transistors, integrated circuits, electromagnetic propagation, and transmission lines.

ELEC 323 - PRINCIPLES OF PARALLEL PROGRAMMING  
Short Title: FUNDAMENTALS OF PARALLEL PROG  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): COMP 211 or COMP 215  
Description: Fundamentals of parallel programming: abstract models of parallel computers, parallel algorithms and data structures, and common parallel programming patterns including task parallelism, undirected and directed synchronization, data parallelism, divide-and-conquer parallelism, and map-reduce. Laboratory assignments will explore these topics through the use of parallel extensions to the Java language. Cross-list: COMP 322. Recommended Prerequisite(s): COMP 221.
ELEC 327 - IMPLEMENTATION OF DIGITAL SYSTEMS
Short Title: IMPLEMENTATION OF DIGITAL SYS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 326 or COMP 326
Description: Embedded microsystems are widely employed to provide intelligence to sensors and actuators throughout our daily life. In this course, we learn the software and hardware frameworks which underly embedded systems design. Students will learn the fundamentals of embedded system programming and feel competent to design, build, and manufacture their own embedded devices. In particular, we focus on principles of low-power design and interface with external peripherals. In addition, students will learn how to design their own manufacturable hardware and discover how application-specific blocks enable modern commercial devices to function. There are weekly lab assignments and two projects. Instructor Permission Required.

ELEC 332 - ELECTRONIC SYSTEMS PRINCIPLES AND PRACTICE
Short Title: ELEC SYS PRINCIPLES & PRACTICE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242
Description: This course covers the theory and techniques necessary to realize modern, high performance electronic systems. Design considerations for systems utilizing high speed, high frequency analog and digital integrated circuits will be covered. Students develop a microcontroller system for controlling the functions of a model electric car. Power and sensor circuits will be designed to monitor and control the vehicle’s speed, and to guide its trajectory, in order to pass a series of vehicle tests. Instructor Permission Required.

ELEC 342 - ANALOG ELECTRONIC CIRCUITS
Short Title: ANALOG ELECTRONIC CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242 or ELEC 243
Description: The course starts with a review of 1st order and 2nd order linear circuits. It emphasizes time-domain techniques and discusses step and impulse responses, reviews basic device physics of a CMOS transistor, followed by a derivation of current-voltage equations. The course also covers an in-depth analysis of large-signal behavior, linearization, and small signal models. Furthermore, it discusses single-stage and multi-stage amplifiers as well as differential amplifiers, common mode rejection ratio (CMRR), and techniques for increasing gain and improving linearity.

ELEC 361 - QUANTUM MECHANICS FOR ENGINEERS
Short Title: QUANTUM MECHANICS FOR ENGINEER
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 261
Description: This course provides the background in quantum mechanics and solid state physics necessary for further studies in semiconductor optoelectronic devices, quantum electronics, nanoscience, and photonics. Examples include: electronic energy levels in semiconductor quantum wells and superlattices; tunneling phenomena in semiconductor devices; the Kronig-Penney model; crystal momentum, effective mass, and Bloch oscillations; band structure of graphene and carbon nanotubes; and introduction to quantum information science.
Course URL: www.ece.rice.edu/~kono/ELEC361.html (http://www.ece.rice.edu/~kono/ELEC361.html)

ELEC 364 - PHOTONICS MEASUREMENTS: PRINCIPLES AND PRACTICE
Short Title: PHOTONICS MEASUREMENTS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 262 or PHYS 201
Description: After completing this course, students will have the knowledge and experimental skills to design and apply a photonic measurement system to monitor an environment, process, device, or system. The course will combine predefined labs to develop skills with application projects. Instructor Permission Required.

ELEC 365 - NANOMATERIALS FOR ENERGY
Short Title: NANOMATERIALS FOR ENERGY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the fundamental science of nanomaterials. Many of the concepts will be explained by drawing from applications in sustainability (photovoltaics, solar-to-fuel conversion thermionic, thermoelectric, fuel cells). Students will design a lab demo from scratch using amongst others the infrastructure provided by the photonics measurement lab. Cross-list: MSNE 365.
ELEC 380 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY

Short Title: INTRO TO NEUROENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Cross-list: BIOE 380, NEUR 383. Graduate/Undergraduate Equivalency: ELEC 587. Mutually Exclusive: Cannot register for ELEC 380 if student has credit for BIOE 480/BIOE 590/ELEC 480/ELEC 580/ELEC 587.

ELEC 382 - INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE

Short Title: INTRO COMPUTATIONAL NEURSCI
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to methods and theories used to describe and understand neural information processing in the brain. Models covered will range from single neuron to networks for sensory, motor and learning tasks. Programming exercises will be done using Matlab. Cross-list: NEUR 382. Recommended Prerequisite(s): CAAM 210. Mutually Exclusive: Cannot register for ELEC 382 if student has credit for NEUR 582.

ELEC 395 - TRANSFER CREDIT - JUNIOR

Short Title: TRANSFER CREDIT - JUNIOR
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for transfer credit for courses not offered at Rice. Permission of ECE Undergraduate Committee and review by faculty in related specialization area is required. ELEC 395 is for Junior level ECE Specialization course credit. Department Permission Required. Repeatable for Credit.

ELEC 410 - SECURE AND CLOUD COMPUTING

Short Title: SECURE & CLOUD COMPUTING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 321
Description: What is "cloud computing?" How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today’s services run inside the cloud – a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today’s cloud systems. Cross-list: COMP 436. Graduate/Undergraduate Equivalency: ELEC 510. Mutually Exclusive: Cannot register for ELEC 410 if student has credit for ELEC 510.

ELEC 411 - MICROWAVE ENGINEERING

Short Title: MICROWAVE ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics covered include transmission line, Smith Chart, scattering parameters, impedance matching, passive microwave circuits (power divider, coupler, 180° hybrid, filter), and antenna design fundamentals. Graduate/Undergraduate Equivalency: ELEC 517. Recommended Prerequisite(s): ELEC 262 or ELEC 305 or equivalent courses with the key concepts of Maxwell’s Equations and Linear Algebra. Mutually Exclusive: Cannot register for ELEC 411 if student has credit for ELEC 517.
ELEC 414 - WIRELESS INTEGRATED CIRCUITS AND SYSTEMS
Short Title: WIRELESS IC
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305
Description: Topics covered include system architectures for modern wireless transceivers and transistor-level design considerations for circuit building blocks (low noise amplifier, mixer, power amplifier, etc.) in a wireless transceiver. Graduate/Undergraduate Equivalency: ELEC 514. Recommended Prerequisite(s): Equivalent Courses with the Key Concepts: • Transistor-level CMOS analog circuits (basic configurations, small-signal models, parasitic effects) • Frequency response of transistor-level CMOS circuits (pole/zero calculations) • Frequency response of simple passive networks (1st order and 2nd order RLC networks) • Noise analysis of transistor-level CMOS circuits (noise sources in CMOS transistors, input-referred voltage/current noise for CMOS transistor-level circuits)

ELEC 418 - EMBEDDED COMPUTER SYSTEMS PROGRAMMING
Short Title: EMBEDDED SYSTEMS PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Embedded computer systems programming focuses on the integrated design of hardware and software for system on chip devices. The course will develop an integrated foundation including principles, practices, and experimentation. Computer languages including C and C++ will be used to analyze and implement algorithms. Object-oriented programming for trees and graphs and other data structures will be explored. Embedded operating systems including Linux, peripheral interfacing, and development environments will be utilized in the laboratory. Mutually Exclusive: Cannot register for ELEC 418 if student has credit for ELEC 518. Graduate/Undergraduate Equivalency: ELEC 518. Recommended Prerequisite(s): COMP 140. ELEC 220, and (ELEC 327 or ELEC 332 or DSCI 400 or DSCI 435) Mutually Exclusive: Cannot register for ELEC 418 if student has credit for ELEC 518.

ELEC 419 - INNOVATION LAB FOR MOBILE HEALTH
Short Title: INNOVATION LAB - MOBILE HEALTH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Cross-list: BIOE 419. Graduate/Undergraduate Equivalency: ELEC 559. Mutually Exclusive: Cannot register for ELEC 419 if student has credit for ELEC 559. Repeatable for Credit.
Course URL: www.ece.rice.edu/~ashu/ELEC419.html

ELEC 421 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Cross-list: COMP 421. Graduate/Undergraduate Equivalency: ELEC 552. Mutually Exclusive: Cannot register for ELEC 421 if student has credit for ELEC 552.
Course URL: www.clear.rice.edu/comp421/ (http://www.clear.rice.edu/comp421/)

ELEC 422 - VLSI SYSTEMS DESIGN
Short Title: VLSI SYSTEMS DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 326 or COMP 326
Description: A study of VLSI technology and design. MOS devices, Characteristics and fabrication. Logic design and implementation. VLSI design methodology, circuit simulation and verification. Graduate/Undergraduate Equivalency: ELEC 527. Mutually Exclusive: Cannot register for ELEC 422 if student has credit for ELEC 527.
ELEC 423 - DIGITAL INTEGRATED CIRCUITS
Short Title: DIGITAL INTEGRATED CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220 and ELEC 242 and (ELEC 326 or COMP 326)
Description: This course introduces students to the analysis and design of digital integrated circuits. We look at how CMOS devices are fabricated and how they operate physically, as well as how to design high-performance and low-power circuits. Various types of memory devices and designs are also covered in the course. Recommended Prerequisite(s): ELEC 305 or ELEC 261.

ELEC 424 - MOBILE AND EMBEDDED SYSTEM DESIGN AND APPLICATION
Short Title: MOBILE & EMBEDDED SYSTEM
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 220
Description: ELEC 424 introduces mobile and embedded system design and applications to undergraduate students and provides them hands-on design experience. It consists of three interlearning parts: lectures, student project, and student presentations. Cross-list: COMP 424. Graduate/Undergraduate Equivalency: ELEC 553. Mutually Exclusive: Cannot register for ELEC 424 if student has credit for ELEC 553.

ELEC 425 - COMPUTER SYSTEMS ARCHITECTURE
Short Title: COMPUTER SYSTEMS ARCHITECTURE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 326 or COMP 326
Description: ELEC 425 introduces students to the analysis and design of digital integrated circuits. We look at how CMOS devices are fabricated and how they operate physically, as well as how to design high-performance and low-power circuits. Various types of memory devices and designs are also covered in the course. Recommended Prerequisite(s): ELEC 305 or ELEC 261.

ELEC 426 - ADVANCED DIGITAL INTEGRATED CIRCUITS DESIGN
Short Title: ADV DIGITAL IC DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305 and (ELEC 326 or COMP 326)
Description: This course addresses advanced issues in custom digital IC design. Topics range from physical-layer analysis and modeling of new devices, interconnect, and power supply, to circuit-level design techniques for low power and high performance, to application-oriented digital circuits/systems for security and machine learning. Graduate/Undergraduate Equivalency: ELEC 521. Recommended Prerequisite(s): ELEC 342, 422 and 423.

ELEC 427 - ADVANCED DIGITAL HARDWARE DESIGN, IMPLEMENTATION, AND OPTIMIZATION
Short Title: ADV DIGITAL DESIGN & IMPLEMENT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 326 or COMP 326
Description: This course addresses advanced issues in custom digital IC design. Topics range from physical-layer analysis and modeling of new devices, interconnect, and power supply, to circuit-level design techniques for low power and high performance, to application-oriented digital circuits/systems for security and machine learning. Graduate/Undergraduate Equivalency: ELEC 555. Mutually Exclusive: Cannot register for ELEC 427 if student has credit for ELEC 555. Repeatable for Credit.

ELEC 429 - INTRODUCTION TO COMPUTER NETWORKS
Short Title: INTRO TO COMPUTER NETWORKS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 221 or COMP 321
Course URL: www.clear.rice.edu/comp429/ (http://www.clear.rice.edu/comp429/)
ELEC 430 - MODERN COMMUNICATION THEORY AND PRACTICE
Short Title: MODERN COMM. THEORY & PRACTICE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301 and ELEC 303
Description: This is an upper-level course in digital communications, which is designed to prepare students for engineering work in high-tech industries and for graduate work in communications, signal processing, and computer systems. The course covers basic concepts and useful tools for design and performance analysis of transmitters and receivers in the physical layer of a communication system, including multiple antenna MIMO systems. A hands-on laboratory using a state-of-the-art radio testbed illustrates course concepts. Mutually Exclusive: Cannot register for ELEC 430 if student has credit for ELEC 551. Graduate/Undergraduate Equivalency: ELEC 551. Mutually Exclusive: Cannot register for ELEC 430 if student has credit for ELEC 551.

ELEC 431 - DIGITAL SIGNAL PROCESSING
Short Title: DIGITAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301
Description: Methods for analysis of discrete-time signals and design of discrete-time systems including topics of: discrete-time linear systems, difference equations, z-transforms, discrete convolution, stability, discrete-time Fourier transforms, analog-to-digital and digital-to-analog conversion, digital filter design, discrete Fourier transforms, fast Fourier transforms, multi-rate signal processing, filter banks, and spectral analysis. Graduate/Undergraduate Equivalency: ELEC 558. Mutually Exclusive: Cannot register for ELEC 431 if student has credit for ELEC 558.

ELEC 432 - MOBILE BIO-BEHAVIORAL SENSING
Short Title: MOBILE BIO-BEHAVIORAL SENSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301
Description: In the next-generation of devices, designed for diverse fields as healthcare and education, the devices will understand the human user. At the core of this understanding will be data that is gathered from a new class of sensors, that can measure both biological and behavioral markers. This course introduces the fundamentals of bio- and behavioral sensing. Graduate/Undergraduate Equivalency: ELEC 534. Mutually Exclusive: Cannot register for ELEC 432 if student has credit for ELEC 302/ELEC 534.

ELEC 433 - ARCHITECTURE FOR WIRELESS COMMUNICATIONS
Short Title: ARCH - WIRELESS COMMUNICATIONS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301 and (ELEC 326 or COMP 326)
Description: This is an FPGA laboratory course. Students will embark upon a detailed study and implementation of digital communications systems. Major functional blocks of end-to-end wireless communication systems will be discussed, built, and tested in hardware. Course will also cover analysis and design of communication systems, especially modulation, demodulation and detection. Students will benefit from a combined theory-lab approach to communications and work in groups on weekly lab assignments and a major semester project. Graduate/Undergraduate Equivalency: ELEC 536. Mutually Exclusive: Cannot register for ELEC 433 if student has credit for ELEC 536.

ELEC 434 - ADVANCED HIGH-SPEED SYSTEM DESIGN
Short Title: ADV H/S SYSTEM DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 305 and ELEC 244
Description: This course covers practical aspects of high-speed system design, highlights system design and simulation challenges, and demonstrates common pitfalls and how to prevent them. In this course, students will learn how to design, do gigahertz speed PCB layout, simulate (spice and Hyperlynx), and apply good design practices to minimize both component and system noise and to ensure system design success. Graduate/Undergraduate Equivalency: ELEC 543. Mutually Exclusive: Cannot register for ELEC 434 if student has credit for ELEC 543.

ELEC 435 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS
Short Title: INTRO TO MECHATRONICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242 or ELEC 243
Description: Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Cross-list: MECH 435. Graduate/Undergraduate Equivalency: ELEC 532. Mutually Exclusive: Cannot register for ELEC 435 if student has credit for ELEC 532.
extend the coverage area.

on system-wide performance; and plan deployment of additional nodes to

of wireless nodes; study the effects of traffic and channel characteristics

neighborhood to characterize the system capacity; optimize placement

measurement studies both in the Rice Networks Lab and in the East End

resourced communities with access to technology and educational

neighborhood. The objective of this network is to empower under-

Description:

Professional or Visiting Undergraduate level students.

Restrictions:

Credit Hours:

Course Type:

Grade Mode:

Department:

Course Level: Undergraduate Upper-Level

Prerequisite(s): (CAAM 335 and MECH 343) or (MATH 355 and

MECH 343) or (CAAM 335 and ELEC 242 and ELEC 244) or (MATH 355

and ELEC 242 and ELEC 244)

Description: Linear systems and the fundamental principles of classical

feedback control, state variable analysis of linear dynamic systems,

stability of linear control systems, time-domain analysis and control of

linear systems, root-locus analysis and design and pole-zero synthesis,

frequency domain techniques for the analysis and design of control

systems. Required for mechanical engineering majors in B.S. program.

Cross-list: MECH 420.

ELEC 437 - INTRODUCTION TO COMMUNICATION NETWORKS

Short Title: INTRO TO COMMUNICATION NETWORK

Department: Electrical & Computer Eng.

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate

Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): ELEC 303

Description: Introduction to design and analysis of communication

networks. Topics include wireless networks, media access, routing traffic

modeling, congestion control, and scheduling. Graduate/Undergraduate

Equivalency: ELEC 539. Mutually Exclusive: Cannot register for ELEC 437

if student has credit for ELEC 539.

ELEC 438 - WIRELESS NETWORKING FOR UNDER-RESOURCED URBAN

COMMUNITIES

Short Title: WIRELESS NETWKG UNDER-RESRC'D

Department: Electrical & Computer Eng.

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate

Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: The Rice Networks Group and the non-profit organization

Technology For All have recently deployed a state-of-the art wireless

network in one of Houston's most economically disadvantaged

neighborhoods. The objective of this network is to empower under-

resourced communities with access to technology and educational

and work-at-home tools. In this course project teams will perform

measurement studies both in the Rice Networks Lab and in the East End

neighborhood to characterize the system capacity; optimize placement

of wireless nodes; study the effects of traffic and channel characteristics

on system-wide performance; and plan deployment of additional nodes to

extend the coverage area.

ELEC 439 - DATA SCIENCE AND DYNAMICAL SYSTEMS

Short Title: DATA AND SYSTEMS

Department: Electrical & Computer Eng.

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 3

Restrictions: Enrollment is limited to Undergraduate, Undergraduate

Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: In many applications one is faced with the task of simulating

or controlling complex dynamical systems. Such applications include

for instance, weather prediction, air quality management, VLSI chip

design, molecular dynamics, active noise reduction, chemical reactors,

etc. In all these cases complexity manifests itself as the number of first

order differential equations which arise. Model (order) reduction (MOR)

seeks to replace a large-scale system described in terms of differential

or difference equations by a system of much lower dimension that has

nearly the same response characteristics. The ensuing methods have

been an indispensable tool for speeding up the simulations arising

in various engineering applications involving large-scale dynamical

systems. In this course we will develop the underlying approximation

theory paying particular attention to its data-driven aspects. Graduate/

Undergraduate Equivalency: ELEC 519. Recommended Prerequisite(s):

ELEC 301 OR MATH 355 OR CAAM 335 Mutually Exclusive: Cannot

register for ELEC 439 if student has credit for ELEC 519.

ELEC 440 - ARTIFICIAL INTELLIGENCE

Short Title: ARTIFICIAL INTELLIGENCE

Department: Electrical & Computer Eng.

Grade Mode: Standard Letter

Course Type: Lecture

Credit Hours: 4

Restrictions: Enrollment is limited to Undergraduate, Undergraduate

Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Prerequisite(s): MATH 212 and (ELEC 303 or STAT 310 or ECON 307 or

STAT 312 or STAT 315 or DSCI 301) and (CAAM 334 or CAAM 335 or

MATH 354 or MATH 355) and (COMP 382 or COMP 582) and COMP 310

Description: This is a foundational course in artificial intelligence, the

discipline of designing intelligent agents. The course will cover the

design and analysis of agents that do the right thing in the face of limited

information and computational resources. The course revolves around

two main questions: how agents decide what to do, and how they learn

from experience. Tools from computer science, probability theory, and

game theory will be used. Interesting examples of intelligent agents

will be covered, including poker playing programs, bots for various

games (e.g. WoW), DS1 -- the spacecraft that performed an autonomous

flyby of Comet Borrely in 2001, Stanley -- the Stanford robot car that

won the Darpa Grand Challenge, Google Maps and how it calculates

driving directions, face and handwriting recognizers, Fedex package

delivery planners, airline fare prediction sites, and fraud detectors in

financial transactions. Cross-list: COMP 440. Graduate/Undergraduate

Equivalency: ELEC 557. Mutually Exclusive: Cannot register for ELEC 440

if student has credit for ELEC 557.

Course URL: www.owlnet.rice.edu/~comp440 (http://

www.owlnet.rice.edu/~comp440/)
ELEC 441 - COMPUTATIONAL IMAGING
Short Title: COMPUTATIONAL IMAGING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A upper-level introduction to imaging systems as an integral part of the sense-process-decide-act cycle. This cycle is central to the operation of any goal-directed system, biological or engineered. Students will gain a basic understanding of the mechanisms by which information about a scene is encoded on an electro-magnetic wave. Furthermore, the students will learn to analyze the information extraction process realized via the imaging chain of front-end optics, transduction, and post-processing. The objective of the course is to understand the limits of modern image formation and how optics, photonic-to-electronic transduction, and post-detection processing can be jointly designed to enable imagers with unique capabilities. Graduate/Undergraduate Equivalency: ELEC 579.

ELEC 442 - INTRODUCTION TO ANALOG INTEGRATED CIRCUITS
Short Title: ANALOG INTEGRATED CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 242
Description: There has been growing interest in analog computing in both academia and industry in the era of artificial intelligence. This course provides a comprehensive introduction to various aspects of modern analog integrated circuits. Students will learn how to 1) analyze, simulate and design a complementary metal oxide semiconductor (CMOS) analog integrated circuit, 2) analyze and simulate elementary transistor stages, current mirrors, supply- and temperature-independent bias and reference circuits, and 3) explore performance evaluation using computer-aided design tools. Graduate/Undergraduate Equivalency: ELEC 516. Mutually Exclusive: Cannot register for ELEC 442 if student has credit for ELEC 516.

ELEC 445 - INTRODUCTION TO DIGITAL IMAGE AND VIDEO PROCESSING
Short Title: DIGITAL IMAGE & VIDEO PROC.
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301
Description: This course covers theory and tools for representing and processing digital images and video. Topics include: multi-dimensional sampling, transforms, and filtering; human visual perception; visual scanning and display; tomographic reconstruction; image and video coding theory and standards; video streaming; and, image restoration. Recommended Prerequisite(s): ELEC 431

ELEC 446 - MOBILE DEVICE APPLICATIONS PROJECT
Short Title: MOBILE DEVICE APPLICATIONS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Connected mobile devices require updated programming models and design concepts to take advantage of their capabilities. We will explore applications primarily on the Apple iPhone and iPad but will also cover smart watches, Google Android and intelligent voice assistants like Amazon Echo and Google Home. We will briefly touch on the development of web services to support mobile applications. The course culminates with a large project taking up most of the second half of the semester. Although the curriculum centers around and teaches iOS and Xcode, final projects may be completed in any major mobile system including Android and Alexa, etc. Cross-list: COMP 446. Recommended Prerequisite(s): COMP 310 or prior Object Oriented Programming experience highly recommended.

ELEC 447 - INTRODUCTION TO COMPUTER VISION
Short Title: INTRO TO COMPUTER VISION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 301 or ELEC 475 or COMP 314 or ELEC 322 or COMP 330
Description: An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Cross-list: COMP 447. Graduate/Undergraduate Equivalency: ELEC 546. Mutually Exclusive: Cannot register for ELEC 447 if student has credit for ELEC 345/ELEC 546.
ELEC 450 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): ELEC 261 and ELEC 305
Description: This is a course for juniors and seniors whose specialization is in photonics, electronics, and nanoengineering. This course will provide an introduction to elementary topics in solid state physics, including free electron Fermi gas, crystal structure, reciprocal lattice, lattice vibrations, electronic band structure, Bloch electron dynamics, superconductivity, magnetism, and optical properties.

ELEC 460 - PHYSICS OF SENSOR MATERIALS AND NANOSENSOR TECHNOLOGY
Short Title: PHYSICS OF SENSORS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): ELEC 261 and ELEC 305
Description: This course provides an introduction to the fundamental principles of semiconductor optoelectronic devices. After reviewing the basic elements of quantum mechanics of electrons and photons, light-matter interaction (including laser oscillations), and semiconductor physics (band structure, heterostructures and alloys, optical processes), we will study the details of modern semiconductor devices for the generation, detection, and modulation of light. Graduate/Undergraduate Equivalency: ELEC 562. Mutually Exclusive: Cannot register for ELEC 462 if student has credit for ELEC 562.

ELEC 462 - OPTOELECTRONIC DEVICES
Short Title: OPTOELECTRONIC DEVICES
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): ELEC 305
Description: This course provides an introduction to the fundamental principles of semiconductor optoelectronic devices. After reviewing the basic elements of quantum mechanics of electrons and photons, light-matter interaction (including laser oscillations), and semiconductor physics (band structure, heterostructures and alloys, optical processes), we will study the details of modern semiconductor devices for the generation, detection, and modulation of light. Graduate/Undergraduate Equivalency: ELEC 562. Mutually Exclusive: Cannot register for ELEC 462 if student has credit for ELEC 562.

ELEC 467 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ELEC 475 - LEARNING FROM SENSOR DATA
Short Title: LEARNING FROM SENSOR DATA
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to the fundamental principles of semiconductor optoelectronic devices. After reviewing the basic elements of quantum mechanics of electrons and photons, light-matter interaction (including laser oscillations), and semiconductor physics (band structure, heterostructures and alloys, optical processes), we will study the details of modern semiconductor devices for the generation, detection, and modulation of light. Graduate/Undergraduate Equivalency: ELEC 575. Mutually Exclusive: Cannot register for ELEC 475 if student has credit for ELEC 575.

ELEC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
ELEC 478 - INTRODUCTION TO MACHINE LEARNING
Short Title: INTRO TO MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 405 or CAAM 210 or COMP 140) and (CAAM 335 or MATH 355 or MATH 354) and (ELEC 301 or STAT 315 or DSCI 301)
Description: This course is an advanced introduction to concepts, methods, best practices, and theoretical foundations of machine learning. Topics covered include regression, classification, regularization, kernels, clustering, dimension reduction, decision trees, ensemble learning, and neural networks. Graduate/Undergraduate Equivalency: ELEC 578. Mutually Exclusive: Cannot register for ELEC 478 if student has credit for DSCI 303.

ELEC 483 - MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING
Short Title: NEURAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355 or CAAM 335) and (ELEC 303 or STAT 305 or STAT 310 or ECON 307) and (CAAM 210 or COMP 140)
Description: This course covers advanced statistical signal processing and machine learning approaches for modern neuroscience data (primarily many-channel spike trains). Topics include latent variable models, point processes, Bayesian inference, dimensionality reduction, dynamical systems, and spectral analysis. Neuroscience applications include modeling neural firing rates, spike sorting, decoding. Graduate/Undergraduate Equivalency: ELEC 548. Recommended Prerequisite(s): ELEC 475 and STAT 413 and COMP 540 and (ELEC 242 or ELEC 243)
Mutually Exclusive: Cannot register for ELEC 483 if student has credit for ELEC 548.

ELEC 485 - FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 481 or BIOE 485 or COMP 485
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-Ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Cross-list: BIOE 485, COMP 485. Graduate/Undergraduate Equivalency: ELEC 585. Recommended Prerequisite(s): MATH 211 and MATH 212.
Mutually Exclusive: Cannot register for ELEC 485 if student has credit for ELEC 585.

ELEC 486 - FUNDAMENTALS OF MEDICAL IMAGING II
Short Title: FUND MEDICAL IMAGING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 485 or BIOE 485 or COMP 485
Description: This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site in also planned to gain experience with nuclear medicine imaging. Cross-list: BIOE 486, COMP 486. Graduate/Undergraduate Equivalency: ELEC 586. Mutually Exclusive: Cannot register for ELEC 486 if student has credit for ELEC 586.

ELEC 487 - IMAGING OPTICS
Short Title: IMAGING OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 102 or PHYS 112 or PHYS 126
Description: The course covers the fundamental properties of light propagation and interaction with matter under the approximations of geometrical optics and scalar wave optics, as well as the fundamentals of optical microscopy. The course emphasizes a system approach to the analysis and design of optical systems from a user and an engineering perspective, focusing on the physical intuition and underlying mathematical tools, and application of the physical concepts to topical engineering domains such as a selection of microscopy techniques. Students will have direct hands-on experience with optics and optical imaging systems in the classroom. Graduate/Undergraduate Equivalency: ELEC 582.

ELEC 488 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS
Short Title: THEORETICAL NEUROSCIENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Cross-list: CAAM 415, NEUR 415. Graduate/Undergraduate Equivalency: ELEC 588. Recommended Prerequisite(s): CAAM 210 or MATH 211 or CAAM 335 or MATH 355. Mutually Exclusive: Cannot register for ELEC 488 if student has credit for ELEC 588.
ELEC 489 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including "what does a network compute?", "how does it compute?", and "why does it compute that way?" Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: CAAM 416, NEUR 416.
Graduate/Undergraduate Equivalency: ELEC 589. Mutually Exclusive: Cannot register for ELEC 489 if student has credit for ELEC 589.

ELEC 490 - UNDERGRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS
Short Title: UG ELEC ENG’G RES PROJECTS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theoretical and experimental investigations under staff direction. A research project plan should be prepared and approved by the faculty member advising the project. Information about ELEC 490 project plans is available on the ECE Web site on the Academics section under ECE forms. May be repeated for a total of 6 credit hours for undergraduates. Instructor Permission Required. Repeatable for Credit.

ELEC 491 - UNDERGRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS-VERTICALLY INTEGRATED PROJECTS
Short Title: UG ELEC ENG’G RESEARCH VIP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Vertically Integrated Projects (VIP) teams include students from multiple years working on one larger, multi-year project defined by the instructor. Students participating in VIP for 3 or more semesters may be eligible for the Distinction in Research and Creative Work graduation award. Instructor Permission Required. Graduate/Undergraduate Equivalency: ELEC 591. Repeatable for Credit.

ELEC 494 - SENIOR DESIGN
Short Title: SENIOR DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Senior Design is a year-long course required of all BSEE-degree students. In order to fulfill the BSEE degree requirements, students must register for ELEC 494 for both fall and spring semesters of the same academic year. The course is taught in conjunction with the Senior Design courses in BioEngineering and in Mechanical Engineering and Materials Science. Teams of students will design, construct, and document a prototype system to meet specifications determined by the team and the instructor. Senior design projects are the culmination of the Rice engineering experience. Cross-departmental projects are allowed and encouraged, and extensive use will be made of the Oshman Engineering Design Kitchen. Many projects will involve advisors from industrial affiliates. Throughout the year there will be several opportunities for presentations on the project. Top projects will be eligible for several awards from within Rice and outside the university, including some nation-wide competitions. Instructor Permission Required. Repeatable for Credit.

ELEC 495 - TRANSFER CREDIT - SENIOR
Short Title: TRANSFER CREDIT - SENIOR
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for transfer credit for courses not offered at Rice. Permission of ECE Undergraduate Committee and review by faculty in related specialization area is required. ELEC 495 is for Senior level ECE Specialization course credit. Department Permission Required. Repeatable for Credit.

ELEC 497 - DESIGN OF ANALOG PRINTED CIRCUIT BOARDS
Short Title: ANALOG PRINTED CIRCUIT BOARDS
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 494 (may be taken concurrently) or BIOE 451 (may be taken concurrently) or MECH 407 (may be taken concurrently)
Description: This course covers the basics of designing, fabricating, and testing daughter cards for microcontrollers such as the Arduino. Using PCB design software such as Eagle, students will design, fabricate, and test their printed circuit board. Prerequisites may be taken concurrently.
ELEC 498 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 354 or MATH 355 or CAAM 335
Description: The course will provide the student with a mathematical introduction to many of the key ideas used in today's intelligent robot systems. The focus of the course is on the analysis and control of manipulators. The course will also give an overview of common approaches to building intelligent robot systems. Cross-list: COMP 498, MECH 498. Graduate/Undergraduate Equivalency: ELEC 598. Recommended Prerequisite(s): MECH 211 or CEVE 211 or MECH 310
Mutually Exclusive: Cannot register for ELEC 498 if student has credit for ELEC 598.

ELEC 502 - NEURAL MACHINE LEARNING I
Short Title: NEURAL MACHINE LEARNING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of major neural machine learning (Artificial Neural Network) paradigms. Analytical discussion of supervised and unsupervised neural learning algorithms and their relation to information theoretical methods. Practical applications to data analysis such as pattern recognition, clustering, classification, function approximation/ regression, non-linear PCA, projection pursuit, independent component analysis, with lots of examples from image and digital processing. Details are posted at www.ece.rice.edu/~erzsebet/ANNcourse.html. Cross-list: COMP 502, STAT 502. Recommended Prerequisite(s): ELEC 430 and ELEC 431 or equivalent of instructor.
Course URL: www.ece.rice.edu/~erzsebet/ANNcourse.html (http://www.ece.rice.edu/~erzsebet/ANNcourse.html)

ELEC 507 - NON LINEAR DYNAMIC SYSTEMS ANALYSIS
Short Title: NONLINEAR DYNAMIC SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analytical methods for the study of nonlinear systems are introduced, including singular point and phase plane analysis, the describing function technique, Lyapunov and Lagrangian state functions, stability analysis, bifurcation analysis, and chaotic behavior in nonlinear dynamic systems. As a substrate for the study of nonlinear systems, numerical analysis of ordinary and partial differential equations, boundary value problems, simulation methods, parameter estimation and sensitivity analysis methods are also included.

ELEC 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL
Short Title: NONLINEAR SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

ELEC 510 - SECURE AND CLOUD COMPUTING
Short Title: SECURE & CLOUD COMPUTING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What is “cloud computing?” How do we build cloud-scale systems and components that are secure against malicious attacks, and scale to millions of users? Many of today's services run inside the cloud – a set of geographically distributed data centers running heterogeneous software stacks. Cloud systems must scale across tens of thousands of machines, support millions of concurrent requests, and they must do so with high security guarantees. This course will start with the fundamentals of cloud computing, introduce key techniques in building scalable and secure systems and expose students to state-of-the-art research advances as well as emerging security threats and defenses in today's cloud systems. Cross-list: COMP 536. Graduate/Undergraduate Equivalency: ELEC 410. Mutually Exclusive: Cannot register for ELEC 510 if student has credit for ELEC 410.

ELEC 511 - DESIGN AND ANALYSIS OF SECURE EMBEDDED SYSTEMS FOR IoT ERA
Short Title: SECURE EMBEDDED SYS FOR IoT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course emphasizes the security of small embedded devices that are central to the Internet of Things (IoT) Era. We discuss the practical security attacks, challenges, constraints, and opportunities that arise in the IoT domain. Covered topics include security engineering, real world attacks, practical and side channel attacks, and hands-on lab/ projects. Cross-list: COMP 508. Repeatable for Credit.
ELEC 512 - GRADUATE DESIGN AND ANALYSIS OF ALGORITHMS
Short Title: GR DESIGN ANALY OF ALGORITHMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 305, ELEC 331 or Equivalent
Description: Methods for designing and analyzing computer algorithms and data structures. Topics include design, analysis, and complexity of algorithms and data structures. Cross-list: COMP 582.

ELEC 513 - COMPLEXITY IN MODERN SYSTEMS
Short Title: COMPLEXITY IN MODERN SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A modern computer is a system with enormous complexity in both software and hardware. The course presents the principles for managing such complexity using examples from modern computing systems. It covers: 1) Emergent issues from system complexity such as energy efficiency, bug finding, and heterogeneous hardware. It also covers designing experiments and writing systems papers. The course consists of lectures, student presentation of classic papers, and a final project. Cross-list: COMP 513.

ELEC 514 - WIRELESS INTEGRATED CIRCUITS AND SYSTEMS
Short Title: WIRELESS IC
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Modern wireless systems require the design and simulation of complex analog and digital circuits. This course covers the design and simulation of modern wireless transceivers. Topics include system architectures, low noise amplifiers, mixers, power amplifiers, etc., in a wireless transceiver. Cross-list: COMP 514.

ELEC 515 - MACHINE LEARNING FOR RESOURCE-CONSTRAINED PLATFORMS
Short Title: MACHINE LEARNING FOR RESOURCE-CONSTRAINED PLATFORMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Modern machine learning systems and algorithms are in tremendous demand in numerous applications; however, their often prohibitive complexity remains a major challenge for their widespread deployment in resource-constrained domains. This course will introduce techniques which enable the development of energy/time efficient machine learning systems, while maintaining their powerful performance. The course will cover topics such as energy/time efficient machine learning systems, such as Google's TPU and Eyeriss. Cross-list: COMP 515.

ELEC 516 - ANALOG INTEGRATED CIRCUITS
Short Title: ANALOG INTEGRATED CIRCUITS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamental electronics and analysis of linear and nonlinear analog circuits. Recommended Prerequisite(s): ELEC 303 or STAT 312

ELEC 517 - MICROWAVE ENGINEERING
Short Title: MICROWAVE ENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics covered include transmission line, Smith Chart, scattering parameters, impedance matching, passive microwave circuits, and antenna design fundamentals. Recommended Prerequisite(s): ELEC 303 or STAT 312

ELEC 518 - EMBEDDED MACHINE LEARNING
Short Title: EMBEDDED MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Modern machine learning systems and algorithms are in tremendous demand in numerous applications; however, their often prohibitive complexity remains a major challenge for their widespread deployment in resource-constrained domains. This course will introduce techniques which enable the development of energy/time efficient machine learning systems, while maintaining their powerful performance. The course will cover topics such as energy/time efficient machine learning systems, such as Google's TPU and Eyeriss. Cross-list: COMP 518.
ELEC 518 - EMBEDDED COMPUTER SYSTEMS PROGRAMMING
Short Title: EMBEDDED SYSTEMS PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Embedded computer systems programming focuses on the integrated design of hardware and software for system on chip devices. The course will develop an integrated foundation including principles, practices, and experimentation. Computer languages including C and C++ will be used to analyze and implement algorithms. Object-oriented programming for trees and graphs and other data structures will be explored. Embedded operating systems including Linux, peripheral interfacing, and development environments will be utilized in the laboratory. Additional course work required beyond the undergraduate course requirement. Mutually Exclusive: Cannot register for ELEC 518 if student has credit for ELEC 418. Graduate/Undergraduate Equivalency: ELEC 418. Recommended Prerequisite(s): COMP 140. ELEC 220, and (ELEC 327 or ELEC 332 or DSCI 400 or DSCI 435) Mutually Exclusive: Cannot register for ELEC 518 if student has credit for ELEC 418.

ELEC 519 - DATA SCIENCE AND DYNAMICAL SYSTEMS
Short Title: DATA AND SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In many applications one is faced with the task of simulating or controlling complex dynamical systems. Such applications include for instance, weather prediction, air quality management, VLSI chip design, molecular dynamics, active noise reduction, chemical reactors, etc. In all these cases complexity manifests itself as the number of first order differential equations which arise. Model (order) reduction (MOR) seeks to replace a large-scale system described in terms of differential or difference equations by a system of much lower dimension that has nearly the same response characteristics. The ensuing methods have been an indispensable tool for speeding up the simulations arising in various engineering applications involving large-scale dynamical systems. In this course we will develop the underlying approximation theory paying particular attention to its data-driven aspects. Additional coursework required beyond the undergraduate course requirements Graduate/Undergraduate Equivalency: ELEC 439. Mutually Exclusive: Cannot register for ELEC 519 if student has credit for ELEC 439.

ELEC 520 - DISTRIBUTED SYSTEMS
Short Title: DISTRIBUTED SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Course URL: www.cs.rice.edu/~alc/comp520/ (http://www.cs.rice.edu/~alc/comp520/)

ELEC 521 - ADVANCED DIGITAL INTEGRATED CIRCUITS DESIGN
Short Title: ADV DIGITAL IC DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course addresses advanced issues in custom digital IC design. Topics range from physical-level analysis and modeling of new devices, interconnect, and power supply, to circuit-level design techniques for low power and high performance, to application-oriented digital circuitsystems for security and machine learning. Graduate/Undergraduate Equivalency: ELEC 426. Recommended Prerequisite(s): ELEC 326/COMP 326 or ELEC 342 or Digital Circuit Courses.

ELEC 522 - ADVANCED VLSI DESIGN
Short Title: ADV VLSI DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design and analysis of algorithm-specific VLSI processor architectures. Topics include the implementation of pipelined and systolic processor arrays. Techniques for mapping numerical algorithms onto custom processor arrays. Course includes design project using high-level VLSI synthesis tools.
Course URL: www.owlnet.rice.edu/~elec522 (http://www.owlnet.rice.edu/~elec522/)
ELEC 523 - INTRODUCTION TO MICROFABRICATION
Short Title: INTRO TO MICROFABRICATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of VLSI technology and design. MOS devices, characteristics and fabrication. Logic design and implementation. VLSI design methodology, circuit simulation and verification. Additional course work required beyond the undergraduate course requirement. Graduate/Undergraduate Equivalency: ELEC 422. Mutually Exclusive: Cannot register for ELEC 527 if student has credit for ELEC 422.

ELEC 524 - MOBILE AND WIRELESS NETWORKING
Short Title: MOBILE AND WIRELESS NETWORKING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: Study of network protocols for mobile and wireless networking, particularly at the media access control, network, and transport protocol layers. Focus is on the unique problems and challenges presented by the properties of wireless transmission and host or router mobility. Cross-list: COMP 524. Recommended Prerequisite(s): COMP 421 OR ELEC 421.

ELEC 525 - VIRTUALIZATION AND CLOUD RESOURCE MANAGEMENT
Short Title: VIRTUAL & CLOUD RESOURCE MGMT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 425 or COMP 425
Description: Virtualization and cloud-computing techniques. Processor, memory and storage virtualization in virtual machines. Cloud computing architecture. Security aspects of cloud computing. Cross-list: COMP 525. Recommended Prerequisite(s): ELEC 425 or COMP 425

ELEC 526 - HIGH PERFORMANCE COMPUTER ARCHITECTURE
Short Title: HIGH PERFORM COMPUTER ARCH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Design of high performance computer systems, including shared-memory and message-passing multiprocessors and vector systems. Hardware and software techniques to tolerate and reduce memory and communication latency. Case studies and performance simulation of high-performance systems. Cross-list: COMP 526. Recommended Prerequisite(s): ELEC 425 or COMP 425

ELEC 527 - VLSI SYSTEMS DESIGN
Short Title: VLSI SYSTEMS DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: This course explores advanced solutions in computer networks that are driven by the need to go beyond the best-effort capabilities of the Internet. Topics include network fault tolerance, traffic engineering, scalable data center network architectures, network support for big data processing, network support for cloud computing, extensible network control via software defined networking, denial-of-service-attack defense mechanisms. Readings from original research papers. Also include design project and oral presentation components. This course assumes students already have a good understanding of the best-effort Internet. Cross-list: COMP 529. Repeatable for Credit.
Course URL: www.clear.rice.edu/comp529/ (http://www.clear.rice.edu/comp529/)

ELEC 528 - SECURITY TOPICS OF EMBEDDED SYSTEMS
Short Title: EMBEDDED HW SYSTEMS SECURITY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: This course covers wide range of topics pertaining to security of Hardware Embedded systems, including cryptographic processors, secure memory access, hardware IT protection by monitoring and watermarking FPGA security, physical and side-charmed attacks, Trojan horses. Cross-list: COMP 538. Repeatable for Credit.
Course URL: www.ece.rice.edu/~fk1/ (http://www.ece.rice.edu/~fk1/)

ELEC 529 - ADVANCED COMPUTER NETWORKS
Short Title: ADVANCED COMPUTER NETWORKS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 429 or ELEC 429
Description: This course covers wide range of topics pertaining to security of Hardware Embedded systems, including cryptographic processors, secure memory access, hardware IT protection by monitoring and watermarking FPGA security, physical and side-charmed attacks, Trojan horses. Cross-list: COMP 538. Repeatable for Credit.
Course URL: www.ece.rice.edu/~fk1/ (http://www.ece.rice.edu/~fk1/)

ELEC 530 - DETECTION THEORY
Short Title: DETECTION THEORY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Classic and modern methods of optimal decisions in communications and signal processing. Continuous- and discrete-time methods. Gaussian and non-Gaussian problems.
ELEC 531 - STATISTICAL SIGNAL PROCESSING  
Short Title: STATISTICAL SIGNAL PROCESSING  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Statistical models for single- and multi-channel signals. Optimal detection and estimation solutions for Gaussian and non-Gaussian environments. Recommended Prerequisite(s): ELEC 533 and knowledge of digital signal processing at the level of ELEC 431.

ELEC 532 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS  
Short Title: INTRO TO MECHATRONICS  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Additional coursework required beyond the undergraduate course requirements. Cross-list: MECH 537. Graduate/Undergraduate Equivalency: ELEC 435. Mutually Exclusive: Cannot register for ELEC 532 if student has credit for ELEC 435.

ELEC 533 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS  
Short Title: INTRO RANDOM PROCESSES & APPL  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems, expansions of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: CAAM 583, STAT 583.

ELEC 534 - MOBILE BIO-BEHAVIORAL SENSING  
Short Title: MOBILE BIO-BEHAVIORAL SENSING  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: In the next-generation of devices, designed for diverse fields as healthcare and education, the devices will understand the human user. At the core of this understanding will be data that is gathered from a new class of sensors, that can measure both biological and behavioral markers. This course introduces the fundamentals of bio- and behavioral sensing. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 432. Mutually Exclusive: Cannot register for ELEC 534 if student has credit for ELEC 432.

ELEC 535 - INFORMATION THEORY  
Short Title: INFORMATION THEORY  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to information theory concepts; basic theorems of channel coding and source coding with a fidelity criterion. The course material requires background of a first course in probability, like Rice ELEC 303.

ELEC 536 - ARCHITECTURE FOR WIRELESS COMMUNICATIONS  
Short Title: ARCH - WIRELESS COMMUNICATIONS  
Department: Electrical & Computer Eng.  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This is an FPGA laboratory course. Students will embark upon a detailed study and implementation of digital communications systems. Major functional blocks of end-to-end wireless communication systems will be discussed, built, and tested in hardware. Course will also cover analysis and design of communication systems, especially modulation, demodulation and detection. Students will benefit from a combined theory-lab approach to communications and work in groups on weekly lab assignments and a major semester project. Graduate/Undergraduate Equivalency: ELEC 433. Mutually Exclusive: Cannot register for ELEC 536 if student has credit for ELEC 433.
ELEC 538 - ADVANCED WIRELESS NETWORKING
Short Title: ADVANCED WIRELESS NETWORKING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics in next generation mobile and wireless networks. Recommended Prerequisite(s): An introductory course in networking or communications is recommended.

ELEC 549 - INTRODUCTION TO COMMUNICATION NETWORKS
Short Title: INTRO TO COMMUNICATION NETWORK
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to design and analysis of communication networks. Topics include wireless networks, media access, routing traffic modeling, congestion control, and scheduling. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 437. Mutually Exclusive: Cannot register for ELEC 539 if student has credit for ELEC 437.

ELEC 540 - ADVANCED WIRELESS COMMUNICATIONS
Short Title: ADVANCED WIRELESS COMM
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course will teach advanced techniques in wireless, e.g. MIMO, Massive MIMO, Full-duplex and Coordinated Multi-point. The focus will be on both the theoretical foundations and practical use in actual systems, explored with a combination of lectures, homeworks, data-driven evaluations and mini-projects. Recommended Prerequisite(s): ELEC 430 or ELEC 551 or ELEC 535.

ELEC 541 - ERROR CORRECTING CODES
Short Title: ERROR CORRECTING CODES
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 430
Description: Introductory course on error correcting codes. Topics covered include linear block codes, convolutional codes, turbo codes and LDPC codes.

ELEC 542 - THE APPLICATION OF VECTOR SPACE METHODS AND OTHER ADVANCED TECHNIQUES TO DSP
Short Title: VECTOR SPACES AND DSP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 431 (may be taken concurrently)
Description: The course will introduce the application of vector space methods to digital signal processing. This includes topics such as representing a signal using basis expansions, Gram-Schmidt orthogonalization, linear inverse problems, gradient-descent, the use of regularization in approximation, and other advanced topics. The course may be taken in the same semester as ELEC 431.

ELEC 543 - ADVANCED HIGH-SPEED SYSTEM DESIGN
Short Title: ADV H-S SYSTEM DESIGN
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers practical aspects of high-speed system design, highlights system design and simulation challenges, and demonstrates common pitfalls and how to prevent them. In this course, students will learn how to design, do gigahertz speed PCB layout, simulate (spice and Hyperlynx), and apply good design practices to minimize both component and system noise and to ensure system design success. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 434. Recommended Prerequisite(s): Knowledge of mixed analog/digital circuits, active filters and transmission line theories. Mutually Exclusive: Cannot register for ELEC 543 if student has credit for ELEC 434.

ELEC 544 - ADVANCED DSP
Short Title: ADVANCED DSP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will cover advanced topics in FIR and IIR digital filter design, advanced topics in signal processing algorithms, especially in FFTs and high speed convolution and correlation, and in wavelet based signal processing and the discrete wavelet transform. The course will be one-half lecture based and one-half project based.
**ELEC 545 - INTRODUCTION TO DIGITAL IMAGE AND VIDEO PROCESSING**

**Short Title:** DIGITAL IMAGE & VIDEO PROC.
**Department:** Electrical & Computer Eng.
**Grade Mode:** Standard Letter
**Course Type:** Lecture/Laboratory
**Credit Hours:** 3
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate

**Description:** This course covers theory and tools for representing and processing digital images and video. Topics include: multi-dimensional sampling, transforms, and filtering; human visual perception; visual scanning and display; tomographic reconstruction; image and video coding theory and standards; video streaming; and, image restoration. Recommended Prerequisite(s): Knowledge of the fundamentals of signals and systems and digital signal processing.

**ELEC 546 - INTRODUCTION TO COMPUTER VISION**

**Short Title:** INTRO TO COMPUTER VISION
**Department:** Electrical & Computer Eng.
**Grade Mode:** Standard Letter
**Course Type:** Lecture/Laboratory
**Credit Hours:** 3
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate

**Description:** An introduction to the basic concepts, algorithms and applications in computer vision. Topics include: cameras, camera models and imaging pipeline, low-level vision/image processing methods such as filtering and edge detection; mid-level vision topics such as segmentation and clustering; shape reconstruction from stereo, introduction to high-level vision tasks such as object recognition and face recognition. The course will involve programming and implementing basic computer vision algorithms in Matlab. Additional course work required beyond the undergraduate course requirements. Additional coursework required beyond the undergraduate requirements. Cross-list: COMP 546. Graduate/Undergraduate Equivalency: ELEC 447. Mutually Exclusive: Cannot register for ELEC 546 if student has credit for ELEC 447.

**ELEC 547 - COMPUTER VISION**

**Short Title:** COMPUTER VISION
**Department:** Electrical & Computer Eng.
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 3
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate

**Description:** The goal of computer vision is to make sense of the three dimensional world from captured images and videos. This requires understanding how light interacts with objects in the environment and then captured by a camera. The goal is to solve problems such as estimating 3D shape of an environment (How does Kinect work?), how to detect and recognize people (How to build your own iPhoto?), detect and track how things move. The course provides an introduction to solving such problems using vision tools such as feature detection, image segmentation, motion estimation, image mosaics, 3D shape reconstruction, and object recognition.

**ELEC 548 - MACHINE LEARNING AND SIGNAL PROCESSING FOR NEURO ENGINEERING**

**Short Title:** NEURAL SIGNAL PROCESSING
**Department:** Electrical & Computer Eng.
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 3
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate

**Description:** This course covers advanced statistical signal processing and machine learning approaches for modern neuroscience data (primarily many-channel spike trains). Topics include latent variable models, point processes, Bayesian inference, dimensionality reduction, dynamical systems, and spectral analysis. Neuroscience applications include modeling neural firing rates, spike sorting, decoding. Cross-list: BIOE 548. Graduate/Undergraduate Equivalency: ELEC 483. Mutually Exclusive: Cannot register for ELEC 548 if student has credit for ELEC 483.

**ELEC 549 - COMPUTATIONAL PHOTOGRAPHY**

**Short Title:** COMPUTATIONAL PHOTOGRAPHY
**Department:** Electrical & Computer Eng.
**Grade Mode:** Standard Letter
**Course Type:** Lecture
**Credit Hours:** 3
**Restrictions:** Enrollment is limited to Graduate level students.
**Course Level:** Graduate

**Description:** Computational photography is an emerging field that aims to overcome the limitations of conventional digital imaging and display devices by using novel optics, signal processing and computer vision to perform more efficient and accurate measurement as well as produce more compelling and meaningful visualizations of the world around us. It is a convergence of many areas, such as optics, computer vision, computer graphics, image processing, photography, and so on. We will cover topics such as computational sensors with assorted pixel, mobile camera control, light field capture and rendering, computational flash photography, computational illumination for appearance acquisition and 3D reconstruction, reflectance transformation imaging, light transport analysis and novel displays.
ELEC 550 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon sin life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today’s robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: COMP 550, MECH 550. Graduate/Undergraduate Equivalency: ELEC 450. Mutually Exclusive: Cannot register for ELEC 550 if student has credit for ELEC 450.

ELEC 551 - MODERN COMMUNICATION THEORY AND PRACTICE
Short Title: MODERN COMM. THEORY & PRACTICE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an upper-level course in digital communications, which is designed to prepare students for engineering work in high-tech industries and for graduate work in communications, signal processing, and computer systems. The course covers basic concepts and useful tools for design and performance analysis of transmitters and receivers in the physical layer of a communication system, including multiple antenna MIMO systems. A hands-on laboratory using a state-of-the-art radio testbed illustrates course concepts. Additional coursework required beyond the undergraduate course requirements. Mutually Exclusive: Cannot register for ELEC 551 if student has credit for ELEC 430. Graduate/Undergraduate Equivalency: ELEC 430. Mutually Exclusive: Cannot register for ELEC 551 if student has credit for ELEC 430.

ELEC 552 - OPERATING SYSTEMS AND CONCURRENT PROGRAMMING
Short Title: OP SYS/CONCURRENT PROGRAMMING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 215 and (COMP 221 or COMP 321)
Description: Introduction to the design, construction, and analysis of concurrent programs with an emphasis on operating systems, including filing systems, schedulers, and memory allocators. Specific attention is devoted to process synchronization and communication within concurrent programs. Additional coursework required beyond the undergraduate course requirements. Cross-list: COMP 521. Graduate/Undergraduate Equivalency: ELEC 421. Mutually Exclusive: Cannot register for ELEC 552 if student has credit for ELEC 421.
Course URL: www.clear.rice.edu/comp421/ (http://www.clear.rice.edu/comp421/)

ELEC 553 - MOBILE AND EMBEDDED SYSTEM DESIGN AND APPLICATION
Short Title: MOBILE & EMBEDDED SYSTEM DESIGN AND APPLICATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: ELEC 553 introduces mobile and embedded system design and applications to students and provides them hands-on design experience. It consists of three interlearning parts: lectures, student project, and student presentations. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 424. Mutually Exclusive: Cannot register for ELEC 553 if student has credit for ELEC 424.

ELEC 554 - COMPUTER SYSTEMS ARCHITECTURE
Short Title: COMPUTER SYSTEMS ARCHITECTURE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Evolution of key architecture concepts found in advanced uniprocessor systems. Fundamental and advanced pipelining techniques and associated issues for improving processor performance. Illustrated with RISC processors such as the ARM processor. Examine several metrics for processor performance, such as Amdahl's law. Key concepts of data and program memory systems found in modern systems with memory hierarchies and caches. Perform experiments in cache performance analysis. Influence of technology trends, such as Moore's law, on processor implementation Approaches for exploiting instruction level parallelism, such as VLIW. Introduction to parallel and multicore architectures. Introduction to processor architectures targeted for imbedded applications. Additional coursework required beyond the undergraduate course requirements. Cross-list: COMP 554. Graduate/Undergraduate Equivalency: ELEC 425. Mutually Exclusive: Cannot register for ELEC 554 if student has credit for ELEC 425.
ELEC 555 - ADVANCED DIGITAL HARDWARE DESIGN, IMPLEMENTATION, AND OPTIMIZATION
Short Title: ADV DIGITAL DESIGN & IMPLEMENT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course will investigate design and implementation of modern digital signal processing, machine learning, and security algorithms in hardware (including FPGAs and ASICs). Along with learning the principals of design, students will acquire hands-on experience in hardware implementation and the use of the hardware in modern applications including but not limited to mobile phones, biomedical devices, and smart cards. Emphasis is on digital processors, design implementation on FPGA/ASIC fabrics and testing real systems on board, architectures, control, functional units, and circuit topologies for increased performance and reduced circuit size and power dissipation. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 427. Mutually Exclusive: Cannot register for ELEC 555 if student has credit for ELEC 427. Repeatable for Credit.

ELEC 556 - INTRODUCTION TO COMPUTER NETWORKS
Short Title: INTRO TO COMPUTER NETWORKS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 221 or COMP 321

ELEC 557 - ARTIFICIAL INTELLIGENCE
Short Title: ARTIFICIAL INTELLIGENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): COMP 310 and (STAT 310 or ECON 307 or ECON 382 or STAT 312 or STAT 331 or ELEC 331 or ELEC 303) and (MATH 354 or MATH 355 or CAAM 335)
Description: This is a foundational course in artificial intelligence, the discipline of designing intelligent agents. The course will cover the design and analysis of agents that do the right thing in the face of limited information and computational resources. The course revolves around two main questions: how agents decide what to do, and how they learn from experience. Tools from computer science, probability theory, and game theory will be used. Interesting examples of intelligent agents will be covered, including poker playing programs, bots for various games (e.g. WoW), DS1 -- the spacecraft that performed an autonomous flyby of Comet Borrely in 2001, Stanley -- the Stanford robot car that won the Darpa Grand Challenge, Google Maps and how it calculates driving directions, face and handwriting recognizers, Fedex package delivery planners, airline fare prediction sites, and fraud detectors in financial transactions. Additional coursework required beyond the undergraduate course requirements. Cross-list: COMP 557. Graduate/Undergraduate Equivalency: ELEC 440. Mutually Exclusive: Cannot register for ELEC 557 if student has credit for ELEC 440.

Course URL: www.owlnet.rice.edu/~comp440 [http://www.owlnet.rice.edu/~comp440/]

ELEC 558 - DIGITAL SIGNAL PROCESSING
Short Title: DIGITAL SIGNAL PROCESSING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Methods for analysis of discrete-time signals and design of discrete-time systems including topics of: discrete-time linear systems, difference equations, z-transforms, discrete convolution, stability, discrete-time Fourier transforms, analog-to-digital and digital-to-analog conversion, digital filter design, discrete Fourier transforms, fast Fourier transforms, multi-rate signal processing, filter banks, and spectral analysis. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 431. Mutually Exclusive: Cannot register for ELEC 558 if student has credit for ELEC 431.
ELEC 559 - INNOVATION LAB FOR MOBILE HEALTH  
**Short Title:** INNOVATION LAB - MOBILE HEALTH  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will be an innovation lab for mobile health products. The students will organize themselves in groups with complementary skills and work on a single project for the whole semester. The aim will be to develop a product prototype which can then be demonstrated to both medical practitioners and potential investors. For successful projects with an operational prototype, the next steps could be applying for OWLspark (Rice accelerator program) or crowd sourcing (like Kickstarter) and/or work in Scalable Health Labs over summer. ELEC Juniors can also continue the project outcomes as a starting point for their senior design. Additional course work required beyond the undergraduate course requirements. Cross-list: BIOC 534. Graduate/Undergraduate Equivalency: ELEC 419. Mutually Exclusive: Cannot register for ELEC 559 if student has credit for ELEC 419. Repeatable for Credit.  
**Course URL:** www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)  
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ELEC 560 - PHYSICS OF SENSOR MATERIALS AND NANOSensor TECHNOLOGY  
**Short Title:** PHYSICS OF SENSORS  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics covered include MEMS, MOEMS, and NEMS systems along with special materials such as liquid crystals, piezoelectrics, memory metal, and topological insulators. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 419. Mutually Exclusive: Cannot register for ELEC 559 if student has credit for ELEC 419.  
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ELEC 561 - OPTICAL TECHNIQUES FOR IMAGING THROUGH SCATTERING MEDIA  
**Short Title:** IMAGING THROUGH SCATTERS  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics covered include basics of Physical optics, and Fourier optics with a strong emphasis on its applications to imaging through scattering media.  
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ELEC 562 - OPTOELECTRONIC DEVICES  
**Short Title:** OPTOELECTRONIC DEVICES  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course provides an introduction to the fundamental principles of semiconductor optoelectronic devices. After reviewing the basic elements of quantum mechanics of electrons and photons, light-matter interaction (including laser oscillations), and semiconductor physics (band structure, heterostructures and alloys, optical processes), we will study the details of modern semiconductor devices for the generation, detection, and modulation of light. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 462. Mutually Exclusive: Cannot register for ELEC 562 if student has credit for ELEC 462.  
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ELEC 563 - INTRODUCTION TO SOLID STATE PHYSICS I  
**Short Title:** INTRO SOLID STATE PHYSICS I  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Fundamental concepts of crystalline solids, including crystal structure, band theory of electrons, and lattice vibration theory. Cross-list: PHYS 563.  
**Course URL:** www.ece.rice.edu/~ashu/ELEC419.html (http://www.ece.rice.edu/~ashu/ELEC419.html)  
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ELEC 564 - SOLID-STATE PHYSICS II  
**Short Title:** INTRO SOLID STATE PHYSICS II  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Continuation of PHYS 563, including scattering of waves by crystals, transport theory, and magnetic phenomena. Cross-list: PHYS 564.  
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ELEC 565 - MATERIALS FOR ENERGY AND PHOTOCATALYSIS  
**Short Title:** MATERIALS FOR ENERGY & CATALYSIS  
**Department:** Electrical & Computer Eng.  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course will cover the basic physics and chemistry of solar energy conversion and storage devices, and the current state of the art and future challenges in materials for energy and photocatalysis. In addition, physical and chemical characterization techniques will be covered.
ELEC 566 - NANO-PHOTONICS AND METAMATERIALS
Short Title: NANO-PHOTONICS & METAMATERIALS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will discuss basic concepts of nanophotonics and focus on what metamaterials are, how they work and how to build them. The course will conclude with applications of various meta-devices and upcoming research topics.

ELEC 567 - NANO-OPTICS
Short Title: NANO-OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to understand concepts of light localization and light-matter interactions on the nanoscale, and to familiarize the students with the state-of-the-art research in the field of nano-optics.

ELEC 568 - LASER SPECTROSCOPY
Short Title: LASER SPECTROSCOPY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the theory and practice of laser spectroscopy as applied to atomic and molecular systems. The course covers fundamentals of spectroscopy, lasers and spectroscopic light sources, high resolution and time resolved laser spectroscopy with applications in atmospheric chemistry, environmental science and medicine. Repeatable for Credit.

ELEC 569 - ULTRAFAST OPTICAL PHENOMENA
Short Title: ULTRAFAST OPTICAL PHENOMENA
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the generation, propagation, and measurement of short laser pulses, of duration less than one picosecond. Concepts include mode locking, the effects of dispersion, optical pulse amplification, and time-domain non-linear optical phenomena. Intended as an introduction to ultrafast phenomena for graduate students or advanced undergraduates; a basic understanding of electromagnetic waves and of quantum mechanics is assumed. Cross-list: PHYS 569.

ELEC 571 - IMAGING AT THE NANOSCALE
Short Title: IMAGING AT THE NANOSCALE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of the techniques used in imaging micron and nanometer structures with an emphasis on applications in chemistry, physics, biology, and engineering. The course includes an introduction to scanning probe, submicron optical, and electron microscopies, as well as discussions on the fundamental and practical aspects of image acquisition, artifacts, filtering, and machine learning analysis of such data. Homeworks will involve some familiarity and proficiency with Matlab. The final project will include analysis of the student's own research data.

ELEC 572 - FINITE ELEMENT METHOD FOR MULTIPHYSICS MODELING
Short Title: MULTIPHYSICS MODELING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a hands-on experience on the modeling of micro and nanosystems based on the mutual interaction among different physical phenomena. COMSOL Multiphysics, based on the Finite Element Method (FEM), will be utilized as flexible modeling tool to learn how to design a wide range of devices or describe coupled physical mechanisms including electromagnetic waves, heat transfer, fluid dynamics and mass transport. The course will focus in particular on the interaction between light and nanomaterials and how electromagnetic heat dissipation can play a major role in different applications Recommended Prerequisite(s): Basic electromagnetism and basic calculus

ELEC 573 - NETWORK SCIENCE AND ANALYTICS
Short Title: NETWORK SCIENCE AND ANALYTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to complex networks, their structure, and function, with examples from engineering, biology, and social sciences. Topics include spectral graph theory, notions of centrality, community detection, random graph models, inference in networks, opinion dynamics, and contagion phenomena. Our main goal is to study network structures and how they can be leveraged to better understand data defined on them. Recommended Prerequisite(s): Linear algebra, probability and statistics, and basic ability to program in Python.
ELEC 574 - UBQUITOUS AND WEARABLE COMPUTING
Short Title: UBQ AND WEARABLE COMPUTING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Wireless and mobile computing, affordable sensors and interaction devices being woven into our daily life and invisible, has created boundless opportunities for in-the-world computing applications that can transform our lives. This course will introduce students to the field of Ubiquitous and Wearable Computing – a multidisciplinary research area that draws from sensors, machine learning, signal processing, as well as human computer interaction. This class combines lectures, hands-on exercises and assignments, reading state of the art research papers, class discussions and a final project.

ELEC 575 - LEARNING FROM SENSOR DATA
Short Title: LEARNING FROM SENSOR DATA
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The first half of this course develops the basic machine learning tools for signals images, and other data acquired from sensors. Tools covered include principal components analysis, regression, support vector machines, neural networks, and deep learning. The second half of this course overviews a number of applications of sensor data science in neuroscience, image and video processing, and machine vision. Additional course work required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 475. Mutually Exclusive: Cannot register for ELEC 575 if student has credit for ELEC 475. Repeatable for Credit.

ELEC 576 - A PRACTICAL INTRODUCTION TO DEEP MACHINE LEARNING
Short Title: INTRODUCTION TO DEEP LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Deep Machine Learning has recently made many advances in difficult perceptual tasks, including object and phoneme recognition, and natural language processing. However, the field has a steep learning curve, both conceptually and practically. The point of this course is to engage students by jumping into the deep end, and building their own architectures and algorithms. Cross-list: COMP 576.

ELEC 577 - ALGORITHMS AND OPTIMIZATION FOR DATA SCIENCE
Short Title: OPTIMIZATION FOR DATA SCIENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, we study algorithms for analyzing data with provable performance, statistical, and computational guarantees. We focus on applications in machine learning and signal processing. Topics include: efficient algorithms for convex optimization, inverse problem, low-rank and sparse models, dimensionality reduction, and randomized algorithms. Recommended Prerequisite(s): MATH 355 and (ECON 307 or STAT 310) or digital circuit courses.

ELEC 578 - INTRODUCTION TO MACHINE LEARNING
Short Title: INTRO TO MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a graduate level introduction to concepts, methods, best practices, and theoretical foundations of machine learning. Topics covered include regression, classification, regularization, kernels, clustering, dimension reduction, decision trees, ensemble learning, and neural networks. Additional work is required for graduate students beyond the undergraduate requirement. Graduate/Undergraduate Equivalency. ELEC 478. Recommended Prerequisite(s): Basic statistics and probability, linear algebra, and programming in R or Python are required. Mutually Exclusive: Cannot register for ELEC 578 if student has credit for DSCI 303.

ELEC 579 - COMPUTATIONAL IMAGING
Short Title: COMPUTATIONAL IMAGING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A graduate-level introduction to imaging systems as an integral part of the sense-process-decide-act cycle. This cycle is central to the operation of any goal-directed system, biological or engineered. Students will gain a basic understanding of the mechanisms by which information about a scene is encoded on an electro-magnetic wave. Furthermore, the students will learn to analyze the information extraction process realized via the imaging chain of front-end optics, transduction, and post-processing. The objective of the course is to understand the limits of modern image formation and how optics, photonic-to-electronic transduction, and post-detection processing can be jointly designed to enable imagers with unique capabilities. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency. ELEC 441.
ELEC 582 - IMAGING OPTICS
Short Title: IMAGING OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course covers the fundamental properties of light propagation and interaction with matter under the approximations of geometrical optics and scalar wave optics, as well as the fundamentals of optical microscopy. The course emphasizes a system approach to the analysis and design of optical systems from a user and an engineering perspective, focusing on the physical intuition and underlying mathematical tools, and application of the physical concepts to topical engineering domains such as a selection of microscopy techniques. Students will have direct hands-on experience with optics and optical imaging systems in the classroom. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 482. Mutually Exclusive: Cannot register for ELEC 582 if student has credit for ELEC 482.

ELEC 584 - FUNDAMENTALS OF HUMAN NEUROIMAGING
Short Title: HUMAN NEUROIMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of methods and results for human brain imaging. Describes the physical and physiological mechanisms of image formation. Provides examples from clinical and basic research, particularly in visual cortex. Emphasis on magnetic resonance imaging, but surveys other imaging modalities including PET, optical, and EEG/MEG source localization. Course taught at Baylor College of Medicine. Cross-list: NEUR 584. Mutually Exclusive: Cannot register for ELEC 584 if student has credit for ELEC 484.

ELEC 585 - FUNDAMENTALS OF MEDICAL IMAGING I
Short Title: FUND MEDICAL IMAGING I
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce basic principles of image acquisition, formation and processing of several medical imaging modalities such as X-ray, CT, MRI, and US that are used to evaluate the human anatomy. The course also includes visits to a clinical site to gain experience with the various imaging modalities covered in class. Additional coursework required beyond the undergraduate course requirements. Cross-list: BIOE 591. Graduate/Undergraduate Equivalency: ELEC 485. Mutually Exclusive: Cannot register for ELEC 585 if student has credit for ELEC 485.

ELEC 586 - FUNDAMENTALS OF MEDICAL IMAGING II
Short Title: FUND MEDICAL IMAGING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on functional imaging modalities used specifically in nuclear medicine such as Gamma cameras, SPECT, and PET imaging. The course will introduce the basic principles of image acquisition, formation, processing and the clinical applications of these imaging modalities and lays the foundations for understanding the principles of radiotracer kinetic modeling. A trip to a clinical site is also planned to gain experience with nuclear medicine imaging. Additional coursework required beyond the undergraduate course requirements. Cross-list: BIOE 596. Graduate/Undergraduate Equivalency: ELEC 486. Mutually Exclusive: Cannot register for ELEC 586 if student has credit for ELEC 486.

ELEC 587 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY
Short Title: INTRO TO NEUROENGINEERING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: ELEC 380. Mutually Exclusive: Cannot register for ELEC 587 if student has credit for BIOE 480/BIOE 590/ELEC 380/ELEC 480/ELEC 580.

ELEC 588 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: CAAM 615, NEUR 615. Graduate/Undergraduate Equivalency: ELEC 488. Mutually Exclusive: Cannot register for ELEC 588 if student has credit for ELEC 488.
ELEC 589 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including "what does a network compute?", "how does it compute?", and "why does it compute that way?" Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Graduate/Undergraduate Equivalency: ELEC 489. Mutually Exclusive: Cannot register for ELEC 589 if student has credit for ELEC 489.

ELEC 590 - GRADUATE NON-THESIS RESEARCH PROJECTS
Short Title: GR NON-THESIS RES PROJECTS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theoretical and experimental investigations under staff direction. Instructor Permission Required. Repeatable for Credit.

ELEC 591 - GRADUATE ELECTRICAL ENGINEERING RESEARCH PROJECTS-VERTICALLY INTEGRATED PROJECTS
Short Title: GRAD ELEC ENG'G RESEARCH VIP
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Vertical Integrated Projects (VIP) teams include students from multiple years working on one larger, multi-year project defined by the instructor. Instructor Permission Required. Graduate/Undergraduate Equivalency: ELEC 491. Repeatable for Credit.

ELEC 592 - GRADUATE PRE-THESIS RESEARCH PROJECT EXPLORATION
Short Title: PRE-THESIS PROJECT EXPLORATION
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Electrical & Computer Eng. Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy degree.
Course Level: Graduate
Description: Theoretical and experimental investigations under faculty direction. Department Permission Required.

ELEC 594 - MECE CAPSTONE PROJECT
Short Title: MECE CAPSTONE PROJECT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Electrical Comp Eng degree.
Course Level: Graduate
Description: Capstone projects for students in the professional master's in electrical and computer engineering (MECE) program. In order to obtain the MECE degree, students must complete two semesters of this course. This course serves as graded academic credit for capstone projects, which have the goal of producing a completed product, algorithm, design, or similar entity. Capstone projects aim to have students develop practical and technical skills in the area that they are interested in for employment after the MECE program. Projects will be overseen by the instructor usually along with academic and/or industrial collaborators. Typically, students will take this course during both the second and third semesters of the MECE program after having completed a foundations course in the first semester. Instructor Permission Required. Repeatable for Credit.

ELEC 598 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Additional work required for Graduate course. Cross-list: COMP 598, MECH 598. Graduate/Undergraduate Equivalency: ELEC 498. Mutually Exclusive: Cannot register for ELEC 598 if student has credit for ELEC 498.

ELEC 599 - FIRST YEAR GRAD STUDENT PROJECTS
Short Title: 1ST YEAR GRAD STUDENTS PROJECT
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised project required of all first-year graduate students in the Ph.D. program.
ELEC 602 - NEURAL MACHINE LEARNING AND DATA MINING II
Short Title: NEURAL MACHINE LEARNING II
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 502 or COMP 502 or STAT 502
Description: Advanced topics in ANN theories, with a focus on learning high-dimensional complex manifolds with neural maps (Self-Organizing Maps, Learning Vector Quantizers and variants). Application to data mining, clustering, classification, dimension reduction, sparse representation. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: COMP 602, STAT 602. Repeatable for Credit.
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

ELEC 603 - TOPICS IN NANOPHOTONICS
Short Title: TOPICS IN NANOPHOTONICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed as a cornerstone for the NSF funded Integrative Graduate Research and Educational Training (IGERT) program in nanophotonics. It is also an official "home" for the Laboratory for Nanophotonics (LANP) seminars that serve as a forum for the interaction between researchers in nanophotonics at Rice. The conversational atmosphere of the seminar continues the relatively unstructured spirit of the interaction that has been the hallmark of past LANP meetings and collaboration. The course is open to graduate students who are interested in pursuing research in Nanophotonics. Repeatable for Credit.
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

ELEC 604 - NANO-OPTICS
Short Title: NANO-OPTICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this seminar is to understand concepts of light localization and light-matter interactions on the nanoscale, and to familiarize the students with the state-of-the art research in the field of nano-optics through student-led research paper presentations and discussions.

ELEC 605 - COMPUTATIONAL ELECTRODYNAMICS AND NANOPHOTONICS
Short Title: ELECTRODYNAMICS & NANOPHOTONICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: See PHYS 605. Cross-list: PHYS 605. Repeatable for Credit.
ELEC 660 - QUANTUM INFORMATION SCIENCE AND TECHNOLOGY
Short Title: QUANTUM INFO
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a graduate seminar course on quantum information science and technology. There is currently a worldwide effort to develop technologies based on the principles of quantum mechanics that are expected to revolutionize computation, communication, and sensing. These rapid scientific and technological developments can be viewed as the second quantum revolution. Unlike the first quantum revolution, which occurred during the first few decades of the 20th century and totally changed the way we describe the universe, the second quantum revolution is about controlling individual quantum systems to a much greater extent than before, enabling even more powerful applications of quantum mechanics. Many of these new applications rely on genuinely quantum, nonintuitive concepts such as superposition and entanglement. These concepts are becoming more and more common and important in diverse scientific disciplines beyond physics, including materials science, electrical engineering, chemistry, mathematics, and computer science. We will review some of the latest published papers on quantum materials, devices, and systems, and their practical applications to quantum technologies. Recommended Prerequisite(s): Understanding of undergraduate-level classical and quantum mechanics, electromagnetism, statistical mechanics, and solid state physics.

ELEC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ELEC 680 - NANO-NEUROTECHNOLOGY
Short Title: NANO-NEUROTECHNOLOGY
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will review current nanofabricated technologies for measuring, manipulating, and controlling neural activity. The course will be based on reviewing current academic literature and topics will include nano-electronic, -photonic, -mechanical, and -fluidic neural devices. Cross-list: BIOE 680.

ELEC 681 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMENTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for different topics in machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on shared solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 682 - SPOTLIGHT ON LATEST NEUROTECHNOLOGY
Short Title: SPOTLIGHT ON LATEST NEUROTECH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a seminar format review of the latest (within the last five years) neurotechnology framed around the concept of the nervous system as a network. It has three modules: Module I discusses methods and approaches for building and mapping a neural network. Module II focuses on technologies for reading networks; and module III on tools for interacting with networks. Recommended Prerequisite(s): Basic understanding of some neurotechnology such as imaging, organoid culture, electrophysiology, genetic manipulation is beneficial, but not required. Students without any background in neuroscience or neuroengineering may have to do additional reading.

ELEC 681 - FUNDAMENTALS OF MACHINE LEARNING
Short Title: FUNDAMENTALS MACHINE LEARNING
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the fundamentals of machine learning, including supervised learning, unsupervised learning, and reinforcement learning. This course will provide the student with the formal concepts and the basic intuition for different topics in machine learning, from artificial neural networks to value function approximation. Because of the shared problems of machine learning, statistical inference, and signal processing, a focus of the course will be on shared solution, e.g., dimensionality reduction, of these three fields. Repeatable for Credit.

ELEC 682 - SPOTLIGHT ON LATEST NEUROTECHNOLOGY
Short Title: SPOTLIGHT ON LATEST NEUROTECH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a seminar format review of the latest (within the last five years) neurotechnology framed around the concept of the nervous system as a network. It has three modules: Module I discusses methods and approaches for building and mapping a neural network. Module II focuses on technologies for reading networks; and module III on tools for interacting with networks. Recommended Prerequisite(s): Basic understanding of some neurotechnology such as imaging, organoid culture, electrophysiology, genetic manipulation is beneficial, but not required. Students without any background in neuroscience or neuroengineering may have to do additional reading.
ELEC 692 - ADVANCED TOPICS IN DISTRIBUTED SYSTEMS
Short Title: ADV TOPICS IN DISTRIBUTED SYST
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will learn about and discuss recent advances in various areas in computer systems, including topics on security, distributed systems, networking, operating systems, and databases. The seminar will be divided into several sections, with each section focusing on one research trend. In each class, students will read one classic paper on the topic, and present two recent papers that describe the stat of the art. Students can also team up and do a semester-long research project on any relevant topics. All students will need to make a final presentation at the end of the class on a potential project idea; for students that choose to do a semester-long project, they will also submit a six-page report on their project, in addition to giving a final presentation. Instructor Permission Required. Cross-list: COMP 645. Repeatable for Credit.

ELEC 693 - ADVANCED TOPICS-COMPUTER SYSTEMS
Short Title: ADV TOPICS - COMPUTER SYSTEMS
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a discussion based seminar about state of the art embedded and digital signal processing systems, with emphasis on both hardware architectures as well as software tools, programming models, and compilers. The seminar focuses on state of the art academic and commercial offerings in these areas. Cross-list: COMP 693. Repeatable for Credit.

ELEC 694 - HOW TO BE A CHIEF TECHNOLOGY OFFICER
Short Title: HOW TO BE A CTO
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the component and standards trends that are the basis of personal computers and digital appliances with the aim of predicting technologies, solutions, and new products five years into the future. Examples of these technologies are dual Core processors, iPods and their evolution, mobile wireless data devices, and even Google vs. Microsoft. Students will each pick a topic important to the digital lifestyle and through a series of one-on-one sessions develop a depth of understanding that is presented to the class. Formerly "Future Personal Computing Technologies." Cross-list: COMP 694. Repeatable for Credit.
Course URL: www.ece.rice.edu/Courses/694/ (http://www.ece.rice.edu/Courses/694/)

ELEC 695 - ADVANCED TOPICS IN COMMUNICATIONS AND STATISTICAL SIGNAL PROCESSING
Short Title: INNOVATIONS IN MOBILE HEALTH
Department: Electrical & Computer Eng.
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1: - Innovations in Mobile Health - In this seminar, we will study the merging area of mobile health, enabled by prevalent data connectivity, highly portable medical sensors, smart-phones and inexpensive cloud computing. The seminar will involve a mix of lectures, paper reading, case studies and group projects. The course is suitable for both undergraduate (junior and seniors) and graduate students. The course is part of the new ECE initiative on scalable health (http://sh.rice.edu). Open to both undergraduate and graduate students. Section 2: - This is a graduate seminar class focused on the role of information theory in engineering wireless networks. Students will survey, read, and present both classic as well as recent papers in the area. Repeatable for Credit.

ELEC 698 - ECE PROFESSIONAL MASTERS SEMINAR SERIES
Short Title: ECE PROFESSIONAL MASTER SEM
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Electrical Eng degree.
Course Level: Graduate
Description: The Professional Masters Seminar Series presents a combination of seminars on emerging research topics in the many areas of ECE and industry-focused professional development. This course includes attendance and reports based on the seminars, colloquia, and distinguished lectures held each semester. Repeatable for Credit.

ELEC 699 - FRONTIERS OF ELECTRICAL AND COMPUTER ENGINEERING
Short Title: FRONTIERS OF ECE
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Electrical & Computer Eng.. Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy or Master of Electrical Eng degrees.
Course Level: Graduate
Description: Frontiers of Electrical and Computer Engineering presents emerging research topics in the many areas of ECE. This course includes attendance and reports based on the seminars, colloquia, and distinguished lectures held each semester. Repeatable for Credit.

ELEC 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Electrical & Computer Eng.
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
Emergency Med Studies/Practice (EMSP)

EMSP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EMSP 281 - EMT-B: INTRODUCTION TO EMERGENCY CARE
Short Title: EMT-B INTRO TO EMERGENCY CARE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is a state-sanctioned EMT-B Certification course which includes practical and didactic exploration into pre-hospital care. This class culminates with a national certification to practice pre-hospital care on the EMT-B level. This course will discuss anatomy, body systems, and the biochemical basis of emergency intervention in addition to practical application of EMT-B skills. Formerly HEAL 308 and BIOS 281 and NSCI 281. Instructor Permission Required.

EMSP 282 - ADVANCED EMT
Short Title: ADVANCED EMT
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of EMSP 281, Emergency Care. Formerly BIOS 282, HEAL 310, and NSCI 282. Instructor Permission Required.

EMSP 375 - EMS INCHARGE LEADERSHIP COURSE
Short Title: EMS INCHARGE LEADERSHIP COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students preparing to hold leadership positions in EMS will expand their competency in emergency services, including emergency management and incident response, in addition to improving patient care and leadership skills. Participants will achieve certification in national emergency services courses, and will work as a team to manage a major event. Formerly UNIV 275. Instructor Permission Required.

EMSP 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EMSP 491 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 491 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 491. Instructor Permission Required. Repeatable for Credit.

EMSP 492 - EMERGENCY MEDICAL SERVICES RESEARCH COURSE
Short Title: EMS RESEARCH COURSE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: EMSP 492 is an independent program of study for students interested in research in prehospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 492. Instructor Permission Required. Repeatable for Credit.

EMSP 499 - EMT TEACHING PRACTICUM
Short Title: EMT TEACHING PRACTICUM
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class culminates with a national certification to practice pre-hospital medicine. All students will complete a research project under the supervision of a physician faculty member from Baylor College of Medicine. Projects may vary based on each student's interest and faculty projects. Formerly NSCI 289. Instructor Permission Required. Repeatable for Credit.
Engineering (ENGI)

ENGI 100 - INTRODUCTION TO SPATIAL VISUALIZATION
Short Title: INTRO SPATIAL VISUALIZATION
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The ability to mentally visualize in three dimensions is an important skill for engineers and scientists. In this course, students will move through ten different modules that will strengthen spatial reasoning and visualization skills. All assigned work will be completed during the scheduled class time. Only students scoring <70% on the PSVT-R will be allowed into the course. Course is limited to new first time matriculants only.

ENGI 101 - INTRODUCTION TO ENGINEERING PROGRAMS AT RICE
Short Title: INTRODUCTION TO ENGINEERING
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will learn about the different engineering majors and career paths. In presentations by faculty members, the students will gain an understanding of the curricular requirements, professional skills and extracurricular activities that will prepare them to succeed at Rice and beyond.

ENGI 120 - INTRODUCTION TO ENGINEERING DESIGN
Short Title: INTRO TO ENGINEERING DESIGN
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students learn the engineering design process and use it to solve meaningful problems drawn from the community and around the world. Teams of students evaluate design requirements and construct innovative solutions in the Oshman Engineering Design Kitchen. Students develop teaming and communication skills. Only first year students may enroll. Non-first year students wishing to take introductory engineering design may enroll in ENGI 220. ENGI 120 does not fulfill the FWIS requirement or carry D3 credit. Mutually Exclusive: Cannot register for ENGI 120 if student has credit for FWIS 188.

ENGI 128 - INTRODUCTION TO ENGINEERING SYSTEMS
Short Title: INTRO TO ENGINEERING SYSTEMS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will be a fun, hands-on introduction to the key concepts of electrical/mechanical/computational systems. Each student will use a small mobile robot to learn about block diagrams, abstraction and modularity, energy storage and conservation, feedback and control, digital communications, and software design. All interested freshman are welcome, no previous experience or prerequisites are required. The course will conclude with a multi-robot final project.

ENGI 140 - ENGINEERING LEADERSHIP DEVELOPMENT
Short Title: ENG'G LEADERSHIP DEVELOPMENT
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this course is to prepare students to begin developing the skills, knowledge, and motivations needed to become an engineering leader. Learning methods for the class include assessments of current leadership skills, skill-learning via lectures and discussions, skill-practice and feedback via experiential exercises, and skill development via self-directed action planning. Major deliverables for the class include an autobiographical paper, an engineering leadership portfolio, and a leadership development plan. Mutually Exclusive: Cannot register for ENGI 140 if student has credit for RCEL 100/RCEL 200.

ENGI 150 - SURVEY OF ENGINEERING DISCIPLINES
Short Title: SURVEY OF ENGR DISCIPLINES
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar provides a survey of practice of engineering, including traditional and non-traditional career paths; graduate and professional options; and introductions to ethics, intellectual property, and written and oral communication. Engineering departments will provide overviews of their specific disciplines. Assignments include team presentations. Instructor Permission Required.
ENGI 200 - ENGINEERING DESIGN STUDIO
Short Title: ENGINEERING DESIGN STUDIO
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ENGI 120 or FWIS 188 or ENGI 220
Description: Graduates of ENGI 120 and ENGI 220 will have the opportunity to gain a more in-depth knowledge of the engineering design process by furthering progress on specific engineering design projects. Students may extend their project work by completing advanced prototyping for their designs and conduct testing. Students will be held accountable through technical mentorship, weekly meetings, and prototype evaluations. Students will only work in design teams. Student teams wishing to continue their projects from ENGI 120/220 may apply.

ENGI 210 - PROTOTYPING AND FABRICATION
Short Title: PROTOTYPING & FABRICATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ENGI 120 or FWIS 188 or ENGI 220
Description: Students in ENGI 210 will learn and practice advanced prototyping and fabrication skills useful in the construction of physical objects for engineering design projects. The course is structured as lecture and demonstration of basic and advanced prototyping techniques and out-of-class work practicing and honing the application of these techniques. Example techniques include low fidelity prototyping, 2D and 3D Computer Aided Design, electronics, foam cutting, laser cutting, plasma cutting, 3D printing, and molding/casting methods. Students will individually apply these techniques to create physical objects. Graduate/Undergraduate Equivalency: ENGI 599.
Course URL: engi210.blogs.rice.edu (http://engi210.blogs.rice.edu)

ENGI 218 - ENGINEERING LEADERSHIP LAB I
Short Title: ENGINEERING LEADERSHIP LAB I
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students develop a variety of leadership skills and abilities by solving weekly engineering challenges in small teams. Students practice various roles as team members and leaders, then receive rapid performance assessments and mentoring from fellow students and staff. Mutually Exclusive: Cannot register for ENGI 218 if student has credit for RCEL 100/RCEL 200.

ENGI 219 - ENGINEERING LEADERSHIP LAB II
Short Title: ENGINEERING LEADERSHIP LAB II
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ENGI 218
Description: Students develop a variety of leadership skills and abilities by solving weekly engineering challenges in small teams. Students practice various roles as team members and leaders, then receive rapid performance assessments and mentoring from fellow students and staff. Instructor Permission Required. Mutually Exclusive: Cannot register for ENGI 219 if student has credit for RCEL 300/RCEL 400.
Course URL: rcel.rice.edu/courses (http://rcel.rice.edu/courses/)

ENGI 220 - PROTOTYPING & FABRICATION
Short Title: PROTOTYPING & FABRICATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students learn the engineering design process and use it to solve meaningful problems drawn from the community and around the world. Teams of students evaluate design requirements and construct innovative solutions in the Oshman Engineering Design Kitchen. Students develop teaming and communication skills. Students may not be in their first year of school. First year students wishing to take introductory engineering design may enroll in ENGI 120. ENGI 220 is taught as the same time as ENGI 120.

ENGI 221 - NEW ENTERPRISES
Short Title: NEW ENTERPRISES
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will learn and experience a process for innovation-based venture development. During the semester, students will form teams and create a plan for a new venture. Cross-list: BUSI 221.

ENGI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
ENGI 241 - PROFESSIONAL EXCELLENCE FOR ENGINEERS
Short Title: PROF EXCELLENCE FOR ENGINEERS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Guided career and professional development course for engineering students, which includes required practicum and workplace experience. Instructor Permission Required. Mutually Exclusive: Cannot register for ENGI 241 if student has credit for RCEL 241.
Course URL: rcel.rice.edu/courses ([http://rcel.rice.edu/courses/](http://rcel.rice.edu/courses/))

ENGI 242 - PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS
Short Title: PROFESSIONAL COMMUNICATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: To be truly influential in their fields, engineers need to be able to communicate their thoughts and opinions to management, peers, clients, and the public. They need to communicate clearly and confidently in a variety of professional situations. This course gives you the opportunity to learn, practice, and improve essential communication skills with emphasis on oral presentations, professional writing, and interpersonal communication. Graduate/Undergraduate Equivalency: ENGI 542. Mutually Exclusive: Cannot register for ENGI 242 if student has credit for ENGI 542.
Course URL: rcelconnect.org ([http://rcelconnect.org](http://rcelconnect.org))

ENGI 300 - ENGINEERING DESIGN WORKSHOP
Short Title: ENGINEERING DESIGN WORKSHOP
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced design students will have the opportunity to further their design projects in an independent study course. Students will work with faculty to develop their own schedule, set their own deadlines, goals, and expectations to be met for grading purposes. Students may complete advanced prototyping for their designs, conduct tests, perform safety evaluations with external committee and/or write up their work for publication. The specific tasks that will be completed are dependent on the project needs. Students will be held accountable through technical mentorship, weekly meetings, and prototype evaluations. To be eligible for ENGI 300 students must have taken ENGI 120 (or equivalent), ENGI 210, and ENGI 200. Instructor Permission Required. Repeatable for Credit.

ENGI 301 - INTRODUCTION TO PRACTICAL ELECTRICAL ENGINEERING
Short Title: INTRO TO PRACTICAL EE
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGI 120 or ENGI 220 or FWIS 188
Description: Students will acquire intermediate-level proficiency in the tools (both physical and software) used to design, build and debug embedded hardware designs. Students will learn the basics of electronic components and how to use those components in a successful embedded hardware design.

ENGI 302 - SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The objective of this course is to develop skills in formulating and solving problems of societal development and advancement in light of increasing material, energy and water demands and decreasing resource availability. Sustainable design requires balancing economic, ecological/environmental and social issues to create physical as well as social structures that will work for current and future generations. In addition to learning to apply sustainable design principles to individual engineering and developing projects, students will be challenged to understand the application of sustainable design thinking a the municipal and corporate level. Cross-list: CEVE 312.

ENGI 303 - ENGINEERING ECONOMICS
Short Title: ENGINEERING ECONOMICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Distribution Group: Distribution Group III
Description: Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are introduced. Requires oral and written presentations by students. Cross-list: CEVE 322. Graduate/Undergraduate Equivalency: ENGI 528. Mutually Exclusive: Cannot register for ENGI 303 if student has credit for RCEL 505.
ENGI 311 - LEADING CHANGE - REVOLUTIONARY MOMENTS IN ENGINEERING AND SOCIETY
Short Title: LEADING CHANGE IN ENGINEERING
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course examines the impact of engineering on human history by exploring the social context, leadership frameworks, and societal impact of advances in technology. Students explore the social and political implications of emergent technology, with an emphasis on how these advances build upon and reify ideological paradigms and socio-economic systems. Graduate/Undergraduate Equivalency: ENGI 511. Mutually Exclusive: Cannot register for ENGI 311 if student has credit for ENGI 511.

ENGI 315 - LEADING TEAMS AND INNOVATION
Short Title: LEADING TEAMS AND INNOVATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students learn the principles of engineering leadership, strategies for launching and leading engineering teams, and methods for utilizing creativity and innovation in engineering environments. Learning methods include case studies, simulations, group projects, and interactions with industry professionals. Graduate/Undergraduate Equivalency: ENGI 515. Mutually Exclusive: Cannot register for ENGI 315 if student has credit for ENGI 515/RCEL 300/RCEL 400.
Course URL: rcel.rice.edu (http://rcel.rice.edu)

ENGI 317 - LEADERSHIP ACTION LEARNING
Short Title: LEADERSHIP ACTION LEARNING
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course allows students to practice leadership skills in an applied context as the leader of a team or project with a defined scope, schedule, and goal. Students will identify areas of leadership growth, and receive guided mentorship and feedback as they develop these skills through practice. Mutually Exclusive: Cannot register for ENGI 317 if student has credit for RCEL 450.

ENGI 318 - LEADING ENGINEERING LEADERSHIP LAB I
Short Title: LEADING ENG LEADERSHIP LAB I
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGI 315
Description: Students organize, execute, and debrief the leadership development activities completed by novice students in ENGI 218 (Engineering Leadership Lab I). ENGI 318 students learn advanced leadership and communication skills; get frequent practice delivering feedback; and receive intensive mentoring from course staff.

ENGI 319 - LEADING ENGINEERING LEADERSHIP LAB II
Short Title: LEADING ENG LEADERSHIP LAB II
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGI 315
Description: Students organize, execute, and debrief the leadership development activities completed by novice students in ENGI 219 (Engineering Leadership Lab II). ENGI 319 students learn advanced leadership and communication skills; get frequent practice delivering feedback; and receive intensive mentoring from course staff. This course is a continuation of ENGI 318. Instructor Permission Required.

ENGI 320 - ETHICS AND ENGINEERING LEADERSHIP
Short Title: ETHICS & ENGINRNG LEADERSHIP
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Civil & Environmental Engineer, Civil Engineering or Environment Analysis&Decisions. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 101
Description: Seminar introduces students to a framework for discussing and making ethical engineering and professional decisions. Using case studies and exercises, students will look at their own profession and its Engineering Code of Ethics as well as at the issues and risks they may face as managers and executives. Cross-list: CEVE 320. Graduate/Undergraduate Equivalency: ENGI 529. Mutually Exclusive: Cannot register for ENGI 320 if student has credit for ENGI 529.
ENGI 330 - ENGINEERING PRACTICUM
Short Title: ENGINEERING PRACTICUM
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This undergraduate course is designed to supplement technical coursework in the school of engineering with practical application and reflection on the challenges and value of applying knowledge to real-world problems in professional settings. Student undertakes a work internship and writes a report under supervision of a faculty member. NOTE: Instructor permission required, and must be obtained prior to the start of the internship. If interested in this course, please work with your Major Advisor and, if you are an international student, OISS to secure an approved internship opportunity. Once an internship is secured, contact Jen Mashburn (mashburn@rice.edu) for a copy of the course Syllabus & Student Agreement. Instructor Permission Required. Graduate/Undergraduate Equivalency: ENGI 530. Repeatable for Credit.

ENGI 350 - NEEDS IDENTIFICATION AND DESIGN IMPLEMENTATION
Short Title: NEEDS ID & DESIGN IMPLEMENT
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGI 120 or ENGI 200 or FWIS 188
Description: Students in this course will identify needs situated in two or more environments, and learn to ask questions that elucidate the problem, needed features and criteria for success. Students also develop implementation plans and conduct testing for refined design solutions that may include standards and safety compliance, patent applications, and manufacturing and user documents.

ENGI 355 - DIGITAL DESIGN AND VISUALIZATION
Short Title: DIGITAL DESIGN & VISUALIZATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGI 120 or ENGI 220 or FWIS 188
Description: Students will acquire intermediate-level proficiency in the creation of virtual models and engineering drawings using computer aided design. Emphasis will be placed on best modeling practices including efficient part creation, dimensioning, tolerancing, and formatting of engineering drawings. Students will use a number of programs to format data and create models.

ENGI 390 - ENGINEERING ETHICS SEMINAR
Short Title: ENGINEERING ETHICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This discussion based class will focus on situations that can occur during a career in engineering that present ethical dilemmas, with emphasis in helping the students develop a skill set for tackling these challenges through immersive case studies.

ENGI 425 - PITCHING NEW IDEAS TO WIN
Short Title: PITCHING NEW IDEAS
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: To succeed, you must pitch new ideas effectively or those ideas die. In ENGI 525, you will learn how to pitch, whether design, research, or startup ideas, so you win in high-stakes situations. Learning takes place through several rounds of hands-on coaching and practice with faculty and peers. You will acquire strategies to capture the interest of professional audiences and secure prized opportunities. Graduate/Undergraduate Equivalency: ENGI 525. Mutually Exclusive: Cannot register for ENGI 425 if student has credit for ENGI 525. Cross-list: ENGI 525. Mutually Exclusive: Cannot register for ENGI 425 if student has credit for ENGI 525. Graduate/Undergraduate Equivalency: ENGI 525. Mutually Exclusive: Cannot register for ENGI 425 if student has credit for ENGI 525.

ENGI 428 - ENTREPRENEURSHIP INDEPENDENT STUDY
Short Title: ENTREPRENEURSHIP IND STUDY
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students who have completed entrepreneurship coursework/training may use this course to learn the process of developing startups or launching new ventures. Students will meet weekly with course instructors and complete periodic assignments on advancing ventures. Instructor Permission Required.
ENGI 455 - ENGINEERING PERSUASION: HOW TO DRIVE DECISIONS AND CHANGE
Short Title: ENGINEERING PERSUASION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Engineers require persuasion to fuel technology change. You will learn approaches to convince others of the quality of your work. These simple but powerful approaches account for high-stakes success in design discussions, product adoption, and investor pitching. Graduate/Undergraduate Equivalency: ENGI 555. Mutually Exclusive: Cannot register for ENGI 455 if student has credit for ENGI 555. Graduate/Undergraduate Equivalency: ENGI 555. Mutually Exclusive: Cannot register for ENGI 455 if student has credit for ENGI 555.

ENGI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ENGI 501 - WORKPLACE COMMUNICATION FOR PROFESSIONAL MASTER'S STUDENTS IN ENGINEERING
Short Title: WORKPLACE COMMUNICATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master Materials Sci & NanoEng, Master of Bioengineering, Master of Chemical Eng, Master of Civil & Env Eng, Master of Comp & Appl Math, Master of Comp Sci & Eng, Master of Computer Science, Master of Electrical Eng, Master of Industrial Eng, Master of Mechanical Eng or Master of Statistics degrees.
Course Level: Graduate
Description: This course will equip students with strategies to communicate more successfully on the job. Students will improve their written, oral, visual and interpersonal communication skills through formal and informal assignments, in-class activities, practice, and feedback.

ENGI 505 - ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
Short Title: ENG ECONOMICS & PROJECT MGMT
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Environment Analysis & Decisions. Enrollment is limited to Graduate level students. Students in a Doctor of Philosophy degree may not enroll.
Course Level: Graduate
Description: Life cycle economics analysis to project development, project economic analysis, contracting, network scheduling, risk management, organizational structures and cases. 505 requires an additional paper. Cross-list: CEVE 505. Mutually Exclusive: Cannot register for ENGI 505 if student has credit for CEVE 301/CEVE 479.

ENGI 510 - TECHNICAL AND MANAGERIAL COMMUNICATIONS
Short Title: TECHNICAL AND MANAGERIAL COMM
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Students in the program may not enroll. Enrollment is limited to Graduate level students. Enrollment limited to students in a Master Materials Sci & NanoEng, Master of Bioengineering, Master of Chemical Eng, Master of Civil & Env Eng, Master of Comp & Appl Math, Master of Comp Sci & Eng, Master of Computer Science, Master of Electrical Eng, Master of Industrial Eng, Master of Mechanical Eng or Master of Statistics degrees.
Course Level: Graduate
Description: In this communications course designed for Engineering Professional Masters (EPM) students, the approach will be experiential and interactive, with in-class exercises, analyses, and presentations. The focus will be on your practicing and refining the oral, written, and interpersonal skills you will need in your professional career. You should be prepared to participate in class. If you are a non-native speaker, you should be very proficient speaking and writing English and you should not take this course in your first semester at Rice. Preference will be given to EPM students.

ENGI 511 - LEADING CHANGE - REVOLUTIONARY MOMENTS IN ENGINEERING AND SOCIETY
Short Title: LEADING CHANGE IN ENGINEERING
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the impact of engineering on human history by exploring the social context, leadership frameworks, and societal impact of advances in technology. Students explore the social and political implications of emergent technology, with an emphasis on how these advances build upon and reify ideological paradigms and socio-economic systems. Graduate/Undergraduate Equivalency: ENGI 311. Mutually Exclusive: Cannot register for ENGI 511 if student has credit for ENGI 311.
ENGI 515 - LEADING TEAMS AND INNOVATION
Short Title: LEADING TEAMS AND INNOVATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students learn the principles of engineering leadership, strategies for launching and leading engineering teams, and methods for utilizing creativity and innovation in engineering environments. Learning methods include case studies, simulations, group projects, and interactions with industry professionals. Graduate students are required to complete an additional paper focusing on leadership development. Instructor Permission Required. Graduate/Undergraduate Equivalency: ENGI 315. Mutually Exclusive: Cannot register for ENGI 515 if student has credit for ENGI 315.
Course URL: rcel.rice.edu (http://rcel.rice.edu)

ENGI 525 - PITCHING NEW IDEAS TO WIN
Short Title: PITCHING NEW IDEAS
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: To succeed, you must pitch new ideas effectively or those ideas die. In ENGI 525, you will learn how to pitch, whether design, research, or startup ideas, so you win in high-stakes situations. Learning takes place through several rounds of hands-on coaching and practice with faculty and peers. You will acquire strategies to capture the interest of professional audiences and secure prized opportunities. Graduate/Undergraduate Equivalency: ENGI 425. Mutually Exclusive: Cannot register for ENGI 525 if student has credit for ENGI 425.

ENGI 528 - ENGINEERING ECONOMICS
Short Title: ENGINEERING ECONOMICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the evaluation of alternative investment opportunities with emphasis on engineering projects and capital infrastructure. Time value of money concepts are developed in the context of detailed project evaluation and presentations. In addition, concepts and applications of risk analysis and investment under uncertainty are developed. Requires oral and written presentations by students. Grad students will have an extra case study to perform. Cross-list: CEVE 528. Graduate/Undergraduate Equivalency: ENGI 303. Mutually Exclusive: Cannot register for ENGI 528 if student has credit for RCEL 505.

ENGI 529 - ETHICS AND ENGINEERING LEADERSHIP
Short Title: ETHICS & ENGINEERING LEADERSHIP
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Civil & Environmental Engineer, Civil Engineering or Environment Analysis & Decisions. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar introduces students to a framework for discussing and making ethical engineering and professional decisions. Using case studies and exercises, students will look at their own profession and its Engineering Code of Ethics as well as at the issues and risks they may face as managers and executives. Graduate students will do an extra paper. Instructor Permission Required. Cross-list: CEVE 529. Graduate/Undergraduate Equivalency: ENGI 320. Mutually Exclusive: Cannot register for ENGI 529 if student has credit for ENGI 320.

ENGI 530 - ENGINEERING PRACTICUM
Short Title: ENGINEERING PRACTICUM
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate course is designed to supplement technical coursework in the school of engineering with practical application and reflection on the challenges and value of applying knowledge to real-world problems in professional settings. Students undertake a work internship and write a report under supervision of a faculty member. NOTE: Instructor permission required, and must be obtained prior to the start of the internship. If interested in this course, please work with your Major Advisor and, if you are an international student, OISS to secure an approved internship opportunity. Once an internship is secured, contact Jen Mashburn (mashburn@rice.edu) for a copy of the course Syllabus & Student Agreement. Instructor Permission Required. Graduate/Undergraduate Equivalency: ENGI 330. Repeatable for Credit.

ENGI 542 - PROFESSIONAL COMMUNICATION FOR ENGINEERING LEADERS
Short Title: PROFESSIONAL COMMUNICATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: To be truly influential in their fields, engineers need to be able to communicate their thoughts and opinions to management, peers, clients, and the public. They need to communicate clearly and confidently in a variety of professional situations. This course gives you the opportunity to learn, practice, and improve essential communication skills with emphasis on oral presentations, professional writing, and interpersonal communication. Graduate/Undergraduate Equivalency: ENGI 242. Mutually Exclusive: Cannot register for ENGI 542 if student has credit for ENGI 242.
Course URL: rcelconnect.org (http://rcelconnect.org)
ENGI 555 - ENGINEERING PERSUASION: HOW TO DRIVE DECISIONS AND CHANGE
Short Title: ENGINEERING PERSUASION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Engineers require persuasion to fuel technology change. You will learn approaches to convince others of the quality of your work. These simple but powerful approaches account for high-stakes success in design discussions, product adoption, and investor pitching. ENGI 555 includes more advanced assignments and/or examinations than ENGI 455. Graduate/Undergraduate Equivalency: ENGI 455. Mutually Exclusive: Cannot register for ENGI 555 if student has credit for ENGI 455. Graduate/Undergraduate Equivalency: ENGI 455. Mutually Exclusive: Cannot register for ENGI 555 if student has credit for ENGI 455.

ENGI 599 - PROTOTYPING AND FABRICATION
Short Title: PROTOTYPING & FABRICATION
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in ENGI 599 will learn and practice advanced prototyping and fabrication skills useful in the construction of physical objects for engineering design projects. The course is structured as lecture and demonstration of both basic and advanced prototyping techniques and out-of-class work practicing and honing the application of these techniques. Example techniques include low fidelity prototyping, 2D and 3D Computer Aided Design, electronics, foam cutting, laser cutting, plasma cutting, 3D printing, and molding/casting methods. Students will individually apply these techniques to create physical objects. Instructor Permission Required. Graduate/Undergraduate Equivalency: ENGI 210.
Course URL: engi210.blogs.rice.edu (http://engi210.blogs.rice.edu)

ENGI 600 - WRITTEN AND ORAL COMMUNICATION SEMINAR FOR ENGINEERING GRADUATE STUDENTS
Short Title: GRADUATE COMMUNICATIONS SEM
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: To be a successful researcher, you must be able to explain, defend, and promote your work to maximize its impact. This interactive seminar is open to engineers actively writing a paper for publication, an extended PhD proposal, a Master’s thesis, or a PhD dissertation. The assignments are designed to help you frame and develop your research story in clear, compelling terms. Topics include textual and visual abstracts, composition, data presentation, plagiarism, structure, flow and emphasis.

ENGI 601 - ENGINEERING COMMUNICATIONS WORKSHOP
Short Title: ENGINEERING COMM WORKSHOP
Department: Engineering Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn to communicate effectively about their work using 21st-century skills. They will learn what distinguishes high-quality written, oral, and visual communication in their field, and apply these criteria in crafting and revising their own poster, elevator speech, news release, professional website, conference presentation, research statement, and portion of their thesis or dissertation. Instructor Permission Required.

ENGI 610 - MANAGEMENT FOR SCIENCE AND ENGINEERING
Short Title: MGT FOR SCIENCE/ENGINEERING
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is for graduate and undergraduate students who want to understand the basics of management in new and/or small technology-based businesses and is particularly relevant to students who are interested in careers in technology or entrepreneurial ventures. NSCI 610/ENGI 610 is team taught to provide insight into how technology oriented firms manage people, projects, accounting, marketing, strategy, intellectual property, organizations and entrepreneurship. Student’s active participation is essential. Students who take this course are eligible for MGMT 625. Cross-list: NSCI 610.

ENGI 614 - LEARNING HOW TO INNOVATE?
Short Title: LEARNING HOW TO INNOVATE?
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Innovation has become a buzzword. Many of us aspire to be successful innovators, but how? There is ample attention for entrepreneurship, but less is available to support your innovation ambition. This course aims to give you an unconventional innovation experience. Repeatable for Credit.

ENGI 615 - LEADERSHIP COACHING FOR ENGINEERS
Short Title: LEADERSHIP COACHING FOR ENGR
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Leadership coaching is a professional skill that leaders use to enhance another person’s ability to achieve their goals. Students will learn how to lead others in their own professional development through the use of coaching. This course emphasizes experiential learning and some graduates will be selected to become coaches to Rice engineering undergraduates. Repeatable for Credit.
ENGI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 779 - BUSINESS AND URBAN ANALYTICS
Short Title: BUSINESS & URBAN ANALYTICS
Department: Engineering Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed for and required of all prospective English majors. Emphasis is on close reading, literary interpretation, and critical writing about literature and language. Repeatable for Credit.
Course URL: www.english.rice.edu

English (ENGL)

ENGL 100 - INTRODUCTION TO LITERATURE
Short Title: INTRODUCTION TO LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 200 - GATEWAYS TO LITERARY STUDY
Short Title: GATEWAYS TO LITERARY STUDY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 122 - AP/OTH CREDIT IN ENGLISH
Short Title: AP/OTH CREDIT IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 121 - AP/OTH CREDIT IN ENGLISH
Short Title: AP/OTH CREDIT IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 175 - GLOBAL LITERATURES IN ENGLISH
Short Title: GLOBAL LITERATURES IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 177 - AP/OTH CREDIT IN ENGLISH
Short Title: AP/OTH CREDIT IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 10 - INTRODUCTION TO LITERATURE
Short Title: INTRODUCTION TO LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 200 - GATEWAYS TO LITERARY STUDY
Short Title: GATEWAYS TO LITERARY STUDY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 122 - AP/OTH CREDIT IN ENGLISH
Short Title: AP/OTH CREDIT IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 175 - GLOBAL LITERATURES IN ENGLISH
Short Title: GLOBAL LITERATURES IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 100 - INTRODUCTION TO LITERATURE
Short Title: INTRODUCTION TO LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu

ENGL 200 - GATEWAYS TO LITERARY STUDY
Short Title: GATEWAYS TO LITERARY STUDY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.
Course URL: www.english.rice.edu
ENGL 201 - INTRODUCTION TO CREATIVE WRITING
Short Title: INTRO TO CREATIVE WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course dedicated to the study and craft of fiction, nonfiction, and poetry. Through engaged reading and creative exercises, students will analyze the use of various elements of creative writing - including image, voice, tension, character, setting, and story. Students will develop a writing portfolio as well as a sense of the possibilities inherent in and unique to each genre. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 203 - TOPICS IN CREATIVE WRITING
Short Title: TOPICS IN CREATIVE WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introductory, variable topics workshop in creative writing that asks students to work in multiple genres (fiction, non-fiction, poetry, reviewing, etc.). Topics will vary from semester to semester and may include “Food Writing,” “Writing Green,” “Persona,” and more. Course counts toward the English Creative Writing Concentration (ECRW).
Repeatable for Credit.
Course URL: english.rice.edu (http://english.rice.edu)

ENGL 204 - FORMS OF POETRY
Short Title: FORMS OF POETRY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the fundamental architecture of poetry. How do poets create a sense of shape? What are the nuts and bolts of a poem? Students will read widely in the history of poetry from traditional meters and historical forms to contemporary free verse and experimental or open forms. Part workshop and part seminar, this course will feature critical and creative assignments and is designed for majors and non-majors, writers and non-writers alike. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 210 - BEGINNINGS: BRITISH LITERATURE TO 1800
Short Title: BEGINNINGS: BRIT LIT TO 1800
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of representative British authors of the Middle Ages, the Renaissance, and the 18th century for both majors and non-majors.

ENGL 211 - BRITISH LITERATURE: ROMANTICISM TO THE 20TH CENTURY
Short Title: BRIT LIT ROMANTICISM TO 20TH C
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the contemporary means and methods of literary publishing. The class will involve students in the real-world issues of producing Rice's own nationally award-winning undergraduate literary journal, R2: The Rice Review. The course will explore the methods and best-practices required to produce and sustain a high-quality literary journal on both print and digital platforms. Assignments will include: promotions, blog posts, book reviews, interviews, articles for web, editing, layout and graphic design. Course counts toward the English Creative Writing Concentration (ECRW), Two instances of ENGL 213 (1.5 credit hours) will be eligible to be counted toward the English Creative Writing Concentration/ECRW. Repeatable for credit. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Distribution Group</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 222</td>
<td>THE WORLD AND SOUTH ASIA</td>
<td>WORLD AND SOUTH ASIA</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">http://www.english.rice.edu</a></td>
</tr>
<tr>
<td>ENGL 238</td>
<td>SPECIAL TOPICS</td>
<td>SPECIAL TOPICS</td>
<td>English</td>
<td>Standard Letter</td>
<td>Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory</td>
<td>Distribution Group I</td>
<td>1-4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>ENGL 245</td>
<td>INTERDISCIPLINARY APPROACHES</td>
<td>INTERDISCIPLINARY APPROACHES</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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</tr>
<tr>
<td>ENGL 250</td>
<td>HISTORY OF THE NOVEL</td>
<td>HISTORY OF THE NOVEL</td>
<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">http://www.english.rice.edu</a></td>
</tr>
<tr>
<td>ENGL 251</td>
<td>READING POETRY</td>
<td>HOW TO READ TEXTS</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>ENGL 252</td>
<td>HOW TO READ TEXTS</td>
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<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
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<tr>
<td>ENGL 255</td>
<td>THE IDEA OF SHAKESPEARE</td>
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<td>English</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group I</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td><a href="http://www.english.rice.edu">http://www.english.rice.edu</a></td>
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</tbody>
</table>
ENGL 260 - WHAT IS AMERICAN LITERATURE
Short Title: WHAT IS AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of representative U.S. authors from the 18th century to the present designed for both majors and non-majors.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 265 - JEWISH-AMERICAN LITERATURE AND CULTURE
Short Title: JEWISH-AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of Jewish-American literature from the early 20th century to the present. The course explores novels, poems, non-fiction prose, and film in context of the literary, social and political movements of the last century. Writers may include: Kahane, Yezierska, Miller, Stein, Olsen, Ginsberg, Ozick, Roth, Rich, Chaybon, Foer.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 267 - INTRODUCTION TO AFRICAN AMERICAN LITERATURE
Short Title: INTRO TO AFRICAN AMER LIT
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the history and traditions of African American literature. Course will examine the poetry, essays, and fiction by people of African descent from the 18th to the 21st centuries.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 268 - INTRODUCTION TO NATIVE AMERICAN LITERATURE
Short Title: NATIVE AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This multi-genre course introduces students to Native American literature through the contemporary novel, autobiography, critical essays, poetry, and film. An awareness of historical, cultural, and political movements important to American Indian peoples will supplement literary analysis. The class will address issues of sovereignty, land claims, activism, and identity.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 269 - SCIENCE FICTION AND THE ENVIRONMENT
Short Title: SCI FI AND THE ENVIRONMENT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examines the ways that science fiction has expressed and challenged ideas about nature, culture, society, and politics. Cross-list: ENST 265.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 270 - ASPECTS OF MODERN LITERATURE
Short Title: ASPECTS OF MODERN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to modern/postmodern culture that may include readings of novels, plays, short stories, poems, psychoanalytic theory, and art criticism/philosophy. The emphasis is on reading and interpreting different kinds of texts in broad cultural contexts.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 272 - LITERATURE AND MEDICINE
Short Title: LITERATURE AND MEDICINE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the medical profession, this course introduces the study of medicine through reading imaginative literature—novels, plays, essays, poems—by and about doctors and patients, focusing on understanding ethical issues and on developing critical and interpretive skills.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 273 - MEDICINE AND MEDIA
Short Title: MEDICINE AND MEDIA
Department: English
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An interdisciplinary exploration of the role of imaging technologies in the practice of medicine, and the role of mass media in shaping our understandings of the body, health, and disease. This course examines visual media structure "ways of seeing" for physicians and for the public. Emphasis will be placed on developing media literacy skills. Cross-list: SWGS 273.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 274 - LITERATURE AND RELIGION
Short Title: LITERATURE AND RELIGION
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Literature and Religion examines the place of religious thought in literature and culture from the pre-modern to the modern world. The course examines how religious problems and questions – from an investment in a theological world view to the critique of God and providence – have shaped literary form and function.

ENGL 277 - LITERATURE AND FORENSICS
Short Title: LITERATURE AND FORENSICS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This pre-law course develops the skills necessary for legal and other argumentative writing. We learn the tactics associated with the interpretation of texts, muster evidence, and employ persuasive rhetorics. The course doubles its forensic investment by working through literary, historical and legal texts.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 278 - MEDICINE IN THE AGE OF NETWORKED INTELLIGENCE
Short Title: MED IN AGE OF NETWORKED INTELL
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course imagines and predicts the future of medicine at its evolving intersection with technology. Examines how developments in mobile, social, personal and global health are transforming medical research, communication, practice. Emphasis on active learning through hands-on creative projects. Topics include social media, quantified self, big data, ethics, doctor-patient relationship.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 286 - CLASSICAL AND CONTEMPORARY FILM AND THEORY
Short Title: CLASSICAL & CONTEMPORARY FILM
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A course focusing on contexts such as movies and ads, familiar plots and conventions define their significance. Cross-list: HART 286.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 290 - TOPICS IN LITERARY AND CULTURAL ANALYSIS
Short Title: LITERARY CULTURAL ANALYSIS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introductory courses that cover a range of texts in social, political and aesthetic contexts, and can also include introductory courses on literary theory, cultural theory, and narrative. Please consult English department website for specific details. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 299 - ENGLISH LITERATURE AND THE PUBLIC HUMANITIES
Short Title: LITERATURE/PUBLIC HUMANITIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students learn to apply critical humanistic methods to issues of public importance, especially in the Houston area. Participants study necessary applications of humanistic inquiry to civic life and contribute to this work themselves. Topics vary each semester. Past topics have included: Surreal Houston; Curating Heritage; (Dis)locating Art; History and Meaning. Repeatable for Credit.
Course URL: english.rice.edu (http://english.rice.edu)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course URL</th>
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</thead>
<tbody>
<tr>
<td>ENGL 300</td>
<td>PRACTICES OF LITERARY STUDY: READING METHODS</td>
<td>PRACTICES OF LITERARY STUDY</td>
<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>ENGL 301</td>
<td>INTRODUCTION TO FICTION WRITING</td>
<td>INTRO TO FICTION WRITING</td>
<td>English</td>
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<td>ENGL 302</td>
<td>SCREENWRITING</td>
<td>SCREENWRITING</td>
<td>English</td>
<td>Standard Letter</td>
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<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<tr>
<td>ENGL 303</td>
<td>PLAYWRITING</td>
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<td>English</td>
<td>Standard Letter</td>
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<tr>
<td>ENGL 304</td>
<td>INTRODUCTION TO POETRY WRITING</td>
<td>INTRO TO POETRY WRITING</td>
<td>English</td>
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<td>Seminar</td>
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<tr>
<td>ENGL 305</td>
<td>INTRODUCTION TO CREATIVE NONFICTION WRITING</td>
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<td>English</td>
<td>Standard Letter</td>
<td>Seminar</td>
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**Course Description:**

- **ENGL 300:** A course that identifies and explores key concepts of recent critical theory. Students read short texts of contemporary theory and discuss the relation between theory and literature. Required for English majors.

- **ENGL 301:** A course in reading and writing creative nonfiction prose for the beginning writer. Sections may focus on a range of nonfiction genres or one specific form, e.g., personal essay/memoir, travel narratives, literary journalism, science and nature writing. Course counts toward the English Creative Writing Concentration (ECRW). Registration for odd-numbered sections is restricted to English Majors (ENGL, ECRW); registration for even numbered sections is open to all undergraduate students.

- **ENGL 302:** This course will introduce students to the art and craft of screenwriting through a focused study of terminology, formatting and cinematic technique. Assignments will include writing exercises, weekly viewing of films and readings of screenplays. Students will write their own treatments, outlines and full-length screenplays. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.

- **ENGL 303:** A course that teaches the fundamentals of fiction writing, and includes a mixture of reading and writing assignments. The goal is for each student to produce two short stories possessing imaginative ingenuity, structural integrity, and literary merit by the end of the semester. Course counts toward the English Creative Writing Concentration (ECRW). Registration for odd-numbered sections is restricted to English Majors (ENGL, ECRW); registration for even numbered sections is open to all undergraduate students.

- **ENGL 304:** An introduction to poetry writing through the study of contemporary poets and the writing of poems. The class will pay extensive attention to such elements of poetry as imagery, figurative language, tone, syntax, and form in order to create a vocabulary for students to discuss their own poems. Students’ poems will be critiqued by the class in a workshop setting. Course counts toward the English Creative Writing Concentration (ECRW). Registration for odd-numbered sections is restricted to English Majors (ENGL, ECRW); registration for even numbered sections is open to all undergraduate students.

- **ENGL 305:** A course in reading and writing creative nonfiction prose for the beginning writer. Sections may focus on a range of nonfiction genres or one specific form, e.g., personal essay/memoir, travel narratives, literary journalism, science and nature writing. Course counts toward the English Creative Writing Concentration (ECRW). Registration for odd-numbered sections is restricted to English Majors (ENGL, ECRW); registration for even numbered sections is open to all undergraduate students.
ENGL 306 - TOPICS IN FICTION WRITING
Short Title: TOPICS IN FICTION WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics workshop in the writing of fiction. Topics will vary from semester to semester and may include "Persona," "Experiments in Fiction," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 307 - TOPICS IN POETRY WRITING
Short Title: TOPICS IN POETRY WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics workshop in the writing of poetry. Topics will vary from semester to semester and may include "Sonnet, Elegy, Ode," "Writing Green," "The Art of the Archive," "Poems and Paintings," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 308 - INTRODUCTION TO PODCASTING
Short Title: INTRODUCTION TO PODCASTING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This project-based course will lead us through an introduction to the ever-expanding medium of podcasting, specifically radio storytelling. We will unpack and discuss the techniques of practiced podcaster and use those elements in our own attempts at radio reportage: arts & culture shorts, vox pops, sonic ID's, and short and long-form interviews. We will become proficient in capturing sound, interviewing strangers, writing scripts, pitching ideas for stories, and using GarageBand software to edit and shape that content. NOTE: If a student previously enrolled in ENGL 309 Special Topics - Podcasting, the student cannot take ENGL 308.

ENGL 309 - TOPICS IN CREATIVE NONFICTION WRITING
Short Title: CREATIVE NONFICT WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics workshop in the writing of creative nonfiction. Topics will vary from semester to semester and may include "Nature Writing," "Life Writing," "History of the Essay," and more. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 310 - NONFICTION NATURE WRITING
Short Title: NONFICTION NATURE WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this creative writing seminar, students will explore some of the ways that creative nonfiction can become a vehicle for questions about how to imagine our place in the world, as well as the relationships between memory and landscape, politics and place, and inclusion and exile. NOTE: If a student previously enrolled in ENGL 309 Special Topics - Topics in Nonfiction Writing, the student cannot take ENGL 310. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 311 - TOPICS IN MEDIEVAL LITERATURE AND/OR CULTURE
Short Title: MEDIEVAL TOPICS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A special course in Medieval literature and/or culture. Topics will vary.

ENGL 312 - OLD ENGLISH LITERATURE AND LANGUAGE
Short Title: OLD ENGL LIT AND LANGUAGE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey course in Old English literature and language. Cross-list: MDEM 312. Repeatable for Credit.
ENGL 314 - MEDIEVAL ROMANCE
Short Title: MEDIEVAL ROMANCE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines the development of romance as a genre during the medieval period. Cross-list: MDEM 319.

ENGL 316 - CHAUCER
Short Title: CHAUCER
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Geoffrey Chaucer’s The Canterbury Tales, Middle English, and the political and cultural climate of the fourteenth century. Cross-list: MDEM 316, SWGS 305.

ENGL 317 - ARTHURIAN LITERATURE
Short Title: ARTHURIAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Cross-list: MDEM 317, SWGS 301.

ENGL 318 - FAIRY TALES AND FEAR TALES
Short Title: FAIRY TALES AND FEAR TALES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this class students will read, discuss and analyze a variety of classical and contemporary genres in order to compose and revise adaptations and original versions of classical fairy tales and horror stories. NOTE: If a student previously enrolled in ENGL 306 Special Topics - "Fairy Tales/ Fantasy and Fright", the student cannot take ENGL 318. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 319 - FANTASY AND SCIENCE FICTION
Short Title: FANTASY AND SCIENCE FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this class students will read, discuss and analyze a variety of classical and contemporary genres in order to compose and revise adaptations and original versions of fantasy and science fiction stories. NOTE: If a student previously enrolled in ENGL 306 Special Topics - "Fantasy and Fright", the student cannot take ENGL 319. Course counts toward the English Creative Writing Concentration (ECRW).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 320 - SHAKESPEARE ON FILM
Short Title: SHAKESPEARE ON FILM
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of representative Shakespearean plays and films based on them, focusing on the difference between film and drama.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 321 - SHAKESPEARE
Short Title: SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A topics course in Shakespeare's works. Topics will vary from year to year. Graduate/Undergraduate Equivalency: ENGL 521.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 322 - TOPICS IN SHAKESPEARE
Short Title: TOPICS IN SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A topics course in Shakespeare's works. Topics will vary semester to semester. See the English Department website for more information. This course will be repeatable for credit. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
### ENGL 323 - RENAISSANCE DRAMA
**Short Title:** RENAISSANCE DRAMA  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A course focusing on selected plays of Elizabethan and Jacobean England, read both for their literary significance and for the way they were part of the period's social, economic, and political forces. Repeatable for Credit.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)

### ENGL 325 - STUDY ABROAD: RICE ENGL MAJORS AT THE UNIVERSITY OF EXETER
**Short Title:** STUDY ABROAD: RICE AT EXETER  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ENGL 200 and ENGL 300  
**Description:** Special course for the transfer credit of pre-approved coursework taken at the University of Exeter, as part of the English department's study abroad program for English majors at the University of Exeter. Department Permission Required. Repeatable for Credit.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)

### ENGL 326 - TOPICS IN RENAISSANCE LITERATURE AND CULTURE
**Short Title:** TOPICS IN REN. LIT. AND CULT.  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A course focusing on various genres of English literature from the early modern period. Topics vary and have recently included "Love, Sex and Death in the Renaissance" and "Heaven and Hell." Repeatable for Credit.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)

### ENGL 327 - GRAPHIC NOVEL
**Short Title:** GRAPHIC NOVEL  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** In this course students will use the study of the Graphic Novel as an opportunity to explore imagination both analytically and creatively (and to recognize that the two modes are not at odds). Students shall read widely and deeply and with great pleasure and intensity. NOTE: If a student previously enrolled in ENGL 306 Special Topics "Graphic Novel", the student cannot take ENGL 327. Course counts toward the English Creative Writing Concentration (ECRW).  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)

### ENGL 328 - JOHN MILTON: RADICAL THOUGHT THEN AND NOW
**Short Title:** JOHN MILTON: RADICAL  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A course on the major poems of John Milton, with an emphasis on "Paradise Lost" and the theological and philosophical issues that it engages (then and now). Mutually Exclusive: Cannot register for ENGL 328 if student has credit for ENGL 528.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)

### ENGL 330 - ORIGINS OF THE ENGLISH NOVEL
**Short Title:** ORIGINS OF THE ENGLISH NOVEL  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A course focusing on the most important literary innovation of the 18th-century: the birth of the novel. We will examine the modern social and cultural forces crucial to and inextricable from this watershed development: the emergence of liberalism, conservatism, feminism, class, secular culture, the sex/gender system, individualism, and the separation of public and private spheres.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)

### ENGL 332 - LITERATURE OF THE BRITISH ENLIGHTENMENT
**Short Title:** LIT OF BRITISH ENLIGHTENMENT  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A course that examines a representative range of British prose and poetry from 1660-1790, the period known as the Enlightenment. This was a volatile age of plots, revolution, philosophical and scientific innovation, and literary transformation. Our readings will cover poems of several genres, short prose narratives, essays and philosophical treatises.
ENGL 333 - 18TH CENTURY BRITISH FICTION
Short Title: 18TH CENTURY BRITISH FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the emergence and consolidation of the English novel and its dynamic relationship to many other 18th-century legacies: the modern individual, capitalism, civil society, the middle class, democracy, and colonialism. Graduate/Undergraduate Equivalency: ENGL 532. Mutually Exclusive: Cannot register for ENGL 333 if student has credit for ENGL 532.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 336 - IRISH LITERATURE
Short Title: IRISH LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that surveys Irish Literature since the 19th century and includes poetry, drama, and fiction. It focuses upon the political turmoil preceding and following the War of independence as well as debates concerning the ideological operations of literature. Some authors covered may be, Yeats, Joyce, Beckett, O’Brien, Bowen, Heaney and Boland. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 337 - GOTHIC AMERICAN LITERATURE: TERROR, HORROR, THE GROTESQUE, AND THE SUBLIME IN AMERICAN CULTURE
Short Title: GOTHIC AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Gothic America concerns the many instances of terror, horror, the grotesque, and the sublime in American literature, from the Republic’s troubled birth in the late 1700s to the onset of industrial modernity in the early 1900s. In surveying the theoretical underpinnings of the Gothic, this course will discuss race, sexuality, religion, science, and philosophy. In short, this course explores why America remains a haunted nation.

ENGL 338 - BRITISH ROMANTICISM
Short Title: BRITISH ROMANTICISM
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A multi-genre course on the Romantic period. This course will explore the excesses, extremes, and diversities of British Romanticism across a variety of media: plays, tales, confessions, novels, and satires (including illustrations, paintings, and visual spectacles).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 339 - ROMANTICISM IN RUINS
Short Title: ROMANTICISM IN RUINS
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The incomplete ruins - fragments - fascinate us. The course examines how this concern forms in the Romantic Period and how it remains relevant today. It focuses on texts (novels, poems, philosophy, history) and visual art; most sources will be Romantic, some contemporary (e.g. Wordsworth, Volney, Schlegel, Piranesi, Shelley, Burke, Sebald).
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 340 - CALDERWOOD SEMINAR IN PUBLIC WRITING
Short Title: THE LINE OF LOVE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200
Description: Take a step back from your English major and learn how to transfer your expertise to the public. The Calderwood Seminars in Public Writing challenge junior and senior majors in an intimate workshop setting to grow as critics and writers. Topics will vary semester to semester. Throughout the semester, students build a writing portfolio that might include op-eds, book reviews, journal article reviews, coverage of public talks, and interviews with poets and critics. Classes will include collaborative editing workshops, guest lectures from experts in the writing field, and activities to build a strong writing foundation. You have learned how to write for college, now learn how to write for life. Open to junior and senior English majors or by permission of instructor. Recommended Prerequisite(s): ENGL 300
ENGL 341 - VICTORIAN LITERATURE AND CULTURE
Short Title: VICTORIAN LITERATURE & CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A multi-genre course that explores the array of creative works that examine the Victorian period through poetry, non-fiction prose, fiction, art and material culture. Repeatable for Credit.

ENGL 342 - SURVEY OF VICTORIAN FICTION
Short Title: VICTORIAN FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the many genres of the nineteenth-century novel, this course will try to come to terms with some of the insistent questions posed by and through the fiction of the period. Cross-list: SWGS 372.
Course URL: www.english.rice.edu

ENGL 343 - JANE AUSTEN'S WORLDS
Short Title: JANE AUSTEN'S WORLDS
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of Jane Austen as Regency writer and contemporary icon. The course will focus both on Austen's writing her novels, her juvenilia and her letters and on visual and textual adaptations of her work. Cross-list: SWGS 343.
Course URL: www.english.rice.edu

ENGL 344 - ACCOUNTING FOR DICKENS
Short Title: DICKENS
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How do we account for the extraordinary popularity and influence of Charles Dickens from his own time till now? How did he and how have his audiences assigned and extracted value from his writing and his life more generally? The course will focus on Dickens's journalism, novels, shorter fiction, and letters, as well as on visual and verbal adaptations of his work. Readings will include selections of texts from throughout Dickens's career such as Sketches by Boz, Oliver Twist, A Christmas Carol, David Copperfield, and A Tale of Two Cities.

ENGL 346 - THE MODERN NOVEL IN BRITAIN
Short Title: THE MODERN NOVEL IN BRITAIN
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the modernist novel in 20th-century Britain.
Course URL: www.english.rice.edu

ENGL 350 - EUROPEAN FICTION: 20TH CENTURY
Short Title: EUROPEAN FICTION: 20TH CENTURY
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of political and formal developments in French, German, Russian, and Eastern European novels by writers such as Proust, Hacek, Pasternak, Hrabal, and Boll.
Course URL: www.english.rice.edu

ENGL 353 - MODERN DRAMA
Short Title: MODERN DRAMA
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of plays from traditions of 20th century and contemporary theatre and performance, including work by O'Neill, Williams, Beckett, Pinter, Stoppard, Albee, Shepard, Mamet, Parks, and Kane. Course will include writing critical papers and some performance.
Course URL: www.english.rice.edu

ENGL 354 - QUEER LITERARY CULTURES
Short Title: QUEER LITERARY CULTURES
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to queer literary theory by reading works in several genres, from Sappho to the present day, including Shakespeare, Dickinson, Tennyson, Whitman, Proust, Stein and Woolf. Cross-list: SWGS 364.
Course URL: www.english.rice.edu
ENGL 355 - MODERN SHORT STORY: TOWARDS AN ETHICS OF FICTION  
Short Title: MODERN SHORT STORY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of great modern short fiction with emphasis on reading as an ethical enterprise. Selected critical essays complement works from Melville to Maupassant, Flaubert to Kafka to O’Connor as we talk about alienation and solitude, death and violence and the vicissitudes of family. Taught in English. Cross-list: FREN 355. Recommended Prerequisite(s): Any 200-level course or above in English or French Studies, or EURO 101 or EURO 102.

ENGL 356 - MODERNISMS  
Short Title: MODERNISMS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An exploration of the history, philosophy and culture of modernism from the late 19th century to World War II. Course includes fiction, poetry, film, painting, theatre, music and theories of art.

ENGL 357 - ORIGINS OF THE POSTMODERN  
Short Title: ORIGINS OF THE POSTMODERN  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An exploration of modernist work from the late 19th century to World War II. Course includes fiction, poetry, film, painting, theatre, music and theories of art.

ENGL 358 - CONSUMPTION & CONSUMERISM  
Short Title: CONSUMPTION & CONSUMERISM  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An exploration of the history, philosophy and culture of eating, drinking, shopping and other forms of consuming. Featuring detailed analysis of literatures in English, visual art, music, film and food.

ENGL 359 - WRITING ON/WRITING OFF NEW ORLEANS  
Short Title: WRITING ON/WRITING OFF NEW ORLEANS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An examination of the relation between New Orleans and the writing in and about it. Works by Kate Chopin, William Faulkner, Tennessee Williams, Walker Percy, Eudora Welty, John Kennedy Toole, Michael Ondaatje, and others will be studied. Students will create their own New Orleans text in a final paper.

ENGL 360 - AMERICAN LITERATURE BEFORE THE CIVIL WAR  
Short Title: AMER LIT BEFORE THE CIVIL WAR  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of American literatures spanning the Age of Discovery, Atlantic Revolutions, and onset of the U.S. Civil War.

ENGL 361 - US LITERATURE FROM THE CIVIL WAR TO WWI  
Short Title: US LITERATURE CIVIL WAR TO WWI  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: From Mark Twain to T.S. Eliot, a survey of authors commenting on the American North, South, and West from Reconstruction to WWI.

ENGL 362 - MODERN AMERICAN FICTION  
Short Title: MODERN AMERICAN FICTION  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Graduate, or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A survey of the fiction of the first half of the 20th century, one of the great periods of social turmoil and intense artistic experimentation. Authors may include Chopin, Hemingway, Fitzgerald, Toomer, Faulkner, Hurston, Barnes.
ENGL 363 - THE US NOVEL POST-WORLD WAR II
Short Title: US NOVEL POST-WORLD WAR II
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the narrative experiments and trends of the period, from 1950 to the present.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 366 - TOPICS IN AMERICAN LITERATURE
Short Title: TOPICS IN AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course focusing on themes, movements or genres across several periods of American literature. Previous topics include Sea Stories, American Gothic, Bob Dylan and the '60s and Utopia. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 368 - LITERATURE AND THE ENVIRONMENT
Short Title: LITERATURE & THE ENVIRONMENT
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that asks the question: How does literature express or shape environmental values? In this class we will read American fiction and nonfiction exploring the relationship between human and nonhuman nature. Cross-list: ENST 368.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 369 - THE AMERICAN WEST AND ITS OTHERS
Short Title: THE AMERICAN WEST & ITS OTHERS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of a body of literature, film, and critical theory about the American West and the concept of regionalism. Explores region in relation to the nation and its borders, global media, coloniality, indigeneity and race, gender, and an ethics of place. Cross-list: SWGS 329.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 370 - AFRICAN AMERICAN LITERATURE
Short Title: AFRICAN AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that traces, through various genres and themes, African American literary history from the late eighteenth century to the present. Attention is given to theories and critiques of African American literature and culture. Cross-list: SWGS 370.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 371 - CHICANO/A LITERATURE
Short Title: CHICANO/A LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: SPPO 354, SWGS 354. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 372 - ASIAN AMERICAN LITERATURE
Short Title: ASIAN AMERICAN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines the various themes of the Asian American experience through literary and cultural forms. Special attention is given to the representational histories of Asian/American immigration, racial formation, and social movements.

ENGL 373 - SURVEY OF AMERICAN FILM AND CULTURE
Short Title: SURVEY OF AMER FILM & CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that examines the history of cinema in the U.S. from its origins to the present day. This course will examine the development of narrative, sound, the classical Hollywood form and style; film genres; the emergence of television; the influence of postwar "art cinemas"; the origins of the blockbuster; and the status of Hollywood as "global cinema." Cross-list: FILM 373, HART 380.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 374 - CINEMA STUDIES
Short Title: CINEMA STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course central to the study of cinema theory, criticism, and history. Repeatable for Credit.

ENGL 375 - FILM AND LITERATURE
Short Title: FILM AND LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of twelve masterpieces of world cinema, with special attention to the texts (when applicable) on which they are based. Some of the filmmakers covered: Akira Kurosawa, Jean Renoir, Bernardo Bertolucci, Jean-Luc Godard, Roberts Bresson, Ingmar Bergman, Howard Hawks, and Kar Wai Wong.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 376 - SOUTHEAST ASIAN LITERATURE IN ENGLISH
Short Title: SE ASIAN LITERATURE IN ENGLISH
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introductory course that surveys the literary history of English-language writing in Southeast Asia. This course examines twentieth- and twenty-first-century novels, short stories, and poetry from across the region, with a primary focus on literature from former colonies of the British and American empires—namely, Singapore, Malaysia, and the Philippines. Attention will also be given to Vietnamese literature grappling with the legacies of American military intervention in the region. Situating this dynamic writing within the historical, cultural, and sociopolitical contexts of Southeast Asia, this course will introduce students to shared thematic engagements with anticolonial nationalism, the aftermath of war, modernization, urbanization, and globalization.
Course URL: english.rice.edu (http://english.rice.edu)

ENGL 377 - ART AND LITERATURE
Short Title: ART AND LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores how the languages of text and image can interrogate as well as clarify each other. We will focus on three key bodies of work: the paintings of Vermeer; a massive graphic novel by Charlotte Salomon, a 22 year old woman who died at Auschwitz; and Alfred Hitchcock's revision of his novelistic source for "Psycho".
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 379 - THIRD WORLD LITERATURE
Short Title: THIRD WORLD LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that primarily surveys fiction, poetry, drama, film (in English) from postcolonial contexts, especially those of Africa, the Caribbean, and the Indian subcontinent. Authors discussed may include Rushdie, Narayan, Roy, Wolcott, Ngugi, Coetzee, and Achebe.
ENGL 380 - CONTEMPORARY ANGLOPHONE LITERATURES
Short Title: CONTEMPORARY ANGLOPHONE LIT
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that focuses on literatures in English that emerge in the wake of European colonialism, except those from the United States. Writers might include those from Africa, Australia, Canada, India, or the Caribbean. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 381 - TOPICS IN WOMEN WRITERS
Short Title: TOPICS IN WOMEN WRITERS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that focuses on women writers from various traditions. Cross-list: SWGS 327. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 382 - FEMINIST THEORY
Short Title: FEMINIST THEORY
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course focusing on concepts that drive and divide social movements centered on gender equality; women's issues, and sexual identity in the two-thirds and one-third world, among them feminism; the body; race; labor; rights, needs, and desires. Cross-list: SWGS 380.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 383 - GLOBAL FICTIONS
Short Title: GLOBAL FICTIONS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course has two components: one, it looks at recent fiction in English by U.S., British, and international writers that deal with global and transnational issues; and two, it studies the work of recent cultural critics who provide new understandings of an increasingly networked world as well as the imaginative and narrative tools—fictional, artistic, cinematic, electronic, and visual—that we use to process the fast-paced realities of contemporary globalization.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 384 - AMERICAN INDEPENDENT CINEMA
Short Title: AMERICAN INDEPENDENT CINEMA
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the history of filmmaking outside of Hollywood in the United States throughout the 20th century, emphasizing the period from 1959 to the present. Special attention to the contributions of marginalized communities and the art world, innovative film styles, and the interdependence of alternative and mainstream media cultures. Cross-list: FILM 384.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 385 - FILM STUDIES
Short Title: FILM STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that may focus on such areas as film genres, national cinemas, world cinema, directors or other thematically organized topics. Cross-list: FILM 385. Mutually Exclusive: Cannot register for ENGL 385 if student has credit for ENGL 589. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 386 - MEDICAL MEDIA ARTS LAB
Short Title: MEDICAL MEDIA ARTS LAB
Department: English
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will collaborate with health professionals to create solutions to real-world medical communication, visualization and design problems. Working individually and in teams, students will apply critical thinking and theory to hands-on design. Projects may include production of short videos, infographics, app development, 3-D virtual models, creative writing, and other media arts. Cross-list: FILM 381.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
### ENGL 387 - TOPICS IN CULTURAL STUDIES
**Short Title:** CULTURAL STUDIES  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable topics course exploring the cultural productions of youth, their social geographies, and youth as a critical field important to the theorization of activism, technology, law and incarceration, reproductive politics, sexuality, consumerism, citizenship, environment. Previous topics: Generation X, Third Wave Feminism, Obama and the Youth Vote, Harry Potter & Gen Y, Power, Politics, and Reading Issues of Access. Cross-list: SWGS 389.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)  

### ENGL 390 - INTRODUCTION TO THEATRE
**Short Title:** INTRODUCTION TO THEATRE  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An examination of dramatic literature and theatrical venues from the Greeks through the modern era. The course will also explore the craft of the theatre from a practitioner's point of view as it is realized today. Requires attending several theatre productions in local Houston venues. Cross-list: THEA 303.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)  

### ENGL 392 - CONTEMPORARY POETRY
**Short Title:** CONTEMPORARY POETRY  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An in-depth analysis of contemporary poetry and poetics. Readings will focus on the rich variety of work written in English between the last decades of the twentieth century and to present. Topics will vary from semester to semester. Repeatable for Credit.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)  

### ENGL 393 - BLACK MANHATTAN: 1915-1940
**Short Title:** BLACK MANHATTAN: 1915-1940  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An examination of the key figures, political movements, and black radicalisms and nationalisms that are remembered as part of the Harlem Renaissance. We will focus on the effects of WWI, the Depression, and segregation on black cultural expression.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)  

### ENGL 396 - LITERARY GENRES
**Short Title:** LITERARY GENRES  
**Department:** English  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A variable topics course that offers an in-depth look at a particular literary genre or subgenre over a range of historical periods. Topics may include detective fiction, romance, the novel, magical realism, the lyric, or melodrama. Repeatable for Credit.  
**Course URL:** [www.english.rice.edu](http://www.english.rice.edu)
ENGL 397 - TOPICS IN LITERATURE AND CULTURE
Short Title: TOPICS IN LITERATURE & CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 398 - SLAVERY IN 20TH CENTURY FILM AND FICTION
Short Title: SLAVERY IN 20TH C. FILM & FICT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies how twentieth century reconstructions of slavery in American literature and film engage contemporary anxieties regarding race, gender, sexuality, and national identity. These neo-slave narratives often critique modernity; challenge how we think about history, evidence, memory, and trauma; and trouble narrative conventions.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 399 - THE BLACK IMAGINARY 1775-PRESENT
Short Title: THE BLACK IMAGINARY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course addresses some of the leading questions that shaped black writings and expressive culture in the United States from the late 18th century forward. Our readings will include Wheatley, Walker, Delany, Douglass, Du Bois, Ellison, Baldwin, King, Malcolm X, Morrison, Percival Everett, and early and contemporary films and music.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 401 - ADVANCED FICTION WRITING
Short Title: ADVANCED FICTION WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 301
Description: A course conducted mostly as a workshop for advanced fiction writers. It will include assigned writing exercises and weekly readings of published stories to deepen students' understanding of narrative technique. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 402 - WRITING LONGER FICTION: NARRATIVE DESIGN
Short Title: WRITING LONGER FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 301 or ENGL 306
Description: A course in writing of longer narrative forms for advanced fiction writers. At the start of the semester, students will write a proposal for an original novel in the genre of their choosing and complete no fewer than 100 pages by the end. The class will be a mixture of discussion of assigned reading, workshop, and one-on-one tutorial. Course counts toward the English Creative Writing Concentration (ECRW). Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 404 - ADVANCED POETRY WRITING
Short Title: ADV POETRY WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 304
Description: An in-depth study of contemporary poetry, this course emphasizes the careful analysis of books by six to eight contemporary poets, the reading of selected essays on poetic technique, and the writing of poems with a view toward finding a personal voice. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 405 - ADVANCED CREATIVE NONFICTION WRITING
Short Title: ADV CREATIVE NONFICT WRITING
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An advanced reading and writing workshop for writers who have some familiarity with the nonfiction genre. Published works will be read as blueprints for the construction of student work. Course counts toward the English Creative Writing Concentration (ECRW). Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 410 - SENIOR SEMINAR
Short Title: SENIOR SEMINAR
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in English. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Senior Seminar is the first course in a 2 part sequence, required of all senior English majors. An immersive, research and writing methods course, the Senior Seminar prepares students to produce a significant piece of critical or creative work, guiding each year’s senior cohort through the methods and best-practices that invigorate longer-forms of creative inquiry and research. Similar to other senior design and research courses throughout the university, the Senior Seminar engages students in the deeper and more rewarding processes of sustained writing and research, and offers all students the opportunity to prepare and build an independent research project with sustained faculty support.

ENGL 411 - RESEARCH WORKSHOP
Short Title: RESEARCH WORKSHOP
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in English. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in the Spring, the Research Workshop is the 2nd course required of senior English majors. It follows from the Fall Senior Seminar. The course is co-taught by three faculty members from different areas of expertise, including one creative writer. The Spring Research Workshop guides the cohort of senior majors from the Fall Senior Seminar through the writing stage of their senior projects. In this course, the students will complete their in-depth critical or creative project, begun in the Fall semester. Recommended Prerequisite(s): ENGL 200 and ENGL 300

ENGL 418 - STUDIES IN RENAISSANCE DRAMA
Short Title: STUDIES IN RENAISSANCE DRAMA
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: A variable topics course designed to build on student knowledge gained earlier in the curriculum. Repeatable for Credit.

ENGL 419 - STUDIES IN SHAKESPEARE
Short Title: STUDIES IN SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that provides an opportunity to explore some dimension of Shakespeare’s work with specialized focus. Please consult English department for specific details. Repeatable for Credit.

ENGL 430 - EMPIRE AND BRITISH LITERATURE 1700-1950
Short Title: EMPIRE & BRITISH LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: This course provides detailed knowledge of a diverse range of eighteenth and nineteenth-century texts that engaged the realities, possibilities, fantasies and pitfalls of the British Empire. Course also includes historical and archival material as well as recent critical and historical approaches to the study of empire and its relationship to cultural identity. Repeatable for Credit.

ENGL 438 - THE GROTESQUE
Short Title: THE GROTESQUE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the grotesque in literature and art. It covers a variety of textual and visual sources across periods; theoretical materials will include works from literary studies, visual culture, art history, critical theory and aesthetics. Cross-list: HART 430.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 441 - VICTORIAN STUDIES  
Short Title: VICTORIAN STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200 and ENGL 300  
Description: A variable topics course designed to build on student knowledge of Victorian literature and/or culture gained earlier in the curriculum. Recent topics have included the family, "The Pre-Raphaelites", "Around 1900" the "Long Victorian Novel", and "Victorian Legacies". Graduate/Undergraduate Equivalency: ENGL 541. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 459 - STUDIES IN LITERATURE AND ECOLOGY  
Short Title: STUDIES IN LIT. AND ECOLOGY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A special topics course that addresses literature and culture from 1750 to the present, with a view to understanding the new geological era that humans have created, and its ecological implications. Repeatable for Credit.

ENGL 461 - 19TH-CENTURY AMERICAN STUDIES  
Short Title: 19TH-CENTURY AMER STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics course designed to build on student knowledge of 19th-century American literature and/or culture gained earlier in the curriculum. Recent topics have included the family, "The Pre-Raphaelites", "Around 1900" the "Long Victorian Novel", and "Victorian Legacies". Graduate/Undergraduate Equivalency: ENGL 541. Repeatable for Credit.  
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 466 - STUDIES IN AMERICAN/U.S. LITERATURE AND CULTURE  
Short Title: STUDIES IN AMER/U.S. LIT, CULT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200 and ENGL 300  
Description: A special topics course in American/U.S. literature and culture that transcends historical periods. Repeatable for Credit.

ENGL 470 - STUDIES IN AFRICAN AMERICAN LITERATURE  
Short Title: AFRICAN AMERICAN STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics course designed to build on student knowledge of African American literature gained earlier in the curriculum. Recent topics include Black Women Writers. Cross-list: SWGS 453. Graduate/Undergraduate Equivalency: ENGL 570. Repeatable for Credit.

ENGL 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: English  
Grade Mode: Standard Letter  
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ENGL 481 - FEMINIST STUDIES  
Short Title: FEMINIST STUDIES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics course designed to build on student knowledge of feminist theory gained earlier in the curriculum. Past topics have included sexualities, Marriage and Its Others, and Third Wave Feminism. Cross-list: SWGS 407. Repeatable for Credit.

ENGL 484 - STUDIES IN LITERARY GENRES  
Short Title: STUDIES IN LITERARY GENRES  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A variable topics course designed to build on student knowledge of literary genres gained earlier in the curriculum. Past topics have included the family, "The Pre-Raphaelites", "Around 1900" the "Long Victorian Novel", and "Victorian Legacies". Graduate/Undergraduate Equivalency: ENGL 570. Repeatable for Credit.

ENGL 487 - STUDIES IN LIT. AND ECOLOGY  
Short Title: STUDIES IN LIT. AND ECOLOGY  
Department: English  
Grade Mode: Standard Letter  
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ENGL 541 - STUDIES IN AMERICAN/U.S. LITERATURE AND CULTURE  
Short Title: STUDIES IN AMER/U.S. LIT, CULT  
Department: English  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): ENGL 200 and ENGL 300  
Description: A special topics course in American/U.S. literature and culture that transcends historical periods. Repeatable for Credit.
ENGL 485 - STUDIES IN MODERN LITERATURE
Short Title: STUDIES IN MODERN LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course designed to build on student knowledge of modern literature gained earlier in the curriculum.
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable-credit course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval of an English department faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 493 - INDEPENDENT STUDY/DIRECTED READING
Short Title: INDEPENDENT STUDY/DIR READING
Department: English
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable-credit course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval of an English department faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 494 - SENIOR THESIS PREPARATION
Short Title: SENIOR THESIS PREPARATION
Department: English
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: Special work, research and preliminary preparation of a substantive research project for advanced English majors under the supervision of a member of the English department. Prerequisites: ENGL 200 and ENGL 300. Consult English department website for procedures and application. Instructor and department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 495 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: English
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300 and (ENGL 493 or ENGL 494)
Description: Writing and completion of a substantive research project under the supervision of a member of the English department. Prior approval of instructor and department approval must be granted prior to registration. Consult English department website for procedures and application. Instructor and department approval must be granted prior to registration. Prerequisites: ENGL 200; ENGL 300; ENGL 493 or 494. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 497 - STUDIES IN LITERATURE AND CULTURE
Short Title: LITERATURE AND CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ENGL 200 and ENGL 300
Description: A variable topics course in a variety of fields and genres, such as City in Literature; Writing On/Writing Off New Orleans; and Literatures of Environmental Justice. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 509 - MASTER'S THESIS
Short Title: MASTER'S THESIS
Department: English
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Course URL: www.english.rice.edu

ENGL 510 - PEDAGOGY SEMINAR
Short Title: PEDAGOGY SEMINAR
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For third-year graduate students preparing to teach their own classes in their fourth year. This course will help students put together syllabi and other teaching materials, address various pedagogical issues and problems, formulate their teaching philosophies.
Course URL: www.english.rice.edu
ENGL 513 - THEORY AND MEDIEVAL LITERATURE
Short Title: THEORY AND MEDIEVAL LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course in Literary and/or Critical Theory's engagement with Medieval Literature. Topics may include, "Gender Theory and Chaucer," "The Neighbor in Medieval Romance," "Medieval Ecologies," "Postcolonial Medieval," "Imagining Medieval Geographies/Cartographies." Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 527 - STUDIES IN RENAISSANCE LITERATURE
Short Title: RENAISSANCE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variables topics course. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 521 - SHAKESPEARE
Short Title: SHAKESPEARE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 522 - SHAKESPEARE AND THEORY
Short Title: SHAKESPEARE AND THEORY
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Topics might include: Wordsworth; Blake; Keats & Shelley; Romanticism and Visual Cultures: Romantic Poetics; Aesthetics. For additional information consult the English department website for additional information. Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 525 - LITERATURE AND VISUAL ART
Short Title: LITERATURE AND VISUAL ART
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the relationship between literature and visual art. It covers a variety of textual and visual sources; theoretical materials will include works from literary studies, visual culture, art history, critical theory and aesthetics. Cross-list: HART 518. Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 527 - STUDIES IN RENAISSANCE LITERATURE
Short Title: RENAISSANCE
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variables topics course. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 532 - 18TH CENTURY BRITISH STUDIES
Short Title: 18TH CENTURY BRITISH STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Recent topics include Enlightenment Institutions, Origins of British Novel, Eighteenth-century Emergences, and Libertinism. Graduate/Undergraduate Equivalency: ENGL 333. Mutually Exclusive: Cannot register for ENGL 532 if student has credit for ENGL 333. Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 536 - ENLIGHTENMENT IN CONTEXT
Short Title: ENLIGHTENMENT IN CONTEXT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Topics may include: British and European Enlightenment literature and culture broadly conceived (such as philosophy, science, religion, visual art, aesthetics, questions of gender etc.). Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 537 - 19TH CENTURY STUDIES
Short Title: 19TH CENTURY STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Recent topics include "The Serialization of the Novel," Victorian Nonhumans," and "Genealogy of Geopolitics." Repeatable for Credit.

Course URL: www.english.rice.edu

ENGL 538 - ROMANTICISM IN CONTEXTS
Short Title: ROMANTICISM IN CONTEXTS
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Topics might include: Wordsworth; Blake; Keats & Shelley; Romanticism and Visual Cultures: Romantic Poetics; Aesthetics. For additional information consult the English department website. Repeatable for Credit.

Course URL: www.english.rice.edu
ENGL 541 - VICTORIAN STUDIES
Short Title: VICTORIAN STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included "Material Constructions, or What Things Have to Do With Us", and "On or About 1860". Graduate/Undergraduate Equivalency: ENGL 441. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 542 - VICTORIAN FICTION
Short Title: VICTORIAN FICTION
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Recent topics have included "The Victorian Marriage Plot", "The History of the Novel, Part II", and "Victorian and Modern Sexualities". Cross-list: SWGS 542. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 546 - SPECIAL TOPICS: 20TH CENTURY BRITISH LITERATURE
Short Title: SP 20TH CENTURY BRITISH LIT
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional information. Cross-list: SWGS 546. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 560 - 19TH CENTURY AMERICAN/US LITERATURE
Short Title: 19TH C. AMERICAN/US LITERATURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Dickinson and Crane; Hawthorne and Stowe; Male Subjectivities; Howells and Wharton; 19th-century Women Writers; Slavery and the Sentiment Novel; Liberalism; and Agency. Class and Anxiety in 19th-century American Literature and Criticism. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 564 - FAULKNER AND CONTEMPORARY THEORY
Short Title: FAULKNER & CONTEMP THEORY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An intensive examination of four or five of Faulkner’s major novels in the context of a broad range of twentieth-century interpretive strategies. The class will consider issues of narrative form, social context, gender, race, and modern and postmodern aesthetics. Consult the English department website for additional information.
Course URL: www.english.rice.edu

ENGL 569 - TRANSNATIONAL AMERICAN STUDIES
Short Title: TRANSNATIONAL AMERICAN STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course introduces the major critical voices in the transnational turn that has been underway in American literary studies for the last decade. Further, it focuses on a series of literary texts and case studies that have occasioned reanalysis of the critical tools and assumptions governing American studies.
Course URL: www.english.rice.edu

ENGL 570 - AFRICAN AMERICAN STUDIES
Short Title: AFRICAN AMERICAN STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Graduate/Undergraduate Equivalency: ENGL 470. Repeatable for Credit.
Course URL: www.english.rice.edu

ENGL 573 - BLACK HISTORIES LAB: DIGITAL HUMANITIES & BLACK STUDIES
Short Title: BLACK HISTORIES LAB
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Combining the elements of a research practicum and traditional graduate seminar, the Black Histories Lab focuses on the study, preservation, histories, and cultures of African Americans. This research intensive graduate seminar combines African American literary and expressive culture, black feminism and critical race theory, and histories of American race relations with opportunities to participate in engaged research projects in digital humanities.
ENGL 577 - EMERGENT MEDIA: TECHNOLOGIES, NETWORKS, CULTURE
Short Title: EMERGENT MEDIA:TECH, NET, CULT
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will delve deeply into media theory, examining the complex interplay between the emergence of new media technologies in different historical periods (past, present and future), the networks of commerce and creativity that fuel and arise from these innovations, and the cultural productions that result.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 581 - CULTURAL STUDIES: CONTEMPORARY LITERATURE, CULTURE AND POLITICS
Short Title: CONTEMP.LIT., CULTURE & POLI
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Visual Cultures 1550-1800; Problems of Close Reading in literature and Film; and Ecology & Philosophy Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 583 - STUDIES IN LITERARY THEORY
Short Title: STUDIES IN LITERARY THEORY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Pragmatism and Postmodernity; Post-Structuralism and Affect Theory
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 584 - STUDIES IN CONTEMPORARY LITERATURE AND CULTURE
Short Title: CONTEMP. LIT AND CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included What Was Modernism; and Joyce and Modernism. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 585 - POSTCOLONIALISM AND BEYOND
Short Title: POSTCOLONIALISM AND BEYOND
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course that serves both as an introduction to postcolonial theory and as a reevaluation of its political and ethical ends vis-a-vis recent debates around globalization and cosmopolitanism. For additional course information please consult the English department website. Cross-list: SWGS 581. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 586 - STUDIES IN MODERNISM
Short Title: STUDIES IN MODERNISM
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Global English; Globalization and its Discontents; and Critical Regionalisms. Cross-list: HART 594. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 592 - STUDIES IN MODERNISM
Short Title: STUDIES IN MODERNISM
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Pragmatism and Postmodernity; Post-Structuralism and Postmodernity; Dimensions of Biopolitical Thought; and Affect Theory Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 594 - STUDIES IN CONTEMPORARY LITERATURE AND CULTURE
Short Title: CONTEMP. LIT AND CULTURE
Department: English
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included What Was Modernism; and Joyce and Modernism. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 596 - STUDIES IN MAJOR AMERICAN AUTHORS
Short Title: STUDIES IN MAJ AMER AUTHORS
Department: English
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Emerson and Posthumanism. Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)

ENGL 599 - STUDIES IN LITERARY THEORY
Short Title: STUDIES IN LITERARY THEORY
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A variable topics course. Please consult the English department website for additional course information. Recent topics have included Pragmatism and Postmodernity; Post-Structuralism and Postmodernity; Dimensions of Biopolitical Thought; and Affect Theory Repeatable for Credit.
Course URL: [www.english.rice.edu](http://www.english.rice.edu)
ENGL 600 - TOPICS IN LITERARY STUDIES
Short Title: TOPICS IN LITERARY STUDIES
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval on an English department faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 601 - FALL TEACHING PRACTICUM
Short Title: FALL TEACHING PRACTICUM
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to those graduate students serving as teaching assistants for courses in English. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 602 - SPRING TEACHING PRACTICUM
Short Title: SPRING TEACHING PRACTICUM
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to those graduate students serving as teaching assistants for courses in English. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 603 - FALL TEACHING OF LITERATURE AND COMPOSITION
Short Title: FALL TEACHING OF LIT & COMP
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to graduate students teaching independent courses in the English department in the fall semester. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 604 - SPRING TEACHING OF LITERATURE AND COMPOSITION
Short Title: SPRING TEACHING OF LIT & COMP
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open only to those graduate students teaching independent courses in the English department in the spring semester. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 605 - THIRD-YEAR WRITING WORKSHOP
Short Title: THIRD-YEAR WRITING WORKSHOP
Department: English
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A workshop required of third-year students designed to help transform seminar papers into works of publishable quality.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENGL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: English
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ENGL 703 - RESEARCH LEADING TO CANDIDACY YEAR 3
Short Title: CANDIDACY RESEARCH YEAR 3
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Year 3 research leading to PhD candidacy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 704 - RESEARCH LEADING TO CANDIDACY YEAR 4
Short Title: CANDIDACY RESEARCH YEAR 4
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Year 4 research leading to PhD candidacy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 705 - SUMMER RESEARCH LEADING TO CANDIDACY
Short Title: SUMMER CANDIDACY RESEARCH
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Summer research leading to PhD candidacy. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENGL 800 - PHD RESEARCH AND THESIS
Short Title: PHD RESEARCH AND THESIS
Department: English
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Dissertation research for PhD candidates. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)
ENST 201 - THE SCIENCE OF CLIMATE CHANGE  
**Short Title:** SCIENCE OF CLIMATE CHANGE  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This undergraduate course will introduce students to the fundamentals of natural and anthropogenic climate change. After briefly reviewing Earth's composition and its fluid envelopes, we will cover the basic physics of the climate system, providing tools to understand weather and climate phenomena (e.g. monsoons, El Niño), the greenhouse effect, and climate feedbacks. Building on this understanding, a succinct tour of geologic history will help us paint a more complete picture of Earth's climate variations and how they affected human evolution and history. With this context, we will be able to judge the anomalous character of recent climate change, establish its anthropogenic nature, and discuss solutions to the current climate crisis. Students from any major are encouraged to enroll and engage on important topic. Mutually Exclusive: Cannot register for ENST 201 if student has credit for EEPS 107.

ENST 202 - CULTURE, ENERGY, AND THE ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES  
**Short Title:** CULTURE ENERGY & ENVIRONMENT  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Humanity faces extraordinary challenges in an era of climate change and energy transition. These challenges are not only technological but also questions of value, power, behavior, and understanding. This course draws upon new research across the arts, humanities and social sciences to help students better understand the cultural and social dimensions of our current patterns of energy use, their environmental impacts, and the possibility of new energy futures. Intended for both STEM majors and humanities and social science students. Cross-list: HUMA 202.

ENST 210 - SUSTAINABLE FUTURES: AN EXPLORATION OF GLOBAL SUSTAINABILITY CHALLENGES AND SOLUTIONS  
**Short Title:** SUSTAINABLE FUTURES  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Sustainable Futures will explore a wide array of global sustainability challenges and solutions alongside significant trends and disruptive technologies that are shaping the future. Throughout the journey, discussions will be enhanced by drawing upon lessons from human exploration of analogous extreme environments in space – like Mars, the Moon, and low-earth orbit – as well as from terrestrial locales known as extreme environments. Sustainable Futures may feature an optional spring break trip to further enrich course content, for which an additional fee will be necessary.

ENST 238 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

ENST 250 - UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS  
**Short Title:** UNDERSTANDING ENERGY  
**Department:** Environmental Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Students with a class of Freshman may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** or or or  
**Description:** Energy is a foundational driver of human development. Energy impacts our economy, politics, culture, and environment. In this course, students will learn the fundamentals of energy in the context of broader systems and will be asked to think critically about how and why we rely on particular energy resources. The course structure will be comprised of lectures and class discussions along with field trips to power plants, chemical plants, and/or refineries. This class is vital for students interested in the energy industry. First year Rice students may not enroll in this course. Formerly offered as HURC 302. Mutually Exclusive: Cannot register for ENST 250 if student has credit for HURC 302.  
**Course URL:** understandingenergy.rice.edu (http://understandingenergy.rice.edu)
ENST 265 - SCIENCE FICTION AND THE ENVIRONMENT
Short Title: SCI FI AND THE ENVIRONMENT
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examines the ways that science fiction has expressed and challenged ideas about nature, culture, society, and politics. Cross-list: ENGL 269.

ENST 281 - ENGINEERING SOLUTIONS FOR SUSTAINABLE COMMUNITIES
Short Title: ENGRG SUSTAINABLE COMMUNITIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will work in teams to develop sustainable solutions for energy or environmental problems affecting our Houston and Rice communities. Emphasis will be placed on the integration of engineering fundamentals with societal issues, environmental and safety considerations, sustainability and professional communications. Prerequisites: introductory engineering courses, or permission of instructor. Cross-list: CHBE 281.

ENST 301 - ENVIRONMENTAL JUSTICE
Short Title: ENVIRONMENTAL JUSTICE
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The impacts of environmental turmoil, climate change, toxicity, pollution, biodiversity loss, and more increasingly impact all but rarely equally. To consider environmental justice in this course is to consider these differential impacts (and their relationship to race, gender, ethnicity, economics, region, and other factors) and possible responses and remedies to these inequities with respect to a range of communities and regions through a range of arts, media, cultural documents, and social phenomena.

ENST 302 - ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE
Short Title: ENVIRON ISSUES: RICE IN FUTURE
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students use the campus as a laboratory for learning about sustainability through group projects to reduce Rice's environmental impact or resolve environmental issues. Cross-list: SOCI 304.

ENST 307 - ENERGY AND THE ENVIRONMENT
Short Title: ENERGY AND THE ENVIRONMENT
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the physical principles of energy use and its impacts on Earth's environment and climate. Topics will include energy mechanics, climate change, and the environmental impacts and future prospects of various fossil fuel and alternative energy sources. Cross-list: CEVE 307, EEPS 307.

ENST 311 - TOPICS IN ENVIRONMENTAL JUSTICE
Short Title: TOPICS ENVIRONMENTAL JUSTICE
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics seminar that takes an in depth approach to questions of environmental justice. Topics will vary from semester to semester and may include "Black and Green: Environmental Justice in the Afro-Americas" and others. Repeatable for Credit.

ENST 313 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: CASE STUDIES IN SUSTAIN DESIGN
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore sustainable design from initial sustainable facility concepts and team organizations, to enlisting community support and process assessment. The course will develop into details about sustainable design, lessons learned, processes and outcomes. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day class by the individual instructor. Cross-list: ARCH 313. Graduate/Undergraduate Equivalency: ENST 613. Mutually Exclusive: Cannot register for ENST 313 if student has credit for ENST 613.
Course URL: www.arch.rice.edu/academics/current-courses (http:// www.arch.rice.edu/academics/current-courses/)
ENST 314 - CULTURES AND MEDIA OF ENVIRONMENTAL HEALTH
Short Title: CULTURE/MEDIA OF ENVIRONMENTAL HEALTH
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ways film represents the environment and environmental issues (food, water, energy, waste, environmental justice, sustainability), and both expresses and shapes environmental values. We will view and analyze a variety of genres, as well as reading supplementary material.

ENST 315 - ENVIRONMENTAL HEALTH
Short Title: ENVIRONMENTAL HEALTH
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of environmental health issues including discussion of epidemiologic methods, illnesses caused or exacerbated by environmental exposures, and the role of research in driving effective policies to protect and promote public health. The class includes numerous guest lectures by area experts (physicians, researchers, community activists, policymakers and others); a bus tour featuring disproportionately affected neighborhoods as well as cutting-edge "green" initiatives; original student research projects; and an opportunity to address the Houston City Council. The dynamic between research and action, i.e., "making a difference," is stressed. FORMERLY ENST 314.

ENST 316 - ENVIRONMENTAL FILM
Short Title: ENVIRONMENTAL FILM
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ways film represents the environment and environmental issues (food, water, energy, waste, environmental justice, sustainability), and both expresses and shapes environmental values. We will view and analyze a variety of genres, as well as reading supplementary material.

ENST 321 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via "repositioning" or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufactures, contractors, developers, owners, and Rice campus facility managers Cross-list: ARCH 321. Graduate/Undergraduate Equivalency: ENST 621. Mutually Exclusive: Cannot register for ENST 321 if student has credit for ENST 621.

ENST 322 - CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS
Short Title: CASE STUDIES IN SUSTAINABILITY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Course Level: Undergraduate Upper-Level
Description: This course will explore application of high performance, sustainable design to specific Rice University campus and facility targets. In partnership with Rice University leadership, the team effort will develop "regenerative redesign" approaches based on investigation of other campuses’ case study. Space is limited and registration does not guarantee a space in this course. The final course roster is formulated on the first day of class by the individual instructor. Cross-list: ARCH 322. Mutually Exclusive: Cannot register for ENST 322 if student has credit for ENST 622.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ENST 332 - THE SOCIAL LIFE OF CLEAN ENERGY
Short Title: SOCIAL LIFE OF CLEAN ENERGY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course considers the phenomenon of renewable energy, using a social scientific approach to analyze the various forces and interests involved in the development of renewable energy projects (such as hydropower, solar and wind) in both the global North and South. No prerequisites required. Cross-list: ANTH 332.
ENST 350 - ENVIRONMENTAL INTERNSHIP
Short Title: ENVIRONMENTAL INTERNSHIP
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides enrollment credit for approved internships with environmental organizations or agencies. Students must seek approval prior to beginning the internship. Weekly progress reports and a final paper are required. Instructor Permission Required.

ENST 367 - ENVIRONMENTAL SOCIOLOGY
Short Title: ENVIRONMENTAL SOCIOLOGY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the foundations of environmental sociology and takes a social and historical approach to examine how humans affect the environment and the environment affects humans. Topics include: agricultural sustainability, resource extraction and climate changes; environmental racism/sexism; globalization and development; population, and consumption, and environmental movements. Cross-list: SOCI 367.

ENST 368 - LITERATURE AND THE ENVIRONMENT
Short Title: LITERATURE & THE ENVIRONMENT
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that asks the question: How does literature express or shape environmental values? In this class we will read American fiction and nonfiction exploring the relationship between human and nonhuman nature. Cross-list: ENGL 368.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

ENST 391 - SPECULATIVE FUTURES
Short Title: SPECULATIVE FUTURES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Drawing from "CliFi," "Speculative Fiction," and global anthropological case studies, this course analyzes a series of potential futures as earthly conditions continue to be altered by human activity. Students will develop speculative future models through assessing climate conditions, population displacement, ethics, ecological transformations and human practices and values. Cross-list: ANTH 391.

ENST 400 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level

ENST 406 - INTRODUCTION TO ENVIRONMENTAL LAW
Short Title: INTRO TO ENVIRONMENTAL LAW
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to Environmental Law is intended to introduce the student to the methods used by the United States and the international community to regulate and/or allocate air, water and land resources. A key focus of this course will be the emerging area of the law of sustainable development, including the implementation of full price costing, life cycle analysis, carbon cycle analysis, allocation of assimilative capacity and other similar issues. Cross-list: CEVE 406.

ENST 415 - THE ENVIRONMENTAL MOVEMENT
Short Title: THE ENVIRONMENTAL MOVEMENT
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the environmental movement in the U.S. and globally. After a historical overview, we will use a social movement perspective to examine mobilization, organizations and tactics, ideologies and identities, as well as exploring aspects of contemporary environmentalism (e.g. green building and slow flood, wildlife management/biodiversity, sustainable development, environmental justice). Cross-list: SOCI 415.

ENST 437 - ENERGY ECONOMICS
Short Title: ENERGY ECONOMICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 301 or ECON 370
Description: Discussion of key aspects in the supply and demand of energy. Topics include optimal extraction of depletable resources, transportation, storage, end-use and efficiency, and the relationship between economic activity, energy, and the environment. Cross-list: ECON 437.
ENST 441 - GOVERNING THE ENVIRONMENTAL COMMONS
Short Title: GOVERNING ENVIRONMENTAL COMMONS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Common Property Resources (CPRs), such as fisheries, aquifers, and the Internet, appear in many guises and pose a fundamental problem for governing. Exploration of theoretical underpinnings for CPRs, their growing literature, and the political and economic institutions mediating CPR dilemmas. Included is an original research project in conjunction with the instructor. Cross-list: POLI 441.

ENST 445 - GOVERNING ENVIRONMENTAL COMMONS
Course Level: Undergraduate Upper-Level
Corequisite: ENST 446
Description: Seminar in the practice and techniques for student-led engaged research in urban sustainability and livability. Techniques and methods applied in actual urban settings, including an understanding of intentional design, the use of psycho-geographic mapping, human geography, and derives to understand urban communities. Content includes multifaceted exploration of sustainability. Instructor Permission Required. Repeatable for Credit.
Course URL: culturesofenergy.com/enst-minor/ (http://culturesofenergy.com/enst-minor/)

ENST 446 - LAB IN ENGAGED URBAN SUSTAINABILITY AND LIVABILITY RESEARCH
Short Title: ENGAGED URBAN RESEARCH LAB
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: ENST 445
Description: Lab in the practice and techniques for student-led engaged research in urban sustainability and livability. Techniques and methods applied in actual urban settings, including an understanding of intentional design, the use of psycho-geographic mapping, human geography, and derives to understand urban communities. Content includes multi-faceted exploration of sustainability. Instructor Permission Required. Repeatable for Credit.
Course URL: culturesofenergy.com/enst-minor/ (http://culturesofenergy.com/enst-minor/)

ENST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Laboratory, Lecture, Internship/Practicum, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact Department for current semester's topic. Repeatable for Credit.

ENST 480 - ENVIRONMENTAL AND ENERGY ECONOMICS
Short Title: ENVIRONMENTAL ECONOMICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: ECON 200 or ECON 301 or ECON 370
Description: Uses economic theories of externalities and common property resources to analyze how markets, legal institutions, regulations, taxes and subsidies, and voluntary activity can affect the supply of environmental amenities, such as clean air, clean water, and wilderness areas. Also discusses methods for determining the demand for environmental amenities. Cross-list: ECON 480.

ENST 500 - INTRODUCTION TO THE ENVIRONMENTAL HUMANITIES
Short Title: INTRO TO ENVIRIO HUMANITIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the "environmental humanities," a wide range of approaches to the cultural, social, historical, and aesthetic dimensions of pressing ecological questions. Topics may include studies of plants, animals, and other creatures; biodiversity and extinction; energy humanities; environmental justice and environmental racism; climate and environmental histories; theories and philosophies of disaster; waste, toxicity, pollution; marine or blue humanities; religion and ecology; and many others. We will consider representative recent publications in the field as well as the research of scholars working here at Rice and far beyond. We will consider how to write about the environmental humanities, from scholarly publications in a range of fields to forms of public-facing writing on the subject. We'll consider strategies for teaching of the environmental humanities, from individual assignments to the design of courses in the home disciplines of the participants. Coursework will include opportunities through the Center for Environmental Studies, the Environmental Studies minor (ENST), and the Mellon Foundation funded Diluvial Houston project at the Humanities Research Center. These opportunities may include: observing classes in the ENST minor; working on Cultures of Energy, a public facing platform for writing and activity about energy and the environment; and spring events at the Center for Environmental Studies, including a symposium.
ENST 513 - SEMINAR: TOPICS RELATED TO THE EARTH'S DEEP INTERIOR
Short Title: SEM: EARTH'S DEEP INTERIOR
Department: Environmental Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar topics may vary. Readings and discussions about current topics related to the processes governing the Earth's deep interior. General themes include mantle convection, thermal evolution, and volatiles. Repeatable for Credit.

ENST 599 - DIRECTED READING IN ENVIRONMENTAL HUMANITIES
Short Title: DIRECTED READING
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate students pursuing intensive semester-long study of a particular topic not included in the curriculum. Students must identify and receive the approval of a faculty member. Instructor and Department approval must be granted prior to registration. Instructor Permission Required. Repeatable for Credit. Instructor Permission Required. Repeatable for Credit.

ENST 601 - ENVIRONMENTAL HUMANITIES RESEARCH FORUM
Short Title: ENVIRO HUMA RESEARCH FORUM
Department: Environmental Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Environmental Humanities Research Forum meets regularly to share research, teaching, and other activities in the environmental humanities with both members of the Rice community and invited guests. Evaluation is based on student participation, research and presentations. Repeatable for Credit. Department Permission Required. Repeatable for Credit.

ENST 613 - CASE STUDIES IN SUSTAINABLE DESIGN
Short Title: SUSTAINABLE DESIGN
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Cross-list: ARCH 613. Graduate/Undergraduate Equivalency: ENST 313. Mutually Exclusive: Cannot register for ENST 613 if student has credit for ENST 313.
Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)

ENST 621 - CASE STUDIES IN SUSTAINABILITY: THE HIGH PERFORMANCE BUILDING
Short Title: SUSTAINABILITY CASE STUDIES
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The project-based seminar will provide a means by which all those with an interest in the building science entailed in the design of commercial, institutional, and residential structures can investigate common issues, obtain information, discuss local strategies, and otherwise address subjects relating to building or campus performance over its lifecycle. To develop an approach of taking an existing Rice University building an optimizing its use via "repositioning" or redesign the class will create an interdisciplinary forum where students of architecture, engineering (structural, mechanical, etc.), and human sciences will potentially collaborate with professional building consultants, materials manufacturers, contractors, developers, owners, and Rice campus facility managers Cross-list: ARCH 621. Graduate/Undergraduate Equivalency: ENST 321. Mutually Exclusive: Cannot register for ENST 621 if student has credit for ENST 321.

ENST 646 - ADVANCED TOPICS IN BIOMEDICAL ANTHROPOLOGY
Short Title: ADV BIOMEDICAL ANTHROPOLOGY
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on contemporary research on the biomedical aspects of human health and disease. Includes topics from medical ecology and epidemiology. Cross-list: ANTH 646. Recommended Prerequisite(s): ANTH 381 or ANTH 581.

ENST 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Environmental Studies
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Executive Management (EMBA)

EMBA 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

EMBA 911 - EXECUTIVE SEMINAR I
Short Title: EXECUTIVE SEMINAR I
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.

EMBA 912 - EXECUTIVE SEMINAR II
Short Title: EXECUTIVE SEMINAR II
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

EMBA 913 - EXECUTIVE SEMINAR III
Short Title: EXECUTIVE SEMINAR III
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate level students.

EMBA 914 - EXECUTIVE SEMINAR IV
Short Title: EXECUTIVE SEMINAR IV
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate level students.
Description: Using case studies and academic thought pieces built on economic theories, Executive Seminar IV will cover the current debate on shareholderism versus stakeholderism that is captivating corporate America, provide an overview and evaluation of voluntary and mandatory corporate governance policies and practices, and study the value of diversity and inclusion in the business world.

EMBA 920 - MANAGING THE GLOBAL FIRM: MICRO FOUNDATIONS
Short Title: MNG GLOBAL FIRM: FOUNDATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.

EMBA 921 - GLOBAL MARKETS AND INSTITUTIONS
Short Title: GLOBAL MARKETS & INSTITUTIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.

EMBA 922 - MANAGING THE GLOBAL FIRM: STRATEGY
Short Title: MANAGING GLOBAL FIRM: STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate level students.
Description: With an ever-growing number of industries becoming global in scope, managers are being increasingly challenged to balance firms with a global perspective. The course of "Global Strategy" seeks to provide students with the skills, knowledge and sensitivity required to attain and maintain sustainable competitive advantage within a global environment. This course highlights the following topics: motivations of going global, choices among various entry strategies, political risk in global businesses, and coordination and control of globally-distributed operations. Case discussions are adopted in the course.

EMBA 991 - EXECUTIVE FORUM I: STRATEGY AND LEADERSHIP
Short Title: EXEC FORUM I:STRAT & LEADERSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate level students.
Description: There are four Executive Forums in the EMBA program, targeting development of an executive mindset, which open and close each academic year. This second forum focuses on applied strategic and critical decision making in the context of the functional skills acquired in the core. The concept of strategic decision making and critical reasoning is built around the premise that executives can provide superior value to their stakeholders—customers, employees, shareholders, board members, and regulators—through critical reasoning, superior strategic decision making, and implementation. It involves quantitative reasoning, self-analysis, and an eye toward the decision process.

EMBA 992 - EXECUTIVE FORUM II: CRITICAL DECISION MAKING
Short Title: EXECUTIVE FORUM II
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate level students.

EMBA 993 - EXECUTIVE FORUM III: ENTERPRISE STRATEGY AND LEADERSHIP
Short Title: EXECUTIVE FORUM III
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate level students.
EMBA 994 - EXECUTIVE FORUM IV
Short Title: EXECUTIVE FORUM IV
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Film (FILM)

FILM 180 - 14 FILMS YOU SHOULD SEE BEFORE YOU GRADUATE FROM RICE UNIVERSITY
Short Title: 14 FILMS BEFORE YOU GRADUATE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 250 - CONTEMPORARY EUROPEAN CINEMA
Short Title: CONTEMPORARY EUROPEAN CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 225 - INTRODUCTION TO FILMMAKING AND EDITING
Short Title: INTRO TO FILMMAKING & EDITING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 215 - MYSTIC CINEMA: KABBALAH IN FILM
Short Title: MYSTIC CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 218 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA
Short Title: EAST/NORTHEAST ASIA FILM HIST
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

FILM 214 - 14 FILMS BEFORE YOU GRADUATE
Short Title: 14 FILMS BEFORE YOU GRADUATE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

FILM 211 - MYSTIC CINEMA: KABBALAH IN FILM
Short Title: MYSTIC CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 210 - 14 FILMS YOU SHOULD SEE BEFORE YOU GRADUATE FROM RICE UNIVERSITY
Short Title: 14 FILMS BEFORE YOU GRADUATE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 209 - CONTEMPORARY EUROPEAN CINEMA
Short Title: CONTEMPORARY EUROPEAN CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 208 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA
Short Title: EAST/NORTHEAST ASIA FILM HIST
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

FILM 207 - INTRODUCTION TO FILMMAKING AND EDITING
Short Title: INTRO TO FILMMAKING & EDITING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
FILM 275 - COMICS AND SEQUENTIAL ART
Short Title: COMICS AND SEQUENTIAL ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narrative, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, nonfiction, and Third World cinemas. Cross-list: ARTS 230.

FILM 280 - HISTORY & AESTHETICS OF FILM
Short Title: HISTORY & AESTHETICS OF FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art of combining words and pictures: diverse applications such as storyboarding for stage and screen, comic books and graphic novels, and serial or multiples in a variety of media all fall under the umbrella of Sequential Art. Through instruction, demos, readings and practice, students will learn the history and implementation of linear visual narratives utilizing the Comics Art Teaching and Study Workshop as a resource. Students in this class will also participate in the construction and establishment of a permanent research center for the study of Comic Book Art within the Department of Visual and Dramatic Arts. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARTS 230.

FILM 281 - THE BEGINNINGS OF CINEMA
Short Title: THE BEGINNINGS OF CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class studies the emergence of cinema in the context of cultural developments at the turn of the 20th century. Early films will be examined together with such contemporaneous issues as technologies of vision, modern mass culture, urban expansion and consumerism. Cross-list: HART 281.

FILM 284 - NONFICTION FILM
Short Title: NONFICTION FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the history and aesthetics of nonfiction film as both a social artifact and as a work of art. Includes discussions of actualities, the city film, the social documentary, surrealist cinema, propaganda, ethography, the essay film, and the contemporary nonfiction film from around the world. Cross-list: HART 284.

FILM 285 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: HART 283. Equivalency: FILM 485. Mutually Exclusive: Cannot register for FILM 285 if student has credit for FILM 485.

FILM 287 - INTRODUCTION TO EXPERIMENTAL VIDEO AND INSTALLATION ART
Short Title: INTRO TO VIDEO AND INSTALL ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Learn to create unique experiences by sculpting time and space. With an emphasis on production and practice, this course introduces students to installation art and non-traditional, experimental uses of video. Students will learn the basic tools and techniques of digital video production using Adobe Premiere and After Effects.
Course URL: www.arts.rice.edu/ (http://www.arts.rice.edu/)

Rice University
FILM 308 - IMPROVISATION FOR STAGE AND SCREEN
Short Title: IMPROV FOR STAGE AND SCREEN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a course in the practical training of comedic, long-form, improvisation. Students will learn how to craft scenes spontaneously using tools like character dynamic, status, comedic pattern, beat structuring, and agreement. Classic forms of scenic improv will be taught and the course will also examine the role of improvisation in comedy films, video, and the creation of sketch comedy. Students will get to practice their skills by crafting videos in the class’ culmination run of improv shows. Cross-list: THEA 308.

FILM 321 - LIFE IN REAL-TIME
Short Title: LIFE IN REAL-TIME
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores digital video as a contemporary art medium rich with possibilities of cultural critique. We will examine how artists deploy the speed of time-based media to underscore the urgency of specific environmental issues and offer observations on serious issues through the use of metaphor, irony, and humor. We will compare and contrast these ways through reading, films, and presentations.

FILM 327 - DOCUMENTARY PRODUCTION
Short Title: DOCUMENTARY PRODUCTION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the expressive possibilities of documentary production using digital systems. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ANTH 324, ARTS 327.

FILM 328 - FILMMAKING I
Short Title: FILMMAKING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Dramatic film production class that requires the making of one digital video and one 16mm film. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ARTS 328.

FILM 329 - FILM FORM
Short Title: FILM FORM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Viewing, analysis, and discussion of modern and classic films. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ARTS 329.

FILM 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS
Short Title: CRITICAL STU OF MULTIMEDIA ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; “sculptural” studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: ARTS 332, FOTO 332, THEA 332.
FILM 333 - VIDEO ACTIVISM: CREATING CHANGE THROUGH VIDEO STORYTELLING
Short Title: VIDEO ACTIVISM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course employs video as a tool to make and distribute stories about people and issues in our world aimed at affecting change. We will learn about the history of video activism and watch examples to inform our own work. Students in the course will complete a series of exercises and one central issue driven video work. All necessary equipment will be provided. Recommended Prerequisite(s): FILM 327

FILM 334 - FILM LITERATURE
Short Title: FILMING LITERATURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course engages a wide range of filmic adaptations of literary texts, with close attention to the specificity of the medium, genre and sub-genre, narrative and point of view.

FILM 336 - CINEMA AND THE CITY
Short Title: CINEMA AND THE CITY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class explores representations of the city in 20th and 21st century world cinema. Central concerns will include the city as cinematic protagonist, parallels between urban and cinematic space and the intertwined histories of both film and urban design over the last century. Cross-list: ASIA 355, HART 336.

FILM 339 - A REVOLUTION FROM WITHIN: TRENDS IN CONTEMPORARY CUBAN CULTURE
Short Title: TRENDS IN CUBAN CULTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research seminar will explore contemporary trends in Cuban culture through literary texts, films, music and works of art. We will examine the ways in which politics and the practices of artistic representation intersect in post-revolutionary Cuba. A research trip to Cuba has been organized as part of this seminar. (The trip is optional. There is a course fee.) Course taught in Spanish. Instructor Permission Required. Cross-list: HART 304, SPPO 375.

FILM 351 - HOLOCAUST REPRESENTATION IN LITERATURE, ART, AND FILM
Short Title: HOLOCAUST REPRESENTATION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the representation of the Holocaust in literature, art, and film. Is the Holocaust representable? What literary and artistic techniques and devices have been employed to represent the unrepresentable? Through Holocaust narrative, poetry, fiction, art, memorials, documentary and narrative film, we will explore these questions. Cross-list: JWST 351. Mutually Exclusive: Cannot register for FILM 351 if student has credit for FILM 349/RELI 349.

FILM 359 - CINEMAS OF URBAN ALIENATION
Short Title: CINEMAS OF URBAN ALIENATION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines cinematic engagements with urban spaces and experiences around the world spanning the last two centuries. Particular attention will be paid to issues of migration, marginality, colonialism, war and post-war, nostalgia and memory, race and gender. Cities of focus include Berlin, Istanbul, Moscow, Algiers, Beirut and Paris. Our weekly discussions of individual films will be grounded in critical writings of the cities' histories and theories of space and film. Cross-list: ARCH 359, HART 359.
FILM 361 - WHAT IS CINEMA? CLASSIC READINGS OF CLASSIC FILMS
Short Title: WHAT IS CINEMA?
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using a variety of readings now considered classics as our guide, this class will look closely at a broad range of films and film movements discussed by critics and theorists such as Rudolf Amheim, Jean Epstein, Sergei Fisenstein, Walter Benjamin and Andre Bazin. Cross-list: HART 361.

FILM 373 - SURVEY OF AMERICAN FILM AND CULTURE
Short Title: SURVEY OF AMER FILM & CULTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the history of cinema in the U.S. from its origins to the present day. This course will examine the development of narrative, sound, the classical Hollywood form and style; film genres; the emergence of television; the influence of postwar “art cinemas”; the origins of the blockbuster; and the status of Hollywood as “global cinema.” Cross-list: ENGL 373, HART 380.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

FILM 378 - PLACE AND MEMORY IN MIDDLE EASTERN AND EUROPEAN CINEMA
Short Title: MEMORY AND PLACE IN CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focuses on cinematic explorations of and preoccupations with the notion of place. Screenings include iconic and lesser-known films from Europe and the Middle East that offer diverse lenses and contexts (love, family, landscapes, borders, trauma, exile) through which we will examine questions of real and imagined place and the politics of memory. Cross-list: ANTH 378, HART 391.

FILM 380 - RIPPED, RECYCLED AND REMADE CINEMA
Short Title: RECYCLED CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This hybrid seminar/production class investigates the practice cinematic quoting in media works. We will look at how the appropriation process critiques political and cultural concerns between the source and reworked material, new conversations it introduces, and these works in relation to fair-using, hijacking, open sourcing, and stealing.

FILM 381 - MEDICAL MEDIA ARTS LAB
Short Title: MEDICAL MEDIA ARTS LAB
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will collaborate with health professionals to create solutions to real-world medical communication, visualization and design problems. Working individually and in teams, students will apply critical thinking and theory to hands-on design. Projects may include production of short videos, infographics, app development, 3-D virtual models, creative writing, and other media arts. Cross-list: ENGL 386.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

FILM 382 - MODALITIES OF CINEMA
Short Title: MODALITIES OF CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will survey the range of organizing principles of cinema- the differing and combative ways cinema arranges its images and sounds. We will look at classicism, modernism, postmodernism and many other modes. The films will range from early silent pictures, to experimental shorts, to commercial blockbusters. Cross-list: HART 382.
FILM 383 - GLOBAL CINEMA
Short Title: GLOBAL CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to cinema as a global enterprise. It explores the relationship between nations, identities, races, concepts, and genres. It inquires into the question of globalization as it relates to the motion picture audience, corporations, and the commerce of ideas. Cross-list: ENGL 383.

FILM 384 - AMERICAN INDEPENDENT CINEMA
Short Title: AMERICAN INDEPENDENT CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that explores the history of filmmaking outside of Hollywood in the United States throughout the 20th century, emphasizing the period from 1959 to the present. Special attention to the contributions of marginalized communities and the art world, innovative film styles, and the interdependence of alternative and mainstream media cultures. Cross-list: ENGL 384.

FILM 385 - FILM STUDIES
Short Title: FILM STUDIES
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a field-based, supervised, professional learning experience designed to enhance classroom learning. Students will be responsible for identifying and securing internship positions and must obtain permission from the department chairman and have a department faculty sponsor. All interns are required to keep an internship journal recording duties and activities; the journal will be used as the basis of a five-page paper summarizing the internship experience. Documentation of the work produced during the internship is required portfolio, CD, DVD, etc. Instructor Permission Required. Repeatable for Credit.

FILM 386 - POST WAR EUROPEAN CINEMA
Short Title: POST WAR EUROPEAN CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class surveys major developments in European cinema from the late 1940s to the late 1960s. Our study will include such movements as Italian Neorealism, German Rubble Films, French New Wave, and Soviet cinema in the Thaw. Particular attention will be paid to such issues as cinema and post-war reconstruction, memory and nation, and body and space. Cross-list: HART 388.

FILM 388 - POST WAR EUROPEAN CINEMA
Short Title:欧美战后电影
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an interdisciplinary study of problems in film and film production. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.

FILM 395 - FILM INTERNSHIP
Short Title: FilM Internship
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a field-based, supervised, professional learning experience designed to enhance classroom learning. Students will be responsible for identifying and securing internship positions and must obtain permission from the department chairman and have a department faculty sponsor. All interns are required to keep an internship journal recording duties and activities; the journal will be used as the basis of a five-page paper summarizing the internship experience. Documentation of the work produced during the internship is required portfolio, CD, DVD, etc. Instructor Permission Required. Repeatable for Credit.

FILM 396 - SPECIAL PROBLEMS IN FILM & VIDEOTAPE MAKING
Short Title: SPEC. PROB: FILM & VIDEO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems in film and film production. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.
FILM 420 - FILM STUDIO
Short Title: FILM STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FILM 327
Description: A class for advanced filmmaking students working independently, but meeting as a group to participate in discussions about a variety of filmmaking topics. Instructor Permission Required. Repeatable for Credit.

FILM 428 - FILMMAKING II
Short Title: FILMMAKING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: 16mm film production course utilizing handmade cinema techniques. Space in class is limited. Registration does not guarantee a place in class. The class roster is formulated the first day of class by the individual instructor. Cross-list: ARTS 444.

FILM 430 - ADVANCED METHODS IN SOUND, CINEMATOGRAPHY, AND EDITING
Short Title: ADVANCED CINEMATOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FILM 327
Description: This class will prepare students for more rigorous work in professional media. Building on the basic understanding of sound, image, and editing, students will focus on the controlled and strategic use of techniques and equipment. We will explore visual representation theory, psychoacoustics and narrative sound design, and the use of editing as a storytelling mechanism. Students will gain valuable and realistic crew experience and learn to anticipate and understand many aspects of film production.

FILM 432 - FILM GENRE: THE WESTERN
Short Title: FILM GENRE: THE WESTERN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of the essential American film experience spanning all the years of U.S. cinema, with emphasis on the western and its mythic function in society. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ARTS 432.

FILM 433 - FILM GENRE: SCIENCE FICTION CINEMA
Short Title: FILM GENRE: SCIENCE FICTION CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will trace the history and elements of the popular film genre of science fiction, from early silents to recent configurations. We will look at the links between the genre cinema itself. Topics for the Film Genre courses will vary and will include the uncanny, transhumanism, utopia and dystopia, and technology.

FILM 435 - SEMINAR ON FILM AUTHORSHIP: THE NEW HOLLYWOOD
Short Title: SEMINAR ON FILM AUTHORSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. Cross-list: ARTS 435, HART 480.

FILM 444 - HANDMADE FILM
Short Title: HANDMADE FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: 16mm film production course utilizing handmade cinema techniques. 4 required 16mm films made using surface treatments, shooting with a 16mm film camera, hand developing, classic animation, crating soundtracks and digital editing. Space in class is limited. Registration does not guarantee a place in class. Cross-list: ARTS 444.
FILM 455 - VIDEO AND EXPANDED CINEMA
Short Title: VIDEO AND EXPANDED CINEMA
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the emergence of video and "expanded cinema" as a primary field of artistic practice over the course of the 1960s and 1970s. We will examine seminal works by artists including Andy Warhol, Dan Graham, and Robert Whitman as well as the shifting aesthetic, political, and media landscapes in which this work emerged. Cross-list: HART 457.

FILM 456 - SPECIAL PROBLEMS IN FILMMAKING
Short Title: SPECIAL PROBLEM: FILMMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in film and film production. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

FILM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FILM 485 - AUTEUR FILM: CASE STUDIES OF THREE AUTEURS
Short Title: AUTEUR FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the tradition of auteur filmmaking, with an emphasis on how this particular artistic mode situates itself within the evolving system of Hollywood institutional film. The auteur, in contrast to other filmmakers, exhibits unparalleled control over the production and post-production processes and is uniquely identifiable through the notable conventions of aesthetics, style, theme, content, atmosphere, etc. FILM 485/HART 481 (4 Credit Hours) will require completion of additional coursework for the additional credit than the FILM 285/HART 283 (3 Credit Hours). Credit may not be received for more than one of FILM 285 or FILM 485 or Hart 283 or HART 481. Cross-list: HART 481. Equivalency: FILM 285. Mutually Exclusive: Cannot register for FILM 485 if student has credit for FILM 285.

FILM 499 - SENIOR FILM AND PHOTOGRAPHY STUDIO
Short Title: FILM AND PHOTO STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Required course for all film and photography concentration majors. This course involves focused preparation of their work for the annual senior exhibition. This course consists of lectures, visits, and critiques by artists, filmmakers and photographers, and intensive work. Students must receive permission from their faculty advisor or department chair to register for this class; only department majors who have senior academic standing will be allowed to register for this course. Instructor Permission Required.

First-Yr Writing Intensive Sem (FWIS)

FWIS 100 - INTRODUCTION TO ACADEMIC WRITING
Short Title: INTRO TO ACADEMIC WRITING
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This topic-based course prepares students who need more time and practice in reading and writing to meet the more advanced communication demands of a FWIS. Through the study of one of several academic topics, this course will provide an introduction to the expectations of academic readers as well as practice with the rhetorical and linguistic structures common to academic writing. Students will also review grammatical points relevant to coursework and learn to self-edit their own work. This course does not fulfill the Composition Requirement.
Course URL: pwc.rice.edu/our-programs/first-year-writing-intensive-seminars/fwis-100-overview

FWIS 101 - THE BIBLE IN POPULAR CULTURE
Short Title: THE BIBLE IN POPULAR CULTURE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will introduce various ways in which the Bible plays a significant role in contemporary popular culture. By analyzing biblical references found in music, film, art, and the media, students will discover that even in today's seemingly secular culture, the Bible continues to influence our artistic, social, and political landscapes.
Course URL: pwc.rice.edu/
FWIS 102 - BLIND SPOTS: CRITICAL APPROACHES TO VISUAL CULTURE
Short Title: BLIND SPOTS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The blind spot of "the act of seeing" is its social construction, its ideological nature. This seminar unveils the various historical, political, economic, and social "filters" that condition our decoding of visual information. This writing seminar aims at developing skills to de-naturalize the "act of seeing."

FWIS 103 - WOMEN ARTISTS: VON BINGEN TO BEYONCÉ
Short Title: WOMEN ARTISTS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines female-identifying painters, sculptors, performance artists and musicians from the Middle Ages through modern-day United States. Each week we will read and write about the work of a different artist and discuss their ongoing cultural impact. We will ask: How do we define a female artist? What is the role of gender, sexuality, race, or class in their artistic production?

FWIS 104 - SCIENCE, TECHNOLOGY, AND SOCIETY
Short Title: SCIENCE, TECHNOLOGY, & SOCIETY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This FWIS course will explore the complex relationship between science, technology, and society. Students will become familiar with the core questions and debates within science and technology studies (STS), investigate the production of historical and modern scientific knowledge and technological entities, and acquire competency in broader forms of critical analysis.

FWIS 105 - GREEK MYTH IN WORDS: HESIOD AND THE HOMERIC HYMNS
Short Title: GREEK MYTH IN WORDS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Presents texts fundamental to understanding Greek myth through the regular practice of reading, writing, and oral communication. Emphasizing textual interpretation and writing as process and practice, this course clarifies the purpose and conventions of the academic argumentative essay. Frequent brief writing assignments. Peer review plays an integral role. No exams.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 106 - WRITING THE SENSES
Short Title: WRITING THE SENSES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course investigates the ways different disciplines develop theories of and tools for touching, tasting, smelling, hearing, and seeing. We experiment with the distinctions we draw between our senses as well as other ways we process information including our sense of balance, sense of pain, sense of time, and synaesthesia.

FWIS 107 - IN THE MATRIX: ON HUMAN BONDAGE AND LIBERATION
Short Title: IN THE MATRIX
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Using the film "The Matrix" as the point of reference, this course presents celebrated explorations of servitude and emancipation - from religious mysticism to Marxism and artistic modernism. Texts by Lao Tzu, Farid ud-Din Attar, Plato, Freud, Marx, Baudelaire, J.S. Mill, Proust, de Beauvoir, Malcolm X, Marcuse, Baudrillard.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
FWIS 108 - POISONS: A CULTURAL HISTORY OF DEADLY THINGS
Short Title: POISONS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Poisons aren't what they seem. Sometimes they look like food. Sometimes they look like drugs. From cinnabar to cinnamon; from dragon blood to goat bezoars, poisons are the result of careful human construction, collection, and creation. They are objects of early chemistry. Far from killing us, poisons have been central to the history of medicine. Physicians in the past and present monitor dosage, drug combination, and drug preparation to mitigate poison toxicity while still maintaining therapeutic potencies of drugs. Knowledge about poisons, in other words, quietly undergirds most of human civilization. Poisons are what keep us alive. Or not.

FWIS 109 - CONTEMPORARY ART AND ENVIRONMENT
Short Title: ART AND ENVIRONMENT
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course delves into questions of environment, ecology and sustainability through the lens of contemporary art. From earthworks, to performance, to land art, activist art, and community-based practices, participants engage critically and creatively with contemporary practices. This course is eligible for credit toward the Environmental Studies minor.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 110 - READING INNUENDO: REPRESENTING SEXUALITY IN GOLDEN AGE HOLLYWOOD
Short Title: READING INNUENDO
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course focuses on depictions of sexuality in Hollywood films produced under the Hays Code, from its origins to its eventual demise. We will explore not only the place of sexuality in the American cultural imagination, but also what it can teach us about communication and interpretation in general.
FWIS 114 - WASTE, TRASH, POLLUTION
Short Title: WASTE, TRASH, POLLUTION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How do we as a society know that something is waste? How does something valuable later become trash, or vice versa? This course looks at waste, trash, and pollution from the perspective of culture and sociality. Through reading ethnographies, we'll analyze how waste draws social boundaries and enacts cultural meanings.

FWIS 115 - EXPLORING BIOLOGICAL RESEARCH CHALLENGES
Short Title: EXPLORING BIOLOGICAL RESEARCH
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive course introduces students to biological research and scientific communication. Student teams work on investigative projects with opportunities to design experiments and share their findings. Recommended for students interested in the Biosciences major who have limited laboratory experience. Students cannot receive credit for both FWIS 115 and NSCI 120.

FWIS 116 - AMERICAN JOURNEYS
Short Title: AMERICAN JOURNEYS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The narratives of travelers in the US are a window into history. Drawing on authors like Crevecoeur, Tocqueville, Trollope, and Kerouac, the class will discuss and write about themes such as Indian life and territorial expansion, democracy, slavery, civil war, western settlement, and 20th-cent. social movements. This course is eligible for credit toward the major in History.

Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 117 - ART IN PLACE AND PLACES FOR ART
Short Title: ART IN PLACE & PLACES FOR ART
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will look closely at a curated selection of influential, Houston-based works of art, installations, and architecture from the past century to understand the context and ideas behind the emergence of modern and contemporary art and design. They will observe, analyze, and describe these primary sources using both words and images.

Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 118 - ISLAM AND POLITICS
Short Title: ISLAM AND POLITICS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The course examines developments in religion and politics in the Islamic societies of the Middle East, from the time of the Prophet Muhammad’s reign in Medina to the fall of the Ottoman Empire early in the 20th century.

FWIS 119 - BEYOND THE BURQINI: MUSLIM WOMEN, FEMINISM, AND GLOBAL POLITICS
Short Title: MUSLIM WOMEN & GLOBAL POLITICS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Traces history of Western interest in Muslim women, paying particular attention to how the figure of the Muslim women has been used by western feminist to make their own case for gender equality. Readings include writings by different English and American feminists and by Muslim authors from around the world.

Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 120 - FICTION AND EMPATHY
Short Title: FICTION AND EMPATHY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive course explores the possible link between reading literary fiction and empathizing with others. We'll read short stories, novel excerpts, and literary criticism in an effort to scrutinize and more deeply understand the specific elements of fiction that might provoke empathy.

Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
FWIS 121 - TIME TRAVEL NARRATIVES: FICTION, FILM, SCIENCE
Short Title: TIME TRAVEL NARRATIVES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: From an aesthetic perspective, time travel has existed as long as there have been stories. Narrative introduces alien temporalities, transporting listeners and readers into different temporal landscapes. This writing-intensive course investigates the historical, aesthetic, and scientific connections between the authorial and scientific co-creation of time travel.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 122 - LEADERS AND LEADERSHIP: WHAT WE KNOW, WHAT WE BELIEVE
Short Title: LEADERS AND LEADERSHIP
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For over a hundred years social scientists have studied leaders and leadership. The popular press and media pundits continue to expound on the topic with conflicting views. Students will explore what they believe and what science informs us about leaders and leadership and share their analyses through discussions, writing, and oral presentations.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 123 - STAR WARS AND THE WRITING OF POPULAR CULTURE
Short Title: STAR WARS & WRITING CULTURE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will unpack the cultural legacy of the Star Wars films through traditional literary analysis and close reading, by situating the films historically, and by considering the ways that the films reflect attitudes towards a variety of social issues, such as spirituality/religion, philosophy, race, gender, class, nationality, and imperialism.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 124 - WITNESSING THE HOLOCAUST
Short Title: WITNESSING THE HOLOCAUST
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine selected testimony given by Holocaust survivors. Their testimony varies according to time and the circumstance in which it was given and also according to the genre (film, memoir, drama) in which it is presented.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 125 - YOUR ARABIAN NIGHTS
Short Title: YOUR ARABIAN NIGHTS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Arabian Nights is one of the best known yet poorly understood literary masterpieces. It has been passed down orally in wiring, in performance and film; in multiple languages, and with different collections of stories. What is your Arabian Nights? We will consider stories of the Nights through both a literary and historical lens, and we will consider stories, films, and works of art that were inspired by the Nights in different cultures.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 127 - KING ARTHUR IN POPULAR CULTURE: TIME TRAVEL, SPACE ALIENS, AND HOLY HAND GRENADES
Short Title: KING ARTHUR IN POPULAR CULTURE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This writing-intensive seminar examines how medieval Arthurian literature has been re-imagined within 19th, 20th, and 21st century contexts. Beginning with foundational readings from Malory's Le Morte Darthur, we will examine and discuss how the Arthurian tradition has been translated into various mediums, including the novel, comic books, art, and film.
FWIS 128 - PERSONALITY TRAITS AND TYPES OF INTELLIGENCE THROUGH THEIR LINGUISTIC MANIFESTATION
Short Title: INNER DIMENSIONS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Exploring theories on personality traits and types of intelligence, students will learn more about themselves and others. We will discuss how our verbal behavior reflects our personality.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 129 - CHINGIS KHAN AND THE EMPIRE OF THE MONGOLS
Short Title: THE EMPIRE OF THE MONGOLS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In the thirteenth century, the Mongols conquered China, Eastern Europe and Middle East. This class explores empire building, warfare, government and steppe culture, through reading the letters and memoirs of Mongols, merchants, travelers and adventurers. The students will work closely with primary sources to develop analytical writing skills.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 130 - WRITING EVERYDAY LIFE
Short Title: WRITING EVERYDAY LIFE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is dedicated to the poetics of everyday life. It draws from the forms and colors of what surrounds us day-to-day, from landscapes, to bodies and objects. Students develop research and writing skills through creative fieldwork assignments and workshops. This course is eligible for credit toward the major in Anthropology.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 131 - THE WAR ON DRUGS
Short Title: THE WAR ON DRUGS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the rhetoric and implications of the "War on Drugs" in the U.S. and Latin America. Students analyze from different perspectives key texts that are related to policies enacted in the last fifty years to suppress illicit drug use and that have affected civil liberties and national security.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 132 - SLAVERY ON FILM
Short Title: SLAVERY ON FILM
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will look at the ways major Hollywood (or equivalent) films have dealt with chattel slavery in the United States. We will explore the general question of how feature films deal with controversial historical issues by analyzing more specifically how Hollywood has dealt with American slavery.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 133 - WOMEN AND THE HOLOCAUST: VICTIMS AND PERPETRATORS
Short Title: WOMEN AND THE HOLOCAUST
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine the Third Reich and the Holocaust from the perspective of women as perpetrators and as victims.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 134 - GLOBAL CRISES AND POLITICS
Short Title: GLOBAL CRISES AND POLITICS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the role of political actors and institutions in managing and resolving global crises. Students will learn about the nature of international politics, identify how global actors can coordinate actions to respond to different global crises such as pandemics, armed conflict, and climate change, and analyze the consequences of different policy responses.

FWIS 135 - CHILDHOOD ON FILM
Short Title: CHILDHOOD ON FILM
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar examines the filmic representation of childhood across diverse historical periods and places. Of concern will be issues including children's relations to nature, language and sexuality; modern systems of education; children's perception of race; and childhood as a cinematic metaphor. Meetings will be based in discussion of films and critical texts.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
FWIS 136 - TECHNOLOGY AND CULTURE IN AMERICAN HISTORY
Short Title: TECH AND CULTURE IN US HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the relationship between technology and society throughout the history of the United States. We will analyze the roles and impacts of major technological innovations within their cultural and historical contexts, while seeking to understand how these contexts shaped and were shaped by the technologies.

FWIS 137 - POP MUSIC AND AMERICAN CULTURE
Short Title: POP MUSIC & AMERICAN CULTURE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Recent cultural movements encourage a more serious exploration of popular music. This course will participate by taking a critical look at what songs mean, what songs/albums/genres express, what our interest in music expresses, and how writing about music can lead us to great insights.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 138 - A SEAT AT THE TABLE: THE CULTURE, HISTORY, AND RHETORIC OF FOOD
Short Title: THE RHETORIC OF FOOD
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This FWIS course will examine the way food and food rhetorics shape our perceptions of the self and our connections to larger civic issues surrounding food. Core topics include: food as an identity marker, the appropriation and sanitization of global cuisines, and the rise of foodie culture and food tourism.

FWIS 139 - PHOTOGRAPHY AND FILM IN MEDICINE
Short Title: PHOTOGRAPHY & FILM IN MEDICINE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Medical photographs and films are not only visual pieces of scientific documentation but also pieces of historical, social, and aesthetic significance and interpretation. The crucial tension between science and aesthetics is the focus of this writing-intensive course that explores medical images used in clinical settings and popular culture.

FWIS 140 - IMAGINING THE PAST: FILM, FICTION, AND HISTORY
Short Title: FILM, FICTION, AND HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In the twentieth century and beyond, movies and television serve as an important source of mythologized national narratives (or somewhat “faked news”) from war movies, to westerns, to “biopics” of figures such as Kenneth Turing. Are their patterns of distortion at work, we can identify? How do we correct them?
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 141 - LITERATURE AND ENVIRONMENT
Short Title: LITERATURE AND ENVIRONMENT
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides an introduction to the increasingly relevant field of environmental literature and ecocriticism. We will examine literature, criticism, and film from the late eighteenth century to the present with an eye to determining how these texts represent the relationship between humans and their physical environments.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 142 - WATER AND CITIES
Short Title: WATER AND CITIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Investigates ancient, historical, and modern cities and how their residents received water. Questions include: how cities developed water resources, how water shaped city life, and how the environment was engineered to produce water. Students will be able to choose a city and a water topic for their final seminar project.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
FWIS 143 - BRAZIL MODERN: ART AND ARCHITECTURE BETWEEN THE NATION AND THE METROPOLE
Short Title: BRAZIL MODERN
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This FWIS course introduces students to the artistic and architectural theories and practices of modernism in Brazil. This interdisciplinary course offers an exploration of the complex political, social and cultural histories that shaped the built environment of modern Brazil. This is a seminar on Brazilian modernism and its discontinuities.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 144 - WRITING ABOUT GREEK DRAMA
Short Title: WRITING ABOUT GREEK DRAMA
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces texts that are integral to ancient Greek culture, and core texts in the Western literary tradition. Students receive frequent regular practice at close reading, writing, and oral communication. The assigned primary texts are Aristotle's Poetics and communication. The assigned primary texts are Aristotle's Poetics and tragedies by Aeschylus, Sophocles, and Euripides (all read in English translation).
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 145 - FOOD, HEALTH, AND ENVIRONMENTAL JUSTICE
Short Title: FOOD AND ENVIRONMENTAL JUSTICE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the intersections of food production and consumption, public health, and climate change through the lenses of environmental and food justice. Students will explore issues such as sustainability, food security and access, race, and class through reading and writing about a diverse range of literary and scholarly texts.

FWIS 146 - YOUTH ACTIVISM AND SOCIAL CHANGE
Short Title: YOUTH ACTIVISM & SOCIAL CHANGE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Young people are leading their communities, influencing policy, and shaping discourse on some of the most pressing social issues of our time. This course explores how youth become mobilized to take political action and what kind of personal and public narratives inform their efforts to bring about social change.

FWIS 147 - AMERICA THROUGH FOREIGN EYES
Short Title: AMERICA THROUGH FOREIGN EYES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The United States has always been a source of fascination – both attraction and repulsion – for many people around the world. The course covers the perceptions and interactions of five regions – Africa, China, France, Mexico, and Russia – with America. It offers ways to approach cross-cultural study and concludes with a segment that “reverses the gaze” by analyzing American opinions of other cultures. "America through Foreign Eyes" addresses four overarching themes: 1) democracy and modernity; 2) globalization and capitalism; 3) racism and immigration; and 4) intellectual and cultural life.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 148 - THE DIRTY THIRTIES: LITERATURE, CULTURE, AND TOPOGRAPHY IN THE AMERICAN 1930S
Short Title: THE DIRTY THIRTIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Despite prevailing perceptions, the 1930s weren’t all dust and depression. The decade saw the advent of big band swing, both in music and dancing styles, the proliferation of films with sound, and exciting new styles of visual art and writing. American culture flourished both because and in spite of the Great Depression. In this course, we’ll study the history, literature, music, art, and film of the vibrant but complex 1930s with an eye for how this decade helped define contemporary American culture.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 149 - GRAPHIC MEDICINE
Short Title: GRAPHIC MEDICINE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Do graphic novels reflect perceptions of medicine? Can comics orient our notion of care? Formally dependent on interruption, graphic novels demonstrate the complexity of reading—reading texts, reading bodies, reading trauma. Thus, our class will grapple with disruption and healing in comics and will consider these implications for medical practice. Mutually Exclusive: Cannot register for FWIS 149 if student has credit for CLAS 303.
FWIS 150 - THE WORLD OF MEDIEVAL MEDICINE  
Short Title: THE WORLD OF MEDIEVAL MEDICINE  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: How did medieval Christians understand and treat mental and bodily illness? How did their experiences of pain, sex, childbirth, and death interact with larger concepts of God, nature, and the heavens? What role did angels and demons play? This seminar will explore these issues through close reading of medieval texts. Mutually Exclusive: Cannot register for FWIS 150 if student has credit for FSEM 171/MDEM 171/RELI 171.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 151 - MAKING SENSE OF OURSELVES: THE ART OF THE PERSONAL ESSAY  
Short Title: MAKING SENSE OF OURSELVES  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course explores and examines the personal essay as a vehicle for discovery, critical thinking, and self-scrutiny. Students will read great essays from the past and present, write a variety of essays themselves, and analyze the form to draw larger conclusions about thoughtful and engaging writing in any genre.  

FWIS 152 - NUTRITIONAL SUPPLEMENTS: REAL REMEDIES OR SHADY SCIENCE?  
Short Title: THE SCIENCE OF SUPPLEMENTS  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This writing-intensive seminar examines evidence for the use of nutritional supplements in promoting health. Topics include the role of vitamins, herbs and food-based supplements in medicine; the biology of illnesses such as cancer and depression; and the molecular mechanisms of supplements in disease prevention and management.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 153 - THE POWERS OF HORROR  
Short Title: THE POWERS OF HORROR  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This writing-intensive seminar focuses on how narratives of horror call attention to broad forms of injustice. It examines literary, graphic, and filmic examples of horror from its radical queer beginnings in Horace Walpole’s The Castle of Otranto, all the way to Jordan Peele’s unflinching examination of racism in Get Out.  

FWIS 154 - THE GOOD, THE BAD AND THE BORDER  
Short Title: THE GOOD, THE BAD & THE BORDER  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course will explore portrayals of morality in film, literature and music produced in the US-Mexico borderlands. As we examine conflicting and converging moral codes in these cultural texts, students will use writing as a tool for exploring ideas and refining understanding.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 155 - GROWING PAINS: COMING-OF-AGE IN LITERATURE AND FILM  
Short Title: GROWING PAINS  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This FWIS examines coming-of-age stories in literature and film from various time periods and countries in order to better understand the search for identity and the social forces that influence this search. Students will read and write in several genres to develop as academic readers, writers, and critical thinkers.  

FWIS 156 - SPEECH AND COMMUNICATION IN HOMER  
Short Title: SPEECH AND COMM IN HOMER  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Introduces students to oral tradition, oral performance, oral poetics, and the Homeric poems. We will read the Iliad and Odyssey closely, focusing on the speeches, songs, and stories performed by characters, and considering what those performances suggest about the constructive and destructive use of speech in human relationships and societies.
FWIS 157 - TRAVEL AND MODERN ASIA: LIVED EXPERIENCES ACROSS TIME AND SPACE
Short Title: TRAVEL AND MODERN ASIA
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will read and write about people who traveled across and beyond Asia from the fourteenth century to the twentieth century, focusing on core topics such as intercultural interactions, globalization, and modernity. In doing so, we will also challenge the common misconception that Asian societies were isolated from one another and from the rest of the world before the arrival of the Westerners in Asia in the nineteenth century.

FWIS 158 - THE HOLOCAUST IN HISTORICAL PERSPECTIVE
Short Title: THE HOLOCAUST IN HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine the history of the Holocaust from early accounts to recent reconstructions of the origins, implementation, and aftermath of the “Final Solution.” We will also analyze documents, testimonies, memoirs, trial records, and various forms of representations and commemoration of the Shoah.

FWIS 159 - VOICING DISSENT: MUSIC AND SOCIAL MOVEMENTS
Short Title: VOICING DISSENT
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar offers an introduction, through a musical lens, into key popular grassroots social movements that have taken place around the world in the last century. Music serves as a stepping stone to discuss both the broader histories of the movements and the foundational relationships between art and social change.

FWIS 160 - GLOBAL ENGLISH: DIVERSITY, DEMAND, AND DOMINANCE
Short Title: GLOBAL ENGLISH
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, students will consider how sociocultural, political, and economic factors have historically influenced decisions about language use in the context of English. In doing so, they will practice different forms of academic communication and refine skills fundamental to their success as critical thinkers, readers, and writers.

FWIS 161 - DETECTIVES & DETECTIONS
Short Title: DETECTIVES & DETECTIONS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course reads representations of struggle between detectives and those evading detection. Throughout, we will continually ask: What can “detection” teach us about the boundaries of national belonging? And how can we appropriate the lens of detection to improve our skills as academic readers and writers?

FWIS 162 - CRITICAL THINKING IN DEMOCRACY
Short Title: CRITICAL THINKING IN DEMOCRACY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Critical thinking runs counter to inherent tendencies toward confirmation bias in decision making. In the political realm, this conflict is often exploited by governmental leaders and media to control specific outcomes. Students in this class will learn to develop their critical thinking and analytical skills in the context of a democratic society.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 163 - INVENTING THE BARD: A CULTURAL HISTORY OF SHAKESPEARE
Short Title: INVENTING THE BARD
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course confronts the political and cultural legacies of Shakespeare’s plays and poems through the history of his evolution from a working actor and playwright in the London theater to the “Bard of Avon,” a mythologized author at the center of the English literary canon.

FWIS 164 - WAYS OF WALKING IN LITERATURE AND CULTURE
Short Title: WAYS OF WALKING
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores the act of walking, in theory and in practice. Through readings, discussions, writing assignments, and group and individual walks, it examines questions about the body and its movements; the construction and navigation of space; the tradition of travel writing; and the relationship between walking and thinking.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)
FWIS 165 - SCIENCE FICTION AND WILLIAM SHAKESPEARE  
Short Title: SCIENCE FICTION & SHAKESPEARE  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course will explore the intersection between William Shakespeare's works and science fiction. By reading graphic novels and short stories and watching film and television adaptations, this course will examine what this fascination reveals about Shakespeare's plays and the pursuits of science fiction.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 166 - ANOTHER TIME AND PLACE: WRITING ABOUT SPECULATIVE FICTION  
Short Title: SPECULATIVE FICTION  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Speculative fiction are stories of possibility, of what our world might look like in another time and place. These authors use their literature to not only entertain—after all, androids and resurrected dinosaurs are fascinating—but also to speak to the developments and challenges of the present moment.

FWIS 167 - BOOKS YOU CAN'T PUT DOWN: AN EXPLORATION OF THE READING EXPERIENCE  
Short Title: BOOKS YOU CAN'T PUT DOWN  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: What is it about certain books that draws us in and keeps us turning the page? To answer this question, this class examines selected works of fiction and creative nonfiction with a focus on literary form, the psycho-social functions of narrative, and the physical and emotional experience of reading.

FWIS 168 - CASE STUDIES OF BUILDING DESIGN PROBLEMS  
Short Title: BUILDING DESIGN PROBLEMS  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: We will analyze buildings that ended up in legal battles. Problems include structural failures, design blunders and near disasters. You will write about what went wrong and why, who saved that day and who should have acted differently. You will learn to write critically and present a convincing argument.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 169 - WHAT ARE HUMAN RIGHTS?  
Short Title: WHAT ARE HUMAN RIGHTS?  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: We hear and talk about "human rights" frequently, but few of us have an easy time defining ideas so inherently contested and pitted against one another. This class will read, discuss, and write about the history and future of human rights in the United States and elsewhere in the world.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 170 - "WHAT IS CITIZENSHIP?"  
Short Title: "WHAT IS CITIZENSHIP?"  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Paying special attention to the experiences of immigrant, indigenous, and (formerly) enslaved peoples of the United States, this seminar takes a broad approach to the examination of "citizenship," its global contexts, and its material domains, including education, identity, labor, language, sovereignty, and suffrage.

FWIS 171 - WORD MAGIC  
Short Title: WORD MAGIC  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: People use language to create inner models of the world to represent their experience and guide their behavior. Students will be introduced to a sensitive interdependence of language, thought, emotion, and behavior in personal and social contexts.  
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 172 - SITES, SOUNDS, & STORIES: THE RHETORIC OF PUBLIC MEMORY  
Short Title: RHETORIC OF PUBLIC MEMORY  
Department: First-Year Writing Intensive  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course invites students to consider whose stories we remember, and how/when/where. How does the framing of historical events bolster or disrupt dominant narratives of public memory? Students will examine scholarship on public memory and conduct analyses of the sites, sounds, and stories of national and local histories.
FWIS 173 - DESCRIBING THE ABSTRACT: COMMUNICATING THE MYSTERIES OF MATHEMATICS
Short Title: DESCRIBING THE ABSTRACT
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Mathematics is beautiful, and this course will help us see how. Students will develop the skills to describe mathematics, ancient to cutting-edge, with accurate, exciting, and compelling prose. Along the way, they will learn about mysteries and solutions from pockets of the diverse and flourishing world of mathematics. Mutually Exclusive: Cannot register for FWIS 173 if student has credit for FSEM 159/HIST 159.

FWIS 174 - SOUNDING THE CITY
Short Title: SOUNDING THE CITY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Sound surrounds us. And yet we often put little thought into what role it plays in our lives and the lives of our public spaces. This course aims to correct this oversight by offering an introduction to the field of sound studies focused on Houston's audio environment, past and present.

FWIS 175 - SEEING SURVEILLANCE: WRITING WITH AND ABOUT SECURITY AND SOCIETY
Short Title: SEEING SURVEILLANCE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course requires students to read, write, and explore the nature of surveillance, security, and society by asking: What is surveillance? Why does it happen and who does it happen to? We will analyze how examples of surveillance shape and reshape cultures across the world.

FWIS 176 - WRITING WITH AND ABOUT SOCIAL MEDIA
Short Title: WRITING SOCIAL MEDIA
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will explore social media from a number of perspectives: we will learn its history; explore its technicalities; think critically about its contact; and ultimately seek to understand why and how social media has quickly become a mainstream tool for written and audiovisual communication.
Course URL: [pwc.rice.edu](http://pwc.rice.edu/)

FWIS 177 - BIZARRE BIBLICAL STORIES
Short Title: BIZARRE BIBLICAL STORIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine some of the more bizarre stories of the Hebrew Bible, which deal with such ideas as fratricide, incest, seduction and magic. We will see how such stories have been interpreted, and been afforded meaning, throughout the ages. All texts will be read in English translation. Mutually Exclusive: Cannot register for FWIS 177 if student has credit for FSEM 109.
Course URL: [pwc.rice.edu](http://pwc.rice.edu/)

FWIS 178 - GLOBALIZING MUSEUM HISTORY
Short Title: GLOBALIZING MUSEUM HISTORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course traces a number of themes in world history through museums and collections from 1800s to the present. More specifically, the course examines how museums are shaped by local and global influences and participate in historical processes related to identity formation, colonialism, and resistance.
Course URL: [pwc.rice.edu](http://pwc.rice.edu/)

FWIS 179 - TRACKING DRAGONS THROUGH THE PAGES OF SHORT FICTION: THE ART OF READING CLOSELY
Short Title: SHORT FICTION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This will be a course on expressive writing and the art of reading; on great short fiction from Kafka to O'Connor; and on those obstacles—dragons that breathe fire across our paths—that stand in the way of our content in just those ways they derail the characters we read.
Course URL: [pwc.rice.edu](http://pwc.rice.edu/)
About the subject of writing.

On not only the game of baseball, but also what baseball teaches us or what "counts" as American, baseball provides an opportunity to reflect.

Description: In this course, we’ll take a deep dive into social movements from across time and space, thinking critically about the communicational tactics of each one. Using this knowledge, students will choose an issue important to them, develop a communicational strategy and—if they want—put it out into the world!

FWIS 180 - BEING THE CHANGE: WRITING FOR ACTIVISM, ADVOCACY, AND SOCIAL JUSTICE
Short Title: WRITING FOR SOCIAL JUSTICE
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we’ll take a deep dive into social movements from across time and space, thinking critically about the communicational tactics of each one. Using this knowledge, students will choose an issue important to them, develop a communicational strategy and—if they want—put it out into the world!

FWIS 181 - GRAPHIC BLACKNESS: THE AFRICAN AMERICAN COMIC BOOK TRADITION
Short Title: AFRICAN AMERICAN GRAPHIC NOVEL
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the struggle for black representation in comics and graphic novels. We will discuss the unique opportunities that sequential narratives present to creators as they represent race on the page and we will examine the history of black artists working in the comic book industry.

FWIS 182 - VIRTUAL VICTORIANS AND STEAMPUNK CULTURE
Short Title: VIRTUAL VICTORIANS & STEAMPUNK
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Replete with gears and gadgets, Steampunk comments as much on the past as on our contemporary technological moment and asks us to critically consider the human-machine relationship. This FWIS will grapple with the rise of the techno-human as we engage with 19th century and Steampunk texts and various digital projects.

FWIS 183 - BASEBALL AND AMERICAN IDENTITY
Short Title: BASEBALL AND AMERICAN IDENTITY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Like America itself, baseball has long been the subject of eulogies and postmortems. At a time of renewed policing regarding who or what "counts" as American, baseball provides an opportunity to reflect on not only the game of baseball, but also what baseball teaches us about the subject of writing.

FWIS 184 - CONTEMPORARY AMERICAN POETRY
Short Title: CONTEMPORARY AMERICAN POETRY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will delve into contemporary American poetry by exploring outstanding poetry books of the previous year. Students will study American poetry in literary and historical contexts, develop ability to analyze how poems "work," develop ability to create clear, effective prose, and build framework for exploring other types of poetry.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 185 - CARIBBEAN ECOLOGIES
Short Title: CARIBBEAN ECOLOGIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Colonization, slavery, and climate change have violently disrupted the relationship between humans and nature in the Caribbean. We will examine colonial diaries, memoirs of the Haiti earthquake and Haitian ‘salvage art’, reef restoration art, and stories about food and history (and more!) to explore creative responses to this ecological vulnerability.

FWIS 186 - CROSSING BORDERS
Short Title: CROSSING BORDERS
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: "Humans are in a constant state of transformation and face numerous extrinsic as well as intrinsic barriers over the course of their lives. We will read about crossing real and imaginary borders, about uprooting and losing identity, the traumatic loss of homeland, as well as about the walls in our psyche."
FWIS 188 - INTRODUCTION TO ENGINEERING DESIGN AND COMMUNICATION
Short Title: ENG DESIGN & COMMUNICATION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. Enrollment limited to students in the School of Architecture or School of Engineering colleges.
Course Level: Undergraduate Lower-Level
Description: Students learn the engineering design process to solve real-world problems by evaluating design requirements and constructing innovative solutions in the OEDK. Several communication assignments will be completed by individuals rather than teams. Fall limited to ENGI and NSCI students; spring open for engineering and architecture students. Mutually Exclusive: Cannot register for FWIS 188 if student has credit for ENGI 120.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 189 - POST-APOCALYPTIC LITERATURE AND FILM
Short Title: POST-APOCALPTIC LIT AND FILM
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Our culture is fascinated with its own destruction. From zombies to nuclear war, ecological disasters, aliens, disease and killer machines, Armageddon takes many forms. Structured around ways in which we have imagined the world ending, this course charts the cultural consciousness of apocalypse.

FWIS 190 - ROBIN HOOD: NOT YOUR AVERAGE OUTLAW
Short Title: ROBIN HOOD
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course traces the development of the Robin Hood legend from 13th-century England to its global presence today. By examining different literary genres and visual mediums, this course explores what the legend teaches—beyond being wildly entertaining!—about issues of race, gender, religion, social justice, economics, and even environmentalism.

FWIS 191 - THE ART OF THE SHORT STORY
Short Title: THE ART OF THE SHORT STORY
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How exactly does the length of a piece of writing connect to its expression as a work of art and our interpretation of it? In this course, we'll consider “shortness” as a challenge authors undertake, investigating the ways they weave complex tales into brief, often pithy, masterpieces.

FWIS 192 - THE ROARING TWENTIES
Short Title: THE ROARING TWENTIES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The 1920s were about new possibilities, aesthetic experimentation, and frenzied expression. We'll examine iconic '20s literature by Hemingway, Fitzgerald, Woolf, and others, as well as the linchpins of '20s culture: jazz, Prohibition, the Harlem Renaissance, and modern art. Highlights include lessons on the Charleston and a Roaring Twenties soiree.

FWIS 194 - EMPIRES
Short Title: EMPIRES
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Is the United States of America an empire? This course will examine civilizations from Ancient Rome and Han Dynasty China to the superpowers of the twentieth century in order to identify the nature and mechanisms of imperial power. It will investigate imperial literature, architecture art, dress, rituals and technology.
Course URL: pwc.rice.edu/ (http://pwc.rice.edu/)

FWIS 195 - LAW AND ITS TRANSGRESSIONS
Short Title: LAW AND ITS TRANSGRESSION
Department: First-Year Writing Intensive
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The rule of law is a fragile and frequently threatened “belief” system that is constantly challenged, negotiated and re-negotiated. We will analyze the rule of law and its transgressions, its relationship to the concepts of rights, justice, guilt and innocence in texts and films from varying historical and political contexts.
This course examines beliefs about demons and devils and analyzes their influence in different visual mediums, such as: medieval manuscripts, Renaissance frescos, nineteenth-century gargoyles, and recent TV programs and films. In examining the demonic body, students will also unpack how and why different categories humans are demon-ized.

French Studies (FREN)

FREN 106 - ACCELERATED FIRST-YEAR FRENCH
Short Title: ACCEL 1ST YR FRENCH
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year French for students with previous knowledge of another romance language, or limited previous French knowledge with a significant (1+ year) gap in study. Covers equivalent of FREN 141 and 142. Upon completion, students are prepared for FREN 263 or Rice-in-France. Mutually exclusive: cannot earn credit for FREN 141/142. Mutually Exclusive: Cannot register for FREN 106 if student has credit for FREN 141/FREN 142.

FREN 141 - FIRST YEAR FRENCH I
Short Title: FIRST YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in French (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 141 if student has credit for FREN 101/FREN 106/FREN 222.

FREN 142 - FIRST YEAR FRENCH II
Short Title: FIRST YEAR FRENCH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of FREN 141. Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for FREN 142 if student has credit for FREN 106/FREN 262.
FREN 222 - AP/OTH CREDIT FRENCH LANGUAGE
Short Title: AP/OTH CREDIT FRENCH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for FREN 222 if student has credit for FREN 141.

FREN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FREN 263 - SECOND YEAR FRENCH I
Short Title: SECOND YEAR FRENCH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 106 or FREN 142
Description: Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 263 if student has credit for FREN 201.

FREN 264 - SECOND YEAR FRENCH II
Short Title: SECOND YEAR FRENCH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): FREN 263
Description: Development of interactional competence in French (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of French. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for FREN 264 if student has credit for FREN 202.

FREN 301 - ADVANCED GRAMMAR AND ITS LITERARY AND CULTURAL APPLICATIONS
Short Title: ADV GRAM & LIT & CULTURAL APP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Offered every semester, this course is an integrated study of literary and cultural texts as a springboard for advanced level refinements of grammar. Recommended Prerequisite(s): FREN 202 or 264 or Placement Test.

FREN 302 - WRITING WORKSHOP
Short Title: WRITING WORKSHOP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Offered annually and is required of all majors. It emphasizes composition and exposition through the practice of such genres as narration, description, portrait, essay, and "commentaire compose". Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or FREN 301 or Placement Test. Mutually Exclusive: Cannot register for FREN 302 if student has credit for FREN 336.

FREN 305 - LITERARY AND CULTURAL ANALYSIS: THE ART OF READING
Short Title: LITERARY AND CULTURAL ANALYSIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the unique critical skills necessary for reading and analysis across the arts and social sciences. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 307 - THE MANY FACETS OF FRENCH CULTURAL IDENTITY
Short Title: FRENCH CULTURAL IDENTITY I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: With the help of nine French films and selected readings, we will discuss what it means to be French today. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 308 - BEAUTY AND THE BEAST(S): SEX, VIOLENCE, AND FOLKTALES IN THE AFRICAN DIASPORA
Short Title: BEAUTY AND THE BEAST(S)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex and gender in folktales and fairytales from the African diaspora to the Americas. In so doing, this course will also put European and African folklore in conversation with the New World's oral traditions. Taught in English.

FREN 311 - MAJOR LITERARY WORKS AND ARTIFACTS OF PRE-REVOLUTIONARY FRANCE
Short Title: PRE-REV FRENCH LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of French culture, literature, and artifacts from the Middle Ages until the Revolution. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 312 - MAJOR LITERARY WORKS AND ARTIFACTS OF POST-REVOLUTIONARY FRANCE
Short Title: MAJ LIT WORKS POST-REV FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of 19th and 20th century poetry, fiction, and cinema through the major literary and artistic movements: romanticism, realism, symbolism, Dada, surrealism, and existentialism. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 313 - MAJOR LITERARY WORKS AND ARTIFACTS OF THE FRANCOPHONE WORLD
Short Title: MAJ LITERARY WORKS & ARTIFACTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the artistic, historical, and philosophical textures of French cultures outside Europe, focusing especially on Africa North and South of the Sahara, the Caribbean, North America, and on the evolution of the concept of "francophonie" since World War II. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 321 - INTRODUCTION TO FRENCH SOCIETY AND CULTURE
Short Title: INTRO FRENCH SOCIETY & CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides grounding in social, political, cultural, and economic aspects of contemporary France. The course will focus on themes such as youth culture, Europeanization, immigration, and gender debates. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 323 - FROM EXISTENTIALISM TO CYBERPUNK
Short Title: EXISTENTIALISM TO CYBERPUNK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Films and novels. Investigations of human consciousness, subjectivity and identity -- from Sartre's existentialism of the "absurd", through Robbe-Grillet's "anti-humanism", to the cyberpunk science-fictional studies of "post-humanity", genetic manipulation, environmental collapse and post-religious mysticism, by contemporary figures like Dantec and Houellebecq. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 324 - FROM DECOLONIZATION TO GLOBALIZATION

Short Title: FROM DECOLONIZATION TO GLOBALIZATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the challenges of defining gender, race, and identity in Africa, Asia, and the Caribbean, or the Global South as this area is also known. The nations of the Global South are newly industrialized or in the process of industrializing and have had to battle the widespread effects of colonialism and globalization. Students will investigate the pervasiveness of stereotypes in literature, film, popular culture and the media in western and non-western contexts. We will examine theories from the Global South to avoid the simplification of Eurocentric analysis. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 325 - FRENCH THEORY, IN ENGLISH

Short Title: FRENCH THEORY, IN ENGLISH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to contemporary French theory and philosophy in their historical context, from decolonization and the Cold War to the present. Along the way, we will discuss French phenomenology, Marxism, structuralism, feminism, post-structuralism, and post-continental philosophy, including their impact on US culture. Taught in English.

FREN 332 - FRENCH PHONETICS

Short Title: FRENCH PHONETICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Acquisition of French phonetic system through intensive class and laboratory practice. Contrast analysis of the French and English phonetic systems. Minimal use of technical terminology. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 337 - SHAKESPEARE IN THE CARIBBEAN: POST/colonial READINGS

Short Title: SHAKESPEARE IN THE CARIBBEAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines English translations of Caribbean and Latin American writers' retellings of Shakespeare's The Tempest. Students will explore the construction of identity (including race and gender) and otherness since the beginning of the colonial project (1492). We will question the relationship between colonized and colonizer, and tropes such as the Master/Slave relationship. Taught in English.

FREN 340 - GENDER AROUND THE WORLD

Short Title: GENDER AROUND THE WORLD
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines English translations of Caribbean and Latin American writers' retellings of Shakespeare's The Tempest. Students will explore the construction of identity (including race and gender) and otherness since the beginning of the colonial project (1492). We will question the relationship between colonized and colonizer, and tropes such as the Master/Slave relationship. Taught in English.

FREN 350 - PARIS

Short Title: PARIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3,4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the history of Paris as a cultural, intellectual, and economic center through texts, music and films. Students earn 3 credits for the course, or 4 credits if participating in a supplementary 10-day study trip to France at the end of the semester in May. Taught in French. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.
FREN 351 - PROVINCES OF FRANCE
Short Title: PROVINCES OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3, 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the amazing diversity in the history, languages, economic bases, traditions, and cultures of the original provinces in order to arrive at a better understanding of France as it exists today. For an additional credit hour, students may participate in a two week on site visit to a location in France. The location will vary; contact the instructor or the department for details. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 355 - MODERN SHORT STORY: TOWARDS AN ETHICS OF FICTION
Short Title: MODERN SHORT STORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of great modern short fiction with emphasis on reading as an ethical enterprise. Selected critical essays complement works from Melville to Maupassant, Flaubert to Kafka to O'Connor as we talk about alienation and solitude, death and violence and the vicissitudes of family. Taught in English. Cross-list: ENGL 355. Recommended Prerequisite(s): Any 200-level course or above in English or French Studies, or EURO 101 or EURO 102

FREN 356 - TRANSLATION AS INTERPRETATION: CLOSE ENCOUNTERS WITH POETS OF THE MODERN AGE
Short Title: TRANSLATION AS INTERPRETATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course dedicated to reading closely some of the great poets of the modern period — from Hugo to Baudelaire to Prévert—and to the art of translation as a tool for reflecting on the subtleties of the French language and the special shape of the poetic. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 370 - WOMEN IN TALES OF THE FANTASTIC
Short Title: WOMEN IN TALES OF FANTASTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore those stories "behind the story" of the 19th century—that strange and often misunderstood genre, the "fantastic tale." Reading such writers as Gautier, Balzac, and Maupassant, we will discuss this genre's anxieties about madness and machines, misbehaving objects, and especially about women and their bodies. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test.

FREN 380 - FLAUBERT AND THE ART OF TRANSLATION: EXPERIMENTS IN WRITING
Short Title: WRITING FLAUBERT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Flaubert was both a romantic and a realist who achieved the acutely modern through legend and myth in prose that was poetic. This will be a course in which he anchors our study of short, innovative prose works of the 19th century, encountered, each one, through the imaginative art of translation. Recommended Prerequisite(s): FREN 202 or FREN 264 or Placement Test

FREN 401 - TRANSLATION
Short Title: TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the theory and practice of translation. Includes translation of modern texts from and into English. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor
FREN 402 - GLOBAL FRENCH CINEMA (IN ENGLISH)
Short Title: GLOBAL FRENCH CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Cinema from France and the French-speaking world (especially Africa) - both the canon of "art" cinema and smash successes of commercial "entertainment." Discussion of this distinction. Critical and theoretical discourse in film studies with special attention to French contributions. Globalization in cinema. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 403 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with the department for additional information. Taught in French. Instructor Permission Required. Repeatable for Credit.

FREN 404 - BEGINNINGS OF THE LANGUAGE AND LITERATURE OF FRANCE
Short Title: THE LANG AND LIT OF FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes and external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Student will acquire a reading knowledge of Old French. Course taught in French. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 404. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 407 - CINEMA IN FRENCH
Short Title: CINEMA IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cinema In French -- In France and the French-speaking world (especially Africa): both the canon of "auteurs" of "high culture" and commercial "mere entertainment." Discussion of this distinction, and introduction to critical and theoretical discourse in film studies. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 409 - NOVELS AND FILMS
Short Title: NOVELS AND FILMS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Comparison between French novels from the 16th to the 20th centuries and movies that have been based on them, in some cases more than one movie based on a given novel. The class will read each novel in question and then examine how the director perceived it when making the film. For example, La Reine Margot, Tous les Matins du Monde, Liaisons Dangereuses, Madame Bovary, Cyrano de Bergerac, Hiroshima mon amour. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 411 - THE LEGACY OF COURTLY LITERATURE
Short Title: LEGACY OF COURTLY LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the various ways that courtly literature has evolved into modern times and stages through which the themes have passed. We will study courtly themes in literature (French, English, Spanish, German, Italian), film, art, and music from the Middle Ages to modern times. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 414 - SEX AND RACE IN THE FRENCH ATLANTIC
Short Title: SEX AND RACE - FRENCH ATLANTIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the carnal violence and brutality associated with sex, gender, and race in folktales and fairy tales in French from the Americas. In so doing, this course will also put European and African folklore in conversation with the New World’s oral traditions. Effective May 15, 2021, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 415 - COURTLY LOVE IN MEDIEVAL FRANCE
Short Title: COURTLY LOVE MEDIEVAL FRANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the mythology of the black woman’s body in the French/Francophone imaginary, namely in the literary rewriting of the “primitive” in the long 19th century. Students will examine how this eroticized body bears traces of its social, political and cultural codification and symbolizes anxieties born out of the colonial encounter. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 416 - LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR
Short Title: LIT & CULTURE OF MIDDLE AGES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies women in education, the workplace, politics, and in social and cultural institutions in French society. The class explores the history of the French women’s movement and analyzes French concepts of gender and feminism in comparison to American models. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: SWGS 424. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.
FREN 430 - 17TH CENTURY
Short Title: 17TH CENTURY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Thematic approach to examining the main political, religious, philosophical, and literary discourses of the golden age of absolutism. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 433 - FRENCH CARIBBEAN ECOCRITICISM
Short Title: FRENCH CARIBBEAN ECOCRITICISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines French Caribbean writers’ representations of natural and human disasters, and their impact on human interactions, human societies, and nature. Contrary to scholars considered to be in the first-wave of ecocriticism, these writers explore the social dimensions of environmentalism as well as the ecological implications of colonialism and neocolonialism. Taught in French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 450 - POETRY AND POETICS IN THE 19TH CENTURY
Short Title: POETRY & POETICS 19TH CENTURY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the poetry and prose poetry of the 19th century from the Romantic period to the Symbolist era, through such writers as Desbordes-Valmore, Lamartine, Musset, Vigny, Hugo, Nerval, Baudelaire, Verlaine, Rimbaud, and Mallarme. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 451 - FRANCE - AMERICA: IMAGE AND EXCHANGE
Short Title: FRANCE-AMER: IMAGE & EXCHANGE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This undergraduate course analyzes French and American culture and identity through transatlantic encounters. We study French intellectuals (Tocqueville, Beauvoir, Baudrillard) who traveled to the US, and images of America in French novels, comic strips, films. We also examine American gazes toward the French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 452 - WORLD WAR TWO IN FRENCH HISTORY, LITERATURE, AND FILM
Short Title: WORLD WAR TWO IN FRENCH HIST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies the history and memory of World War Two in France. Students will learn how literature and film contributed to the making and undoing of national myths about collaboration and resistance and participation in the Holocaust. How has contemporary French society reconciled with this dark period of history? Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

FREN 453 - IMMIGRATION AND CITIZENSHIP IN CONTEMPORARY FRANCE
Short Title: IMMIGRATION AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the impact of immigration on contemporary French society and analyzes debates over citizenship, integration, and multiculturalism. Taught in French. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor
FREN 459 - THE BATTLES OF ALGIERS: FROM CHARLES X TO CHARLIE-HEBDO
Short Title: THE BATTLES OF ALGIERS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical, literary, and visual materials from the 19th century to the present will illustrate the global perception of a war that left an indelible inscription in contemporary debates on democracy and reform. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 460 - WOMEN IN FICTION AND HISTORY: NOTIONS OF THE FEMININE SINCE THE FRENCH REVOLUTION
Short Title: WOMEN, FRENCH FICTION, HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading closely lyric, fictional, historical, and critical texts from Olympe de Gouges and Baudelaire to Rachilde and Irigaray, we will explore how women have been represented (and misrepresented) since the French Revolution, and how notions of the feminine since the 18th century still plague women’s place and power in the 21st. Taught in French. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

FREN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

FREN 478 - THE CARIBBEAN IN FRENCH
Short Title: THE CARIBBEAN IN FRENCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the undergraduate senior version of the graduate level seminar FREN/ARCR 578. Both the course’s reading list and the length of the research are adjusted to accommodate undergraduate needs. The seminar examines the history, political writings, literature and the arts of the French Caribbean from the beginning of colonization to the present. It will include figures such as Saint-John Perse, Roumain, Césaire, Fanon, Depestre, Schwarz-Bart, Warner-Vieyra, Glissant, Condé, Chamoiseau, Laferrière, as well as the Caribbean arts and film. Taught in English. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: ARCR 478. Mutually Exclusive: Cannot register for FREN 478 if student has credit for FREN 578.

FREN 493 - FALL HONOR THESIS
Short Title: FALL HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.

FREN 494 - SPRING HONOR THESIS
Short Title: SPRING HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding French Studies majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Instructor Permission Required.
FREN 495 - THE FRENCH AVANT-GARDE: SYMBOLISM, DADAISM, SURREALISM, CONTEMPORARY CINEMA
Short Title: THE FRENCH AVANT-GARDE
Department: Modrn & Classlc Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Short texts and films by Baudelaire, Verlaine, Rimbaud, Mallarmé, Jarry, Apollinaire, Breton, Artaud, Bataille, Robbe-Grillet, Catherine Breillat, Virginie Despentes. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor.

German (GERM)

GERM 101 - FIRST YEAR GERMAN I
Short Title: FIRST YEAR GERMAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in German (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for GERM 141 if student has credit for GERM 201.

GERM 102 - FIRST YEAR GERMAN II
Short Title: FIRST YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of GERM 141. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 142 if student has credit for GERM 201.

GERM 106 - ACCELERATED FIRST YEAR GERMAN
Short Title: ACCEL 1ST YEAR GERMAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year German course for students with some background in German or related language. This is an intensive course covering the equivalents of GERM 141 and GERM 142. Students will be prepared for GERM 263 upon completion of the course. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for GERM 106 if student has credit for GERM 141/GERM 142.

GERM 222 - AP/OTH CREDIT IN GERMAN LANGUAGE
Short Title: AP/OTH CREDIT GERMAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for GERM 222 if student has credit for GERM 141.

GERM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GERM 263 - SECOND YEAR GERMAN I
Short Title: SECOND YEAR GERMAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 142
Description: Continuation of GERM 142. Development of interactional competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 263 if student has credit for GERM 201.
GERM 264 - SECOND YEAR GERMAN II
Short Title: SECOND YEAR GERMAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): GERM 263
Description: Continuation of GERM 263. Development of interational competence in German (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of German. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for GERM 264 if student has credit for GERM 202.
Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)

GERM 280 - HISTORY OF CINEMA AND MEDIA I: INVENTION TO 1945
Short Title: HISTORY OF CINEMA AND MEDIA I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will introduce students to the history of cinema from its inception to 1945 by considering individual cinematic artifacts in their technological, economic, aesthetic, political, and social contexts. Cross-list: CMST 201.

GERM 301 - THIRD YEAR GERMAN I
Short Title: THIRD YEAR GERMAN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary German speaking cultures through the use of authentic materials (film, media, literature). Taught in German. Recommended Prerequisite(s): GERM 264 or Instructor Permission.

GERM 302 - THIRD YEAR GERMAN II
Short Title: THIRD YEAR GERMAN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on complex topics in contemporary German speaking cultures through the use of authentic materials (film, media, literature). Recommended Prerequisite(s): GERM 301 or Permission of Instructor.

GERM 303 - GERMAN FOR PROFESSIONALS: BUSINESS AND RESEARCH
Short Title: GERMAN FOR PROFESSIONALS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GERM 302
Description: This course introduces students to current issues and language use in German technology, business, and international relations, and it explores these issues in larger cultural contexts. Assignments allow students to explore areas of individual interest and encourage exploration of international career opportunities including GERM 399 The German Studies Internship. Taught in German.

GERM 305 - ENLIGHTENMENT AND ROMANTICISM (1750-1850)
Short Title: ENLIGHTENMENT (1750-1850)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the major social, political and cultural developments in the period between 1700-1850, which contributed to the emergence of modern German cultural identity within the European context. Covers wide range of theoretical and literary works by Kant, Lessing, Schiller, Goethe, Eichendorff, Hoffmann, Heine, and others. Taught in German.

GERM 306 - REALISM TO MODERNITY (1850-PRESENT)
Short Title: REALISM TO MODERNITY-1850-PRES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: German history and culture during the late 19th and the 29th century have been rather turbulent: From Wilhelminian empire to Weimar democracy to Hitler fascism to socialist division to German reunification to entry into the European Union. All these political changes will be commented on by cultural reflections in textual and filmic forms. Literary texts will include Fontane, Mann, Kafka, Boll, Grass, Wolf and Maron. Taught in German.
GERM 307 - FOLK AND FAIRY TALE IN GERMAN: TRADITION, STRUCTURE, ARTISTRY
Short Title: FOLK & FAIRY TALE IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The folk tales collected by the Brothers Grimm still exhibit all the principle characteristics and functions of oral literature, i.e. the reproduction of an audience's cultural identity and the securing of that identity. Nevertheless, these characteristics are still preserved in fairy tales written by specific authors for a reading audience. Examples of the latter are mainly from authors of Romanticism and Realism. Taught in German.

GERM 309 - GERMAN POETRY
Short Title: GERMAN POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "If the soul speaks out, alas! it is no longer the soul that speaks" - in Schiller's famous line one of the many fascinating paradoxes of lyric poetry is expressed. With the tradition of the "Lied," poems set to music, German poetry of the Classical-Romantic epoch was soon to become the epitome of lyric poetry as such. There were, however, poems of quite different kinds before and after Goethe, Eichendorff, and Heine. Without neglecting the Classical-Romantic period, the course will explore the history of lyric expression in German literature from the early modern period to the present in both poems and theoretical texts. Taught in German.

GERM 311 - BERLIN: PAST AND PRESENT
Short Title: BERLIN: PAST AND PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course introduces students to German history and culture as mirrored in the history of the city that is "always in progress and never accomplished." With an emphasis on the period from the 1920's to the present, class discussions encompass literature and theory, politics and social life, as well as architecture, fine arts and film. Taught in German.

GERM 320 - TWENTIETH CENTURY GERMAN THOUGHT AND LITERATURE IN GERMAN
Short Title: 20TH CENTURY GERMAN THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on the way in which major events of twentieth century German history and culture -- especially World War I, the founding of the Weimar Republic, and National Socialism and the Holocaust -- have been dealt with in literature, philosophy, and the social sciences.

GERM 322 - MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY
Short Title: MARX, FREUD, EINSTEIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Like no others, these three thinkers of the 19th and 20th centuries have influenced the intellectual, historical, social and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English. Cross-list: HUMA 322.

GERM 324 - BERLIN: RESIDENCE, METROPOLIS, CAPITAL
Short Title: BERLIN:RESIDENCE,METRO,CAPITAL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course offers an introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Berlin has always been a city of contradictions: from imperial glamour to proletarian slums, from the Roaring Twenties to Hitler's seizure of power. Emerging from the ruins of WWII Berlin became both the capital of Socialism and the display window of the Free World. After the fall of the wall, Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English. Cross-list: HUMA 324.
GERM 325 - MODERN GERMAN WRITERS: KAFKA
Short Title: MODERN GERMAN WRITERS: KAFKA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Goethe's vision of "world-literature" came true in the twentieth century. German authors, among them Kafka, transcended the confines of national traditions and redefined the concepts of literature and authorship in view of a modern globally dispersed audience. Topics may vary. Taught in English. Cross-list: HUMA 325. Repeatable for Credit.

GERM 326 - THE GERMAN FAIRY TALE: OLD AND NEW
Short Title: GERMAN FAIRY TALE: OLD & NEW
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the "literary" fairy tale from Goethe and the Romantics to the 20th century. Taught in English. Cross-list: HUMA 372.

GERM 327 - GERMAN EXPRESSIONISM IN EUROPEAN CONTEXT:
HISTORY, LITERATURE AND FINE ARTS
Short Title: GERMAN EXPRESSIONISM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The literature, fine arts and film of German Expressionism represent the most concentrated breakthrough of modernity. In addition to focusing on this accomplishment in its European context, the course will also discuss Nietzsche's influence, the movement's ambivalent reaction to WWI and its misappropriation by communism and national-socialism. Taught in English.

GERM 329 - LITERATURE OF THE HOLOCAUST AND EXILE
Short Title: LIT OF HOLOCAUST & EXILE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of the time, i.e., Th. and H. Mann, Brecht, Benjamin, Werfel, Doblin, J. Roth, S. Zweig, N. Sachs, Celan, Auslander. Taught in English. Cross-list: HUMA 329.

GERM 330 - LITERATURE AND FILM IN EAST GERMANY: BEHIND THE IRON CURTAIN
Short Title: LIT AND FILM: EAST GERMANY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will introduce students to the literature and filmic culture of East Germany, as well as to its social, political, and cultural context. It will also ask how literature and film not only reflect but also respond to history by mobilizing their own political force.
GERM 333 - NIETZSCHE: PHILOSOPHY, POLITICS, HISTORY
Short Title: NIETZSCHE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Situates Nietzsche's thought on language, history, and the body within its historical context, and examines the validity of his arguments in a world increasingly challenged by scientific knowledge. Focuses on Nietzsche's views on truth, genealogy, nihilism, morality, and science, which continue to be relevant for current debates within the humanities. Taught in English.

GERM 334 - NATIONALISM AND CITIZENSHIP
Short Title: NATIONALISM AND CITIZENSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical review of modern concepts of nationalism and citizenship. Topics include: theories of nationalism and citizenship, space and territory, identity, monuments, the emergence of nation states, multicultural democracy, transnationalism, and political belonging. Course provides links between political theory, public policy, literature, visual culture, architecture, and historical anthropology.

GERM 335 - GERMAN FILM (IN ENGLISH)
Short Title: GERMAN FILM (IN ENGLISH)
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores filmic representations of communities, their complex mechanisms of inclusion and exclusion, their inevitable dynamics of otherness, as well as practices of modern states toward communal regulation and control. While communities biologically denote the interaction of organisms sharing an environment, we will examine the practices of power that states wield toward the maximization of “life.” Hence the questions of biopower, health politics, eugenics, sexism, racism, and genocide. How do films negotiate the precarious politics of communal life, what are their strategies for resistance, and what are their moments of complicity? We will explore how film reflects communal life in twentieth-century German history, but also, and perhaps primarily, how film responds to that history by generating its own speaking power and mobilizing its own political force. Mutually Exclusive: Cannot register for GERM 335 if student has credit for FSEM 136/GERM 136.

GERM 336 - NATIONAL SOCIALISM AND FILM
Short Title: NATIONAL SOCIALISM AND FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores films made in Nazi Germany as well as films about Nazi Germany and the corresponding crisis of justice in the mid-twentieth century. We will analyze cinematic responses to the rise of the fascist movement, World War II, the Holocaust, and the post-war years. Particular attention will be paid to the value of film as propagandistic tool, ways in which it can configure and contest our image of national identity, and the relation between mass manipulation and mass murder. Taught in English. Mutually Exclusive: Cannot register for GERM 336 if student has credit for FSEM 132/GERM 132.

GERM 337 - VIENNA 1800 TO THE PRESENT - LASTING CENTER OF GERMAN CULTURE
Short Title: VIENNA 1800 TO THE PRESENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Despite Vienna's drastic political changes from 1800 to 2000, it is still synonymous with German culture in its fusion of literature, music and the fine arts.

GERM 338 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN
Short Title: NEW GERMAN FILM: HITLER'S CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerrie, Garnier, Tykwer, and others. The first 20 years of German film were oriented on coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: HUMA 373, SWGS 361.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>GERM 339</td>
<td>FROM EXPRESSIONISM TO FASCISM: ART AND FILM IN GERMANY</td>
<td>FROM EXPRESSIONISM TO FASCISM</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Focusing on the tumultuous years of the Weimar Republic, this class will examine art and film in Germany from the birth of Expressionism through the end of the Nazi dictatorship. Topics covered will include Expressionism, Dada, the Bauhaus, and Fascist aesthetics. Particular attention will be paid to the relations between aesthetics and politics and art and everyday life, all central concerns of the art and criticism of the period. Cross-list: HART 398.</td>
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<tr>
<td>GERM 340</td>
<td>WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS</td>
<td>WALTER BENJAMIN</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English. Cross-list: HUMA 340.</td>
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<tr>
<td>GERM 341</td>
<td>A SHORT HISTORY OF GERMAN THOUGHT ON HISTORY</td>
<td>GERMAN THOUGHT ON HISTORY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>From early modern times onward history has played and still plays a crucial role in German thought. Why? An answer to this question is to be sought in history; in authors such as Lessing, Kant, Hegel, Marx, and Nietzsche who contributed to what in German is called &quot;Philosophy of History.&quot;</td>
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<tr>
<td>GERM 345</td>
<td>FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945</td>
<td>GERMAN HISTORY, 1890-1945</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, and political culture, the Nazi social revolution, and the Holocaust. Taught in English. Cross-list: HIST 355.</td>
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<tr>
<td>GERM 349</td>
<td>GERMAN POLITICAL THOUGHT</td>
<td>GERMAN POLITICAL THOUGHT</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Advanced seminar in political thought. Traces the development and influence of one of the most important traditions of modern political thought from the Enlightenment to the present. Topics include: natural law, public sphere, intellectuals and the modern state, civil society, mass democracy. Reading intensive and research oriented. Taught in English.</td>
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<td>GERM 351</td>
<td>HOLOCAUST MEMORY IN MODERN GERMANY</td>
<td>HOLOCAUST MEMORY</td>
<td>Modrn &amp; Classicl Lit &amp; Culture</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3,4</td>
<td>Enrollment is limited to Undergraduate, Graduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course traces and examines forms of Holocaust memory and memorialization in film, literature, art, architecture, city planning, museums, and memorials in Germany. For an additional credit hour, students will participate in a week-long trip to Berlin. Instructor Permission Required. Cross-list: HART 387.</td>
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GERM 352 - POLITICS OF THE FLESH IN GERMAN LITERATURE, THOUGHT AND FILM  
Short Title: THE POLITICS OF THE FLESH  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will introduce students to the complex relation between the sphere of politics and the human body as negotiated in German literature, thought and film. We will examine the practices of power that states wield toward the maximization of "life" and discuss such pressing issues as biopower, eugenics, racism, sexism and genocide. Taught in English.

GERM 361 - THE AGE OF GOETHE: POETRY AND TRUTH  
Short Title: AGE OF GOETHE: POETRY & TRUTH  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The "Age of Goethe" is generally referred to as the "classical" decade of German literature and culture. It was, however, by no means exclusively the age of Goethe and Schiller, but also of Kant and Herder, Holderlin and Kleist, and the beginning of the Romantic movement. While German intellectuals debated revolution in the lofty realm of letters, their French contemporaries took to the streets and staged a political revolution that culminated in the execution of their king. Germany as the "land of the poets and philosophers" is a myth indeed, and a rather ambivalent one, too. The course explores the age of Goethe, its "poetry" and its "truth," by way of reading key texts of that period in their intellectual, historical, and political contexts. Taught in German.

GERM 362 - NEW REALITIES: LITERATURE AND POLITICS IN THE 19TH CENTURY  
Short Title: 19TH C. LITERATURE & POLITICS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: In German arts and letters, the nineteenth century is usually referred to as the age of Realism. As a reaction to Neo-Classicism, Romanticism, and Idealism, intellectual life turned towards the new realities in the sciences as well as society and politics. Industrialization, urbanization, the social question, women's liberation and the founding of the "Reich" created a new sense of reality and gave way to new forms of expression in literature and the arts. While optimism regarding the process of mankind prevailed, pessimism spread amongst the more thoughtful. Readings include texts by Heine, Fontaine, Keller, Hauptmann, Marx, Schopenhauer and Nietzsche. Taught in German.

GERM 363 - THE WEIMAR REPUBLIC, 1919-1933  
Short Title: THE WEIMAR REPUBLIC, 1919-1933  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Seminar in Germany's first democracy and one of the most formative moments of modernity. Covers political culture, constitutional conflict, literary and intellectual movements and urban visual culture from the end of the First World War and the spectacular modernity of 1920s Berlin to the rise of the Nazis. Taught in German.

GERM 364 - THE EXPRESSIONIST VISION OF "NEW MAN"  
Short Title: EXPRESSIONIST VISION  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Inspired by Nietzsche's concept of the "Superman," the Expressionist writers and artists (roughly between 1910 and 1920) strived towards a total renewal of society. They attached its patriarchal foundation, blamed the anonymity of the metropolitan mass society with the newly formed proletariat on hand and the materialistic life-style on the other for the general dissociation of individuals. The major literary forms were poetry and drama, which were either activist or experimenting with newly created metaphors. The prose employs the genre of the grotesque. The visual artists are influenced by van Gogh. As a totally new medium, the film incorporates all these aspects and elements. Taught in German.

GERM 380 - GERMAN HISTORY IN FILM: INTERNATIONAL PERSPECTIVES  
Short Title: GERMAN HISTORY IN FILM  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores how German history and its effects on Europe and the world have been presented in international film. Special attention will be paid to films dealing with traumatic moments and developments before, during and after World War I, World War II, the Holocaust and the Cold War.
GERM 399 - THE GERMAN STUDIES INTERNSHIP
Short Title: THE GERMAN STUDIES INTERNSHIP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: The Office of the Dean of humanities and relevant faculty from German Studies match students individually with one of a variety of projects in the areas of diplomacy, engineering, pedagogy, public culture. Students conduct research or related activities under the guidance of on-site supervisor and the section instructor on record. Instructor Permission Required.

GERM 401 - TOPICS IN GERMAN LITERATURE AND CULTURE
Short Title: TOPICS IN GERMAN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This course will work with sophisticated texts to enable students to bring their proficiency in the various modalities of German to the advanced level. Taught in German. Repeatable for Credit.

GERM 402 - GERMAN TRANSLATION
Short Title: GERMAN TRANSLATION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: Advanced seminar on German-English translations. With stylistic exercises covering a broad range of genres: poetry, novels, essays, historical documents, legal documents, journalism, etc. Taught in German. Effective May 15, 2019, this course does not carry D1 credit.

GERM 410 - THE POLITICS OF GERMAN FILM (IN GERMAN)
Short Title: THE POLITICS OF GERMAN FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: This course explores film in the context of German politics and history. It examines why film has been such a contested subject in German philosophy and the social sciences. Assignments will include films from the Weimar Republic and Nazi Germany to postwar New German Cinema and today's filmic presentation of German history and politics. Selected directors include: Maren Ade, Rainer Werner Fassbinder, Florian Henckel von Donnersmarck, Werner Herzog, Fritz Lang, Margarete von Trotta, and Tom Tykwer. The course also provides an introduction to German film theory examining selected works by Theodor W. Adorno, Walter Benjamin, Siegfried Kracauer, and Georg Lukács. Taught in German.

GERM 411 - THE POETICS OF JUSTICE IN GERMAN LITERATURE, THOUGHT, AND FILM
Short Title: THE POETICS OF JUSTICE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: Seminar will introduce students to the ongoing concern with law and its relation to justice in German literature, thought, and film. We will examine works that stage actual and figurative trials, and will ask how these enactments serve as a catalyst for civilization's most pressing normative questions.

GERM 420 - GERMAN POLITICS/CULTURE AFTER 1945
Short Title: GERM. POLI/CULTURE AFTER 1945
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: Advanced seminar on German culture and politics after the Second World War – from the foundation of the Federal Republic, the separation of the two Germanys, and the student revolts of 1968 to 1970s terrorism, the fall of the Berlin Wall, and Germany's present role in the international community. Taught in German.

GERM 425 - VIENNA AND ITS PEOPLE
Short Title: VIENNA AND ITS PEOPLE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: In this course we will look at the people of Vienna from the turn of the century to the present. Our readings, film viewings and discussions will introduce us to the Viennese as people of all classes and ethnic and national groups. Taught in German. Recommended Prerequisite(s): Intermediate high proficiency (speaking & writing).

GERM 430 - GERMAN INTELLECTUAL HISTORY
Short Title: GERMAN INTELLECTUAL HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level
Description: Advanced Seminar on key topics in modern German intellectual history, including history of science and scholarship, from 1700 to the present. Ideal preparation for graduate school in the humanities. Taught in German.
GERM 435 - CONCEPTS OF HISTORY FROM G.E. LESSING TO W. BENJAMIN
Short Title: CONCEPTS OF HISTORY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The twentieth-century Italian philosopher Benedetto Croce called philosophy of history (Geschichtsphilosophie) a “German discipline.” There is indeed a long and rich tradition of texts in German thought that focus on making sense of the seemingly senseless, on speculating about the origin, the course, the aim, or, quite generally, the “meaning” of history. Based on selected texts by Lessing, Kant, Heine, Hegel, Nietzsche, Ranke, Burckhardt, Benjamin, and others, the course discusses different concepts of history from the early eighteenth to the twentieth century. Taught in German.

GERM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

GERM 491 - FALL - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: FALL-IND WRK GERM LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 492 - SPRING - INDEPENDENT WORK IN GERMAN LITERATURE
Short Title: SPRING-IND WRK GERM LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Qualified students work on projects of their choice under the supervision of individual instructors with approval of the undergraduate advisor. Department Permission Required. Repeatable for Credit.

GERM 493 - FALL HONORS THESIS
Short Title: FALL HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Department Permission Required.

GERM 494 - SPRING HONORS THESIS
Short Title: SPRING HONOR THESIS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research projects by outstanding German majors leading to a substantial honors thesis, undertaken in close cooperation with a departmental faculty member. Department Permission Required.

GERM 541 - FIRST-YEAR GERMAN I FOR GRADUATE STUDENTS
Short Title: 1ST YR GERMAN I FOR GRAD STUD
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is targeted at graduate students of different disciplines as an introduction to the fundamentals of listening, reading, writing, spoken production and interaction in German. This course is student-centered, uses a critical-thinking approach and intends to make students aware of contextualized language use and socioculturally significant interactions.

GERM 542 - FIRST-YEAR GERMAN II FOR GRADUATE STUDENTS
Short Title: 1ST YR GERMAN II FOR GRAD STUD
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): GERM 541
Description: This course builds on GERM 541. Based on an active student-centered critical-thinking approach, this course wants to make students aware of language use in context and socioculturally significant interactions. The emphasis is on interactional communication, reading, writing, translations, and intercultural awareness and understanding.

Course URL: clicgerman.blogs.rice.edu (http://clicgerman.blogs.rice.edu)
**Global Affairs (GLBL)**

**GLBL 501 - GLOBAL SYSTEMS I**
- **Short Title:** GLOBAL SYSTEMS I
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 3
  - **Restrictions:** Enrollment is limited to Graduate level students.
  - **Course Level:** Graduate
  - **Description:** Designed to help students think theoretically and analytically about leading issues in international affairs by introducing them to social science methods and scholarship, and exposing them to the uses of such concepts in practice, through examination of contemporary problems and relations between nation states. Introduces central concepts and approaches from a variety of social science perspectives, particularly comparative politics and international relations used to explain, analyze and evaluate international politics and economics. Master of Global Affairs students only.

**GLBL 502 - INSTITUTIONS & DEVELOPMENT**
- **Short Title:** INSTITUTIONS & DEVELOPMENT
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
  - **Restrictions:** Enrollment is limited to Graduate level students.
  - **Course Level:** Graduate
  - **Description:** This course will explore a broad, multidisciplinary range methodologies and requisite analytical tools needed to identify, measure, and assess the determinants and effects of international development, the nature of change in the development process, and of the associated role of policy and institutional design. This will include the normative analysis of change (applying various concepts of well-being, efficiency, social justice and poverty), the application of economic concepts (to the interpretation of household and firm behavior, strategic interactions and economy-wide patterns), and the role of political, governmental and social behavior in shaping the possibilities for, drivers of and resistance to change. This will be undertaken through a mixture of discussion of overall patterns backed by a strong focus on case studies in particular country settings. Master of Global Affairs students only.

**GLBL 503 - INTRODUCTION TO STATISTICS FOR MASTERS STUDENTS**
- **Short Title:** INTRODUCTION TO STATISTICS
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
  - **Restrictions:** Enrollment is limited to Graduate level students.
  - **Course Level:** Graduate
  - **Description:** This course familiarizes students with basic concepts of research design and statistical methodology that used in policy analysis. It covers (1) fundamental concepts of scientific inference and barriers to inference in observational data, (2) the implementation and evaluation of experimental and observational research designs in policy analysis, (3) descriptive and graphical statistics, (4) statistical hypothesis testing, (5) elementary use and interpretation of the generalized linear model, and (6) using the R statistical software environment for data organization and analysis. It is strongly recommended that students complete this course in the fall semester of their first year; in all cases, it must be completed before the end of the first year. Master of Global Affairs students only.

**GLBL 504 - QUANTITATIVE APPLICATIONS IN GLOBAL POLITICS AND POLICY**
- **Short Title:** GLOBAL POLITICS AND POLICY
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
  - **Restrictions:** Enrollment is limited to Graduate level students.
  - **Course Level:** Graduate
  - **Description:** The course takes a problem-driven approach to practical applications of quantitative research methods in political and policy studies. Using a series of international and domestic policy topics, students will learn to apply and extend their knowledge of research design and statistics as part of developing a systematic approach to the study of global affairs. Student assignments will involve research related to the practice of global affairs, including comparative policy-making, political economy and security. Master of Global Affairs students only.

**GLBL 505 - MACROECONOMICS AND THE GLOBAL ECONOMY**
- **Short Title:** MACROECONOMICS&GLOBAL ECONOMY
- **Department:** Global Affairs
- **Grade Mode:** Standard Letter
- **Course Type:** Lecture
- **Credit Hours:** 1.5
  - **Restrictions:** Enrollment is limited to Graduate level students.
  - **Course Level:** Graduate
  - **Description:** This part develops our foundations on topics such as national product and income concepts, measurements, and relationships; interrelationships of the major segments of the national economy; forces affecting the general level of economic activity. Here we study how the major markets (those for labor, capital, and goods) operate. These markets are first studied in isolation. Why some countries have rapid economic development, and others low growth and pervasive poverty? We will explore the ways in which growing economic interdependence shifts global wealth. We will discuss the role of global energy supply and of ongoing technological progress as a force of change in the global economy. Masters of Global Affairs students only. Equivalency: GLBL 506, GLBL 524. Mutually Exclusive: Cannot register for GLBL 505 if student has credit for GLBL 524.
GLBL 506 - MACROECONOMICS FOR THE GLOBAL ECONOMY
Short Title: MACROECONOMICS FOR GLOBAL ECON
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The second part of the course puts the markets studied in the first part together and studies their interactions. The key issues here are: (a) how macroeconomic variables behave and (b) how can policy affect these outcomes both domestically and internationally. Students will engage in a short team project to explore the role of economic development in international settings, including topics such as energy supply, labor and employment, population, education, health and nutrition. International economics: balance of payments, foreign exchange markets, international trade theory, tariffs, quotas, and exchange controls. The course will focus on the relationship between international policy and economics. North-South relations, including the US-Mexico economic relation will be discussed. Master of Global Affairs students only. Equivalency: GLBL 505, GLBL 524. Mutually Exclusive: Cannot register for GLBL 506 if student has credit for GLBL 524.

GLBL 507 - DECISION MAKING UNDER UNCERTAINTY
Short Title: DECISION MAKING UNCERTAINTY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines how leaders on the world stage-those in governments, international organizations, and non-state actors-make decisions that alter the course of international affairs. These decisions are made under conditions of uncertainty with limited information, elements of surprise about what will happen next, and often carry high degrees of risk. The course considers key theoretical models of uncertainty in decision making and examines specific foreign policy decisions that managed the uncertainty toward a successful outcome and those that ended in failure or expensive mistakes. Master of Global Affairs students only.

GLBL 510 - CULTURAL DIRECTIONS IN INTERNATIONAL AFFAIRS
Short Title: CULTURAL DIRECTIONS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigates the cultural and social dimensions of the development and implementation of international policy; emphasizes historical and ethnographic case studies to understand the variable impacts of policy implementation in different contexts. Master of Global Affairs students only.

GLBL 512 - INTERNATIONAL CONFLICT
Short Title: INTERNATIONAL CONFLICT
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to a broad range of areas related to the analysis and resolution of conflict, focusing on the interdisciplinary study of defining, understanding, and addressing conflict. International and community conflict, characteristics, negotiation, collaborative problem solving, process-advice. Students will research international conflict escalation, stalemate, de-escalation, settlement, resolution, or management; mediation skills to facilitate the resolution of disputes and differences, techniques of third party intervention with individuals and groups. Learning approach includes lectures, simulations, modeling and practice mediations. Master of Global Affairs students only.

GLBL 513 - INTERNATIONAL COOPERATION
Short Title: INTERNATIONAL COOPERATION
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of theories and best practices from academia and governments/NGO’s related to international cooperation, including international law and treaties, international coalitions and sanctions, international and transnational organizations, translocal city and NGO partnerships, government and business partnerships, transnational governance and publicly diplomacy, including soft power and collective action for global public goods. Master of Global Affairs students only.

GLBL 514 - THE MIDDLE EAST CAULDRON AND UNITED STATES POLICY
Short Title: M. EAST CAULDRON & U.S. POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the expanding public dimension of diplomacy by investigating the growing global interests and trends in the 21st century’s diplomatic environment. This course also examines the underlying political, socio-economic, and cultural trends and surveys US national security interests, foreign policy, and public diplomacy around the world. For Master of Global Affairs Students Only.
GLBL 515 - ISSUES IN CONTEMPORARY U.S. FOREIGN POLICY
Short Title: CONTEMP. US FOREIGN POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: U.S. foreign policy is in transition. This process began long before President Donald J. Trump assumed office. We have moved decisively into what could be called “the post-post-Cold War” era. The global struggle between the Soviet Union and the United States ended 25 years go. But so has the “unipolar moment” that followed the Cold War, when the United States possessed unrivaled power in world affairs. The rise of China, the resurgence of Russia, and continuing turmoil in the Middle East confront U.S. policy-makers with an array of complex challenges. This course focuses on these and other issues that are shaping U.S. foreign policy today. It will include discussions of topics “ripped from the news” whether we are talking about the Syrian Civil War, the ongoing low-intensity conflict in the Ukraine, or Chinese military actions in the South China Sea. Master of Global Affairs students only.

GLBL 519 - MASTER OF GLOBAL AFFAIRS INTERNSHIP
Short Title: MASTER GLOBAL AFFAIRS INTRNSHP
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Master of Global Affairs internship is a graduate-level supervised field experience for students in the MAGA program. All internships must be preapproved and must be conducted after the student has completed a minimum of 18 credit hours in the program. Master of Global Affairs students only. Instructor Permission Required. Repeatable for Credit.

GLBL 520 - MASTER OF GLOBAL AFFAIRS CAPSTONE
Short Title: MASTER GLOBAL AFFAIRS CAPSTONE
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Master of Global Affairs capstone course is the culmination of all graduate coursework and internship experience in the program; it is a significant piece of work than what is normally expected of a term paper. The capstone project must reflect a scholarly and professional analysis informed by the application of analytical strategies that address a real-world problem or public policy issue. All MGA students must complete the capstone in their final semester. Instructor Permission Required.

GLBL 521 - DIRECTED READING IN GLOBAL AFFAIRS
Short Title: DIR READING IN GLOBAL AFFAIRS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3-6
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level independent reading course. Topics vary. Master of Global Affairs students only. Instructor Permission Required. Repeatable for Credit.

GLBL 523 - QUANTITATIVE APPLICATIONS IN GLOBAL AFFAIRS
Short Title: QUANTITATIVE APPLICATIONS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course takes a problem-driven approach to practical applications of quantitative research methods in political and policy studies. Using a series of international domestic policy topics, students will learn to apply and extend their knowledge of research design and statistics as part of developing a systematic approach to the study of global affairs. Student assignments will involve research related to the practice of global affairs, including comparative policy-making, political economy and security.

GLBL 524 - MACROECONOMICS IN A GLOBAL ECONOMY
Short Title: MACROECONOMICS GLOBAL ECONOMY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course develops our foundations of aggregate economic analysis; use of the aggregate demand/aggregate supply model for the determination of output, employment, and prices. The focus will be on topics such as national product and income concepts, measurements, and relationships; interrelationships of the major segments of the national economy; forces affecting the general level of economic activity. Here we study how the major markets (those for labor, capital, and goods) operate. These fundamental concepts will be used to analyze international economic policy. Equivalency: GLBL 505, GLBL 506. Mutually Exclusive: Cannot register for GLBL 524 if student has credit for GLBL 505/GLBL 506.
GLBL 525 - INTERNATIONAL SECURITY
Short Title: INTERNATIONAL SECURITY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program.
Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course covers two general areas in International Security: (1) traditional (i.e., "state-centered") and (2) non-traditional security issues. The first half of the course is devoted to recent developments in the study of interstate security. We will contemplate unipolarity, American security policy, the rise of some peer competitors, and the changing nature of interstate relations in the 21st century. The second half of the course will explore the growing significance of a number of emerging non-traditional security concerns. In this portion, we will discuss counterinsurgency, civil war, terrorism, humanitarian intervention, among other developing issues.

GLBL 531 - WORLD POLITICS AND GLOBAL GOVERNANCE
Short Title: CHANGE IN WORLD POLITICS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course has three parts. First, it will engage cutting edge research on the causes and dynamics of interstate conflict and civil war. Second, it will discuss theories and practices of international organizations such as the UN, IMF, and WID. Finally, with the background knowledge from the first parts, the course will discuss how China's rise may bring changes to both dimensions.

GLBL 532 - INTERNATIONAL BUSINESS ENVIRONMENT AND GLOBAL ECONOMIC GOVERNANCE
Short Title: INT'L BUSINESS DEVELOPMENT
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program.
Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This is a comprehensive course in how governance of the global economy affects business and investment decisions. It is designed to provide students with an understanding of the main international economic institutions that have been developed to oversee the global economy, and how these institutions affect the international business and investment climate. Lectures and class discussions will focus on real world examples of the impact of the international trade and financial institutions (the G-8, G-20, WTO, IMF, and World Bank) on global and individual country economic environments, with particular emphasis on non-OECD countries.

GLBL 533 - SUSTAINABILITY AND GLOBAL ISSUES
Short Title: SUSTAINABILITY & GLOBAL ISSUES
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Arts in Global Affrs degree.

Course Level: Graduate

Description: This course aims to familiarize the student with current Sustainability debates as well as with conceptual origins, history and principles. We will study important global and regional landmarks, conferences and agreements that have brought Sustainability to the forefront of the political, private and public spheres. Moreover, this class is expected to provide a systems approach that will help students develop a comprehensive understanding of how local to regional challenges need to be addressed under sustainable frameworks.

GLBL 542 - INTERNATIONAL MACROECONOMIC POLICY FOR MASTER'S STUDENTS
Short Title: INTL MACROECONOMIC POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: How does exchange rate policy fit into a country's macroeconomic environment? How do international capital markets constrain policy space? Students will model the linkages between exchange rates, interest rates, capital flows, and prices. The course will emphasize emerging economies.

GLBL 543 - ENERGY POLICY
Short Title: ENERGY POLICY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program.
Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Energy is credited with many contradictory properties. It is a curse that enables dictatorship and war, undermines the work ethic, and taints our environment. It is also the world’s largest business and a chief ingredient of state power, stitching together disparate countries in webs of mutual dependence. Energy shapes our physical landscapes and personal habits, providing services that make us comfortable and secure, while producing waste that threatens this way of life. These are the areas where energy and politics intersect, the topics of concern to this course. Mutually Exclusive: Cannot register for GLBL 543 if student has credit for GLBL 541/POST 401/POST 501.
GLBL 551 - CYBERPOLITIK: INTERNATIONAL AFFAIRS IN TECHNOLOGY AND INFORMATION
Short Title: CYBERPOLITIK
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How are the evolving cases of cyber-attack and breach as well as the actions of government and corporations shaping how cyberspace is governed? What object lessons are there in security cases such as those involving WikiLeaks and the Snowden affair? This course examines the widely pervasive and enormously effective nature of cyber threats today, explaining why cyber-attacks happen, how they matter, and how they may be managed.

GLBL 552 - INTERNATIONAL SECURITY: DE-RISKING NATIONAL THREATS AND BUSINESS THREATS
Short Title: INTERNATIONAL SECURITY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course seeks to define the risks and risk-mitigation strategies employed by both nation-states and multinational businesses. We will examine how businesses control their risks by following compliance laws around the world. We will also examine what a superpower is within the context of the geopolitical challenges America is facing (fracturing of national institutions/will/consensus, our potential relative decline, shifting alliances, China’s rise, the European Union stagnation and diminution, and Russian aggression) as we look to answer the following question: who would even want to be a superpower.

GLBL 553 - INTERNATIONAL CRISIS MANAGEMENT IN A MULTI-RISK, INTER-CONNECTED WORLD
Short Title: INTERNATIONAL CRISIS MGMT
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Approximately 85% of the nation’s critical infrastructure (water, electricity, food/agriculture, energy, finance, IT, communication, medical, transportation, chemical, etc.), and nearly all of the global banking system is owned and operated by private corporations. How do these corporations prepare for a crisis even that impacts national security, national economic issues, or public order/safety/health, and therefore requires an integrated joint partnership with the government or other organization(s) to plan for and manage the crisis incident?

GLBL 554 - UNDERSTANDING TERRORISM AND COUNTERTERRORISM
Short Title: COUNTERTERRORISM SEMINAR
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course reviews the history of terrorism and counterterrorism and focuses on the experience of the United States, the United Kingdom, and Israel. The course will include topics such as the evolution of terrorism, intelligence collection and analysis, the use of technology, and policing.

GLBL 555 - SECURITY, ECONOMY AND DEVELOPMENT IN A CHANGING MIDDLE EAST
Short Title: MIDDLE EAST SECURITY & ECONOMY
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Middle East and North Africa plays a key role in international patterns of energy, human rights, migration, development, and security and remains in a state of transition a decade after the Arab uprisings of 2011. This course offers a survey of critical political, social, and economic topics in the Middle East and North Africa region with a particular focus on political economy, international and regional security, and international development. Over the semester, students will gain an understanding of the intersecting drivers of change in the region and the ability to put them into historical and comparative context. The course also will equip students with the skills to analyze cross-cutting conceptual developments and to identify nuance and variation in their public policy applicability across the region.

GLBL 557 - NON-THESIS GRADUATE RESEARCH
Short Title: NON-THESIS GRADUATE RESEARCH
Department: Global Affairs
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3-9
Restrictions: Enrollment limited to students in the MAGA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research for graduate students in the Master of Global Affairs.

GLBL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Global Affairs
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
Global Health Technologies (GLHT)

GLHT 201 - INTRODUCTION TO GLOBAL HEALTH
Short Title: INTRO TO GLOBAL HEALTH
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of contemporary challenges and advances to improve human health. The course opens with an introduction to the epidemiology and physiology of the major human health problems throughout the world. With this introduction, we examine medical technologies to prevent infection, detect cancer and treat heart disease. The course is designed for non-engineering / non-science majors.

GLHT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GLHT 314 - SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD
Short Title: SUST WTR PURIF FOR DEV WORLD
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an overview of sustainable strategies for safe water supply in off-the-grid, low-income regions. Topics covered include water quality and treatment, sustainability and WASH (water, sanitation and hygiene). A major element of the course is a project to solve a water-related issue in a real-world context. Cross-list: BIOE 365, CEVE 314. Repeatable for Credit.

GLHT 360 - APPROPRIATE DESIGN FOR GLOBAL HEALTH
Short Title: APPRO DESIGN FOR GLOBAL HEALTH
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 201
Description: Seminar-style introductory design course covering epidemiology, pathophysiology, health systems, health economics, medical ethics, humanitarian emergencies, scientific and engineering design methods, and appropriate health technology case studies. To register, you must be enrolled in the GLHT minor and submit a 250 statement to beyondtraditionalborders@rice.edu by Monday of preregistration. The minor and course prerequisite is waived for students majoring in Bioengineering. Instructor Permission Required. Cross-list: BIOE 360.

GLHT 392 - NEEDS FINDING AND DEVELOPMENT IN BIOENGINEERING
Short Title: NEEDS FINDING & DEV IN BIOE
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will learn and develop the engineering skill of needs finding in the field of bioengineering focused on designing for disabilities. Students will work in groups with patients with disabilities to identify daily needs and develop design criteria to meet those needs including preliminary prototype development. Instructor Permission Required. Cross-list: BIOE 392.

GLHT 400 - GLOBAL HEALTH TECHNOLOGIES INDEPENDENT RESEARCH PROJECTS
Short Title: GLHT INDEPENDENT RESEARCH
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course enables undergraduates pursuing the Global Health Technologies Minor to perform independent research on a specific design challenge in global health technology and innovation. Students are advised by the faculty and often mentored by a graduate student/post-doc. Instructor Permission Required. Repeatable for Credit.
Course URL: www.btb.rice.edu (http://www.btb.rice.edu)
GLHT 401 - GLHT RESEARCH PAPER WRITING AND SUBMISSION
Short Title: GLHT RESEARCH REPORTING
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will work in the preparation of a paper reporting a previously completed design project. Instructor Permission Required. Repeatable for Credit.

GLHT 411 - INTEGRATED APPROACHES TO SUSTAINABLE DEVELOPMENT
Short Title: SUSTAINABLE DEVELOPMENT
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a multidisciplinary course in which students explore the origins, connections and consequence of social and political tensions arising from the expansion of commercial energy resources in unique and rapidly changing Arctic and sub-Arctic environments. The challenge for the class will be to understand that in matters of sustainable development systemic complexities often give rise to a disconnect between analysis and decision-making. Topics will include the impacts of commercial energy development and drilling in rapidly changing Arctic environments, as well as strategies that can promote sustainable development and improved conditions for indigenous populations in the context of environmental challenges associated with the Arctic meltdown and drilling activities for oil and gas. Methodologies for structuring the analysis to be applied to enhance systemic resilience of the Alaska environment will be presented. Students will learn explore the barriers to sustainable development and discuss cost-effective, culturally appropriate solutions to energy related issues by integrating technical, organizational, and personal perspectives. Each class will have formal lectures(s) by Rice faculty or guest lecturer. Registered students are eligible to apply for a summer internship in Alaska. Recommended Prerequisite(s): POST 401 Mutually Exclusive: Cannot register for GLHT 411 if student has credit for POST 411. Repeatable for Credit.

GLHT 448 - TECHNOLOGY COMMERCIALIZATION IN DEVELOPING COUNTRIES FOR ENGINEERING
Short Title: TECH COMM IN DEV CTY FOR ENGS
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a unique opportunity for engineering students to 1) collaborate with graduate business students to design and disseminate global health technologies; 2) learn about the sustainable distribution of health products in developing countries; 3) have a once-in-a-lifetime trip to Africa that tourism can never duplicate; and 4) help the poor. Working alongside advanced MBA students, engineering students will apply their skills to developing business plans for student-designed global health technologies that may influence dissemination and business plans. Interested students should email beyondtraditionalborders@rice.edu for an application. Instructor Permission Required.

GLHT 449 - TROUBLESHOOTING WORKSHOP FOR CLINICALLY-RELEVANT BIOMEDICAL EQUIPMENT
Short Title: MED BIOENGINEERING WORKSHOP
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 243
Description: Bioengineering course in the troubleshooting, repair, and maintenance of standard biomedical equipment used in hospitals in the developed and developing worlds. Cross-list: BIOE 449. Repeatable for Credit.

GLHT 451 - GLOBAL HEALTH DESIGN CHALLENGES I
Short Title: GLOBAL HEALTH DESIGN I
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): GLHT 201 and (BIOE 360 or GLHT 360) and (GLHT 363 or BIOS 363 or PSYC 480 or SOCI 345)
Description: Students in this course will work on design projects to address global health disparities. Students will work in teams and partner with bioengineering students to develop solutions to particular problems in delivering healthcare in the developing world. Students must take GLHT 452 in the spring semester to complete their projects. Instructor Permission Required.
Course URL: www.btb.rice.edu (http://www.btb.rice.edu)
GLHT 452 - GLOBAL HEALTH DESIGN CHALLENGES II
Short Title: GLOBAL HEALTH DESIGN II
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in this course will work on design projects to
address global health disparities. Students will work in teams and partner
with bioengineering students to develop solutions to particular problems
in delivering healthcare in the developing world. Students must have
taken GLHT 451 in the fall semester to initiate their projects.
Course URL: www.btb.rice.edu (http://www.btb.rice.edu)

GLHT 464 - SOCIAL ENTREPRENEURSHIP
Short Title: SOCIAL ENTREPRENEURSHIP
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary concepts,
debates, and contexts necessary for analyzing and engaging in the
sphere of social entrepreneurship. The course has four distinct parts:
social context; organizational forms and collaborations; private sector
roles; and measurement and impacts. Various aspects of social
entrepreneurship, such as base of the pyramid/microenterprises, private-
public partnerships, private-governmental partnerships, voluntary social
codes, corporate social responsibility, and ethical consumerism will
be covered. From this foundation, students will undertake a social
entrepreneurship project about a contemporary social problem in
Houston: food insecurity and food deserts. Cross-list: BUSI 464,
SOC S 464.

GLHT 510 - SEMINAR IN TROPICAL MEDICINE
Short Title: SEMINAR IN TROPICAL MEDICINE
Department: Global Health Technologies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 8 week lecture series on topics in global health. The theme
for this offering is one health; integrating efforts to obtain optimal health
for humans, animals, and the environment. Offered in conjunction with
the new National School of Tropical Medicine, the course will feature
lectures by various experts on the public health issues most pressing in
poor populations in the world today. Course open to all undergraduates
and graduate students. Cross-list: BIOE 510. Repeatable for Credit.

GLHT 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Global Health Technologies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar,
Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level
students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact
department for current semester’s topic(s). Repeatable for Credit.

Greek (GREE)

GREE 101 - ELEMENTARY GREEK I
Short Title: ELEMENTARY GREEK I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Reading-based introduction to ancient Greek. Readings
include passages from classical and New Testament authors.
Explanation and analysis of basic grammar, including comparison with
English grammar. Besides translating Greek to English (and vice versa),
we will consider the language and literature in their historical context, and
practice reading ancient Greek aloud. Effective May 15, 2019, this course
does not carry D1 credit.

GREE 102 - ELEMENTARY GREEK II
Short Title: ELEMENTARY GREEK II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of GREE 101. Effective May 15, 2019, this
course does not carry D1 credit.

GREE 201 - INTERMEDIATE GREEK I: PROSE
Short Title: INTERMEDIATE GREEK I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate
Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of forms and syntax. Readings from Plato.
GREE 202 - INTERMEDIATE GREEK: EURIPIDES MEDEA/BIBLICAL KOINE
Short Title: INTERMEDIATE GREEK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Section 1 reads Euripides or Sophocles. Section 2 reads excerpts from New Testament, Septuagint, and Early Christian writers. Includes review of forms and syntax.

GREE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 302 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Open to third and fourth year undergraduates. An opportunity to read the Iliad/Odyssey in the original Greek. Includes review of forms and syntax as well as discussion of Homeric dialect, meter, poetics, and oral tradition. May be repeated (once) for credit. Graduate/Undergraduate Equivalency: GREE 502. Mutually Exclusive: Cannot register for GREE 302 if student has credit for GREE 502. Repeatable for Credit.

GREE 305 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATOARISTOTLE,NEW TSTMNT GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Greek prose for third or fourth year undergraduates. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 301, with additional texts. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 505. Mutually Exclusive: Cannot register for GREE 305 if student has credit for GREE 505. Repeatable for Credit.

GREE 306 - ADVANCED GREEK: POETRY
Short Title: ADVANCED GREEK: POETRY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on Greek poetic texts, with an emphasis on Attic tragedy. The course will emphasize poetic vocabulary and grammar, meter, and performance contexts. Texts change each semester. Repeatable for Credit.

GREE 307 - ADVANCED GREEK: PROSE
Short Title: ADVANCED GREEK: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended for students with at least two prior years of Greek. The course will focus on prose texts, with an emphasis on fifth- and fourth-century authors. The course will emphasize vocabulary, grammar, and historical contexts. Texts change each semester, repeatable for credit. Repeatable for Credit.

GREE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

GREE 492 - DIRECTED READING
Short Title: DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent work for qualified juniors and seniors in genres or authors not presented in other courses. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required. Repeatable for Credit.
GREE 502 - HOMER
Short Title: HOMER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to graduate students. Read the Iliad/Odyssey in the original Greek. Review of forms and syntax. Discussion of Homeric dialect, meter, poetics, and oral tradition. Requirement beyond GREE 302: oral presentation analyzing diction and poetic formulas in a specific passage. Repeatable (once) for credit. Graduate/Undergraduate Equivalency: GREE 302. Mutually Exclusive: Cannot register for GREE 502 if student has credit for GREE 302. Repeatable for Credit.

GREE 503 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: DIRECTED READING GRAD STUDENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Repeatable for Credit.

GREE 504 - DIRECTED READING FOR GRADUATE STUDENTS
Short Title: GR STUDENTS DIRECTED READING
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level, independent reading course. Topics vary. Offered in the spring semester. Repeatable for Credit.

GREE 505 - PLATO, ARISTOTLE, OR NEW TESTAMENT GREEK
Short Title: PLATO,ARISTOTLE,NEW TSTMTN GRK
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Greek prose for graduate students in related disciplines. Choice of texts flexible depending on the needs and interests of those enrolled. Includes review of forms and syntax. Continuation of GREE 501, with additional texts. Additional work required beyond GREE 305, in the form of an oral presentation analyzing the language and style of one or more text in terms of its historical, social, and generic context. May be repeated for credit. Graduate/Undergraduate Equivalency: GREE 305. Mutually Exclusive: Cannot register for GREE 505 if student has credit for GREE 305. Repeatable for Credit.

GREE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HEAL 103 - NUTRITION
Short Title: NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Concepts underlying the science of nutrition: food composition, calories and needs for energy, special nutrients, and nutritional deficiencies.

HEAL 119 - INTRODUCTION TO HEALTH AND WELLNESS
Short Title: INTRO TO HEALTH & WELLNESS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed to help students develop a greater understanding and appreciation of health and well being, as it relates to themselves and others around them, and for students to apply health and wellness knowledge in their personal life to improve their health.

HEAL 132 - MEDICAL TERMINOLOGY
Short Title: MEDICAL TERMINOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces the student interested in medical and health professions to a large vocabulary of medical language which develops skills in understanding and remembering new words. It describes word origins, basic terms in anatomy and terms pertaining to each body system as well as pharmacology and medical equipment, and many frequently used medical terms, abbreviations and symbols.
HEAL 208 - CHEMICAL ALTERATIONS OF BEHAVIOR
Short Title: CHEM ALTERATIONS OF BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of social, cultural psychological, physiological causes and effects of drug use and abuse. Individual, family, and community factors related to prevention and treatment will be addressed.

HEAL 212 - CONSUMER HEALTH AND THE MEDIA
Short Title: CONSUMER HEALTH AND THE MEDIA
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of factual information and guidelines that enable consumers to act intelligently in selecting health products and services, with emphasis on the economic aspects of health.

HEAL 222 - PRINCIPLES OF PUBLIC AND COMMUNITY HEALTH
Short Title: PRIN PUBLIC&COMMHEALTH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Principles of Public & Community Health examines aspects of the community that relate to health including health issues within community subgroups; identification and analysis of community health programs; organizational patterns and functions of voluntary and governmental health agencies and coordination of community health programs.

HEAL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HEAL 306 - HUMAN SEXUALITY
Short Title: HUMAN SEXUALITY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to explore the physiological, psychological, and sociological parameters of human sexuality, while providing accurate information and helping students develop healthy attitudes toward sexuality. Cross-list: SWGS 306.

HEAL 313 - FOUNDATIONS OF HEALTH PROMOTION AND EDUCATION
Short Title: FOUNDATIONS HEALTH PROMO&EDUC
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Foundations of Health Promotion/Health Education is designed to introduce students to the discipline of health education and the practice of health promotion. The course explores critical issues in the field of health promotion, accountability and professional preparation, professional ethics, credentialing and the changing technology in the field. Intended for Health Sciences majors only.

HEAL 350 - UNDERSTANDING CANCER
Short Title: UNDERSTANDING CANCER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of cancer from a biological, psychological and sociological perspective with emphasis on cancer epidemiology, prevention, and early detection.

HEAL 360 - VIOLENCE IN AMERICA: A PUBLIC HEALTH PERSPECTIVE
Short Title: VIOLENCE IN AMERICA
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course presents an overview of issues concerning violence using a public health perspective. Information will be presented and discussed concerning several domains pertinent to violence, including family violence, intimate partner violence, community violence, and workplace harassment.
HEAL 375 - THE BUILT ENVIRONMENT AND PUBLIC HEALTH
Short Title: ENVIRONMENT AND PUBLIC HEALTH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course reviews topics involved in characterizing the built environment. The course encompasses economic, environmental, and social factors such as (a) community space governance, planning & management (b) broader functions such as access to healthy food & jobs. Solutions to improve population health must include consideration of environmental and other determinants of health.

HEAL 379 - INTERNSHIP IN HEALTH SCIENCES
Short Title: INTERNSHIP IN HEALTH SCIENCES
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Health Sciences.
Course Level: Undergraduate Upper-Level
Description: Internship experience for upper-level Health Sciences majors. Department Permission Required. Repeatable for Credit.

HEAL 380 - DISPARITIES IN HEALTH IN AMERICA
Short Title: DISPARITIES IN HEALTH AMER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores social, behavioral, and medical determinants (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate/Undergraduate Equivalency: HEAL 580. Mutually Exclusive: Cannot register for HEAL 380 if student has credit for HEAL 580.

HEAL 407 - EPIDEMIOLOGY
Short Title: EPIDEMIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate/Undergraduate Equivalency: HEAL 507. Mutually Exclusive: Cannot register for HEAL 407 if student has credit for HEAL 507.

HEAL 412 - HEALTH CARE DELIVERY & POLICY IN THE UNITED STATES
Short Title: HEALTH CARE DELIVERY & POLICY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An in-depth look at our current health delivery system intended to introduce students to the historic development, organization and delivery of health care in the United States. Solutions to improve the population's health must include consideration of economic & other determinants of health. Enroll in conjunction with the concurrent Health Care Delivery & Policy course at the graduate level.

HEAL 422 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORY&MODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate/Undergraduate Equivalency: HEAL 522. Mutually Exclusive: Cannot register for HEAL 422 if student has credit for HEAL 522.

HEAL 460 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 222
Description: Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data. Graduate/Undergraduate Equivalency: HEAL 560. Mutually Exclusive: Cannot register for HEAL 460 if student has credit for HEAL 560.

HEAL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
HEAL 495 - INDEPENDENT RESEARCH IN HEALTH SCIENCES
Short Title: INDEPENDENT RESEARCH
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Health Sciences. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319 and KINE 440
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Repeatable for Credit.
Course URL: kinesiology.rice.edu (http://kinesiology.rice.edu)

HEAL 498 - SPECIAL TOPICS IN HEALTH SCIENCES
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces mental health, substance use, and recovery from a public health perspective. Social, biological, and behavioral science approaches to addressing mental health challenges are examined. Course work includes readings and lectures and an experiential learning activity to provide a real-world perspective on substance use and mental health. Spring 2021 Topic: Introduction to Public Mental Health Repeatable for Credit.

HEAL 499 - TEACHING PRACTICUM IN HEALTH SCIENCES
Short Title: TEACH PRACTICUM HEALTH SCIENCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Health Sciences, and at least an "A-" in the course serving as the practicum. Repeatable for Credit.

HEAL 507 - EPIDEMIOLOGY
Short Title: EPIDEMIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of communicable, noncommunicable, and behavioral diseases with emphasis on the disease process and basic epidemiologic methods. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 407. Mutually Exclusive: Cannot register for HEAL 507 if student has credit for HEAL 407.

HEAL 522 - THEORIES AND MODELS OF HEALTH BEHAVIOR
Short Title: THEORY & MODELS HLTH BEHAVIOR
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theories & Models of Health Behavior is designed for the student interested in public and community health or health psychology. This course examines the current theories and models of health behavior and their application to the field of health promotion/health education. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 422. Mutually Exclusive: Cannot register for HEAL 522 if student has credit for HEAL 422.

HEAL 560 - PLANNING AND EVALUATION OF HEALTH PROMOTION AND EDUCATION
Short Title: PLAN/EVAL: HEALTH PROGRAMS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Planning & Evaluation of Health Promotion provides the student with the technical skills for planning and evaluation of health promotion, health education, and disease prevention programs including collection and analysis of both qualitative and quantitative data. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 460. Mutually Exclusive: Cannot register for HEAL 560 if student has credit for HEAL 460.
HEAL 580 - DISPARITIES IN HEALTH IN AMERICA
Short Title: DISPARITIES IN HEALTH IN AMER
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores social, behavioral, and medical determinants (e.g., race and ethnicity, socioeconomic status, and sexual orientation) that influence health and health disparities within populations, as well as strategies to reduce and eliminate those disparities. The course incorporates perspectives from various disciplines, including public health, psychology, and medicine. Graduate level students only. Instructor Permission Required. Graduate/Undergraduate Equivalency: HEAL 380. Mutually Exclusive: Cannot register for HEAL 580 if student has credit for HEAL 380.

HEAL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Hebrew (HEBR)

HEBR 125 - INTRODUCTION TO BIBLICAL HEBREW I
Short Title: INTRO TO BIBLICAL HEBREW I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Hebrew (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Hebrew. Cross-list: RELI 125.

HEBR 141 - FIRST YEAR HEBREW I
Short Title: FIRST YEAR HEBREW I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Hebrew (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): Placement Test. Mutually Exclusive: Cannot register for HEBR 141 if student has credit for HEBR 161.

HEBR 142 - FIRST YEAR HEBREW II
Short Title: FIRST YEAR HEBREW II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of HEBR 141. Development of interactional competence in Hebrew (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Recommended Prerequisite(s): HEBR 101 or HEBR 141 or Placement Test. Mutually Exclusive: Cannot register for HEBR 142 if student has credit for HEBR 262.

HEBR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
HEBR 263 - SECOND YEAR HEBREW I
Short Title: SECOND YEAR HEBREW I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of HEBR 142. Development of interactional competence in Hebrew (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Recommended Prerequisite(s): HEBR 201 or HEBR 142 or Placement Test. Mutually Exclusive: Cannot register for HEBR 263 if student has credit for HEBR 201.

HEBR 264 - SECOND YEAR HEBREW II
Short Title: SECOND YEAR HEBREW II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of HEBR 263. Development of interactional competence in Hebrew (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hebrew. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Recommended Prerequisite(s): HEBR 202 or HEBR 263 or Placement Test. Mutually Exclusive: Cannot register for HEBR 264 if student has credit for HEBR 202.

HEBR 267 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Hindi (HIND)
HIND 106 - ACCELERATED FIRST YEAR HINDI
Short Title: ACCEL FIRST YEAR HINDI
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first year Hindi for students who have some knowledge of spoken Hindi. This is an intensive course covering the equivalents of HIND 141 and 142. Students will be prepared for HIND 263 upon completion of the course. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for HIND 106 if student has credit for HIND 141/HIND 142.

HIND 141 - FIRST YEAR HINDI I
Short Title: FIRST YEAR HINDI I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Hindi (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for HIND 141 if student has credit for HIND 106/HIND 161.

HIND 142 - FIRST YEAR HINDI II
Short Title: FIRST YEAR HINDI II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 141
Description: Continuation of HIND 141. Development of interactional competence in Hindi (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for HIND 142 if student has credit for HIND 106/HIND 262.
HIND 206 - ACCELERATED SECOND YEAR HINDI
Short Title: ACCEL 2ND YEAR HINDI
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 106
Description: Alternate second year Hindi course for students who have completed first year Hindi or have a comparable level in Hindi. This is an intensive course covering the equivalents of HIND 263 & 264. Upon completion, students will be prepared for the third year Hindi course. Mutually Exclusive: Cannot register for HIND 206 if student has credit for HIND 263/HIND 264.

HIND 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HIND 263 - SECOND YEAR HINDI I
Short Title: SECOND YEAR HINDI I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 142
Description: Continuation of HIND 142. Development of interactional competence in Hindi (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for HIND 263 if student has credit for HIND 206.

HIND 264 - SECOND YEAR HINDI II
Short Title: SECOND YEAR HINDI II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): HIND 263
Description: Continuation of HIND 263. Development of interactional competence in Hindi (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Hindi. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for HIND 264 if student has credit for HIND 206.

HIND 301 - THIRD YEAR HINDI I
Short Title: THIRD YEAR HINDI I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HIND 264
Description: Continuation of HIND 264. Emphasis on developing reading and writing ability as more authentic materials and soci-cultural topics are introduced.

HIND 302 - THIRD YEAR HINDI II
Short Title: THIRD YEAR HINDI II
Department: Modrn & Classcl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HIND 301
Description: Continuation of HIND 301. Emphasis on developing reading and writing ability as more authentic materials and soci-cultural topics are introduced.

HIND 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
History (HIST)

HIST 101 - MODERN EUROPE, 1500-1789
Short Title: MODERN EUROPE, 1500-1789
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

HIST 102 - MODERN EUROPE, 1789-PRESENT
Short Title: MODERN EUROPE, 1789-PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course provides an introduction to European history from 1500 to the French Revolution, tracing Europe's rise to world dominance via capitalism, the nation-state, science and technology, and a secular world view. It asks how conditions in the rest of the world allowed European imperialism and colonialism to triumph. Mutually Exclusive: Cannot register for HIST 101 if student has credit for HIST 325.

HIST 103 - AP/OTH CREDIT IN EUROPEAN HISTORY I
Short Title: AP/OTH CREDIT IN EUROPEAN HISTORY I
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course provides an introduction to European history between the French Revolution and the collapse of the Soviet system in 1989-1990. The course examines industrialization, the development of the nation-state, World War One, fascism and communism, World War Two, European integration, decolonization and the Velvet Revolutions of 1989. Mutually Exclusive: Cannot register for HIST 102 if student has credit for HIST 326.

HIST 104 - AP/OTH CREDIT IN UNITED STATES HISTORY I
Short Title: AP/OTH CREDIT IN UNITED STATES HISTORY I
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

HIST 105 - AP/OTH CREDIT U.S. HISTORY
Short Title: AP/OTH CREDIT U.S. HISTORY
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

HIST 106 - AP/OTH CREDIT IN WORLD HISTORY
Short Title: AP/OTH CREDIT IN WORLD HISTORY
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

HIST 107 - AP/OTH CREDIT IN WORLD HISTORY
Short Title: AP/OTH CREDIT IN WORLD HISTORY
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

HIST 108 - WORLD HISTORY SINCE 1492
Short Title: WORLD HISTORY SINCE 1492
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Class will explore the last 500 years of world history. The focus will be four long-term processes that have shaped the world today: struggles between Europeans and colonized peoples; forms of producing and exchanging goods; formation and spread of the modern state; and the development of 'bourgeois' ways of living.

HIST 109 - THE HERO AND HIS COMPANION FROM GILGAMESH TO SHERLOCK HOLMES (AND BEYOND)
Short Title: THE HERO AND HIS COMPANION FROM GILGAMESH TO SHERLOCK HOLMES (AND BEYOND)
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How does presentation of heroic action illustrate the basic values of society? Historical sources including ancient texts, modern mystery stories, and two "western" movies, show the development of a style of community service linking heroism with alienation. The extent to which women participate will be traced.
HIST 111 - RED, WHITE AND BLACK IN EARLY AMERICA CREATING RACIAL IDENTITIES IN THE ERA OF THE AMERICAN REVOLUTION
Short Title: RED, WHITE, & BLACK EARLY AMER
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class analyzes the way peoples of African, American and European descent in North America came to think of themselves as members of different racial groups from about 1750 to 1820. The class will include a mixture of lectures and discussion.

HIST 112 - THE ARAB-ISRAELI CONFLICT
Short Title: ARAB-ISRAELI CONFLICT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores the history and politics of what is known as the Arab-Israeli conflict as it has developed from WWI to the present. Themes covered are nationalism, colonialism, and orientalism, as they relate to the question of Palestine and the U.S. hegemony in the region.

HIST 116 - AP/OTH CREDIT AFRICA/MIDDLE EAST HISTORY
Short Title: AP/OTH AFRICA/MIDDLE EAST HIST
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams (or International Baccalaureate exams/diploma). This credit counts toward the total credit hours required for graduation.

HIST 117 - EARLY AMERICA
Short Title: EARLY AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of North America from 1500 to the conclusion of the Mexican War.

HIST 118 - THE UNITED STATES, 1848 TO THE PRESENT
Short Title: UNITED STATES 1848-PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A continuation of HIST 117 (though 117 is not a prerequisite) surveying the social, political, cultural, and economic history of the United States from the end of the Mexican War to the present.

HIST 119 - AP/OTH CREDIT ASIA/OCEANIA HISTORY
Short Title: AP/OTH ASIA/OCEANIA HISTORY
Department: History
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams (or International Baccalaureate exams/diploma). This credit counts toward the total credit hours required for graduation.

HIST 120 - MEDIEVAL CIVILIZATIONS
Short Title: MEDIEVAL CIVILIZATIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Focusing on the period between 300-1500 CE, the course will survey political institutions, society, and culture in medieval European, Byzantine, and Islamic civilizations. Topics include Christianization of Europe, the rise of Islam, the Crusades, scholastic theology, persecution of heretics, bubonic plague, and the rise of centralized monarchies. Cross-list: MDEM 120.

HIST 176 - MEXICO: AN INTRODUCTION
Short Title: MEXICO: AN INTRODUCTION
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams (or International Baccalaureate exams/diploma). This credit counts toward the total credit hours required for graduation.

HIST 177 - MEXICO: AN INTRODUCTION
Short Title: MEXICO: AN INTRODUCTION
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Class will explore the last 600 years of Mexican history. The focus will be on four long-term processes that have shaped Mexico today: pre-Columbian civilizations, the arrival of Spaniards and colonization; the post 1810 independence national period, and the Post Revolutionary period.
HIST 186 - HISTORICAL SURVEY OF JEWISH CIVILIZATION FROM ITS ORIGINS TO THE PRESENT
Short Title: HISTORICAL SURVEY JEWISH CIV.
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Jewish civilization spans over 3,000 years and virtually the entire planet. Throughout their history as a minority amid majority cultures, Jews have adapted enough to preserve their heritage but not so much that they disappear. This course studies Jewish religion, ethnicity, politics and culture and impact on world history. Counts towards Jewish Studies Minor core requirement.

HIST 188 - THE ATLANTIC WORLD: ORIGINS TO THE AGE OF REVOLUTION
Short Title: THE ATLANTIC WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of social, political, economic, and intellectual ligatures that bound the particular histories of Africa, Europe, and the Americas one to the other, until by the late 18th century the Atlantic basin constituted a world unto itself. Mutually Exclusive: Cannot register for HIST 188 if student has credit for HIST 388.

HIST 190 - OCEANS IN WORLD HISTORY
Short Title: OCEANS IN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course presents maritime history through the social construction of the sea. It analyses the historical significance of islands and archipelagos. Also explores themes including technology, mapping, disease, communication and law. Maritime law includes an interrogation of piracy, not only historically, but in the present (and future).

HIST 200 - ANCIENT EMPIRES: ORIGINS OF WESTERN CIVILIZATIONS
Short Title: ANCIENT EMPIRES
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course explores development of imperial systems from the Bronze Age to Roman Empire with attention to subject peoples’ participation in multi-ethnic states. Aspects of art, law, economics, religion, and literature of the Hittites, Assyrians, Hebrews, Persians, Greeks, and Romans examined with consideration given to strengths and weaknesses of contributions to the modern world.

HIST 201 - JUDAISM OF JESUS AND HILLEL
Short Title: JUDAISM OF JESUS AND HILLEL
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history and literature of Judaism during the Second Temple period, which produced such religious leaders as Jesus and Hillel. Topics include: Jewish sectarianism, scribes and the growth of Scripture, temple worship and the first synagogues, diaspora religion, Jesus and the birth of Christianity, and the origin of Rabbinic Judaism. Counts for the Minor in Jewish Studies. Cross-list: RELI 203.

HIST 202 - IMMIGRATION IN 20TH AND 21ST CENTURY UNITED STATES SOCIETY
Short Title: IMMIGRATION IN THE USA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines how immigration policies and attitudes have developed during the 20th and 21st centuries. It provides a historical context that allows one to better understand the root of contemporary immigration discourse. Additionally, it considers how immigrants shape and have been shaped by American society.
HIST 204 - THE IDEA OF AFRICA
Short Title: THE IDEA OF AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Traces Western perceptions of Africa as a geographic, political and racial entity, from ancient times to the present day through a variety of media, including ancient texts, travelogues, maps, slave narratives, novels, films, museum exhibits in Houston, and journalists' reports. Mutually Exclusive: Cannot register for HIST 204 if student has credit for FSEM 155/HIST 155.

HIST 205 - MEDIEVAL MEDITERRANEAN WORLD
Short Title: MEDIEVAL MEDITERRANEAN WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course examines the political, institutional, military, and cultural development of the societies that successively dominated the "Middle Sea" from AD 500-1500 in Europe and the Islamic World. It highlights the Mediterranean legacy of commercial, cultural, and religious exchange and coexistence, as well as its history of confrontation and warfare. Cross-list: MDEM 205.

HIST 207 - SPATIAL HISTORY AND HISTORICAL GIS
Short Title: SPATIAL HISTORY HISTORICAL GIS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to the emerging methodologies that combine geographic information systems (GIS) with historical thinking. Students will study and evaluate the benefits and limitations of key works in historical GIS, become familiar with basic principles of cartographic design, and learn technical skills to create their own HGIS project.

HIST 208 - RACE AND MEDICINE IN AMERICAN HISTORY
Short Title: RACE AND MEDICINE IN AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores how medical theories have supported racial inequalities in American history from the beginning of European settlement until today. It traces the emergence of the concept of race, its effect on the development of modern medicine, and medicine's continuing reliance on race as a category of analysis.

HIST 209 - AMERICAN URBAN HISTORY, 1609 TO TODAY
Short Title: AMERICAN URBAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course surveys American urban history from colonial times to the present day. Students will study how American cities formed and altered the shape of the nation. Topic areas include urban politics, city planning the built environment, and racial and ethnic diversity.

HIST 210 - REMEMBERING PAINFUL PASTS: THE PRACTICE OF MEMORY AND PUBLIC HISTORY
Short Title: REMEMBERING PAINFUL PASTS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to memory studies and the practice of public history. Particular attention is paid to the role of power and ideology in shaping both dominant and minority memories and commemorations of slavery, the Civil War, labor exploitation, and the Civil Rights Movement. Students will learn to construct digital exhibits that collect, interpret and present historical memory.
HIST 211 - MEDIEVAL VIOLENCE
Short Title: MEDIEVAL VIOLENCE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Discussion course looks at private and large-scale warfare during the European Middle Ages. It considers how violence was legitimized and carried out, and examines attitudes towards violence and its effects on society. Topics include theoretical approaches to violence, crusading, chivalry, Truce of God, rituals of violence, military technologies, and cinematic portrayals of medieval warfare. Cross-list: MDEM 210.

HIST 212 - CONTEMPORARY CHINA
Short Title: CONTEMPORARY CHINA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of 40 year period (post socialism) 1976-2016 known as "China's Rise." Focus on social, political, intellectual, economic change and China's globalization.

HIST 213 - THE MIDDLE EAST FROM THE AGE OF MUHAMMAD TO THE ARAB SPRING
Short Title: AGE OF MUHAMMAD TO ARAB SPRING
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Lecture-discussion. Course surveys history of the Middle East from the Age of Muhammad to the Arab spring. No background needed. Includes political institutions; impact of migrations; development of cultural traditions; communal structures; economics, society, and environment; colonialisms; emergence of nation-states; revolutions; changing religious discourses; contemporary debates.

HIST 214 - BLACKS IN THE AMERICAS
Short Title: BLACKS IN THE AMERICAS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Comparative survey of black people in the Americas from the late 15th century to the present examines the Atlantic slave trade, the movement toward slave emancipation in various countries, and 19th century black self-help efforts. Course also concentrates on economic and social conditions for blacks in the 20th and 21st centuries. Equivalency: HIST 315. Mutually Exclusive: Cannot register for HIST 215 if student has credit for HIST 315.

HIST 215 - BLACKS IN THE AMERICAS
Short Title: BLACKS IN THE AMERICAS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Comparative survey of black people in the Americas from the late 15th century to the present examines the Atlantic slave trade, the movement toward slave emancipation in various countries, and 19th century black self-help efforts. Course also concentrates on economic and social conditions for blacks in the 20th and 21st centuries. Equivalency: HIST 315. Mutually Exclusive: Cannot register for HIST 215 if student has credit for HIST 315.

HIST 216 - BLACK LIFE IN THE NINETEENTH-CENTURY UNITED STATES
Short Title: BLACK LIFE IN THE 19TH C. U.S.
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course traces the lives of people of African descent in America before and after the Civil War, an event which transformed enslaved people from property to citizens and forced the country to determine the place of these new citizens in American society.

HIST 217 - HISTORY: THE WORKSHOP
Short Title: HISTORY: THE WORKSHOP
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course introduces students to the craft of history; formulating a question for inquiry, finding and analyzing primary sources, critiquing secondary source, and constructing an argument in support of a thesis. Recommended for History Majors and open to all majors.

HIST 218 - HISTORY THROUGH FILM IN EAST AND NORTHEAST ASIA
Short Title: EAST/NORTHEAST ASIA FILM HIST
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
HIST 219 - GENGHIS KHAN AND THE EMPIRE OF THE MONGOLS
Short Title: MONGOL EMPIRE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The 13th century semi-nomadic tribes of Central Asia, led by Genghis (Chingis) Khan, created the largest contiguous land empire in World history, reaching from Korea to Hungary. This class examines the conditions of their rise and military success, the global impact of their conquests, and their political and cultural legacy.

HIST 220 - MEXICO: 1910 TO PRESENT
Short Title: MEXICO: 1910 TO PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey course from the outbreak of the 1910 Revolution to the Present>. The class will focus on the impact of the Revolution in the Building of Mexican Society, culture, politics, economic and relationship to the world, with a specific focus on Latin America and the U.S.

HIST 221 - UNITED STATES AND LATIN AMERICAN RELATIONS
Short Title: US - LATIN AMERICAN RELATIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the history of U.S.-Latin American relations since the early 1800s. It is organized chronologically but addresses political, economic, social, and cultural themes. The class considers both reasons for specific outcomes of U.S. - Latin American relations and their implications for the peoples most affected by them.

HIST 222 - HISTORY OF EARLY AFRICA
Short Title: HISTORY OF EARLY AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduces students to the history of Africa from the rise of humankind to the period of the transatlantic slave trade.

HIST 223 - HISTORY OF MODERN AFRICA
Short Title: HISTORY OF MODERN AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduces students to the history of Africa from the abolition of the transatlantic slave trade to the Arab Spring.

HIST 225 - EUROPE SINCE 1945
Short Title: EUROPE SINCE 1945
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the history of Europe from the end of World War II to 1989. The course focuses on the impact of the war on European societies as well as on decolonization, European unification, economic reconstruction, immigration, and the rise and fall of communism in Eastern Europe.

HIST 226 - COLONIAL SPANISH AMERICA
Short Title: COLONIAL SPANISH AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of Latin American History, from 1492 to the 1820's, including the European background and the major New World indigenous civilizations. The course will examine the pre-Columbian societies, the impact of conquest and colonization, colonial political economy, slave systems and indigenous peasants and the collapse of Iberian colonialism.

HIST 227 - LATIN AMERICAN CULTURAL TRADITIONS
Short Title: LATIN AM CULTURAL TRADITIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A synthetic overview of the emergence of Latin American culture and society beginning with the 16th century encounters and continuing through independence in the 19th century. Discovery, conquest, slavery, family life, religious beliefs, and urban and rural communities are explored through chronicles, visual images, music, and maps.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Distribution Group</th>
<th>Course Level</th>
<th>Restrictions</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>HIST 228</td>
<td>MODERN LATIN AMERICA</td>
<td>MODERN LATIN AMERICA</td>
<td>History</td>
<td>Standard</td>
<td>Lecture</td>
<td>3</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Course introduces the student to the history of contemporary Latin America. For the most part political events will provide the periodic framework of the course, but we shall also consider major economic, social and cultural developments to understand the complex social formations that comprise contemporary Latin American societies. Graduate/Undergraduate Equivalency: HIST 508.</td>
</tr>
<tr>
<td>HIST 229</td>
<td>HISTORY OF SOUTH AFRICA</td>
<td>HISTORY OF SOUTH AFRICA</td>
<td>History</td>
<td>Standard</td>
<td>Lecture</td>
<td>3</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Survey begins with early human settlement, African-European encounters, and the creation of a slave-based colonial society. Explores African state formation and British colonial expansion, focusing on frontier wars. The 19C mineral revolution stimulated industrial development. Examines the origins of apartheid, resistance, and liberation and the challenges of post-apartheid nation-building.</td>
</tr>
<tr>
<td>HIST 230</td>
<td>SPORTS, EMPIRE AND NATION: THE HISTORY OF THE MODERN WORLD THROUGH SPORTS</td>
<td>SPORTS, EMPIRE AND NATION</td>
<td>History</td>
<td>Standard</td>
<td>Seminar</td>
<td>3</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course examines the history of the world since the 19th century through the lens of sports and athletics. It investigates who/why sport emerged as social activity and became entrenched in the modern world and what this historical development can tell us about political, social, economic and cultural change. Effective May 15, 2019, this course does not carry D1 credit.</td>
</tr>
<tr>
<td>HIST 233</td>
<td>HISTORY OF MODERN SCIENCE</td>
<td>HISTORY OF MODERN SCIENCE</td>
<td>History</td>
<td>Standard</td>
<td>Lecture</td>
<td>3</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Main issues in the history of modern science from the Ancient Greeks to the present. Topics include: the Scientific Revolution, Newtonianism in the 18th century, Darwinism and evolution, the relativity and quantum revolutions in physics in the early 20th century, and recent developments in the life sciences like molecular biology.</td>
</tr>
<tr>
<td>HIST 236</td>
<td>STATE, SOCIETY, AND THE ECONOMY IN THE MODERN MIDDLE EAST</td>
<td>MIDDLE EAST: SOCIETY/STATE/ECON</td>
<td>History</td>
<td>Standard</td>
<td>Lecture</td>
<td>3</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Arab societies are often studied through the lens of cultural, religious, tribal, or kinship relations, with little attention to the role of the state and the economy. This course will examine the intersection of politics, social movements, and economics in the building of nation-states from the collapse of the Ottoman Empire and up to the Arab uprisings.</td>
</tr>
<tr>
<td>HIST 238</td>
<td>SPECIAL TOPICS</td>
<td>SPECIAL TOPICS</td>
<td>History</td>
<td>Standard</td>
<td>Seminar/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study</td>
<td>1-4</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.</td>
</tr>
<tr>
<td>HIST 239</td>
<td>NATIVE AMERICAN HISTORY: FROM EUROPEAN CONTACT TO THE ERA OF REMOVAL</td>
<td>NATIVE AMERICAN HISTORY</td>
<td>History</td>
<td>Standard</td>
<td>Lecture</td>
<td>3</td>
<td>I</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>This course will cover the history of Native Americans from the time of European arrival in the Americas until the era of removal.</td>
</tr>
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</table>
HIST 240 - ANCIENT CHINESE THOUGHT
Short Title: ANCIENT CHINESE THOUGHT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Golden Age of Chinese thought established positions on the human person, human ethical practices, social hierarchy, relations of divinity and sociability that have formed the intellectual basis for regular reinvention for millennia. This course examines the "100 Schools of Thought," origins and canonization.

HIST 241 - U.S. WOMEN'S HISTORY I: COLONIAL BEGINNINGS TO THE CIVIL WAR
Short Title: U.S. WOMEN'S HISTORY, I
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of American women's history examines the lives of elite, working, black, Indian, and white women, and traces changes in women's legal, political, and economic status from the mid-17th century through the Civil War. Topics include slavery, suffrage, sexuality, and feminism. Cross-list: SWGS 234.

HIST 242 - U.S. WOMEN'S HISTORY II: CIVIL WAR TO THE PRESENT
Short Title: U.S. WOMEN'S HISTORY, II
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of American women's history examines the lives of black, Asian American, Chicana, native American, and white women, and traces changes in women's legal, political, and economic status from the Civil War to the present. Topics include suffrage, anti-lynching, welfare, birth control, and the modern civil rights and feminist movements. Cross-list: SWGS 235.

HIST 244 - MUSEUMS IN WORLD HISTORY
Short Title: MUSEUMS IN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examining museums in global history gives critical insight into their present role in society. Museums were sites of identity at local, regional, national, imperial and global levels. The collection and display of objects allowed communities, states, and empires to use cultural heritage, history, and science to interpret the past.

HIST 246 - AMERICAN CIVIL WAR ERA
Short Title: AMERICAN CIVIL WAR ERA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the Civil War era from 1848 to 1876. Topics include the causes of the war; the mobilization of Northern and Southern armies; race, slavery and emancipation; Reconstruction; the Civil War in contemporary popular culture and memory; and the global dimensions of the war and its aftermath.

HIST 251 - CONTINUITIES AND CHANGES IN BRAZILIAN HISTORY
Short Title: BRAZIL: CONTINUITY & CHANGE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of themes essential to understanding modern Brazil, such as the origins of a multi-racial society, the transition from monoculture to industry; authoritarian and democratic trends, the emergence of a uniquely Brazilian culture, and the conflicts - environmental, political, and economic - over the development of the Amazon. Cross-list: LASR 251.

HIST 256 - EUROPEAN POLITICS AND SOCIETY, 1890-1945
Short Title: EUR POLITICS&SOCIETY,1890-1945
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of European history in the age of total war. Includes imperialism and the development of the welfare state, institutional responses to the demands of total warfare, the crisis of liberal constitutionalism, the Russian Revolution, and the rise of fascism.
<table>
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<tr>
<th>Course Code</th>
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<th>Department</th>
<th>Level</th>
<th>Restrictions</th>
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</thead>
<tbody>
<tr>
<td>HIST 259</td>
<td>US IN THE 1960s AND 70s</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
<tr>
<td>HIST 275</td>
<td>MODERN MIDDLE EAST</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
<tr>
<td>HIST 266</td>
<td>SLAVERY AND THE FOUNDING FATHERS</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
<tr>
<td>HIST 268</td>
<td>MODERN SLAVERY AND HUMAN TRAFFICKING</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
<tr>
<td>HIST 271</td>
<td>HISTORY OF SOUTH ASIA</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
<tr>
<td>HIST 278</td>
<td>MODERN ARAB HISTORY</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
<tr>
<td>HIST 281</td>
<td>GOLDEN AGE OF ISLAM</td>
<td>History</td>
<td>Undergraduate</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
</tr>
</tbody>
</table>

Description:
- Introduction to the history of South Asia, beginning with the development of world religious systems such as Hinduism and Buddhism, indigenous state-building, the rise of Islamic power, emergent European colonialism, and subsequent resistance movements which resulted in South Asian independence in mid-20th century.
HIST 291 - 20TH CENTURY AMERICAN PRESIDENTS
Short Title: 20TH C. AMERICAN PRESIDENTS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course will study the American presidency and the evolving use of executive power from Theodore Roosevelt to Bill Clinton. It will analyze how presidents develop foreign and domestic policy, relate to congress and their cabinets, and lead the nation in wartime.

HIST 295 - THE AMERICAN SOUTH
Short Title: THE AMERICAN SOUTH
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of the American South from development of Native American cultures to present. Topics include slavery and plantation economy; emergence of southern distinctiveness; Civil War and Reconstruction; political reform and the civil rights movement; rise of the Sunbelt, southern religion, music, and literature; and the future of southern regionalism. Equivalency: HIST 395. Mutually Exclusive: Cannot register for HIST 295 if student has credit for HIST 395.

HIST 300 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study under the supervision of a history faculty member. Hours are variable. Instructor Permission Required. Repeatable for Credit.

HIST 301 - FIGHTING THE ATLANTIC SLAVE TRADE
Short Title: FIGHTING THE SLAVE TRADE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides students with a deeper understanding of the history of African slavery in the Americas by allowing them to step in the shoes of late-eighteenth century abolitionists and fight the Atlantic slave trade.

HIST 303 - OTTOMANS, SAFAVIDS, AND MUGHALS: ISLAMIC EMPIRES OF THE EARLY MODERN WORLD
Short Title: ISLAMIC EMPIRES
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class explores the cultural, religious, economic and political values and institutions of the premodern empires of the Ottomans, Safavids, and Mughals. Sharing a common Central Asian Turco-Mongol Muslim inheritance, each developed distinctive methods for rule over diverse subject populations, while retaining their common aesthetic, political and social values.

HIST 305 - READING HISTORIES OF WORK
Short Title: READING HISTORIES OF WORK
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Work in the modern world is about earning a living, identity, creativity, morality, and much more. This course emphasizes discussion and writing about a common set of assigned readings. We read Adam Smith, Karl Marx, and other classic texts on work as well as important recent monographs on the experiences and meanings of work. The authors and settings of our readings are mostly European, but also extend to the Americas and other colonial and postcolonial societies since 1492. This class is useful for students who are pre-law, pre-HUM grad, or interested in economics or social theory. HIST 445 Writing Histories of Work is complementary to this course, but one does not require the other. While this course emphasizes longer, complex assigned texts and analysis, HIST 445 has fewer common readings and emphasizes individual research projects on student-chosen topics. The assignments for these two courses do not overlap.

HIST 307 - IMPERIAL ROME FROM CAESAR TO DIOCLETIAN
Short Title: IMPERIAL ROME
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of how Rome acquired, maintained, and understood her empire. Includes the development of a political, social, and ideological system reaching from Scotland to Mesopotamia during the three centuries of Rome’s greatest power.
HIST 308 - THE WORLD OF LATE ANTIQUITY
Short Title: THE WORLD OF LATE ANTIQUITY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the social, religious, and political history of the Roman world from Diocletian to the rise of Islam, with emphasis on the breaking of the unity of the Mediterranean world and the emergence of early medieval societies in the east and west. Cross-list: MDEM 308.

HIST 309 - CHINESE INTELLECTUAL HISTORY
Short Title: CHINESE INTELLECTUAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Framework and categories of modern Chinese intellectual history and its major traditions of thought in early modern and modern period.

HIST 310 - THE BODY IN GLOBAL HISTORIES OF MEDICINE
Short Title: BODY IN GLOBAL HIST OF MED
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class surveys the body, health, and healing in ancient, medieval, early modern, and modern periods. It compares regional and transnational practices to learn about how physicians, laypeople, women, and men understood and recovered from illnesses. This course moves chronoluminously and thematically to cover different bodily processes.

HIST 311 - SEX, GENDER, AND FAMILY IN EUROPE, 1300-1700
Short Title: SEX & GEN IN EUROPE, 1300-1700
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What did it mean to be child, woman, or man in Europe between 1300 and 1700? This course explores the experiences of nuns, soldiers, courtesans, sodomites, apprentices, witches, and slaves. It examines the construction of sexual identity in a period of dramatic change and increasing entanglement with non-Christian cultures.

HIST 312 - ENVIRONMENT, MEDICINE AND PUBLIC HEALTH IN LATIN AMERICA
Short Title: ENVIRONMENT & HEALTH IN LAT AM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The environment, medicine, diseases, public health, demography, and nutrition in Latin America in historical perspective. It delves on classic works on the history of human societies. It will also use historical studies from particular disciplines such as biology, demography, medicine, nutrition, anthropology, and economic concentrating around disease, medicine and public health.

HIST 314 - HISTORY OF ARTIFICIAL INTELLIGENCE
Short Title: HISTORY OF AI
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers the history of artificial intelligence from three perspectives: its technical development, the philosophy behind it, and its impact on society. Mutually Exclusive: Cannot register for HIST 314 if student has credit for HIST 214.

HIST 315 - BLACKS IN THE AMERICAS
Short Title: BLACKS IN THE AMERICAS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Concentrating around disease, medicine and public health.

HIST 316 - JEWS AND CHRISTIANS IN THE MEDIEVAL ISLAMIC WORLD
Short Title: JEWS CHRISTIANS MEDIEVAL ISLAM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Lecture discussion. Course focuses on Jewish and Christian communities in the medieval Islamic world. Topics include legal status of non-Muslims, social life, economic life, distinctive developments in religious thought in Islamic context, dynamics among communities, shared culture through the medium of Arabic, distinctive features in comparison with medieval Europe.
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<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>HIST 318</td>
<td>DIGITAL HISTORY METHODS</td>
<td>History</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Explores the use of computers and new media to conduct historical research and communicate its results. While working on their own digital projects, students will consider questions like: How should history be written in the age of Google? How will historians deal with primary sources like tweets and blogs?</td>
</tr>
<tr>
<td>HIST 320</td>
<td>IMPERIAL GARDENS: A CULTURAL COMPARISON</td>
<td>History</td>
<td>Seminar</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Cross-list: ARCH 329, HART 329.</td>
</tr>
<tr>
<td>HIST 321</td>
<td>US ENVIRONMENTAL HISTORY</td>
<td>History</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Examine the design and development of gardens (primarily those of the Islamic world - Al Andalus, the Middle East, Persia, Central and South Asia) and their use as political and religious metaphors, havens for meditation, stages of imperial performance and ritual, sites of social interaction, and affirmations of power and legitimacy.</td>
</tr>
<tr>
<td>HIST 324</td>
<td>CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN</td>
<td>History</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Explore the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain's three religious communities - Christians, Jews, and Muslims. Cross-list: MDEM 324.</td>
</tr>
<tr>
<td>HIST 327</td>
<td>MEDIEVAL BORDERLANDS</td>
<td>History</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Cross-list: MDEM 327.</td>
</tr>
<tr>
<td>HIST 328</td>
<td>POVERTY AND SOCIAL JUSTICE IN LATIN AMERICA</td>
<td>History</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Investigate the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain's three religious communities - Christians, Jews, and Muslims. Cross-list: MDEM 327.</td>
</tr>
<tr>
<td>HIST 329</td>
<td>STREETS AND URBAN LIFE: PARIS TO ISTANBUL</td>
<td>History</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Explore the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain's three religious communities - Christians, Jews, and Muslims. Cross-list: MDEM 327.</td>
</tr>
</tbody>
</table>
This survey of American legal history begins with the Emancipation Proclamation and ends near the present. Legal themes covered are related to major political, economic, and social developments that have shaped the U.S. since 1863: the civil war’s outcome and abolition of slavery; the organization of an industrial economy; U.S. ascendency in the world; and the social movements of the late nineteenth and twentieth centuries.

This course surveys the Cuban Revolution in its historical context. It will focus on the period since 1959, but also place revolutionary events in their broader time and regional contexts, and evaluate their larger significance, through class discussions, lectures, and the examination of documents and other sources.

This course examines black society, culture, and politics from the late 15th century through the late 18th century (focusing geographically on the Caribbean, and on black life within what is now Mexico and the United States).

Explores feminism as political thought and social movement, and scholarly readings. Students will read, write and think about the history of women's lives. Cross-list: SWGS 338.

Through an analysis of sea charts, maps, paintings, and city and town plans this course traces the changes in Latin American peoples, landscapes, and settlements from the time of contact (1492) to independence in the early 19th century. Attention will be given to European, Indigenous, and emerging "Latin American" perspectives.

This course examines the experiences of women in the United States during the nineteenth century through first-hand accounts and scholarly readings. Students will ready a variety of materials to explore the social and legal status of women and consider the impact of race on women's lives. Cross-list: SWGS 338.

Students will to read, write and think about the history of people who left few written records by focusing on the history of enslaved people in the 18th and 19th century Americas. They will read primary sources, examine different historians' competing interpretations of specific topics, and write a paper using primary sources to understand the lives of enslaved people.

Explores feminism as political thought and social movement in various times and places. Readings will include classic as well as non-canonical texts. We will consider the historical contexts of feminist action, and examine controversies over and within feminisms. Cross-list: SWGS 345.
HIST 342 - MODERN CHINA
Short Title: MODERN CHINA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of Chinese history from c. 1800 to the present, focusing on the related themes of imperialism, nationalism, modernization and revolution.

HIST 343 - HISTORY OF AFRICA IN THE MUSEUM
Short Title: AFRICA IN THE MUSEUM
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides students with an opportunity to examine the history of Africa in modern museums through readings, discussions, and analyses of exhibits.

HIST 344 - EUROPEAN REFORMATIONS
Short Title: EUROPEAN REFORMATIONS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the 16th century Europe's house divided. This juncture in the history of Christianity had extraordinary consequences for the modern world. The course traces the impact of Protestant and Catholic reform movements on politics, society and culture and on Europe's engagements with the rest of the world.

HIST 345 - MODERN CHINA
Short Title: MODERN CHINA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of Chinese history from c. 1800 to the present, focusing on the related themes of imperialism, nationalism, modernization and revolution.

HIST 346 - COMPUTER TECHNOLOGY AND SOCIETY
Short Title: COMPUTERS AND SOCIETY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course traces the development of computer technology from its theoretical origins in the nineteenth century; to the growth of digital technology; the emergence of personal computing; up to computers of today, in order to understand the place of computer technology in people's lives and how they shape each other.

HIST 347 - BLACK AMERICA: FROM NADIR THROUGH THE GREAT DEPRESSION
Short Title: BLACK AMERICA: THE NADIR
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the changing nature of black society, culture, and politics in the United States from the census of 1890 through the attack on Pearl Harbor.
HIST 353 - HISTORY OF SENSATION
Short Title: HISTORY OF SENSATION
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class offers a deep history of sensation. It opens a window into how scientists, philosophers, medical practitioners, and neurophysiologists developed theories of touching, tasting, smelling, hearing, and seeing. Students will learn about the history of using animal models to inform human sensation, as well as the medical consequences of sensations that failed to fit neat categories of sensing.

HIST 355 - FROM DEMOCRACY TO DICTATORSHIP: GERMAN HISTORY, 1890-1945
Short Title: GERMAN HISTORY, 1890-1945
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From 1890-1945, Germans experienced dramatic changes in their political environment. This lecture class will examine these changes, taking into account not only political history, but also attempts to come to terms with the challenges posed by organized capitalism, the rise and fall of socialism, the development of an interventionist state, cultural critique, and political culture, the Nazi social revolution, and the Holocaust. Taught in English. Cross-list: GERM 345.

HIST 356 - AFTER NAZISM: GERMAN HISTORY, 1945 - PRESENT
Short Title: GERMAN HISTORY, 1945 - PRESENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course examines German politics and societies under Allied administration, West and East Germany 1949-1989, and the Federal Republic since 1990. Topics include democracy, post-1945 responses to Nazism; political economies; challenges of the "new social movements;" and national identity in context of European unification and global migration.

HIST 357 - JEWS AND CHRISTIANS IN MEDIEVAL EUROPE
Short Title: JEWS & CHRISTIANS-MEDIEVAL EUR
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will focus on Jewish-Christian coexistence in medieval Europe. Will examine the Jews’ legal status in Christendom, their communal life, economic activities, intellectual achievements, while also focusing on the complex dynamics of Jewish-Christian interaction, and the shifting patterns of persecution and acceptance. Cross-list: MDEM 357.

HIST 358 - HUMANITARIANISM FROM THE 19TH CENTURY TO THE PRESENT
Short Title: HUMANITARIANISM FROM 19TH C.
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course surveys the history of humanitarian sentiment and practices in the West form the 19th Century to the present. It is conceived as a critical investigation of the humanitarian movement and practices in the West form the 19th Century to the present. It is conceived as a critical investigation of the humanitarian movement and examines various patterns of Western interventions on behalf of “suffering humanity.” Topics covered are evangelicalism, abolitionism, colonialism and war humanitarianism, as well as United Nations humanitarianism since 1945.

HIST 359 - THE UNITED STATES IN THE TWENTIETH CENTURY WORLD
Short Title: U.S. IN THE 20TH CENTURY WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the United States interactions with the wider world in the 20th century. Impact of international affairs on the evolution of U.S. Domestic institutions, changing ideas about the United States' role in the world as articulated and practiced by key public figures, private-sector activists, intellectuals, and citizens at large.
HIST 361 - HISTORY OF PREMODERN BRITAIN: TUDORS AND STUARTS, 1485 - 1707
Short Title: TUDORS AND STUARTS, 1485-1707
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Tudor and Stuart monarchs were some of the most intriguing characters to walk on the world's stage. This course will explore the foundational political and religious changes which occurred in their reigns, from the victory of Henry VII at Bosworth to the union of Great Britain in 1707.

HIST 365 - WORLD ECONOMIC HISTORY
Short Title: WORLD ECONOMIC HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (ECON 100 or ECON 201 or ECON 211) and (ECON 200 or ECON 301 or ECON 370) and (ECON 203 or ECON 303 or ECON 375)
Description: Study and analysis of world economy focusing on the economic expansion of Western countries between the 14th and 21st centuries. Emphasis on contextual changes in economy, geography, history, society, culture, religion and politics in determining economic leadership of certain economies, such as Italy, Portugal, Spain, the United Kingdom, Belgium, the Netherlands, France, Germany, Sweden, the United States and Japan. Cross-list: ECON 365. Mutually Exclusive: Cannot register for HIST 365 if student has credit for HIST 235/HUMA 235.

HIST 366 - RIO DE JANEIRO: A SOCIAL AND ARCHITECTURAL HISTORY
Short Title: RIO DE JANEIRO
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The development of Rio de Janeiro from a colonial capital to an Olympic host with emphasis on the peoples of the city and evolution of the urban panorama. Cross-list: ARCH 366.

HIST 370 - EUROPEAN INTELLECTUAL HISTORY: BACON TO HEGEL
Short Title: EUROPEAN INTELLECTUAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of major thinkers and intellectual movements from the scientific revolution to the French Revolution. Includes the use of primary and secondary sources to establish the main contours of philosophical, political, and cultural expression and to relate them to their historical context.

HIST 371 - HISTORY OF MODERN FRANCE
Short Title: HISTORY OF MODERN FRANCE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of transformations in French society, culture, and politics from the French Revolution to the end of the 20th century. Taught in English.

HIST 372 - IMMIGRATION AND THE STATE: 19TH & 20TH CENTURY
Short Title: IMMIGRATION AND THE STATE
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How did modern states organize and regulate immigration in the modern era? Lecture course explores the comparative history of labor migration and forced displacement from the point of view of state policies in the United States and Western Europe from 1800 to the present.

HIST 373 - SOCIAL AND POLITICAL THOUGHT IN 19TH CENTURY EUROPE
Short Title: 19TH C SOC/ POLITICAL THOUGHT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Social and political thinkers of the 19th century confronted revolutionary change in both politics and society: the demand for democracy as well as the challenges associated with industrial capitalism. Course combines lectures with discussion of original sources, including Smith, Mill, Marx, Proudhon, Wollstonecraft, and Weber.
HIST 374 - JEWISH HISTORY, 1500-1948
Short Title: JEWISH HISTORY, 1500-1948
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: History of the Jews' expulsion from Spain to the establishment of the state of Israel. Life in western and eastern Europe as well as in Islamic countries, seen from the perspective of settlement, assimilation, and the particularities of the Jewish historical experience.

HIST 375 - EUROPEAN ROMANTICISM, 1750-1850
Short Title: EUROPEAN ROMANTICISM 1750-1850
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Investigation of the emergence, triumph, and defeat of romanticism as a major cultural force in European history, with emphasis on national and epochal diversity within Romanticism in Britain, Germany, and France. Includes Rousseau, Goethe, Schiller, Schlegel, Schelling, Wordsworth, Coleridge, Byron, Stendhal, Hugo, and Baudelaire, as well as music and art.

HIST 376 - MODERN ARAB HISTORY
Short Title: MODERN ARAB HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey of the history and culture of the Arab world from Africa, the Middle East, South and Southeast Asia and Australia. Course introduces the region by examining societies and empires shaped by colonialism and nationalism, modern secular and Islamist politics and the "Arab Spring." Equivalency: HIST 278. Mutually Exclusive: Cannot register for HIST 376 if student has credit for HIST 278.

HIST 378 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook "The Modern Girl Around the World," this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: ASIA 328, SWGS 384.

HIST 379 - INDIAN OCEAN WORLD HISTORY
Short Title: INDIAN OCEAN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Indian Ocean World presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. Course introduces the region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Cross-list: ASIA 389.

HIST 380 - JOURNAL PUBLISHING WORKSHOP
Short Title: JOURNAL PUBLISHING WORKSHOP
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Participants will explore scholarly communication through hands-on work running the university's new undergraduate history journal, talking with editors, and discussing readings. Tasks include preparing to publish the journal's annual issues, refining the workflow, issuing a call for papers, and promoting the journal. Repeatable for Credit.

HIST 381 - GOD, TIME AND HISTORY
Short Title: GOD, TIME AND HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How is the passage of time given meaning, and what role - if any - is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world - the cultures in which modern ideas of history began. Cross-list: RELI 385.

HIST 382 - THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION
Short Title: U.S. IN THE WORLD: 1750-1900
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of the United States' interactions with the world from the revolutionary period to the Spanish-American war. Impact of international affairs on the evolution of U.S. domestic institutions, changing ideas about America's role in the world by key political figures, private-sector activists, intellectuals, and citizens at large.

HIST 383 - JEWISH HISTORY, 1500-1948
Short Title: JEWISH HISTORY, 1500-1948
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: History of the Jews' expulsion from Spain to the establishment of the state of Israel. Life in western and eastern Europe as well as in Islamic countries, seen from the perspective of settlement, assimilation, and the particularities of the Jewish historical experience.

HIST 384 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook "The Modern Girl Around the World," this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: ASIA 328, SWGS 384.

HIST 387 - THE UNITED STATES IN THE WORLD: AGE OF EMPIRE AND REVOLUTION
Short Title: U.S. IN THE WORLD: 1750-1900
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an overview of the United States' interactions with the world from the revolutionary period to the Spanish-American war. Impact of international affairs on the evolution of U.S. domestic institutions, changing ideas about America's role in the world by key political figures, private-sector activists, intellectuals, and citizens at large.

HIST 389 - INDIAN OCEAN WORLD HISTORY
Short Title: INDIAN OCEAN WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Indian Ocean World presents an enormously varied arena of cultural exchange and interaction spanning coastal regions of Africa, the Middle East, South and Southeast Asia and Australia. Course introduces the region by examining societies and empires shaped by voyages of exploration, religious pilgrimages, trading diasporas and forced migration. Cross-list: ASIA 389.

HIST 390 - JOURNAL PUBLISHING WORKSHOP
Short Title: JOURNAL PUBLISHING WORKSHOP
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Participants will explore scholarly communication through hands-on work running the university's new undergraduate history journal, talking with editors, and discussing readings. Tasks include preparing to publish the journal's annual issues, refining the workflow, issuing a call for papers, and promoting the journal. Repeatable for Credit.
HIST 392 - PRE-MODERN POLITICAL THOUGHT FROM CICERO TO LOCKE
Short Title: PRE-MOD POLITICAL THOUGHT
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examining major texts from Cicero's De Officiis (CCE 44) to Locke's Two Treatises (1689 CE) shows how significant political questions emerged from specific historical contexts and developed over time. Writing intensive. Students will have weekly meetings in groups of three at an agreed-upon time (inclusive of the regular class meeting time).

HIST 395 - THE AMERICAN SOUTH
Short Title: THE AMERICAN SOUTH
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An enriched version of HIST 295. Equivalency: HIST 295. Mutually Exclusive: Cannot register for HIST 395 if student has credit for HIST 295.

HIST 401 - THE AGE OF ATTILA THE HUN
Short Title: THE AGE OF ATTILA THE HUN
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the fifth century A.D. in Western Europe, when the Roman Empire ended and new kingdoms were established from Britain to North Africa. The "barbarian invasions" and Attila and the Huns will be considered. Research seminar format. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 402 - CHINESE WOMEN THROUGH TIME
Short Title: CHINESE WOMEN THROUGH TIME
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This discussion- and research- based course uses history, biography, law, fiction and film to examine the experiences and images of Chinese women from the late imperial time to the present. Topics include foot-binding, matriarchy, social constructs such as the Tiger Mom and the submissive Asian woman, crime, art etc. Students will write a final paper based on primary sources, and there will be one mid-term project involving a collaborative online experience. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 403 - ADVANCED RESEARCH SEMINAR
Short Title: ADVANCED RESEARCH SEMINAR
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Restricted to students admitted to History Honors Program. Seminar is designed to advance students from preliminary research to development of a formal prospectus for the honors thesis and a first draft of one section. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.) Instructor Permission Required.

HIST 404 - HISTORY HONORS THESIS
Short Title: HISTORY HONORS THESIS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HIST 403
Description: Restricted to students admitted to History Honors Program. Seminar is designed to advance students from prospectus to draft and final version of the honors thesis. Prerequisite: HIST 403 and approval of Director of Undergraduate Studies. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.) Instructor Permission Required.
HIST 405 - DEMOCRACY AND CAPITALISM: THE HISTORICAL DEBATE FROM MARX TO TRUMP  
Short Title: DEMOCRACY AND CAPITALISM  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Does mass democracy presume freedom of private property, free labor, and market relations as fundamental rights of the individual? Or does the market mean capital's domination over individuals, negating democracy? Does democratic "freedom" involve restraining capitalism? Or does capitalism involve limiting democracy through undemocratic institutions like rights and central banks?

HIST 406 - WORKERS' REVOLUTIONS, SUBALTERN SOLIDARITIES, AND THE MAKING OF EMANCIPATORY POLITICS  
Short Title: THE GLOBAL LEFT  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Seminar examines the origins of the political left and its global manifestations in the 20th century world. Focusing especially on the global south, the seminar explores the ways marginalized groups interpreted and applied leftist politics to build international solidarities against capitalism but also imperialism, fascism, and patriarchy.

HIST 407 - THE RISE AND FALL OF SLAVERY IN THE ATLANTIC WORLD, 1791-1888  
Short Title: SLAVERY IN THE ATLANTIC  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Examines the expansion and eradication of slavery in the Atlantic world during the 19th century. Special emphasis given to history of enslaved resistance, slaveholders, and abolitionists. Considers the influence of slavery on the cultural, economic, and political developments of Atlantic societies from the Haitian Revolution (1791) to Brazilian abolition (1888).

HIST 408 - THE JAPANESE EMPIRE  
Short Title: THE JAPANESE EMPIRE  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A history of Japanese imperialism starting in the mid-19th century and ending in the 1990s and the end of the "bubble economy." Economic, political, intellectual history.

HIST 409 - MUSLIMS, JEWS, CHRISTIANS, HERETICS, AND PAGANS IN THE AGE OF THE CRUSADES  
Short Title: CHRISTIAN HOLY WARS, 1095-1492  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course explores the crusading movement between the proclamation of the First Crusade in 1095 and the fall of Muslim Granada in 1492. It focuses on the wars against Muslims in the Middle East and Iberia, Baltic crusades against pagans, wars against Christian heretics in Europe, and political crusades.

HIST 410 - EMPIRE AND INTERNATIONAL LAW  
Short Title: EMPIRE AND INTERNATIONAL LAW  
Department: History  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course examines the crusading movement between the proclamation of the First Crusade in 1095 and the fall of Muslim Granada in 1492. It focuses on the wars against Muslims in the Middle East and Iberia, Baltic crusades against pagans, wars against Christian heretics in Europe, and political crusades.
HIST 414 - WORLD WAR ONE IN EUROPE: ORIGINS, SOCIAL EFFECTS, POLITICAL CONSEQUENCES
Short Title: WWI IN EUROPE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The First World War transformed Europe and the world. This seminar examines the debates over the origins of the war; the effects of the war itself on European societies and economies; and the political outcomes of the war, on international relations as well as on domestic politics.

HIST 416 - SEMINAR IN CONTEMPORARY AFRICAN AMERICAN HISTORY
Short Title: CONTEMP AF-AMER HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the exigencies of African American life from the Reagan era to the age of Obama. A reading- and writing-intensive seminar focusing on selected issues in black culture, politics, and community in the United States since the climax of the civil rights movement. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 418 - HOW HISTORIANS THINK
Short Title: HOW HISTORIANS THINK
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will familiarize students with how historians think about research, problem setting, problem solving, innovation, historical problems and histories outside the nation state. Students read one book or its equivalent each week and write a 20-page research paper on the relation of primary and secondary sources.

HIST 420 - MEXICAN HISTORY
Short Title: MEXICAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an advanced undergraduate seminar examining the history of Mexico from Independence to the Present. It addresses topics including the war of Independence (1810-1821), civil wars and foreign invasions in the nineteenth and twentieth centuries, as well as social, cultural religious, political and economic transformations. Graduate/Undergraduate Equivalency: HIST 500. Mutually Exclusive: Cannot register for HIST 420 if student has credit for HIST 500.

HIST 421 - RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH
Short Title: RACE, EDUCATION & SOCIETY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of urban life and education since the decision in Brown v. Board. Seminar focuses on the Brown cases, the development of the post war city in the context of American race relations, the course of court-ordered desegregation, and the impact of recent reforms on urban schools and neighborhoods. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 423 - AMERICAN RADICALS AND REFORMERS
Short Title: AMERICAN RADICALS & REFORMERS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on radicals and reformers in American history. Readings vary and will focus on a selected group of reformers, such as abolitionists, labor radicals, socialists, feminists, pacifists, Progressives, environmentalists, or health reformers. Students may conduct original research for a thesis-driven paper related to course themes. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)
HIST 424 - RAJ AND RESISTANCE
Short Title: RAJ AND RESISTANCE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the development and nature of the British-Indian relationship. From John Company to Company Raj (17th to 20th centuries), British mercantile and imperial ambitions in South Asia were met by indigenous movements of political independence and popular resistance across the subcontinent, in Bengal, Mysore, Punjab, Delhi and beyond. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 426 - DISABILITY AND U.S. LAW
Short Title: DISABILITY AND U.S. LAW
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines the historical intersection of people with disabilities and U.S. law. We will study the fight for anti-discrimination legislation, the challenges to gaining such protections and enforcing them, the development of the disability rights movement, and the legal and social concerns facing people with disabilities today.

HIST 427 - HISTORY OF THE CIVIL RIGHTS MOVEMENT, 1954 TO THE PRESENT
Short Title: THE CIVIL RIGHTS MOVEMENT
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the modern Civil Rights movement, with emphasis on the goals and strategies of major spokespersons and leaders, as well as the achievements of the campaign. Includes the extent of its success or failure and whether or not an "unfinished" agenda needs to be completed. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 428 - MODERN SLAVERY AND HUMAN TRAFFICKING: GLOBAL AND LOCAL
Short Title: SLAVERY & HUMAN TRAFFICKING
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar examines contemporary slavery and human trafficking in global historical context. It examines forms of gendered unfree labor that persisted after the legal abolition of slave trades and slavery. It explores the emergence of human rights discourse, activism, and law from the 19th century onwards. Houston is the contemporary case study. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 429 - BORDERLANDS HISTORY
Short Title: BORDERLANDS
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar reviews the history of the U.S.-Mexico borderlands while providing students opportunities to write a substantial research paper. It covers the period from the 16th century to the present and examines political and cultural issues relevant to comprehending the significance of the border for the U.S. and Mexico.

HIST 433 - THE ARAB-ISRAELI CONFLICT
Short Title: THE ARAB-ISRAELI CONFLICT
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar traces the history and politics of the Arab-Israeli conflict. Course seeks to understand how and at what costs Israeli and Palestinian nationalisms have been constructed in both Palestinian and Israeli understandings of the past and present using books, documentaries, and films. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)
HIST 434 - ISLAM AND THE WEST
Short Title: ISLAM AND THE WEST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar explores issues of contact and exploration between Western and Islamic worlds, from the Crusades to the modern era. Investigations will explore how identities are formed and reshaped through interaction with other cultures and how traditions are "invented" by relationships between civilization and despotism, freedom and tyranny, religious tolerance and holy war. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 436 - AMERICA IN THE MIDDLE EAST
Short Title: AMERICA IN THE MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar explores evolution of American involvement in the Middle East from missionary origins in the early 19th century to superpower hegemony in the 20th. Puts into perspective central issues such as the U.S. role in the Arab-Israeli conflict, the question of terrorism, and the U.S. invasion/occupation of Iraq in 2003. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 437 - GLOBAL HISTORY OF SPORT
Short Title: GLOBAL HISTORY OF SPORT
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This reading and research seminar explores key aspects of the world history of sport from the late nineteenth century to the present. It investigates how and why sport history shaped, and was shaped by, various factors and historical forces, including cultural values, identity, economic interests and market forces and power relations between different categories of people.

HIST 438 - WESTERN EUROPEAN WELFARE STATE, 1880-1980: ORIGINS, CONSOLIDATIONS, CRISIS
Short Title: WEST EUROPEAN WELFARE STATES
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This upper level seminar looks at why and how the welfare states came into being, how they were affected by the World Wars and dictatorship, postwar expansion, and the effects of the 1970s stagflation and oil crises. Focus on Germany, Britain, and France. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)
HIST 449 - LAW IN THE DIGITAL WORLD
Short Title: LAW IN THE DIGITAL WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar examines U.S. legal issues concerning digital technologies, over the past two centuries. We will cover five legal topics: privacy, security, intellectual property, corporate regulations, and crime/vice. Students will produce original research that analyzes the relationship between law and the digital world we have constructed.

HIST 455 - THE HISTORY OF HUMAN RIGHTS
Short Title: THE HISTORY OF HUMAN RIGHTS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What are human rights, and what does it mean to call them “universal”? How do rights across borders, such as those needed by refugees, fit with rights within borders that citizens use to exercise sovereignty? How do new (or previously unrecognized) rights emerge, such as rights for sexual minorities? And how can we write histories of ideas that are claimed to be timeless? This advanced history seminar draws on multiple disciplines, especially anthropology and law, to answer these and other questions. Students undertake independent research on an issue of their choosing. This class is important for students considering law school or graduate study in history. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 457 - FOUR MODERN REVOLUTIONS: 1776, 1789, 1917, 1989
Short Title: FOUR MODERN REVOLUTIONS
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar brings together four leading examples of modern revolution in the western world: the American Revolution, the French Revolution of 1789, the Russian Revolution of October 1917, and the Eastern European revolutions of 1989. Topics include: revolutionary subjects, reactionaries, terror, law, and constitutions. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 459 - NAZISM AND THE HOLOCAUST
Short Title: NAZISM AND THE HOLOCAUST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar uses sources from the time and historians’ interpretations to analyze Nazism and the Holocaust, especially pre-war racial policy; economic policy; labor; the war experience; and the phases and legacies of the Holocaust.

HIST 461 - THE SECOND WORLD WAR: A POLITICAL HISTORY
Short Title: WW II: A POLITICAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: World War Two was not just a military conflict, but also a violent political and social struggle. Seminar explores the main ideologies and political blueprints devised during the war in the United States, Western and Eastern Europe. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 464 - U.S. FOREIGN POLICY IN THE ERA OF THE COLD WAR
Short Title: COLD WAR U.S. FOREIGN POLICY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on American foreign policy during the Cold War. Readings and research.

HIST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
HIST 478 - TOPICS IN LATIN AMERICAN HISTORY
Short Title: TOPICS LATIN AMERICAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on selected topics in Latin American history. Contents vary. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 484 - THE BLACK CITY: AFRICAN AMERICAN URBAN LIFE IN THE UNITED STATES
Short Title: BLACK CITY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of how African Americans become a largely urban people in the twentieth century, how their urbanization affects the nature and prospect of US cities, and how the demands and opportunities of city life contribute changing meanings of blackness in American life.

HIST 491 - COEXISTENCE AND SECTARIANISM IN THE MIDDLE EAST
Short Title: MIDDLE EAST SECTARIANISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar will examine the validity of the notion of age-old religious and tribal violence in the region, relate the nature of religious violence in the Ottoman Empire to Zionism in Palestine and sectarianism in Lebanon, and analyze the sectarian struggle in contemporary Iraq in light of the American occupation.

HIST 494 - RULING HINDUSTAN: THE TIMURID-MUGHAL KINGS OF INDIA
Short Title: RULING HINDUSTAN
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on 16th century Central Asian Muslim Turks who conquered India and, in collusion with local political and social forces, developed a sophisticated syncretic royal culture. Focus on culture, fine arts, architecture, familial relations and religious/spiritual practices in Islam. Readings include memoirs and letters of the royal family, Hindu courtiers, visiting Jesuit priests, and European merchants. A major research component is included.

HIST 495 - COMPARATIVE MODERNIZATION OF CHINA AND JAPAN
Short Title: MODERNIZATION OF CHINA & JAPAN
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research seminar examining not only the respective modernizing experiences of Japan and China in the 19th and 20th centuries, but also the way that developments in one country influenced developments in the other. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)

HIST 499 - BLACK AT RICE: HISTORIES OF THE UNIVERSITY
Short Title: BLACK AT RICE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research seminar focused especially on recovering and analyzing the black experience at Rice University with final projects based on oral histories and primary source research. Open to juniors and seniors, and to others with the permission of the instructor. Part of the Task Force on Slavery, Segregation and Racial Injustice.

HIST 500 - GRADUATE SEMINAR IN MEXICAN HISTORY
Short Title: MEXICAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading seminar examines Mexico from the early nineteenth century to present through reading classic and current scholarship. It delves into questions in Mexican historiography such as political instability, economic development and inequality, the origins of social movements, the Mexican Revolution and the relationship with the US. Graduate/Undergraduate Equivalency: HIST 420. Mutually Exclusive: Cannot register for HIST 500 if student has credit for HIST 420.

HIST 501 - WOMEN AND GENDER IN NATIVE AMERICA
Short Title: NATIVE WOMEN'S HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Reading seminar focused especially on recovering and analyzing indigenous women's history. This seminar examines major topics in Native American women's and gender history from 1500 to the present. Open to juniors and seniors, and to others with the permission of the instructor.

HIST 505 - TOPICS IN LATIN AMERICAN HISTORY
Short Title: TOPICS LATIN AMERICAN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar on selected topics in Latin American history. Contents vary. Open to juniors and seniors. Open to others only with permission of instructor. (Please note that class rank is determined by year of matriculation, not credits.)
HIST 502 - EARLY AMERICA AND THE WORLD THAT MADE IT, 1450 - 1820
Short Title: EARLY AMERICA AND THE WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A reading seminar in the history of Early America (1450-1820) with an emphasis on its multifarious interactions with the wider world. Seminar participants will read books that have inaugurated key developments in the field of Early American history.

HIST 503 - HISTORY OF NORTH AMERICAN CAPITALISM
Short Title: NORTH AMERICAN CAPITALISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading seminar is an introduction for graduate students to scholarship on the burgeoning field of the history of capitalism. The course centers largely in the U.S. but also considers developments across the world while noting capitalist formations elsewhere in North America from ca. 1500 to the near present.

HIST 504 - COLONIALISM, RACISM, AND RESISTANCE
Short Title: COLONIALISM AND RACISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar examines histories of colonialism and racism and resistance to these structures across Asia, Africa, and America: both as articulated by historical protagonists and by scholars.

HIST 505 - THE ATLANTIC SLAVE TRADE
Short Title: THE ATLANTIC SLAVE TRADE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This research seminar studies four centuries of transatlantic slave voyages in comparative perspective and complements existing literature on the Atlantic economy. Primary sources will be drawn from the quantitative data of www.slavevoyages.org. Students will be able to focus on particular regions on both sides of the Atlantic.

HIST 506 - COLONIAL TO REPUBLICAN BRAZIL
Short Title: COLONIAL TO REPUBLICAN BRAZIL
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course traces the history of Brazil from colony to republic. Topics to be covered include: encounters, Jesuit missions, Indian and African slavery, plantation society, the court in Rio de Janeiro, and change and continuities in the 19th century.

HIST 508 - MODERN LATIN AMERICA
Short Title: MODERN LATIN AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on Latin America from the early nineteenth century to present through reading classic and current most relevant scholarship. Political events will provide the periodic framework of the course but it will delve on major economic, social and cultural developments to understand the complex social formations that comprise contemporary Latin American societies. Graduate/Undergraduate Equivalency: HIST 228.

HIST 509 - DIRECTED READINGS
Short Title: DIRECTED READINGS
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level independent readings course. Topics vary. Repeatable for Credit.

HIST 510 - DIRECTED READINGS
Short Title: DIRECTED READINGS
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level independent reading course. Topics vary. Repeatable for Credit.
HIST 512 - READINGS IN BORDERLANDS, CITIZENSHIP, AND IMMIGRATION HISTORY
Short Title: BORDERLANDS & IMMIGRATION
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading seminar is an introduction for graduate students to the historiography that constitutes the fields of U.S.-Mexico borderlands history. The seminar covers the period from the early colonial period to the near present. Special attention is given to historical questions that have been posed in the related but separate fields of American immigration history, including the significance and conceptualization of U.S. citizenship.

HIST 521 - RACE, EDUCATION AND SOCIETY IN THE URBAN SOUTH
Short Title: RACE, EDUCATION & SOCIETY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of urban life and education since the decision in Brown v. Board. Seminar focuses on the Brown cases, the development of the post war city in the context of American race relations, the course of court-ordered desegregation, and the impact of recent reforms on urban schools and neighborhoods Graduate/Undergraduate Equivalency: HIST 421. Mutually Exclusive: Cannot register for HIST 521 if student has credit for HIST 421.

HIST 535 - RICE, SLAVERY, & SEGREGATION
Short Title: RICE, SLAVERY, & SEGREGATION
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in this course will work with the Task Force on Slavery, Segregation and Racial Injustice, perform original research on the history of Rice University, and situate that research within a broader national & international context of academic & public history work on universities and racism.

HIST 539 - ORIGINS OF AFRO AMERICA
Short Title: ORIGINS OF AFRO AMERICA
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar designed to help students formulate, research, and produce an initial draft of what will hopefully become a publishable scholarly article dealing with race or slavery in the Atlantic World.

HIST 542 - HISTORIOGRAPHY OF THE MODERN MIDDLE EAST
Short Title: MODERN MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar will explore the relationship between religion, race, and difference in the modern world. Using both American and non-American cases, the course will explore how and why unequal multi-religious and multi-racial societies - from the United States to the Middle East and South Asia - have elaborated and adapted to modern ideas of secular citizenship and multiculturalism.

HIST 558 - RELIGION, RACE, AND DIFFERENCE IN A GLOBAL PERSPECTIVE
Short Title: RELIGION, RACE, & DIFFERENCE
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar will explore the relationship between religion, race, and difference in the modern world. Using both American and non-American cases, the course will explore how and why unequal multi-religious and multi-racial societies - from the United States to the Middle East and South Asia - have elaborated and adapted to modern ideas of secular citizenship and multiculturalism.

HIST 563 - RACE AND SLAVERY IN THE EARLY ATLANTIC
Short Title: EARLY ATLANTIC RACE & SLAVERY
Department: History
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar designed to help students formulate, research, and produce an initial draft of what will hopefully become a publishable scholarly article dealing with race or slavery in the Atlantic World.
HIST 565 - THE ATLANTIC WORLD
Short Title: THE ATLANTIC WORLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar provides an introduction to the historiography of the Atlantic World, especially Africa and the British Atlantic during the 17th and 18th centuries with comparison to France and French Caribbean and to Iberia and Spanish and Luso-America. Thematic topics will include commercial networks, political/imperial/legal structures, and slavery.

HIST 566 - NORTH AMERICA, 1500-1800
Short Title: NORTH AMERICA, 1500-1800
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar provides overview of historical literature pertaining to British North America and the Atlantic World from 1500 to 1800. Related topics in Spanish and French North America also considered.

HIST 570 - U.S. ENVIRONMENTAL HISTORY
Short Title: U.S. ENVIRONMENTAL HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on the Spanish and Portuguese colonies in the Americas. Topics covered include: the Iberian heritage, encounters and conquests, historical demography, the colonial economy, and French Caribbean and to Iberia and Spanish and Luso-America. Thematic topics will include commercial networks, political/imperial/legal structures, and slavery.

HIST 571 - THE HISTORIOGRAPHY OF NATIONALISM, PLURALISM AND POLITICAL BELONGING.
Short Title: HISTORIOGRAPHY OF NATIONALISM
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will explore the historiography of pluralism and political belonging and its relationship to various national formations, including the United States. It will read major figures such a W.E.B. DuBois alongside exemplary figures from the colonial and postcolonial worlds to explore how claims to national belonging are made through the construction of historical narratives.

HIST 574 - SLAVERY AND SLAVING IN AFRICA
Short Title: SLAVERY AND SLAVING IN AFRICA
Department: History
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces graduate students to the key debates, scholars, and historiography relating to slavery and slaving in African history. Students will also gain basic familiarity with the narrative of slaving in Africa as well as introductions to topics in slavery studies like gender, commodities, and identity.

HIST 575 - INTRODUCTION TO DOCTORAL STUDIES
Short Title: INTRO DOCTORAL STUDIES
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: For ABD students who intend to teach. Required for those who intend to teach for the department.
HIST 583 - SOUTHERN HISTORY
Short Title: SOUTHERN HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on the history of the American South.

HIST 584 - THE EARLY SOUTH, 1600-1800
Short Title: THE EARLY SOUTH, 1600-1800
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar on world history.

HIST 585 - THE AMERICAN SOUTH
Short Title: THE AMERICAN SOUTH
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar on major scholarly literature of southern history. Includes readings, discussions, and a major paper on historiographical topic decided in consultation with the instructor.

HIST 590 - INTRODUCTION TO WORLD HISTORY
Short Title: INTRODUCTION TO WORLD HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on major scholarly literature of world history. Includes readings, discussions, and a major paper on historiographical topic decided in consultation with the instructor.

HIST 591 - GRADUATE READING
Short Title: GRADUATE READING
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading in conjunction with another course. Repeatable for Credit.

HIST 595 - THE AMERICAN SOUTH
Short Title: THE AMERICAN SOUTH
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on major scholarly literature of southern history. Includes readings, discussions, and a major paper on historiographical topic decided in consultation with the instructor.

HIST 596 - PORT CITIES IN THE ATLANTIC WORLD: SIXTEENTH-NINETEENTH CENTURIES
Short Title: ATLANTIC WORLD PORT CITIES
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate seminar investigates the social and economic history of key port cities in the Atlantic World from the sixteenth through the nineteenth centuries. Emphasis will be placed on slavery and the slave trade, the spatial history of the port city, and the experiences of men and women. Digital humanities methods will be demonstrated through a case study of Rio de Janeiro. Students will develop and write a final paper on the port city of their choice.

HIST 597 - THE MAKING OF THE MODERN ARAB WORLD
Short Title: MAKING OF THE MODERN ARAB WRLD
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores how various approaches from the secular to the religious, from the colonial to the post-colonial, and from the orientalist to the nationalist and post-orientalist have shaped the idea of what constitutes the Arab world.

HIST 598 - THE AMERICAN SOUTH
Short Title: THE AMERICAN SOUTH
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate reading seminar on American history from the early republic to World War I. Contents vary.

HIST 599 - ADVANCED MUSEUM STUDIES
Short Title: ADVANCED MUSEUM STUDIES
Department: History
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for credit. Offered as necessary. Repeatable for Credit.

HIST 601 - MASTER'S THESIS RESEARCH
Short Title: MASTER'S THESIS RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for master's thesis. Must take both HIST 601 and 602 to receive credit. Offered as necessary.
HIST 602 - MASTER'S THESIS RESEARCH
Short Title: MASTER'S THESIS RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of HIST 601. Must complete both HIST 601 and 602 to receive credit.

HIST 603 - AMERICA IN THE MIDDLE EAST
Short Title: AMERICA IN THE MIDDLE EAST
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar examining the encounter between the United States and Middle Eastern societies since the nineteenth century. Graduate students will complete all UG requirements in as well as an additional 15 page essay to be submitted with the project prospectus. Final papers must be at least 25 pages and incorporate non-English research as appropriate. Graduate/Undergraduate Equivalency: HIST 436. Mutually Exclusive: Cannot register for HIST 603 if student has credit for HIST 436.

HIST 604 - ECONOMIC HISTORY
Short Title: ECONOMIC HISTORY
Department: History
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced graduate seminar examining world economic history and the history of political economy from 1500 to the present.

HIST 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: History
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HIST 700 - THIRD-YEAR RESEARCH
Short Title: THIRD-YEAR RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 4-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Appropriate for third-year graduate students who are working on their prospectus and have not yet taken their general exam. Repeatable for Credit.

HIST 800 - PH.D. RESEARCH
Short Title: PH.D. RESEARCH
Department: History
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9-12
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for doctoral dissertation. Repeatable for Credit.

Honors Program (HONS)

HONS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Rice Undergrad Scholar Program
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HONS 470 - RICE UNDERGRADUATE SCHOLARS PROGRAM (RUSP)
Short Title: UNDERGRAD SCHOLARS PROGRAM
Department: Rice Undergrad Scholar Program
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: RUSP is a two-semester course for students pursuing careers in academia/research. With a faculty mentor, students engage in a year-long research project and attend weekly seminars on how to conduct and present research, work in the academy, apply to post-undergraduate education and fellowships, and understand the social impact of research. Instructor Permission Required.

HONS 471 - RICE UNDERGRADUATE SCHOLARS PROGRAM (RUSP)
Short Title: UNDERGRAD SCHOLARS PROGRAM
Department: Rice Undergrad Scholar Program
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HONS 470
Description: RUSP is a two-semester course for students pursuing careers in academia/research. With a faculty mentor, students engage in a year-long research project and attend weekly seminars on how to conduct and present research, work in the academy, apply to post-undergraduate education and fellowships, and understand the social impact of research. Instructor Permission Required.
HUMA 102 - FROM RENAISSANCE TO PRESENT: INTRODUCTION TO WESTERN LITERATURE, HISTORY, AND PHILOSOPHY  
Short Title: RENAISSANCE TO PRESENT  
Department: Humanities Division  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Study of the foundational intellectual and artistic texts of the Western tradition from the Renaissance to Einstein. Consideration of texts and images over time and in their historical development as we reflect on who are and how we got here. Readings from Machiavelli, Shakespeare, Kant, Flaubert, Nietzsche, Freud, Beauvoir, Einstein, Levi, Kuhn, Borges, and King, and images from such artists as Michelangelo, Goya, and Picasso.

HUMA 103 - LIBERTY AND TERROR: THE FRENCH REVOLUTION  
Short Title: LIBERTY & TERROR: FRENCH REVOLUTION  
Department: Humanities Division  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: The French Revolution toppled an ancient monarchy and sent shockwaves throughout the world. We will interpret the historical sources, contexts, and problems of this watershed moment and investigate the problems by political, philosophical, literary, and visual documents regarding the pre-revolutionary status quo, the transformation of political liberty into repressive terror, worldwide warfare, and ideological struggle. The course will focus on historical contexts such as the influence of the Enlightenment; the emergence of citizenship and human rights; the development of social spectacles and the public sphere; the Reign of Terror and the regression to Tyranny; emancipationist discourses (the abolition of slavery, colonial revolt, radical feminism); and the contradictory figure of Napoleon. We will consider, finally, how the Revolution has come to be viewed, both within France and without, considering its many aftershocks and reverberations up until the present day.
HUMA 120 - WHERE IS UTOPIA? A BIG QUESTIONS COURSE
Short Title: WHERE IS UTOPIA?
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Where is utopia? Thomas More's original coinage, suggesting both "good place" and "no place," might give little cause for hope, but that hasn't stopped visionaries, scientists, artists and scholars from seeking it out over the years. It might be in our past, or just ahead. We might be there now, if only we knew how to look: under the pavement, we might find the beach. Or utopia might be off our planet entirely. Ideals shape societies; scientific research, architecture, city planning and cultural production all attest to the hopes and values that spawned them. But as we consider the fallout of past utopian efforts, corollary questions present themselves: do we even want to find utopia? Does every "perfect" society imply a dystopian counterpart? Who is utopia for, and who is excluded? This course will explore utopia through the work of scientists, architects, artists and art movements. Classes will fall into three categories: lectures and reading discussions; field trips; and group art projects. These latter Learning Lab projects will encourage students to work together and apply the readings, discussions and artistic precedents towards their own visions of utopia.

HUMA 121 - IS ALL THE WORLD A STAGE? A BIG QUESTIONS COURSE
Short Title: IS ALL THE WORLD A STAGE?
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We seem to find or make theater wherever we look. In halls and on stages, but also in Senate chambers and check-out lines - not to mention online. In the small rooms of houses and on small screens of reality television programming. Whether streaming or tweeting, drama is everywhere. What is drama such that it enjoys such intensity and ubiquity? Is it an overflow of energy that creates authenticity? An artificially heightened state (as in "too much drama")? A carefully crafted manipulation (as in "political drama")? A way of being in space? A cultural habit? This course considers why theater is so central to our idioms and cultural practices even for people who have never seen, much less set foot on, a proscenium stage. We'll explore the many senses of drama central to social behavior by witnessing the long transit of theater from the classical amphitheater to just about anywhere. The course is designed to offer an introduction to the history and conventions of theatrical practice, from the ancient theater to 21st-century immersive and site-specific performance, which will offer a lens for understanding the drama of human interaction that spills out everywhere. Class sessions will include: 1) lecture/discussions about the histories of theater and languages of performance; 2) Learning Lab sessions that allow students to create their own personal theatrical experience with a combination of acting and directing exercises, live performance experiences, and conversations with theater professionals; and 3) theater of the everyday exercises inviting students to look at the world from the point of view of theatrical experience. No previous theater experience or training required.
HUMA 123 - WHO WHAT WHY IS DISNEY? A BIG QUESTIONS COURSE
Short Title: WHO WHAT WHY IS DISNEY?
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will engage students with three questions: WHO is Disney (as an artist and as an entrepreneur and creator of iconic figures and films)? WHAT is the Disney Corporation and how has it grown and evolved? WHY does the current configuration of Disney as global culture giant exist and why does it matter (in the lives of those it touches across the world, but also especially with regard to Disney's patents, copyrights and trademarks)? The course will cover the formation of Disney and its use of fairy tales and folk culture to build its narratives. It will cover the building of Disneyland and its utopian project of transforming theme parks and building a world around storytelling. It will cover the movement of Disney in the forefront of film production in the 1980s through its Touchstone imprint and through the utilization of digital animation technology. Finally, the course will discuss the current triumphal corporate world of Disney Plus, and the ownership of an immense set of copyrights, patents, and trademarks. Our current world is a triumphant one for Disney and our students will live in a culture dominated by a single corporation for the foreseeable future.

HUMA 122 - WHO SHOULD VOTE? A BIG QUESTIONS COURSE
Short Title: WHO SHOULD VOTE?
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In 2020, Americans will celebrate the centennial of the Nineteenth Amendment and the sesquicentennial of the Fifteenth Amendment. Both anniversaries make it seem like the history of voting rights is a story of continually expanding suffrage. But the humanities can help students understand the more complex reality. Contests over “Who Should Vote?” have existed since the nation’s beginnings and continue today, as people argue over the prevalence of voter suppression or debate whether to lower the voting age. Studying historical contests over this “Big Question” is important because they illuminate the contingency of democracy. Democracy did not always mean the same thing to earlier Americans that it does to us. Moreover, expansions of the right to vote for some groups have often occurred hand in hand with new restrictions on voting for others. The history of suffrage is not one of unbroken progress or decline, but instead of continuous protest and political struggle. By exploring how earlier Americans fought over the answer to “Who Should Vote?”, students in this class will grapple with the meaning of American democracy itself.

HUMA 124 - IS THIS THE END? A BIG QUESTIONS COURSE
Short Title: IS THIS THE END?
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Is this the end? The end of our planet, truth, certainty? This course explores this question via contemporary writing across the world. Taught from a global perspective, the course will examine writers’ responses to major topics of our age, among others, truth, climate change, and borders.

HUMA 125 - WHAT IS THE ETHICAL THING TO DO? A BIG QUESTIONS COURSE
Short Title: WHAT IS ETHICAL: BIG QUESTIONS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: “What is the ethical thing to do?” can be interpreted in various ways. What rules do ethical theories prescribe? What reasons can be given for and against different ethical theories? How have different ethical theories been developed – where do they come from? What binding force, if any, do ethical theories have? And, most importantly, how should we live? What does ethical reflection about our lives and our practices reveal? Students will be introduced to theoretical ethics and practical ethics. In Part One, roughly the first 8-9 weeks of the course, they will study classic works in philosophical ethics – and contemporary responses to them. They will learn philosophical arguments for and against these ethical theories. Guest lecturers will shed light on historical circumstances that led to their formation and on cross-cultural comparisons. In Part Two, roughly the last 6-7 weeks of the course, they will work through two topics in practical ethics: the treatment of animals and reparations for slavery. The course will conclude with an Ethics Lab, in which students work in small groups to gather information on a chosen topic in practical ethics and analyze it from the perspective of different ethical theories.
HUMA 126 - WHAT IS THE MEANING OF DEATH? A BIG QUESTIONS COURSE
Short Title: WHAT IS THE MEANING OF DEATH?
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will ask students to learn and reflect on theoretical positions on death from historical and contemporary philosophers, but will also place a heavy emphasis on developing a student’s own attitude toward death as not just a topic for theoretical and abstract discussion, but a phenomenon that they must inevitably encounter in their own lives. Thus, the philosophical material will be supplemented with poetry, film, literature, and personal essays from non-philosophers: material that will enrich their own thoughts as they try to determine the respect in which they agree or disagree with the philosophical perspectives on offer. One goal is to have the students recognize the extent to which philosophical reflection, and engaging with the humanities, can influence and deepen their perception and understanding of their lives.

HUMA 127 - WHAT IS HATE? A BIG QUESTIONS COURSE
Short Title: WHAT IS HATE?
Department: Modern & Classical Literature & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: What is Hate? Hate can be an emotion, an action, a belief, an ideology. It can manifest itself with great passion, or become normalized so that it isn’t even recognized as such—perhaps seen, instead, as an expression of “how things are.” This course gathers strands from diverse disciplines, in order to present a cohesive examination of “hate as a system” undermining civic life, and even the cultural and intellectual vitality of society. We will examine the unsettling question of “hated” through scholarly works, literary expressions, and visual culture dealing with prejudice, discrimination, extreme nationalist movements, racism, and genocide. Along with these academic and artistic explorations, we will advance into the realm of engaged humanities and activism, through a series of presentations by scholars and advocates. The class will benefit from presentations by faculty and guest speakers from our university (the Boniuk Institute for Religious Tolerance, the Office of Diversity and Inclusion), and the larger Houston community (Houston Coalition Against Hate, Anti-Defamation League, ACLU, etc.).

HUMA 128 - WHY DID SO MANY DIE? THE U.S. RESPONSE TO COVID-19
Short Title: WHY DID SO MANY DIE?
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The U.S. response to the pandemic has been a disaster, and will end (if it ends!) with hundreds of thousands dead and tens of millions infected. How did this happen, and who is to blame? The main facts are now largely clear. But how to interpret them is another matter. Is this a story about how China blew up the whole world by being unwilling to admit it was facing a scary epidemic back in December and January? Is it a story about how the White House allowed Americans to die in the name of “saving the economy”? Is it a story about how selfish individuals went to the beach rather than suffer for the collective good, or a story about institutions that worked poorly? Is it all these things? We need to look back and make sense of this calamity.

HUMA 201 - PUBLIC SPEAKING
Short Title: PUBLIC SPEAKING
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to give the student exposure to and experience using basic principles and skills of oral communication in the public context. Emphasis will be on the development of speech organization, support, and delivery. Informative and persuasive speeches will be practiced. An important outcome of the course is that the student better understand and appreciate the important role public speaking plays in modern society.

HUMA 202 - CULTURE, ENERGY AND THE ENVIRONMENT: AN INTRODUCTION TO ENERGY HUMANITIES
Short Title: CULTURE ENERGY & ENVIRONMENT
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Humanity faces extraordinary challenges in an era of climate change and energy transition. These challenges are not only technological but also questions of value, power, behavior, and understanding. This course draws upon new research across the arts, humanities and social sciences to help students better understand the cultural and social dimensions of our current patterns of energy use, their environmental impacts, and the possibility of new energy futures. Intended for both STEM majors and humanities and social science students. Cross-list: ENST 202.
HUMA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HUMA 203 - CULTURES OF FUEL
Short Title: CULTURES OF FUEL
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Can fuels (prior to their insertion in systems of energy) offer us hope in the face of climate change? This seminar, open to undergraduates and graduates from all disciplines, will consider fuels (real and imaginary; fossil-based and renewable) in literature, film, art and culture. Grades based on participation in discussions.

HUMA 210 - FORENSICS PRACTICUM
Short Title: FORENSICS PRACTICUM
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will focus on junior varsity intercollegiate speech and debate competition. Students will be required to prepare speeches and debate material for local, regional and possibly national competitions. Participation in intercollegiate competition is mandatory. Instructor Permission Required. Repeatable for Credit.

HUMA 217 - BUSINESS WORKSHOP FOR HUMANITIES STUDENTS
Short Title: BUSINESS WRKSHP F HUM STUDENTS
Department: Humanities Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers a survey of media communication about race. We will examine media communication theories of identity formation, symbol creation, and influence. What media factors determine the discourse on race? The purpose of this course is to understand how notions of race have been defined and shaped in and through mass-mediated forms. Students will formulate informed recommendations on what could be done to promote greater cultural sensitivity and diversity in the media industry. Previously offered as HUMA 238 (Summer 2019). Repeatable for Credit.

HUMA 250 - RACE AND MEDIA
Short Title: RACE AND MEDIA
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers a survey of media communication about race. We will examine media communication theories of identity formation, symbol creation, and influence. What media factors determine the discourse on race? The purpose of this course is to understand how notions of race have been defined and shaped in and through mass-mediated forms. Students will formulate informed recommendations on what could be done to promote greater cultural sensitivity and diversity in the media industry. Previously offered as HUMA 238 (Summer 2019). Repeatable for Credit.

HUMA 302 - THEORIES OF RHETORICAL COMMUNICATION
Short Title: RHETORICAL THEORY
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will survey major theorists of speech and public communication ranging from classical to contemporary thinkers. Emphasis will be on understanding speech and public communication from consumer and scholarly perspectives. Students are expected to read and discuss material with the goals of gaining basic understanding of major rhetorical theorists specifically engage a particular topic in rhetorical theory. Our central questions involve the nature of and relationship between speaker, text, and audience.

HUMA 303 - PERSUASION AND POLITICAL RHETORIC
Short Title: PERSUASION&POLITICAL RHETORIC
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will survey research and writing in the fields of persuasion and political communication. Of particular interest will be explanations of political communication based in rhetorical theory. Students will study historically important political speeches, debates, and advertisements. Emphasis will be on academic exploration of political rhetoric as human expression.
HUMA 305 - URBAN SPACES, MAPPED PLACES
Short Title: URBAN SPACES, MAPPED PLACES
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will challenge students to understand what information about a city can be analyzed and conveyed via cartography. Students will acquire mapping skills using CartoDB, Mapbox and Leaflet and will examine historical cartography via Adobe Illustrator and qGIS. Readings will include urban theory, representation in cartography, critical debates on big data and social media, and works of fiction that involve mapping and the city. Previously offered as HURC 305. Mutually exclusive with HURC 305. Credit cannot be earned if a student has taken HURC 305.

HUMA 308 - BUSINESS AND PROFESSIONAL SPEAKING
Short Title: BUSINESS&PROFESSIONAL SPEAKING
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Practical application of communication theory with emphasis on oral presentations, interviewing and small group dynamics. The course will consider many aspects of the business and professional sphere as they pertain to public speaking and public discourse. Through a series of four or more in-class speeches, in-class group exercises, outside speaker presentations, reading, and writing, the course will serve as basis of instruction to ready the student for the public or private sphere. Class will focus particularly on aspects of business and professional leadership communication, and business and office communications both written and oral, toward a greater mastery of authentic organizational, management, competitive, and community discourse.

HUMA 309 - ARGUMENTATION AND DEBATE
Short Title: ARGUMENTATION & DEBATE
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to help students develop communication, analysis, and research skills through the construction and presentation of arguments on questions of fact, value, and policy. Debate assignments will explore current issues. The course emphasizes argumentation exercises and in-class debates.

HUMA 310 - ADVANCED FORENSICS PRACTICUM
Short Title: ADVANCED FORENSICS PRACTICUM
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on varsity intercollegiate speech and debate competition. Students will be required to prepare speeches and debate material for local, regional, and possibly national competitions. Participation in intercollegiate competition is mandatory. Instructor Permission Required. Repeatable for Credit.

HUMA 313 - THEORIES OF HUMAN COMMUNICATION
Short Title: THEORIES OF HUMAN COMM
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers an introduction to the study of human communication and surveys explanations of human communication from a variety of perspectives. Theories of interpersonal, intercultural, nonverbal and mass communication are explored.

HUMA 314 - COMMUNICATION, TECHNOLOGY, AND CHANGE
Short Title: COMMUNICATION/TECHNOLOGY/CHANG
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: New communication technologies have profoundly altered daily life and challenge the definition of some of humanity’s basic societal structures. This course explores interpretations of this transformation from many fields to better understand the change we are currently witnessing and to ask what the human experience is gaining and losing.

HUMA 315 - COMMUNICATION LAW
Short Title: COMMUNICATION LAW
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the historical development, contemporary state of and future direction of the relationship between law and communication. The central question is “What is the relation of the law to the human communication experience?”
HUMA 316 - RHETORIC OF POPULAR CULTURE
Short Title: RHETORIC OF POPULAR CULTURE
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What really persuades people? Many scholars consider popular culture to be the most influential persuasive force in the everyday lives of contemporary humans. Music, television, social media, film, fashion, books, and other elements of popular culture comprise a tremendous amount of the universe of meaning in which the modern human resides. This course will explore these phenomena by looking at current and historical popular cultural artifacts and trends and various ways of understanding them from a variety of fields. Students will pursue an original study of a specific artifact or trend.

HUMA 317 - INTERPERSONAL COMMUNICATION
Short Title: INTERPERSONAL COMMUNICATION
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a study of the historical and contemporary principles and theories of interdependent human communication. Communication skills which will increase interpersonal effectiveness will be studied, including verbal and nonverbal behavior, listening, assertiveness, and conflict resolution.

HUMA 318 - THE RHETORIC OF LEADERSHIP
Short Title: RHETORIC OF LEADERSHIP
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the relationship between leadership and communication within organizations and explore leadership as a communication phenomenon. Emphasis will be on leadership as a set of relationships that manifest themselves in practices that arise from the implementation of theory. Historical and contemporary leadership and communication theory will be surveyed and students will develop an increased understanding of the relationship between communication and leadership. Previously offered as HUMA 311/LEAD 320. Mutually exclusive; credit cannot be earned for HUMA 318 if the student has previously taken HUMA 311 or LEAD 320 Mutually Exclusive: Cannot register for HUMA 318 if student has credit for HUMA 311/LEAD 320.

HUMA 320 - FROM PHYSICS LABS TO OIL FUTURES: SOCIAL STUDIES OF ENERGY
Short Title: SOCIAL STUDIES OF ENERGY
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How did whale oil become replaced by fossil fuels? What were the turning points in implementing electricity networks within urban centers? What is the role of markets and industries when producing such new energy infrastructures? This interdisciplinary course will trace ideas of energy in anthropology, science and technology studies, literary studies and environmental history, and investigate how energy production and consumption affects social life.

HUMA 321 - HISTORICAL AND INTELLECTUAL FOUNDATIONS OF LEADERSHIP
Short Title: FOUNDATIONS OF LEADERSHIP
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The focus of this course is to construct a historically informed philosophy of leadership that encompasses not just what leadership is but why it is valued, when it is legitimate, what its moral purpose is, and how it both shapes and reflects societal norms. Formerly offered as HUMA 312/LEAD 301. Mutually exclusive; credit cannot be earned for HUMA 321 if previously taken HUMA 312 or LEAD 301. Mutually Exclusive: Cannot register for HUMA 321 if student has credit for HUMA 312/LEAD 301.

HUMA 322 - MARX, FREUD, EINSTEIN: FOREBEARERS OF MODERNITY
Short Title: MARX, FREUD, EINSTEIN
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Like no others, these three thinkers of the 19th and 20th century have influenced the intellectual, historical, social, and cultural development not only of Germany, but of the entire world. The course examines the works of these authors in the context of their own time as well as their continued importance in the present. Works by Brecht, Christa Wolf, Schnitzler, Kafka will also be considered. Taught in English. Cross-list: GERM 322.
HUMA 323 - THE RHETORIC OF FOOD
Short Title: RHETORIC OF FOOD
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Food has historically been deeply symbolic. This course explores historical and current cases of food as persuasion. How are food choices ethically implicated and how are those implications addressed persuasively? Surveying readings that analyze these phenomena and also readings that exemplify them, the class will address the rhetorical construction and use of food.

HUMA 324 - BERLIN, RESIDENCE, METROPOLIS, CAPITAL
Short Title: BERLIN:RESIDENCE,METRO,CAPITAL
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course offers an introduction to German history, politics, and culture as mirrored in the history of the old and new German capital. Berlin has always been a city of contradictions: from imperial glamour to proletarian slums, from the Roaring Twenties to Hitler’s seizure of power. Emerging from the ruins of WWII Berlin became both the capital of Socialism and the display window of the Free World. After the fall of the wall, Berlin is still looking for its role in the center of a reshaped Europe. Readings and discussions encompass fine arts and literature from the 18th century to the present, including film. Taught in English. Cross-list: GERM 324.

HUMA 325 - MODERN GERMAN WRITERS: KAFKA
Short Title: MODERN GERMAN WRITERS: KAFKA
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Goethe’s vision of “world-literature” came true in the twentieth century. German authors, among them Kafka, transcended the confines of national traditions and redefined the concepts of literature and authorship in view of a modern globally dispersed audience. Topics may vary. Taught in English. Cross-list: GERM 325. Repeatable for Credit.

HUMA 328 - GERMAN ADAPTATIONS: TEXT TO FILM
Short Title: GERMAN ADAPTATIONS: TEXT-FILM
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Prominent novels of the 20th century will be studied for their possibilities or impossibilities of rendition from print medium to cinematic medium. From the myriad of adaptations we will concentrate on Thomas Mann: Tod in Venedig; Franz Kafka: Das Schloss; Klaus Mann: Meinhof; Gunter Grass: Die Blechtrommel; H. Boll: Katharina Blum; Jurek Becker. Jacob der Lugner. All films are subtitled in English. Taught in English. Cross-list: GERM 328.

HUMA 329 - LITERATURE OF THE HOLOCAUST AND EXILE
Short Title: LIT OF HOLOCAUST & EXILE
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Most of the authors from Germany and Austria, who were persecuted and fled into exile, used literature to search for meaning in life that apparently had been stripped of all meaning. Among these authors are the most distinguished writers of time, i.e. Th. and H. Mann, Brecht, Benjamin, Werfel, Dobin, J. Roth, S. Zweig, N. Sachs, Celan, Auslander. Taught in English. Cross-list: GERM 329.

HUMA 330 - THE ACT OF SEEING: UNDERSTANDING VISUAL CULTURE
Short Title: UNDERSTANDING VISUAL CULTURE
Department: Modern & Classical Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Throughout the history of western society, vision has played a key role in the evolution of human thought. This course goes beyond the physical “act of seeing” to understand the socially-constructed process through which we are taught to “see.” Students will learn to deconstruct an everyday action that comes across as “natural” while, in fact, it is a highly codified, deeply ideological practice. As such, “visuality” emerges as the product of political practices, cultural narratives and everyday performances.
HUMA 340 - WALTER BENJAMIN: AESTHETICS, HISTORY AND POLITICS
Short Title: WALTER BENJAMIN
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Benjamin has been celebrated as a revolutionary Marxist, a theologian of Jewish Messianism, and as an essayist and literary critic. The course offers an introduction to his writings by way of situating them in the historical background of the Weimar Republic and the crises of European society on the eve of WWII. Taught in English. Cross-list: GERM 340.

HUMA 341 - PUBLIC HUMANITIES MASTERCLASS
Short Title: PUBLIC HUMANITIES MASTERCLASS
Department: Humanities Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course explores the place of humanities in the public sphere, presenting tools for critical assessment. Undergraduate and graduate students from across campus form research cohorts with Rice faculty, outside scholars, and members of local institutions. Graduate students serve as mentors for undergraduates and will be assessed on papers and the class sessions they design and lead. Previously offered as HURC 311/HURC 511. The total number of completions allowed is four, whether taken as HURC 311/511 or HUMA 341/511. Instructor Permission Required. Graduate/Undergraduate Equivalency: HUMA 511. Repeatable for Credit.

HUMA 350 - MORAL LEADERSHIP IN ECONOMIC ENTERPRISES
Short Title: MORAL LEADERSHIP IN ECONOMICS
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Virtues and values—both personal and communal—affect the practice of economics in many professions. Through course readings, written reflections, and class discussion, we will attempt to understand how we apply values to economic aspects of our careers and translate these into specific personal and institutional missions. Previously offered as HUMA 477 (Spring 2020).

HUMA 372 - THE GERMAN FAIRY TALE: OLD AND NEW
Short Title: GERMAN FAIRY TALE: OLD & NEW
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discussion of several prototypes from the fairy-tale collection of the Brothers Grimm and the subsequent development of the "literary" fairy tale from Goethe and the Romantics to the 20th century. Taught in English. Cross-list: GERM 326.

HUMA 373 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN
Short Title: NEW GERM FILM: HITLER'S CINEMA
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerrie, Garnier, Tykwer, and others. The first 20 years of German film were oriented on coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: GERM 338, SWGS 361.

HUMA 399 - DIRECTED RESEARCH AND CREATIVE WORK IN THE HUMANITIES
Short Title: HUMA DIRECTED RESEARCH
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students pursuing majors, minors, or certificates in the School of Humanities will develop and follow an independent program of research or creative work that draws on and significantly expands course work already completed in one of the school's departments, programs, or centers. Research typically takes place during the summer and must be approved by a faculty member from the school. Limited to Undergraduate students who have declared a humanities major or minor, or who are pursuing a certificate in the School of Humanities. Instructor Permission Required.
HUMA 401 - INDEPENDENT STUDY IN MEDICAL HUMANITIES RESEARCH
Short Title: IND STDY MEDICAL HUMANITIES RESEARCH
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent Study with a faculty member at the Texas Medical Center focusing on a medical humanities research topic. Students spend up to 10 hours/week at TMC and are graded on evaluations submitted by faculty supervisors. Instructor Permission Required. Mutually Exclusive: Cannot register for HUMA 401 if student has credit for PLST 402. Repeatable for Credit.

HUMA 406 - ARTS AND CULTURE INTERNSHIP
Short Title: ARTS AND CULTURE INTERNSHIP
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Office of the Dean of Humanities and relevant faculty match students individually with one of a variety of projects in the area of arts/museums/public culture. Students conduct research or related activities under guidance of on-site supervisor and the section instructor of record. Department Permission Required. Repeatable for Credit.

HUMA 407 - ARTS AND CULTURE INTERNSHIP 2
Short Title: ARTS AND CULTURE INTERNSHIP 2
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Office of the Dean of Humanities and relevant faculty match students individually with one of a variety of projects in the area of arts/museums/public culture. Students conduct research or related activities under guidance of on-site supervisor and the section instructor of record. Department Permission Required. Repeatable for Credit.

HUMA 415 - DIACHRONIC MAPPING: THE RICE UNIVERSITY CAMPUS
Short Title: DIACHRONIC MAPPING
Department: Humanities Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The objective of this course is to collaboratively design a digital atlas of the Rice Campus where visual archives, locatable in time and space, can be embedded. The evolution of the campus will be presented by historians and training sessions in ArcGIS, Rhino, and Shared Shelf will be conducted by specialists. Formerly offered as HURC 405. The total number of times this course can be repeated is three, combined from HURC 405 and HUMA 415. Instructor Permission Required. Graduate/Undergraduate Equivalency: HUMA 605. Repeatable for Credit.

HUMA 416 - MASTERCLASS IN PUBLISHING, EDITING, PRESENTING AND PUBLIC WRITING
Short Title: MASTERCLASS IN PUBLISHING
Department: Humanities Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Offers undergraduate and graduate students insight into the public life of writing with particular attention to academic and literary publishing, editing, and presenting. Sessions organized around topics in these areas and visits with experts (agents, editors, authors, presenters, etc.) with experience in publishing, and creating series, festivals, and other forms of presentation. Meets 3 times per semester, helps develop internship possibilities for participants, and develop strategies for increasing the presentation of public writing at Rice. Previously offered as HURC 406/HURC 606. Instructor Permission Required. Graduate/Undergraduate Equivalency: HUMA 606. Repeatable for Credit.

HUMA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Independent Study, Laboratory, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

HUMA 498 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Humanities Division
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent Study. Instructor Permission Required.
HUMA 499 - RESEARCH IN THE HUMANITIES  
**Short Title:** RESEARCH IN THE HUMANITIES  
**Department:** Humanities Division  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** For advanced independent research in a humanities subject. Student must arrange mentorship with a faculty member and seek permission from the Dean of Humanities office, then a section of this course can be opened for the fall, spring, or summer. Department Permission Required. Repeatable for Credit.

HUMA 501 - MELLON GRADUATE SEMINAR I  
**Short Title:** MELLON GRADUATE SEMINAR I  
**Department:** Humanities Division  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Focusing on epistemologies of time and the problem of perceiving and capturing presence, the seminar will bring together theories and conceptions about time, temporalities, and temporal perception offered by quantum theories, psychoanalysis, and biology, engaging as well the myriad aspects of the multi-layered sensory, epistemological, psychological, and phenomenological registers through which humans perceive, remember, represent, and calculate time. Previously offered as HURC 501. The total number of completions for this course is two, whether taken as HURC 501 or HUMA 501. Instructor Permission Required. Repeatable for Credit.

HUMA 502 - MELLON GRADUATE SEMINAR II  
**Short Title:** MELLON GRADUATE SEMINAR II  
**Department:** Humanities Division  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Mellon II, or the "Andrew W. Mellon Doctoral Research and Writing Seminar II" is a semester-long, three-credit workshop intended to guide and mentor graduate students who are launching or continuing the dissertation writing process. The goal of the seminar is for each participant to complete a full draft of a dissertation chapter, an outline of the remaining dissertation, and a conference or fellowship proposal. Instructor Permission Required. Repeatable for Credit.

HUMA 503 - MELLON GRADUATE SEMINAR III  
**Short Title:** MELLON GRADUATE SEMINAR III  
**Department:** Humanities Division  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The seminar will explore digital knowledge platforms (e-learning, publishing, crowd-sourced, etc.) that both disseminate knowledge and raise questions about what counts as expertise, who controls access to information, what power shifts from educational institutions to corporations, how quantification affects humanistic wisdom, and how academic autonomy and diversity are ultimately disrupted. Formerly offered as HURC 502. The total number of completions is five, whether taken as HURC 502 or HUMA 503. Instructor Permission Required. Repeatable for Credit.

HUMA 511 - PUBLIC HUMANITIES MASTERCLASS  
**Short Title:** PUBLIC HUMANITIES MASTERCLASS  
**Department:** Humanities Division  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course explores the place of humanities in the public sphere, presenting tools for critical assessment. Undergraduate and graduate students from across campus form research cohorts with Rice faculty, outside scholars, and members of local institutions. Graduate students serve as mentors for undergraduates and will be assessed on papers and the class sessions they design and lead. Previously offered as HURC 311/HURC 511. The total number of completions allowed is four, whether taken as HURC 311/HURC 511 or HUMA 341/HUMA 511. Instructor Permission Required. Graduate/Undergraduate Equivalency: HUMA 341. Repeatable for Credit.

HUMA 605 - DIACHRONIC MAPPING: THE RICE UNIVERSITY CAMPUS  
**Short Title:** DIACHRONIC MAPPING  
**Department:** Humanities Division  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The objective of this course is to collaboratively design a digital atlas of the Rice Campus where visual archives, locatable in time and space, can be embedded. The evolution of the campus will be presented by historians and training sessions in ArcGIS, Rhino, and Shared Shelf will be conducted by specialists. Formerly offered as HURC 605. The total number of times this course can be repeated is three from a combination of HURC 605 and HUMA 605. Instructor Permission Required. Graduate/Undergraduate Equivalency: HUMA 415. Repeatable for Credit.
### Humanities Research Center (HURC)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Course Level</th>
<th>Restrictions</th>
<th>Credit Hours</th>
<th>Course Type</th>
<th>Grade Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>HURC 245</td>
<td>INTERDISCIPLINARY APPROACHES</td>
<td>Interdisciplinary study of cultural forms as diverse as poetry, advertisement, and film as well as topical interdisciplinary courses on literature and the arts, psychology, cultural studies, film media, anthropology, social theory, philosophy, law, and ethics. Topics vary each semester. Taught by English Department Ph.D. candidates. Repeatable for Credit.</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate level students.</td>
<td>3</td>
<td>Seminar</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>HURC 299</td>
<td>ENGLISH LITERATURE AND THE PUBLIC HUMANITIES</td>
<td>Students learn to apply critical humanistic methods to issues of public importance, especially in the Houston area. Participants study necessary applications of humanistic inquiry to civic life and contribute to this work themselves. Topics vary each semester. Past topics have included: Surreal Houston; Curating Heritage; (Dis)locating Art. Consult the Humanities Research Center or the English Department for more information. Repeatable for Credit.</td>
<td>Undergraduate Lower-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>3</td>
<td>Internship/Practicum, Independent Study</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>HURC 308</td>
<td>ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION</td>
<td>This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Graduate/Undergraduate Equivalency: HURC 508. Mutually Exclusive: Cannot register for HURC 308 if student has credit for MUCH 508.</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>3</td>
<td>Seminar</td>
<td>Standard Letter</td>
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<td>HURC 341</td>
<td>MUSEUMS AND HERITAGE: EXHIBITING ART, EXHIBITING CULTURE</td>
<td>A wide-ranging introduction to museum studies with a particular focus on the collection and exhibition of cultural heritage materials. We will examine how heritage objects are displayed and represented in museums of art, natural historical history, and heritage. Topics include looking and ethics of collecting, policies of display, changing roles for museums; exhibition design and curatorial practice. Cross-list: ANTH 341.</td>
<td>Undergraduate Upper-Level</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>3</td>
<td>Seminar</td>
<td>Standard Letter</td>
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</table>
HURC 361 - THE HUMANITIES OF CARE & END OF LIFE
Short Title: THE HUMANITIES OF CARE
Department: Humanities Research Center
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Pairing the perspectives of medicine, bioethics, and the medical humanities with thematic case studies in art, literature, cinema, and visual culture, the class examines the humanities of care and the end of life.

HURC 508 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Humanities Research Center
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Graduate/Undergraduate Equivalency: HURC 308. Mutually Exclusive: Cannot register for HURC 508 if student has credit for MUCH 508.

Industrial Engineering (INDE)

INDE 501 - FUNDAMENTALS OF INDUSTRIAL ENGINEERING
Short Title: FUND INDUSTRIAL ENGINEERING
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to fundamental tools in industrial engineering. Topics include productivity analysis, material handling, logistics, design of experiments, quality control, location theory, warehouse design, supply chain management and scheduling. Instructor Permission Required.

INDE 509 - INTRODUCTION TO HUMAN FACTORS ENGINEERING
Short Title: INTRO TO HUMAN FACTORS ENG
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 501
Description: Analysis and design of engineering systems considering human characteristics and limitations. Design of control, displays, tools, workstations and groups. Human factors research methods. Instructor Permission Required.

INDE 511 - GRAPH ALGORITHMS
Short Title: GRAPH ALGORITHMS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graph Algorithms in Operations Research. Topics include: spanning trees, graph search algorithms, shortest path problems, worst case time complexity analysis, computational complexity, dominating set problems, vertex and edge cover problems, python implementations, and other problems in graph optimization. Instructor Permission Required. Recommended Prerequisite(s): INDE 545 or CAAM 378

INDE 543 - MANUFACTURING PROCESSES AND SYSTEMS
Short Title: MANUFACTURING PROC AND SYS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 501
Description: Fundamentals of manufacturing processes and systems. Topics include machining, casting, 2D printing, material flow, capacities, bottlenecks, and just-in-time systems. Simulation and optimization of various manufacturing systems. Trade-offs among various processes. Instructor Permission Required.

INDE 545 - PRESCRIPTIVE ANALYTICS
Short Title: PRESCRIPTIVE ANALYTICS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of methods for combining mathematical models and large data sets to produce optimal decisions. Topics include decision analysis, dynamic programs, mathematical programs and various heuristics. Instructor Permission Required.

INDE 546 - COMPUTATIONAL PRESCRIPTIVE ANALYTICS
Short Title: COMP PRESCRIPTIVE ANAYLTICS
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 545
Description: A continuation of INDE 545 that focuses on computational approaches to prescriptive analytics. Topics include decomposition approaches to large-scale optimization, modeling languages, decision analysis and discrete-event simulation software. Emphasis will be placed on using relevant software on practical problems. Instructor Permission Required.
INDE 561 - SUPPLY CHAIN MANAGEMENT
Short Title: SUPPLY CHAIN MANAGEMENT
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 545
Description: Supply chain management is the integrated management of the flow of materials, products, services, and cash from the suppliers all the way to the customers and from the customers back to the suppliers. Due to the complex nature of today's supply chains, effective management of these flows is a challenging task. This course aims to familiarize students with the concepts and models that are useful in designing and managing effective and efficient supply chains. Topics include facility location and distribution models, forecasting, sales & operations planning, supply chain coordination, inventory management, transportation, supplier selection, pricing & revenue management, and sustainability in supply chains. Instructor Permission Required. Graduate/Undergraduate Equivalency: CAAM 421. Mutually Exclusive: Cannot register for INDE 561 if student has credit for CAAM 421.

INDE 562 - INTRODUCTION TO CONTINUOUS OPTIMIZATION
Short Title: INTRO TO CONTINUOUS OPT
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the formulation of unconstrained and constrained optimization models, and their numerical implementations to problems in science and engineering. Emphasis on Newton-type and interior-point methodologies. Instructor Permission Required. Recommended Prerequisite(s): INDE 545 or CAAM 378

INDE 567 - OPTIMIZATION METHODS IN FINANCE
Short Title: OPT METHODS IN FINANCE
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 212 and CAAM 210
Description: Fundamentals of financial optimization. Asset-liability management, arbitrage and asset pricing, mean-variance models, portfolio optimization. This course covers models and algorithms for solving linear, quadratic, integer, and stochastic optimization models encountered in financial and data science applications. Students who have taken CAAM 467 should consult their advisor before attempting to register for INDE 567. Department Permission Required. Graduate/Undergraduate Equivalency: CAAM 467. Recommended Prerequisite(s): INDE 545

INDE 571 - PROBABILITY AND STATISTICAL INFERENCE
Short Title: PROB & STATISTICAL INFERENCE
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include probability, random variables, probability distributions, transformations, moment generating functions, common families of distributions, independence, sampling and convergence, basics of estimation theory, hypothesis testing, Bayesian inference, ANOVA, regression. Introduction to statistical software. Department Permission Required.

INDE 572 - STOCHASTIC PROCESSES AND SIMULATION
Short Title: STOCH PROCESSES & SIMULATION
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): INDE 571
Description: Topics include Markov chains, renewal processes, queueing theory, statistical quality control, discrete-event simulation, random number generators, Monte Carlo methods, resampling methods, Markov Chain Monte Carlo, importance sampling and simulation based estimation for stochastic processes.

INDE 573 - DISCRETE-EVENT SIMULATION
Short Title: DISCRETE-EVENT SIMULATION
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (STAT 518 and STAT 519) or INDE 571
Description: Simulation of discrete-event dynamic systems. Topics include introduction to simulation models; modeling with Simio, a comprehensive simulation package with animation capabilities; statistical aspects such as input and output analysis, random variate generation, variance reduction techniques; optimization via simulation. Students who have taken CAAM 485 should consult their advisor before attempting to register for INDE 573. Department Permission Required. Graduate/Undergraduate Equivalency: CAAM 485.

INDE 577 - DATA SCIENCE AND MACHINE LEARNING
Short Title: DATA SCI & MACHINE LEARNING
Department: Industrial Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of data science and machine learning. Topics include: introduction to scikit-learn, Keras and tensorflow2, linear and logistic regression, clustering, support vector machines, random forest trees, neural networks, deep learning, natural language processing. Instructor Permission Required. Recommended Prerequisite(s): Three semesters of calculus recommended. A background in some programming language would be extremely useful.
ITAL 106 - ACCELERATED FIRST YEAR ITALIAN
Short Title: ACCELERATED FIRST YEAR ITALIAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternative first year Italian for students who have already completed two semesters of French or Spanish. This is an intensive course covering the equivalents of ITAL 141 and ITAL 142. Students will be prepared for ITAL 263 upon completion of the course. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ITAL 106 if student has credit for ITAL 141/ITAL 142.

ITAL 141 - FIRST YEAR ITALIAN I
Short Title: FIRST YEAR ITALIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ITAL 141 if student has credit for ITAL 101/ITAL 106/ITAL 222.

ITAL 142 - FIRST YEAR ITALIAN II
Short Title: FIRST YEAR ITALIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ITAL 141
Description: Continuation of ITAL 141. Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for ITAL 142 if student has credit for ITAL 106/ITAL 262.

ITAL 222 - AP/OTH CREDIT IN ITALIAN LANGUAGE
Short Title: AP/OTH CREDIT ITALIAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for ITAL 222 if student has credit for ITAL 101/ITAL 141.

ITAL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
ITAL 263 - SECOND YEAR ITALIAN I
Short Title: SECOND YEAR ITALIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ITAL 106 or ITAL 142
Description: Continuation of ITAL 142. Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ITAL 263 if student has credit for ITAL 201.

ITAL 264 - SECOND YEAR ITALIAN II
Short Title: SECOND YEAR ITALIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): ITAL 263
Description: Continuation of ITAL 263. Development of interactional competence in Italian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Italian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for ITAL 264 if student has credit for ITAL 202.

ITAL 301 - THIRD YEAR ITALIAN I
Short Title: THIRD YEAR ITALIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ITAL 264
Description: A continuation of ITAL 264. This course helps students develop an ADVANCED level of proficiency in Italian through the analysis and use of the target language in the context of specific topics of interest that will vary.

ITAL 302 - THIRD YEAR ITALIAN II
Short Title: THIRD YEAR ITALIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ITAL 301
Description: A continuation of ITAL 301. This course helps students develop an ADVANCED level of proficiency in Italian through the analysis and use of the target language in the context of specific topics of interest that will vary.

ITAL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Japanese (JAPA)

JAPA 141 - FIRST YEAR JAPANESE I
Short Title: FIRST YEAR JAPANESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Japanese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Japanese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for JAPA 141 if student has credit for JAPA 101/JAPA 222.
JAPA 142 - FIRST YEAR JAPANESE II
Short Title: FIRST YEAR JAPANESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): JAPA 141
Description: Continuation of JAPA 141. Development of interactional competence in Japanese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Japanese. This course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for JAPA 142 if student has credit for JAPA 262.

JAPA 222 - AP/OTH CREDIT IN JAPANESE LANGUAGE
Short Title: AP/OTH CREDIT IN JAPANESE LANG.
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for JAPA 222 if student has credit for JAPA 101/JAPA 141.

JAPA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

JAPA 263 - SECOND YEAR JAPANESE I
Short Title: SECOND YEAR JAPANESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): JAPA 142
Description: Continuation of JAPA 142. Development of interactional competence in Japanese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Japanese. This course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for JAPA 263 if student has credit for JAPA 201.

JAPA 264 - SECOND YEAR JAPANESE II
Short Title: SECOND YEAR JAPANESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): JAPA 263
Description: Continuation of JAPA 263. Development of interactional competence in Japanese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Japanese. This course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for JAPA 264 if student has credit for JAPA 202.

JAPA 301 - THIRD YEAR JAPANESE I
Short Title: THIRD YEAR JAPANESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): JAPA 264
Description: Continuation of JAPA 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

JAPA 302 - THIRD YEAR JAPANESE II
Short Title: THIRD YEAR JAPANESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): JAPA 301
Description: Continuation of JAPA 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

JAPA 401 - FOURTH YEAR JAPANESE I
Short Title: FOURTH YEAR JAPANESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): JAPA 302
Description: Emphasis on developing oral fluency at the discourse level and cultivating advanced writing skill. Students will read and discuss a variety of topics including history and social issues.
JAPA 402 - FOURTH YEAR JAPANESE II
Short Title: FOURTH YEAR JAPANESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): JAPA 401
Description: Emphasis on strengthening speaking and writing skills at the advanced level with more authentic reading and listening materials selected from literary works, academic texts, news articles, movies, and online resources.

JAPA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Jewish Studies (JWST)

JWST 120 - ISRAEL: LANGUAGE AND CULTURE I
Short Title: ISRAEL: LANGUAGE AND CULTURE I
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will combine a study of basic Hebrew vocabulary and grammar with literature, film, and popular culture from Israel. It will explore the history of Israel through a study of its culture and language, including poetry, songs, movies, and television.

JWST 121 - ISRAEL: LANGUAGE AND CULTURE II
Short Title: ISRAEL:LANGUAGE AND CULTURE II
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is a continuation of JWST 120, but is open to any student who can read basic Hebrew. It will explore Israeli culture through literature, music, current events, and film.

JWST 201 - GREAT BOOKS OF JEWISH HISTORY AND CULTURE
Short Title: GREAT BOOKS OF JEWISH CULTURE
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Jewish people have often understood themselves as the “people of the book,” because of the Jewish tradition’s reliance on texts and textual study as a central component of religious culture and practice. This course will take the idea of the book as a starting point for a survey of Jewish history and culture. Spanning the biblical period to the present, we will read primary texts important to Jewish life and culture as well as scholarship from disciplines as varied as religion, history, anthropology, sociology, comparative literature, philosophy, and gender and sexuality studies. In doing so, we will learn about the varied communities that produced these texts; the languages they spoke and read; their particular religious and cultural practices; and how they have understood themselves in the context of other social and political communities over time, including in the ancient, medieval, and modern eras.

JWST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

JWST 301 - JEWISH FOOD: RELIGION, CULTURE, AND CONSUMPTION FROM THE BIBLE TO BAGELS
Short Title: JEWISH FOOD
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: "We are what we eat," the saying goes. But is that true? How do choices and practices connected to eating define us and our communities? Our study of Jewish food traditions from the Bible to the present will engage this and other important issues related to religion and identity politics. Repeatable for Credit.
JWST 317 - JEWISH GRAPHIC NOVEL
Short Title: JEWISH GRAPHIC NOVEL
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine contemporary works that combine image and text to depict Jewish history, culture, community, and identity in the form of the graphic novel.

JWST 318 - ISRAELI WOMEN WRITERS
Short Title: ISRAELI WOMEN WRITERS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In the last 25 years there has been an explosion of women's poetry and fiction in Israel. In this course we will explore Israeli women's writing since the inception of the state of Israel and examine what the work of contemporary women writers means for Israeli culture, society, and politics. Cross-list: SWGS 318.

JWST 325 - ARCHIVAL RESEARCH AND HISTORICAL METHODS: JEWISH HOUSTON
Short Title: JEWISH HOUSTON
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Working with rare documents and materials in the Woodson Research Center, students will learn how to process archival collections, write finding aids, and conduct oral history interviews. By semester's end, each student will produce a major work of original research on a topic of interest in Houston/South Texas Jewish history.

JWST 338 - BECOMING AMERICANS: THE JEWISH IMMIGRANT EXPERIENCE IN THE UNITED STATES
Short Title: BECOMING AMERICANS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the history of the American Jewish immigrant experience from colonial times to the present as a means of trying to understand how newcomers navigate the processes of adaptation, acculturation, and integration into American life. We will travel to Galveston and New York City to visit significant historical sites and immigrant communities.

JWST 348 - SEX AND GENDER IN MODERN JEWISH CULTURE
Short Title: SEX & GENDER IN JEWISH CULTURE
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How have Jewish identity historically been constructed as gendered, and how has that affected Jewish self-perception and representation as well as the representations of others? This course explores the intersection between gender and Jewishness from several different historical and cultural perspectives, using literature, film, and philosophy. Cross-list: SWGS 348. Mutually Exclusive: Cannot register for JWST 348 if student has credit for RELI 347/SWGS 347.

JWST 351 - HOLOCAUST REPRESENTATION IN LITERATURE, ART, AND FILM
Short Title: HOLOCAUST REPRESENTATION
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the representation of the Holocaust in literature, art, and film. Is the Holocaust representable? What literary and artistic techniques and devices have been employed to represent the unrepresentable? Through Holocaust narrative, poetry, fiction, art, memorials, documentary and narrative film, we will explore these questions. Cross-list: FILM 351. Mutually Exclusive: Cannot register for JWST 351 if student has credit for FILM 349/RELI 349.

JWST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Jewish Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/ Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Keck Center (KECK)

KECK 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Keck Center
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Kinesiology (KINE)

KINE 120 - SCIENTIFIC FOUNDATIONS OF KINESIOLOGY
Short Title: FOUNDATIONS OF KINESIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the fundamental, physiological, and psychological aspects of sport and exercise.

KINE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

KINE 300 - HUMAN ANATOMY WITH LAB
Short Title: HUMAN ANATOMY WITH LAB
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to normal human anatomy structure and function. All major body systems will be examined in both lecture and laboratory format using a variety of physical and virtual models.

KINE 301 - HUMAN PHYSIOLOGY
Short Title: HUMAN PHYSIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will address the fundamental principles of human physiology at the cellular, tissue, organ, organ system, and organism levels. Emphasis will be placed on mechanisms of function and homeostasis as achieved through the coordinated function of homeostatic control systems.

KINE 302 - BIOMECHANICS
Short Title: BIOMECHANICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: An introduction to the discipline of mechanics as it applies to biological systems. Primary emphasis is placed on humans and other vertebrate species. Topics covered include the kinematics and kinetics of movement, material and functional properties of musculoskeletal tissues and the integration of musculoskeletal function from molecules and cells to whole animals. Recommended prerequisite(s): KINE 321.

KINE 310 - PSYCHOLOGICAL ASPECTS OF SPORT AND EXERCISE
Short Title: PSYC OF SPORT & EXERCISE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examine the psychological foundations that underlie sport and exercise participation. Recommended Prerequisite(s): PSYC 101.

KINE 311 - MOTOR LEARNING
Short Title: MOTOR LEARNING
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to provide a basic understanding of the theories related to skill acquisition, development, and movement. Learners develop an understanding of the cognitive, behavioral, and neurological concepts needed to become skilled at movements. The course will also incorporate laboratory experiences in the physiological, neurological, and psychological factors of human movement.

KINE 319 - STATISTICS FOR THE HEALTH PROFESSIONAL
Short Title: STATS FOR HEALTH PROFESSIONAL
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics include displaying and describing data, the normal curve, regression, statistical inference including parametric and non-parametric analyses, and hypothesis testing. Students also have the opportunity to analyze data using SPSS and Excel software.
KINE 320 - HUMAN PHYSIOLOGY LAB
Short Title: HUMAN PHYSIOLOGY LAB
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300 and KINE 301
Description: This course provides a hands-on laboratory to demonstrate and apply in-depth human physiology concepts. Students will collect, analyze, and report data on physiological variables. Findings will be applied to key human physiology concepts including homeostasis, isolated and integrated functions of body systems, and response to activity and exercise.

KINE 321 - EXERCISE PHYSIOLOGY
Short Title: EXERCISE PHYSIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: This course examines the acute and chronic effects of exercise on physiological functions. Topics include nutrition, energy transfer, fatigue, metabolism, disease, aging, preventative medicine, genetics, elite performance, ergogenic aids, exercise testing, and specificity of training.

KINE 326 - PHYSICAL ACTIVITY EPIDEMIOLOGY
Short Title: PHYSICAL ACTIVITY EPIDEMIOLOGY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an epidemiological foundation to exercise and physical activity research related to public health. The course is designed to present evidence of the positive effects of physical activity and exercise in preventing disease, disability, and increasing quality of life.

KINE 351 - ADVANCED HUMAN ANATOMY LAB
Short Title: ADVANCED HUMAN ANATOMY LAB
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: Study of the pro-sections and cadavers are used for learning and understanding human anatomy in a gross anatomy examination laboratory at BCM in the Texas Medical Center. Hands-on examination of human anatomy in this course provides supplemental practical experience for lectures in KINE 300, Human Anatomy courses.

KINE 375 - SPORTS MEDICINE & EXERCISE PHYSIOLOGY INTERNSHIP
Short Title: SPORTS MEDICINE INTERNSHIP
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Internship experience for upperclassmen in the Sports Medicine and Exercise Physiology major. Department Permission Required. Repeatable for Credit.

KINE 403 - SPORT NUTRITION
Short Title: SPORTS NUTRITION
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): HEAL 103
Description: This course will address current scientific knowledge about common macronutrients, micronutrients, and supplements, and how they may enhance athletic performance. The course will also focus on the role of nutritional timing, volume, and periodization to achieve practical results in endurance, strength, power and speed. Recommended Prerequisite(s): KINE 321.

KINE 410 - CASE STUDIES IN HUMAN PERFORMANCE
Short Title: CASE STUDIES HUMAN PERFORMANCE
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An advanced, multidisciplinary consideration of how humans perform. Class work will center around problem solving using a case study methodology.
KINE 412 - MOTOR CONTROL
Short Title: MOTOR CONTROL
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 311
Description: Exploration of the neurophysiological, behavioral, and biomechanical aspects of human movement and development.

KINE 415 - PSYCHOLOGICAL ASPECTS OF SPORTS INJURY & REHABILITATION
Short Title: PSYCHOLOGY OF SPORT INJURY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the psychological factors involved in sport-related injuries and the rehabilitation process. Topics include personal and situational factors influencing injury and recover, adherence to rehabilitation programs, social support, returning to play after injury, and the application of psychological interventions to optimize the recovery process. Recommended Prerequisite(s): KINE 310

KINE 419 - MOVEMENT DISORDERS
Short Title: MOVEMENT DISORDERS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300 and KINE 301 and KINE 311
Description: This course offers an in-depth look into selected developmental, degenerative, and hyperkinetic movement disorders resulting in abnormal muscle tone and/or motor control. Multiple aspects of each disorder (presentation, treatment, and progression) will be considered through a variety of sources.

KINE 421 - ADVANCED TOPICS IN EXERCISE PHYSIOLOGY AND PREVENTIVE MEDICINE
Short Title: ADV TOPICS IN EX PHYS & MED
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 321 and KINE 323
Description: This course is a seminar style course that examines acute and chronic effects of exercise stimuli on physiological adaptation as relevant to health, disease and human performance. Topics will vary depending on current issues in exercise physiology. Examples include metabolism, fatigue, diabetes, genetics, muscular dystrophy, orthopedics, cancer and cardiovascular disease. The course is intended for those with a background in biology and/or physiology and interest in exercise and health.

KINE 430 - SPORTS INJURY: EVALUATION, MANAGEMENT, AND TREATMENT
Short Title: SPORTS INJURY
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 300
Description: Upper level course designed to provide students with practical application of basic science knowledge obtained in lower level courses within the department of Kinesiology. The course will address the management of common sports injuries from time of injury to return to play. At the end of the course, students will have a comprehensive understanding of athletic injuries and their management.

KINE 440 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KINE 319
Description: Designed to introduce students to research methods, statistical techniques, and topics appropriate for experimental research.

KINE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Kinesiology
Grade Mode: Standard Letter
Course Type: Laboratory, Internship/Practicum, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
KINE 490 - SEMINAR IN SPORTS MEDICINE  
Short Title: SEMINAR IN SPORTS MEDICINE  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Considers issues related to athletic injury including mechanisms, assessment, management, and rehabilitation.

KINE 495 - INDEPENDENT RESEARCH IN SPORTS MEDICINE & EXERCISE PHYSIOLOGY  
Short Title: INDEPENDENT RESEARCH  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 1-3  
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 319 and KINE 440  
Description: To provide the student with an opportunity to participate in a research project under the supervision of a Rice Kinesiology faculty member and/or an external researcher. Department Permission Required. Recommended Prerequisite(s): KINE 319 and KINE 440. Repeatable for Credit.

KINE 498 - SPECIAL TOPICS IN SPORTS MEDICINE  
Short Title: SPECIAL TOPICS IN SPORTS MED  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to students with a major in Kinesiology or Sports Medicine & Exercise Phy. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): KINE 301  
Description: This course provides a laboratory experience designed to demonstrate and apply concepts from human physiology. Students will collect, analyze, and report data on various physiological variables. Key concepts and application include, homeostasis, isolated and integrated functions of body systems, and response to exercise. Spring 2021 Topic: Human Physiology Lab. Instructor Permission Required. Repeatable for Credit.

KINE 499 - TEACHING PRACTICUM IN SPORTS MEDICINE & EXERCISE PHYSIOLOGY  
Short Title: TEACHING PRACTICUM  
Department: Kinesiology  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Students will assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. Department Permission Required. Recommended prerequisite(s): Junior or Senior standing, declared major in Sports Medicine & Exercise Physiology, and at least an "A-" in the course serving as the practicum. Repeatable for Credit.

KORE 106 - ACCELERATED FIRST YEAR KOREAN  
Short Title: ACCELERATED 1ST YR KOREAN  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Alternate first year Korean course for students with some background in Korean. This is an intensive course covering the equivalents of KORE 141 and 142. Students will be prepared for KORE 263 upon completion of the course. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for KORE 106 if student has credit for KORE 141/KORE 142.

KORE 141 - FIRST YEAR KOREAN I  
Short Title: FIRST YEAR KOREAN I  
Department: Cntr Lang & Intercultural Comm  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Development of interactional competence in Korean (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for KORE 141 if student has credit for KORE 106.
KORE 142 - FIRST YEAR KOREAN II
Short Title: FIRST YEAR KOREAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 141
Description: Continuation of KORE 141. Development of interactional competence in Korean (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for KORE 142 if student has credit for KORE 106/KORE 262.

KORE 206 - ACCELERATED SECOND YEAR KOREAN
Short Title: ACCEL 2ND YEAR KOREAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 106
Description: Alternate second year Korean for students who have some background in the language, especially heritage students. This is an intensive course covering the equivalents of KORE 263 and 264. Mutually Exclusive: Cannot register for KORE 206 if student has credit for KORE 263/KORE 264.

KORE 222 - AP/OTH CREDIT IN KOREAN LANGUAGE
Short Title: AP/OTH CREDIT KOREAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for KORE 222 if student has credit for KORE 141 or KORE 106.

KORE 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Pacticum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

KORE 263 - SECOND YEAR KOREAN I
Short Title: SECOND YEAR KOREAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 106 or KORE 142
Description: Continuation of KORE 142. Development of interactional competence in Korean (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for KORE 263 if student has credit for KORE 201/KORE 206.

KORE 264 - SECOND YEAR KOREAN II
Short Title: SECOND YEAR KOREAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): KORE 263
Description: Continuation of KORE 263. Development of interactional competence in Korean (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Korean. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for KORE 264 if student has credit for KORE 202/KORE 206.

KORE 301 - THIRD YEAR KOREAN I
Short Title: THIRD YEAR KOREAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KORE 263
Description: Continuation of KORE 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.
KORE 302 - THIRD YEAR KOREAN II
Short Title: THIRD YEAR KOREAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KORE 301
Description: Continuation of KORE 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

KORE 401 - CURRENT ISSUES IN KOREA THROUGH MULTIMODAL TEXTS
Short Title: CURRENT ISSUES IN KOREA
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): KORE 302
Description: In this course, ‘Current Issues in Korea through Multimodal Texts’, students engage in close and critical analysis of key social, historical, and cultural events and issues portrayed in the news, articles, and popular media. Students are prepared to write essays and participate in critical discussions about the topics covered.

KORE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Latin (LATI)

LATI 101 - ELEMENTARY LATIN I
Short Title: ELEMENTARY LATIN I
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 101.

LATI 102 - ELEMENTARY LATIN II
Short Title: ELEMENTARY LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 101 or MDST 101
Description: Continuation of LATI 101 and MDST 101. Graduate students require permission of instructor. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: MDEM 102.

LATI 104 - AP/OTH CREDIT IN ELEMENTARY LATIN
Short Title: AP/OTH CREDIT ELEMENTARY LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 201 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of grammar and readings in Latin prose. Cross-list: MDEM 211.

LATI 202 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211
Description: Readings in Virgil. Cross-list: MDEM 212.
LATI 204 - AP/OTH CREDIT IN INTERMEDIATE LATIN
Short Title: AP/OTH CREDIT INTERM. LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

LATI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LATI 301 - CICERO AND SALLUST
Short Title: CICERO AND SALLUST
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will read selections from Cicero and Sallust on the Catilinarian Conspiracy. Close attention will be given to the authors' style and to their rhetorical and historiographical methods. We will also examine the events of the conspiracy and the political culture of the late Roman Republic. Recommended Prerequisite(s): LATI 202

LATI 302 - ADVANCED LATIN
Short Title: ADVANCED LATIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Propertius’ elegies with a view to understanding the poetics of Latin love elegy and the relationship of this genre to its social context. D1 credit.

LATI 303 - ADVANCED LATIN: PLAUTUS AND TERENCE
Short Title: ADV. LATIN: PLAUTUS & TERENCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Plautus’ Pseudolus and Terence’s Adelphoe. We will consider the background of Greek comedy and the contemporary social situation in Rome.

LATI 304 - ADVANCED LATIN: ROMAN EPIC
Short Title: ADV. LATIN: ROMAN EPIC
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Latin epic poetry, from the Republic through late antiquity. Topics will include the nature of the epic genre, the development of Roman epic, the styles of individual epic poets, and the works' political and cultural contexts.

LATI 305 - ADVANCED LATIN: HORACE
Short Title: ADV. LATIN: HORACE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Horace.

LATI 306 - ADVANCED LATIN: OVID’S METAMORPHOSES
Short Title: OVID’S METAMORPHOSES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Ovid’s Metamorphoses. Repeatable for Credit.
LATI 307 - LATIN POETRY OF LATE ANTIQUITY
Short Title: LATIN POETRY OF LATE ANTIQUITY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings from Latin poetry, ca. 300 CE - ca. 600 CE. Topics include the relationship of this poetry to its classical past, its identity as "late" literature, the historical contexts and purposes of the texts and the development of a Christian Latin poetic tradition.

LATI 308 - LUCRETIUS
Short Title: LUCRETIUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LATI 202
Description: This course will study the great philosophical poem of the Roman Epicurean Lucretius, De Rerum Nature (On the Nature of Things). In addition to selections from the Latin, students will read the entire poem in English translation as well as scholarship on the poem from a variety of perspectives.

LATI 309 - RECOVERY, REBIRTH, REGENERATION: CLASSICS AND THE EUROPEAN RENAISSANCE
Short Title: CLASSICS/EUROPEAN RENAISSANCE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of Virgil's great Roman epic. Areas of interest will include Virgil's poetic technique, the history of ancient epic, and Roman politics and society, particularly in the Augustan Age. Since different books of the Aeneid will be read in different semesters, the course is repeatable for credit. Repeatable for Credit.

LATI 310 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 311 - CICERO AND CATULLUS: LITERATURE AND SOCIETY IN THE ROMAN REPUBLIC
Short Title: CICERO AND CATULLUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Cicero's PRO CAELIO and several of Catullus' longer poems as a vehicle for understanding politics and culture in the late Roman Republic.

LATI 312 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 313 - CICERO AND CATULLUS: LITERATURE AND SOCIETY IN THE ROMAN REPUBLIC
Short Title: CICERO AND CATULLUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will read Cicero's PRO CAELIO and several of Catullus' longer poems as a vehicle for understanding politics and culture in the late Roman Republic.

LATI 314 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 315 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 316 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 317 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 318 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 319 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).

LATI 320 - ADVANCED LATIN: LATIN LOVE ELEGY
Short Title: LATIN LOVE ELEGY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We will study the genre of Latin love elegy by reading selected poems of its three major exponents (Propertius, Tibullus, and Ovid), its founding figures (Catullus and Gallus), and other minor poets (Lygdamus and Sulpicia).
LATI 318 - READINGS IN CICERO
Short Title: CICERO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course features readings in Cicero (1st c. BCE), the politician, orator, and philosopher of first-century BCE Rome. The single most influential writer in Latin, Cicero is also a primary source for the fall of the Roman Republic. Spring 2016 will focus on the speech Pro Caelio, addressed to a law course in defense of the Roman aristocrat Caelius Rufus, and one of Cicero's most entertaining speeches. Repeatable for Credit.

LATI 320 - SILVER LATIN PROSE: SENECA AND TECITUS
Short Title: SENECA AND TACITUS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Latin culture during the Silver Age (AD 18-133) developed in unforeseen directions, which remain provocative and stimulating today. This course will focus on the two writers who developed new pathways in prose writing and new ideas about Rome, the moralist Seneca and the historian Tacitus. We will read one of Seneca's moral essays, De brevitate vitae, and book four of Tacitus' Annals.

LATI 350 - TRANSLATING LATIN LITERATURE: THEORY AND PRACTICE
Short Title: TRANSLATING LATIN LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A thorough examination of the art of translating Latin Literature. Students will survey ancient and modern theories of translation; study a range of translations of select Latin texts; and produce their own translations of prose and verse Latin originals. Taught in English.

LATI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Latin American Studies (LASR)

LASR 158 - INTRODUCTION TO LATIN AMERICAN STUDIES
Short Title: INTRO LATIN AMERICAN STUDIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course immerses students into Caribbean and Latin American studies by introducing them to the history, society, politics, and culture of the region, through a cross-disciplinary and a multi-national approach. Taught in English. Open to all students. Cross-list: SPPO 158.

LASR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LASR 251 - CONTINUITIES AND CHANGES IN BRAZILIAN HISTORY
Short Title: BRAZIL: CONTINUITY & CHANGE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An exploration of themes essential to understanding modern Brazil, such as the origins of a multi-racial society, the transition from monoculture to industry, authoritarian and democratic trends, the emergence of a uniquely Brazilian culture, and the conflicts - environmental, political, and economic - over the development of the Amazon. Cross-list: HIST 251.

LASR 350 - PIRATES, REBELS, NARCOS: LATIN AMERICAN OUTLAWS IN THE POLITICAL-CULTURAL IMAGINATION
Short Title: PIRATES, REBELS, NARCOS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The outlaw is a central figure in the political-cultural imagination on Latin America. Through a study of popular culture and literature, this course provides a critical examination of this figure: from pirates and runaway slaves in colonial times, to nineteenth century bandits, and more recently guerrillas and narcos. Taught in English. Recommended Prerequisite(s): LASR 158.

LASR 373 - WOMEN'S SOCIAL MOVEMENTS IN LATIN AMERICA AND THE CARIBBEAN
Short Title: WOMEN'S SOCIAL MOVEMENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will examine the historical development of women's social movements in Latin America and the Caribbean. We will explore how they are transforming the region through their diverse forms of political engagement. This is a lecture/seminar course that emphasizes writing and discussion. Cross-list: SWGS 373.

LASR 374 - FEMINIST AND QUEER THEORY IN THE AFRICAN DIASPORA
Short Title: FEM THEORY IN AFRICAN DIASPORA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an interdisciplinary overview of the body of Black feminist and queer theory that has emerged within the last forty years. We will examine these frameworks in order to understand how racial difference shapes gender and sexual identities. This is a seminar that emphasizes research and discussion. Cross-list: SWGS 374.
LASR 375 - LATINA AND AFRICAN AMERICAN WOMEN’S ACTIVISM IN THE URBAN METROPOLIS
Short Title: WOMEN’S ACTIVISM URBAN METRO
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will investigate the contemporary writings of Latina and African American women in urban spaces across the U.S. Understanding these women's experiences in relationship to each other will reveal the shared, yet distinct, trajectories that orient their struggle to resist poverty, racism, homophobia, and sexual and reproductive violence. Cross-list: SWGS 375.

LASR 376 - CHICANA AND LATINA EXPERIENCE THRU FILM
Short Title: CHICANA/LATINA EXP THRU FILM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the Chicana and Latina experience in the U.S. We examine these women's response to each other and forces of conquest, capitalism, and patriarchy. Novels, oral life histories, film, and art will be used to interrogate these women's conceptualization and assertion of feminism, activism, and history. Cross-list: SWGS 376.

LASR 378 - LATIN AMERICAN POLITICAL THOUGHT: IDENTITY, LIBERATION, MODERNITY
Short Title: LATIN AM. POLITICAL THOUGHT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course gives students an overview of the main thinkers, currents, concepts, and topics in Latin American and Latinx political thought. It is organized around three modules that address central topics: identity & transculturation; liberation; and modernity. Taught in English. Counts toward the minor in PLST.

LASR 390 - RECLAIMING THE FUTURE: CONTEMPORARY TECHNOLOGY, CULTURE & SOCIETY IN LATIN AMERICA
Short Title: TECH CULTURE & SOC IN LATIN AM
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is the role of technology in helping Latin America articulate a post-neoliberal future? This course examines the past, present, and future of the relation between technology and society in Latin America, focusing on contemporary efforts in popular culture and media to syncretize old and new forms of knowledge and techno-social production. Taught in English.

LASR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LASR 490 - INDEPENDENT STUDY IN LATIN AMERICAN STUDIES
Short Title: INDEPENDENT STUDIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable-credit course designed for students who want to pursue intensive semester-long study of a particular topic not included in the curriculum. Language may be in English or Spanish. Instructor permission required. Repeatable for credit. Instructor Permission Required. Repeatable for Credit.

LASR 491 - LATIN AMERICAN STUDIES CAPSTONE
Short Title: LATIN AMERICAN STUDIES CAPSTN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will write original seminar paper on Latin America incorporating reading and research in English and in the Spanish or Portuguese language sources; to be drawn from their research conducted during a study abroad semester in Latin America.
LASR 492 - DIRECTED RESEARCH
Short Title: DIRECTED RESEARCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Course Level: Undergraduate Upper-Level

Description: Independent research and investigation on any aspect of Latin America, Latin American studies, or U. S. Latinx studies. This course includes directed research and/or a research project. Student will work independently with only minimal faculty supervision. Permission of the instructor is required. Instructor Permission Required. Repeatable for Credit.

Liberal Studies Core/Capstone (MLSC)

MLSC 500 - INTRODUCTION TO GRADUATE LIBERAL STUDIES
Short Title: INTRO TO GRAD LIBERAL STUDIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course is designed to equip new students with the interdisciplinary environment of the Master of Liberal Studies program and learn the conventions and expectations of graduate-level reading, writing, research and critical analysis. Required for all new students. Department Permission Required.

MLSC 501 - THE SHAPING OF WESTERN THOUGHT
Short Title: THE SHAPING OF WESTERN THOUGHT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: Study of the foundational, intellectual and artistic texts of the western tradition from Ancient Greece to Medieval Islam. Consideration of texts and images over time and in their historical development as we reflect on who we are and how we got here. Readings would include: The Gilgamesh Epic, Homer’s Illad, Thucydides’ War, Plato’s Republic, Book of Genesis, Virgil’s Aeneid, Gospels of Luke and of Thomas, Augustine’s Confessions and The Qur’an. Department Permission Required.

MLSC 502 - OUR ENVIRONMENT: SCIENCE AND CULTURE
Short Title: OUR ENVIRONMENT:SCIENCE & CULT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: In this course, students will learn environmental concepts, the science and culture behind them and possible reactions to related problems from a political, economic and cultural perspective. The instructor will introduce the necessary background material in biology, ecology and chemistry as needed but the emphasis will be on obtaining scientific literacy in environmental studies. Department Permission Required.

MLSC 505 - SHAKESPEARE AND FILM
Short Title: SHAKESPEARE AND FILM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course will examine several Shakespeare plays and their theatrical productions. The instructor will teach each play as a text (and a script) first, and then study the films of these plays in an effort to understand the choices the film-makers have made in adapting Shakespeare’s plays to the screen. In this course, then, we will be concerned with studying both Shakespeare’s plays and what happens to those plays in the hands of a creative film-maker. Department Permission Required.

MLSC 506 - THE SOLAR SYSTEM, THE SUN AND THE MIND OF MAN
Short Title: SOLAR SYSTEM,SUN & MIND OF MAN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.

Course Level: Graduate

Description: This course will explore the beauty of our near-by cosmic environment, the solar system, both as a work of nature and also from the standpoint of a challenge to the observational and analytical capabilities of human beings. The course will follow two parallel tracks: a historical/conceptual understanding of the solar system and the various paradigms or models used to describe the physical ”universe.” In the second track we will tour the solar system beginning with the Sun, examining each planet and its satellite(s) in detail. The course will be non-mathematical; however, a few equations maybe show to illustrate a point. Department Permission Required.
MLSC 508 - EARTH SYSTEMS DYNAMICS
Short Title: EARTH SYSTEMS DYNAMICS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course involves exposing the advanced student to the interactions among the several mechanisms that combine to produce a working Earth. It would include concepts of Physics, Chemistry, Biology, Geology, Meteorology and Ecology. Department Permission Required.

MLSC 509 - STEREOTYPES, PREJUDICE AND DISCRIMINATION
Short Title: STEREOTYPES,PREJUDICE,DISCRIM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In the past century social scientists have learned an enormous amount about stereotypes, prejudice and discrimination, yet they remain poorly understood by the public at large and especially by public policy makers. We all hold stereotypes, show prejudices and discriminate although not necessarily in traditional racist or sexist ways. This course will explore what social scientists, especially social psychologists, have learned about these issues especially in the last quarter century. While we will cover traditional racial and gender issues, we will also consider material related to obesity, homosexuality, mental and physical disability and age among other topics. Department Permission Required.

MLSC 510 - MUSIC AND OTHER ARTS: COLLABORATION AND FUSION
Short Title: MUSIC AND OTHER ARTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the collaboration between music and other arts - poetry, drama, mythology, the visual arts (as applied to set and costume design) and dance - that often occurs during the creation of large musical works such as symphonies, operas and ballets. By investigating six musical masterpieces, it will be possible to discuss aspects of the collaborative process and how they lead to artistic fusion. Department Permission Required.

MLSC 513 - DNA: HUMAN IDENTITY AND ORIGINS
Short Title: DNA: HUMAN IDENTITY & ORIGINS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: "Who am I?" "Where did I come from?" All branches of knowledge address these fundamental questions. This course examines how DNA informs the structure and function of humans, and how humans have in turn used DNA as a source of information to solve mysteries and improve lives. We will introduce the structure of DNA and show how it influences physical traits and is passed on from parent to child. We will review the original goals of the Human Genome Project and discuss how the surprising results that emerged from it have altered the way we view the role of genes in human development. We will examine how breakthroughs in DNA technology have allowed us to answer questions about human origins, worldwide migrations and personal genealogy and aided criminal investigations and medical treatment. This course will also use the specifics of DNA investigation as examples of science in action. Department Permission Required.

MLSC 515 - SCIENCE IN THE FIRST PERSON
Short Title: SCIENCE IN THE FIRST PERSON
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Have you wondered what it would be like to participate in a major scientific discovery, or to deal with highly competitive or cantankerous colleagues, or to convince a skeptical world that your idea is right and the rest of the world has got it wrong? By reading material written by scientists who have made major discoveries, we will look at how science is done from the first-person perspective. We will see how scientists confront troubling thoughts when they see the modern world in conflict with the nature they love, and why science has been called a "contact sport." Department Permission Required.

MLSC 517 - MODERN DRAMA ON FILM AND IN PERFORMANCE
Short Title: MODERN DRAMA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on drama not only as text but also as performance. We will read modern plays and discuss them as they are often discussed in English courses, concentrating on theme, character, world, imagery, language and dramatic action. In addition, we will also examine the "texts" as scripts, as working papers for actors and directors: in short, as source materials for performance. To this end we will also view movie versions of many of these plays. Department Permission Required.
MLSC 519 - PSYCHOLOGY OF BELIEFS
Short Title: PSYCHOLOGY OF BELIEFS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Beliefs are among the most primitive, important and central of mental constructs. Many of our reactions to others are based on our beliefs and our perceptions of theirs, and it is impossible to understand racism, prejudice, religious and national conflicts without considering disagreement over basic belief systems. While there are several ways to approach the study of beliefs, we will focus on problematic beliefs, sometimes called anomalous or bizarre beliefs. Examples are beliefs in ESP and the paranormal, astrology, the reality of events that could not possibly have occurred, scientific theories and medical cures that are rejected by most experts, as well as extreme religious and political ideas. Department Permission Required.

MLSC 523 - THEORY AND PRACTICE OF PUNISHMENT
Short Title: THEORY & PRACTICE OF PUNISHMENT
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the writings of some of the most influential scholars in sociology, legal philosophy and political theory who have contributed to the creation of ideal or normative views of legal punishment and exposing the harsh realities of how non-violent and violent criminals are actually punished. Department Permission Required.

MLSC 525 - PLAGUES AND POPULATIONS
Short Title: PLAGUES AND POPULATIONS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the interaction of pathogens and human societies. It will cover the biological nature of pathogens and disease, the human immune system and therapeutic and societal interventions to prevent and cure disease. Specific diseases will be studied to determine the biology of the disease agent, its exploitation of the human host, its transmission and epidemiology and how the disease impacts the economic, political, social structure and values of the affected populations, and how the response to disease may limit its impact. Department Permission Required.

MLSC 526 - CONTEMPORARY MORAL ISSUES
Short Title: CONTEMPORARY MORAL ISSUES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The cardinal objective of the course is to analyze and evaluate the opposing viewpoints of some scholars who have expressed their views on some of the most disputed moral issues in contemporary American culture. Specifically, the required readings for the class focus on abortion, the death penalty, euthanasia, world hunger and poverty, sexual morality, drugs and addiction and affirmative action. Arrangements will be made for a tour of a prison unit and the opportunity to discuss the death penalty with several inmates. Department Permission Required.

MLSC 532 - THE GRAND DESIGN
Short Title: THE GRAND DESIGN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The book “The Grand Design” by Stephen Hawking and Leonard Mlodinow asks the big questions: how did our universe begin and is it the only one or are there multiple parallel universes; why is there something rather than nothing; why are we here; why are the laws of nature so finely tuned that they allow a stable universe? Guided by the Hawking/Mlodinow book, this course will explore these questions. We will address the question: do the laws of physics provide for the possibility of a multiplicity of universes of which ours, by happenstance or probability, turned out to have the right set of physical constants to provide for a stable universe and hence the possibility of life or is a Divine Creator necessary? To address these questions we will take a layman’s tour of basic concepts of cosmology, quantum mechanics, relativity, string theory, and extra-dimensions. Department Permission Required.

MLSC 533 - SELF-DETERMINATION IN ARAB WORLD
Short Title: SELF-DETERMINATION ARAB WORLD
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course investigates the history of the struggle for self determination and democracy in the Arab world. It provides a historical perspective by exploring the antecedents to the current so-called “Arab Spring,” specifically by comparing the anti-colonial nationalisms of the twentieth century with the today’s pro-democracy movements. It will also examine the role of the West, including the United States, in hindering or promoting anti-colonialism, nationalism and democracy in the Arab world. Department Permission Required.
MLSC 534 - HUMAN RIGHTS IN WORLD AFFAIRS
Short Title: HUMAN RIGHTS IN WORLD AFFAIRS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the history of human rights and humanitarianism from the eighteenth century Enlightenment era to the present. How did human rights become the premier moral language of our times and the idiom in which recent generations frame their idealism? While universal human rights may seem timeless, they have a long and checkered political and philosophical history. This seminar will explore that history through anthropology and legal studies as well as through case studies of non-governmental organizations. Special attention will be given to international law and shifts in international politics in the twentieth century. The course will also analyze the passions that motivated people to pursue human rights and the empathy that led them to uproot injustice. Department Permission Required.

MLSC 535 - "PLEASE SIR, I WANT SOME MORE": DICKENS, OLIVER TWIST, POVERTY, AND SOCIAL JUSTICE
Short Title: DICKENS, TWIST, SOCIAL JUSTICE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: During the worldwide celebrations of Charles Dickens’s bicentenary in 2011-12 Oliver Twist received vibrant new attention because its treatment of children, welfare, poverty, domestic violence, and anti-Semitism seemed so relevant to contemporary issues. In this course we will read the novel alongside and against the economic and cultural debates did the “immigrant question” raise in the public sphere since the advent of mass migration? We will discuss key issues regarding immigration including political asylum, guest-worker programs, stateless persons and asylum seekers? And what type of legal, political and biosphere. Not quite earth, air, fire and water, but close. We will then explore how these systems interact and finally attempt to evaluate the human impact on the entire earth. Department Permission Required.

MLSC 536 - TRADITIONAL CHINESE CULTURE AND ITS MODERN LEGACY
Short Title: TRADITIONAL CHINESE CULTURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An analysis of the language, philosophy, religion, art, literature, institutions and social customs of the Qing dynasty (1644-1912), the last imperial regime and a crucial bridge between "traditional" and "modern" China. Although this course is intended in part as an exercise in appreciation, it is designed primarily to encourage critical and creative thinking about another place and time. Department Permission Required.

MLSC 537 - PROFILES FROM THE PAST: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What has happened during the course of time, regarding culture and human experience that has been transmitted from the ancient to the modern world? What ideas and concepts concerning subjects such as politics, art, music, and philosophy have been our legacy from the western past? This course will survey the answers to these questions covering the time of classical Greece through the period of the high middle ages. Department Permission Required.

MLSC 538 - OUR CHANGING PLANET
Short Title: OUR CHANGING PLANET
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Earth can be studied by considering it to be made up of certain elements or systems that interact. The systems that we will consider in this course are the lithosphere, atmosphere, hydrosphere and biosphere. Not quite earth, air, fire and water, but close. We will then explore how these systems interact and finally attempt to evaluate the human impact on the entire earth. Department Permission Required.

MLSC 539 - IMMIGRATION AND THE STATE: EUROPE AND THE US IN COMPARATIVE PERSPECTIVE
Short Title: IMMIGRATION AND THE STATE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course traces the history of immigration within and to Europe and to the United States from the late 19th century to the present. How did the United States and the European states elicit, regulate or contain successive waves of labor and colonial migrants, stateless persons and asylum seekers? And what type of legal, political and cultural debates did the "immigrant question" raise in the public sphere since the advent of mass migration? We will discuss key issue regarding immigration including political asylum, guest-worker programs, assimilation and integration debates, and immigrants and the welfare state Department Permission Required.
MLSC 540 - IS ANYBODY OUT THERE: THE SEARCH FOR LIFE BEYOND EARTH
Short Title: IS ANYBODY OUT THERE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Imagine what the reaction would be if life were discovered on another planet in the solar system or on a planet orbiting another star. With the dawn of the space age tools have become available to tackle this problem with serious scientific research. This course will look at some of this research and examine the prospects for finding life. Department Permission Required.

MLSC 541 - HUMAN RIGHTS, GENDER EQUALITY AND RELIGIOUS BELIEFS
Short Title: EQUALITY & RELIGIOUS BELIEFS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class aims to explore the intertwined relationship between gender equality, human rights and religious beliefs globally. Additionally, the class will focus on realities and misconceptions on women's status in the Middle East and North Africa and explore the impact of the socio-cultural and political context on shaping gender relations across the region. Department Permission Required.

MLSC 542 - THE EPIC JOURNEY
Short Title: THE EPIC JOURNEY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This class explores some of the classic texts of Western literature, books from the ancient world that have had, and continue to have a formative influence on who we are and how we got here. The works we will study all share a common theme: the epic journey. We explore different variations of this theme, follow ancient travelers on their journeys, and reflect with them about their discoveries. Department Permission Required.

MLSC 543 - THE CITY IN LITERATURE
Short Title: THE CITY IN LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore the music of a variety of religious and ethnic groups in an attempt to bridge differences and create understanding among those of different traditions. Each class session will be based upon the music connected to a specific religious or ethnic group. Department Permission Required.

MLSC 544 - WRITING LITERATURE FOR CHILDREN
Short Title: WRITING CHILDREN'S LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many of us have beloved stories we either read or that someone read to us when we were children. This course returns us to those roots and delves deeply into the meaning and purpose of children's literature with the ultimate goal of trying our hand at writing several original pieces. Students will produce a portfolio of creative work that includes poetry, fiction, and/or drama for very young and older children. Department Permission Required.

MLSC 545 - WINDOW TO THE SOUL: EXPLORING RELIGION AND ETHNICITY THROUGH MUSIC
Short Title: RELIGION & ETHNICITY MUSIC
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will read a variety of writers from both the nineteenth and twentieth centuries. For some historical background and city discourse, we will also read parts of Lewis Mumford's The City in History, Jane Jacobs's The Death and Life of Great American Cities, and the essays of Michel de Certeau, Georg Simmel, E B White, among others. Department Permission Required.
MLSC 546 - THE ROLE OF CHEMISTRY IN HISTORY
Short Title: ROLE OF CHEMISTRY IN HISTORY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Could the outcome of a war be decided simply on the material chosen for the buttons on the soldier’s garments? What in pantyhose was desired for WWII? How did phenols and formaldehyde lead to a worldwide revolution via plastics? These questions and more will be answered as we explore important molecules that have changed the course of human history. Department Permission Required.

MLSC 547 - PROFILES FROM THE PAST II: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the span of years from the end of the middle Ages through the eve of the French Revolution. In addition to the study of a selected group of people from these years, there will also be an examination of the Renaissance, the Reformation, the Enlightenment, and Absolutism. Department Permission Required.

MLSC 548 - HISTORY OF PHILOSOPHY SET IN INTERDISCIPLINARY CONTEXT
Short Title: HIST OF INTERSIC PHILOSOPHY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to leading figures, ideas and arguments of the history of western philosophy, set in interdisciplinary context in this interdisciplinary MLS program. For a general educated audience philosophy is best approached from multiple perspectives - historical, literary, scientific, religious, artistic - and we will take this approach.

MLSC 549 - COMPARATIVE IMPERIAL PLEASURE GARDENS: POWER AND LANDSCAPE
Short Title: IMPERIAL PLEASURE GARDENS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines pre-modern designed landscapes used for creating, declaring, and reading social and political claims. While understanding the garden as an art form and sacred space, we focus on the relationship between landscape and power in a globally comparative context. Department Permission Required.

MLSC 550 - MODERN ASTRONOMY AND OUR PLACE IN THE UNIVERSE
Short Title: MODERN ASTRONOMY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to modern astrophysics beyond the solar system including a brief history of astronomy from antiquity through Galileo and Newton. Our modern understanding of the formation, evolution, and death of stars; the composition and evolution of galaxies; the structure and evolution of the universe will then be surveyed. Department Permission Required.

MLSC 551 - PROFILES FROM THE PAST III: FAMOUS FIGURES IN WESTERN HISTORY
Short Title: PROFILES FROM THE PAST III
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the span of years from the beginning of the French Revolution to the middle of the 20th century. In addition to the study of selected individuals such as Napoleon Bonaparte, Czar Alexander I, Cecil Rhodes, Gregor Rasputin, Vladimir Lenin, Joseph Stalin, Adolf Hitler and Mohandas Gandhi, there will be examinations of Romanticism, Nationalism, Imperialism, and Fascism. Department Permission Required.
MLSC 552 - CONSERVING BIODIVERSITY
Short Title: CONSERVING BIODIVERSITY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Many scientists have coined the current geological age as the "Anthropocene" in reference to the impact of mankind on the planet. This course will examine biodiversity, how biodiversity influences our lives, the forces that affect biodiversity worldwide, and how we can protect it. Local species and ecosystems will be highlighted.

MLSC 553 - SOLVING THE CLIMATE CHALLENGE
Short Title: SOLVING THE CLIMATE CHALLENGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course overviews climate science and explores strategies for transforming electricity, transportation, and agriculture to avert the impacts of abrupt climate change. Department Permission Required.

MLSC 554 - MY FAVORITE NOVELS - AND GREAT FILMS MADE FROM THEM
Short Title: MY FAVORITE NOVELS AND FILMS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this class we will carefully examine four great novels from different eras: "Pride and Prejudice," "Great Expectations," "One Flew Over the Cuckoo's Nest," and "Atonement," to see what makes them so successful. Then we will watch and discuss the great films made from them. Department Permission Required.

MLSC 555 - THE POLITICAL PHILOSOPHY OF THE AMERICAN REVOLUTION
Short Title: POL PHIL OF AMER REVOLUTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will 1) discuss the significance of some events in Colonial American that precipitate the clarion call the dissolve forever all political ties to Great Britain: 2) discuss the ideological origins of the American Revolution in the key documents, specifically the Declaration of Independence, the Constitution, the Bill of Rights and the Federalist Papers. Department Permission Required.

MLSC 556 - HEAVEN AND HELL: FROM DANTE TO MILTON AND BEYOND
Short Title: LITERATURE FROM HEAVEN & HELL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The ultimate end of human life resides in landscapes defined by aspiration or terror, punishment or reward. Thus heaven and hell are places frequently conjured by the literary imagination. This course looks closely at the implications of such imaginings from Dante's Divine Comedy to Milton's Paradise Lost to the present. Department Permission Required.

MLSC 557 - EARLY MODERN ISLAMIC WORLD: ART AND EMPIRE
Short Title: ISLAMIC EMPIRES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to Islamic empires of the early modern Muslim world: Ottoman, Safavid, and Mughal. Focus on art, architecture, literature, religion, kingship, family, which shape the cultural heritage of the Muslim world today. Opportunity to study works of art produced in these imperial workshops at MFAH. Department Permission Required.

MLSC 558 - EVOLUTION AND SOCIETY
Short Title: EVOLUTION AND SOCIETY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The science of evolution has come a long way since Charles Darwin first proposed his theory for how species change through natural selection in 1859. This course will provide an overview of modern evolutionary biology, with a focus on its relevance for 21st century society. Department Permission Required.

MLSC 559 - ENVIRONMENTAL LITERATURE
Short Title: ENVIRONMENTAL LITERATURE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Environmental Literature will focus on nature essay writers, ecopoets, and ecocriticism. The course will include poetry and other literary writing designed to inspire and creatively capture the natural environment and nonfiction nature writing that highlights major concerns about the environment and aims to transform the thoughts and behavior of society. Department Permission Required.
| Course Code | Course Title                                      | Short Title                  | Department                        | Grade Mode       | Course Type | Credit Hours | Restrictions                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|--------------------------------------------------|------------------------------|-----------------------------------|------------------|-------------|--------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
| MLSC 560    | WOMEN IN SOUTHERN LITERATURE                     | WOMEN IN SOUTHERN LITERATURE | School of Continuing Studies      | Standard Letter  | Seminar     | 3            | Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students. | This course will consider the role of women in southern literature, focusing mostly on the works of women writers from the 1800's to the 2000's with some readings from male writers as well. Some very early works, including letters, diaries, and captivity narratives will be included, but most of the readings will be modern and contemporary short stories, novels, and memoirs. Department Permission Required. |
| MLSC 561    | HISTORY OF SOUTH ASIA: THE ORIGINS OF INDIA AND PAKISTAN | HISTORY OF SOUTH ASIA        | School of Continuing Studies      | Standard Letter  | Seminar     | 3            | Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students. | A broad introduction to the history of the cultural, religious, economic and political systems of South Asia, this course explores the centuries-long development of Hinduism and Buddhism, rise of Islamic state power and establishment of British control, culminating in resistance movements among South Asians and establishment of modern nation states, alongside the wrenching experience of Partition. Department Permission Required. |
| MLSC 562    | MUSIC AND MEDIEVALISM                             | MUSIC AND MEDIEVALISM        | School of Continuing Studies      | Standard Letter  | Seminar     | 3            | Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students. | This course examines the history and aesthetics of medievalist music in the context of literature, drama, and film. We consider the authentic models for medievalist works, establish the romanticizing methodology, and then observe how medievalism plays out in the concert hall, film, and other media. Department Permission Required. |
| MLSC 563    | A HISTORY OF TUDOR ENGLAND                       | A HISTORY OF TUDOR ENGLAND   | School of Continuing Studies      | Standard Letter  | Seminar     | 3            | Enrollment is limited to Graduate level students.                            | At the end of the long and brutal Wars of the Roses, a new royal dynasty emerged in England to great acclaim and relief and uncertainty. Henry Tudor, who styled himself as Henry VII, began a successful reign and the beginning of a family dynasty lasting a little longer than a century. This course will study the Tudor century. Department Permission Required. |
| MLSC 564    | THE POLITICS OF WORLD WAR TWO IN EUROPE           | THE POLITICS OF WORLD WAR TWO| School of Continuing Studies      | Standard Letter  | Seminar     | 3            | Enrollment is limited to Graduate level students.                            | The course is an in-depth exploration of the Second World War in Europe. Hitler's conquest of Europe elicited political, social, economic and demographic upheavals in all parts of the continent. While closely following the military chronology of the conflict, our course will examine the radical transformations brought about by Nazi rule in Western and Eastern Europe as well as the Balkans. Department Permission Required. |
| MLSC 565    | PAST AND FUTURE CLIMATE CHANGE: NATURAL VERSUS HUMAN INFLUENCE | PAST AND FUTURE CLIMATE CHANGE | School of Continuing Studies      | Standard Letter  | Seminar     | 3            | Enrollment is limited to Graduate level students.                            | Have humans really altered the course of natural climate change? Can this course be altered? This course introduces students to the methods used by scientists to study Earth's climate history. We will examine methods used to study Earth's climate evolution over hundreds of millions to decadal time scales. Why did Earth's climate undergo extreme changes from "icehouse" conditions when much of its surface was covered by ice, to "greenhouse" conditions when the planet was much warmer than present? What was the impact of these changes on Earth's inhabitants? Lastly, we will use Earth's climate history as context for understanding the role of humans in altering the course of our planet. How reliable are climate predictions and what can be done to curtail climate change? Department Permission Required. |
MLSC 566 - MUSIC IN THE ERA OF THE REFORMATION
Short Title: MUSIC IN THE REFORMATION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar concerns musical responses to the changing religious climate in the fifteenth and sixteenth centuries. Examination of the concomitant polemics in theology and government, Biblical Humanism and the Devotio Moderna, secular vernacular song, and popular preaching will shed light on the complex interactions between music and society in this age of religious reform. Department Permission Required.

MLSC 567 - THE HOUSE OF STUART
Short Title: THE HOUSE OF STUART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Although the Stuarts were a royal dynasty in Scotland since the fourteenth century, they arrived in England after the death of Elizabeth I. Unlike the Tudors who preceded them, the Stuarts never gained a great popularity with their subjects. There were, nevertheless, as a result of friction amongst the population, great constitutional developments during their century which continue to shape the United Kingdom until this day. Department Permission Required.

MLSC 568 - PSYCHOLOGY OF AGGRESSION AND VIOLENCE
Short Title: AGGRESSION AND VIOLENCE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of empirical research on the social psychology of aggression and violence, flowing from evolutionary/biological perspectives, cultural perspectives, and contextual/situational perspectives. Through exposure to classic and contemporary works in this course, students will get a taste of the breadth of social-psychological research on aggression and violence. Department Permission Required.

MLSC 569 - FORESIGHT IN SOCIAL JUSTICE
Short Title: FORESIGHT IN SOCIAL JUSTICE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Foresight in Social Justice will explore and analyze social justice issues, and then suggest positive action for social change. This course introduces students to future studies research, enabling individuals to spot emerging opportunities and threats within the context of social justice and develop innovative responses to serve changing needs. Department Permission Required.

MLSC 570 - CHILDREN OF IMMIGRANTS
Short Title: CHILDREN OF IMMIGRANTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Through this course, students will learn about developmental psychology and developmental outcomes within the context of immigration. Given that the Houston metropolitan area hosts the fourth highest number of children of immigrants in the entire country, this course will provide students with the opportunity to connect theoretical knowledge with community related issues. Throughout the semester, the students will read recent scientific articles and policy-related reports that will provide background information for in-class discussions. In addition, students will engage in class exercises to brainstorm about local and national issues related to the course content. As a semester project, students will select a topic for further exploration resulting in a written essay and oral representation to the class. Department Permission Required.

MLSC 571 - MORAL LEADERSHIP IN ECONOMICS
Short Title: MORAL LEADERSHIP IN ECONOMICS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores how we can be (or become) virtuous and successful leaders. This course helps students to develop personal and professional mission and values statements as aids in good leadership. On the path to developing mission and values statements, students will explore elements of moral psychology and philosophy, emotional intelligence, character development, the formation of communal and personal identities, the purpose and practice of commercial activities from the vantage point of five spiritual traditions, practical examples of institutions applying missions and values (both successfully and unsuccessfully), ideas regarding meaning-making, measuring our success in life, creating a life purpose, and giving voice to our values. The question at the center of the course is whether we can live professional and personal lives that do not conflict, but rather work in concert with the economic dimensions of institutions, especially if we find ourselves leading others in these organizations.
MLSC 600 - INTRODUCTION TO GRADUATE RESEARCH, ANALYSIS AND EXPOSITION
Short Title: INTRO GRAD RESEARCH & WRITING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goals of this course will be to develop the students' abilities to perform library or Internet scholarly research at a graduate level; conduct graduate-level analysis of representative graduate-level readings and topics similar to those encountered in the MLS program; demonstrate the advanced analytical and critical thinking abilities required inside and outside the graduate classroom; express the results of scholarly research and analysis and original ideas in the written formats that meet the criteria for graduate-level essays, papers and reports; use oral expression, discussion and presentation techniques at the level expected in graduate classrooms. Department Permission Required.

MLSC 604 - EXPLORATION AND DISCOVERY IN ANTARCTICA
Short Title: EXPLOR & DISC IN ANTARCTICA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the seventh continent through the history of austral exploration and through an explanation of the scientific research that has happened, is happening and will happen there. This course will begin with a basic scientific description of the highest, driest, coldest, windiest continent on Earth. Participants will then study journals of some of the original explorers as well as recent works analyzing the "glory days" of polar exploration. The class will then move from the period of exploration, through the early scientific work, and on to the modern hypothesis-driven science that is taking place now and is being planned for the future. The class will close with an examination of tourism and its effects on the nature of the Antarctic ecosystems and cryosphere. Department Permission Required.

MLSC 606 - THE HEBREW BIBLE AND ITS INTERPRETERS
Short Title: HEBREW BIBLE/ITS INTERPRETERS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar seeks to acquaint students with the principal parts of the Hebrew Bible/Old Testament, with the modern, historical-critical study of the Bible as an academic discipline, and a few episodes in the recent history of the Bible in the West. Our reading of the biblical literature will primarily be historical-critical in the sense that it emphasizes that the Hebrew Bible is rooted in the ancient Near East, its history and literature. At the same time we will be sensitive to traditional, Jewish and Christian readings of the Bible as they evolved over two millennia and examine how these faith-based traditions arose, how they differ from modern critical approaches and how the two can complement each other. Department Permission Required.

MLSC 610 - PSYCHOLOGY OF HAPPINESS
Short Title: PSYCHOLOGY OF HAPPINESS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Truth, beauty and, yes, happiness, are issues that have engaged thoughtful people over the centuries. What is happiness (and what makes us happy)? Until recently we have relied on philosophers and religious thinkers for answers to that question, and many of them have provided useful recipes that seem to work for at least some people some of the time. The last century or so has seen many psychologists and self-help gurus who have also handed out (well, more often sold) recipes that generally seem to be less satisfactory than the wisdom of the ancients. Interestingly until recently psychologists have tended to ignore this seeming important topic, but in the past 10 or so years social and personality psychologists, neuroscientists and even economists have begun to pose empirically answerable questions about happiness and to find some data-based answers to what makes people happy. In this course we will read some of the traditional wisdom provided by religious and philosophical thinkers, but we will focus primarily on questions and issues that are subject to empirical resolution. Department Permission Required.
MLSC 612 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The discovery of the Dead Sea Scrolls a little over a half a century ago in the Judean desert has been celebrated as the most significant manuscript discovery of the 20th century. Students will study the fascinating history of the discovery and publication of the Scrolls. They will read the most important Scrolls, learn about the beliefs and practices of the Jewish group that authored them and discuss what can be learned from the Scrolls about the nature of Early Judaism and the origins of Christianity. Department Permission Required.

MLSC 614 - PUBLIC SPEAKING
Short Title: PUBLIC SPEAKING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to give the student exposure to and experience using basic principles and skills of oral communication in the public context. Emphasis will be on the development of speech organization, support and delivery. Informative and persuasive speeches will be practiced. An important outcome of the course is that the student better understand and appreciate the important role public speaking plays in modern society. Instructor Permission Required.

MLSC 615 - TEN MASTERPIECES OF NORTHERN RENAISSANCE ART
Short Title: MASTERPIECES OF REN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the great "masterpieces" of painting produced in Northern Europe during the Renaissance of the fifteenth and sixteenth centuries. Each week we will focus on a single work of art from this period and explore a constellation of issues around the creation and reception of the painting. Students will learn in-depth methods of visual analysis and interpretation of works within their historical context. These same skills and strategies may be applied to the full range of western painting and provide useful tools for enriching visits to museums or experiences of European travel. Department Permission Required.

MLSC 616 - OCEANWAYS OF THE BRITISH EMPIRE
Short Title: OCEANWAYS OF BRITISH EMPIRE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Never in the history of imperial expansion has there ever been anything that compared to the British Empire at its height in the days of Queen Victoria. In size the Empire was supreme, ruling the largest area and the largest number of people. This course will examine these aspects of the Victorian Empire and compare them with imperial activities of the present day. Department Permission Required.

MLSC 617 - CREATIVE NONFICTION
Short Title: CREATIVE NONFICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Creative nonfiction takes many forms, including expository writing, personal essay, narrative story-telling, literary journalism, memoir, nature and science writing, travel and food writing, historical narrative, biographical narrative, and academic and cultural criticism. This course is designed to help students read and write creative nonfiction with a focus on the voice, structure, messages, style, and technique found in contemporary creative nonfiction. The material covered applies to the humanities, the social sciences, and the sciences. Department Permission Required. Repeatable for Credit.

MLSC 618 - THE AWAKENING OF RUSSIA: A MUSICAL AND HISTORICAL PASSAGE
Short Title: THE AWAKENING OF RUSSIA
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: There was a spectacular flowering of Russian culture in the aftermath of the death of Czar Nicholas I (1825-55). Ushered in was a relatively liberal ear which, combined with a powerful natural upsurge, yielded a period of remarkable creativity - noted especially in this course by Russian music. This interdisciplinary course will couple the historical and musical threads of Russian culture. Department Permission Required.
MLSC 620 - MASTERPIECES OF THE POETIC TRADITION
Short Title: POETIC TRADITION MASTERPIECES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will introduce students to the appreciation and analysis of poetic masterpieces. We will focus on poetry produced in the English and American literary tradition, with particular attention paid to the poems, poets, and cultures that influence the development of those traditions. Department Permission Required.

MLSC 621 - ART MUSIC IN WESTERN EUROPEAN CULTURE II
Short Title: ART MUSIC EUROPEAN CULTURE II
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the second course in a sequence devoted to advanced musical understanding. In the first part of this sequence (Art Music in Western European Culture I) we will examine a wide range of music from a single time period. In this, the second part of the sequence, we will instead concentrate in depth upon one piece of music per class and will combine a focus upon advanced listening skills with music specific research techniques. The first weeks of the class will review musical listening, discourse, and the specialized skills necessary for musical research. Subsequently, each class session will focus upon a major work by a significant composer such as Mozart, Beethoven, Schubert, Mahler, and Debussy, among others. Department Permission Required.

MLSC 622 - THE SCEPTER'D ISLE: ANCIENT AND MEDIEVAL BRITAIN
Short Title: ANCIENT AND MEDIEVAL BRITAIN
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: From the murky prehistoric times of Stonehenge and New Grange to the tumultuous times of Henry II and Eleanor of Aquitaine, the dramatic combinations of history and myth have continually fascinated lovers of the British Isles. This course will explore ancient and medieval Britain, meandering from prehistoric sites to the early invaders, from the delightful legends of Glastonbury to the centuries of Roman invasions, from the Anglo-Saxon heptarchy to the Norman invasion, and from the hegemony of the Roman Catholic church to the challenge of secular kings. Department Permission Required.

MLSC 623 - WHAT MODERN WAS: CELEBRATING THE CENTENNIAL
Short Title: CELEBRATING THE CENTENNIAL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What constituted "modern music" in 1912? Works such as Arnold Schoenberg's Perrot lunaire, Claude Debussy's Jeux, and compositions by American composers Henry Cowell and Charles Ives set the bar for musical modernism that year. But other pieces from France, Germany, Russia, Spain, Hungary and England suggested that the future would present major changes. What did audiences in the United States know about such music? What did they think about it? What did the founders of the Rice Institute think about the new musical trends? How did the music played at the opening festivities of the Rice Institute reflect these perceptions of musical modernism? This course will consider these questions from a variety of parameters and get a sense of "what modern was" and its relationship to the momentous events of 1912 in Houston, Texas. Department Permission Required.

MLSC 624 - ADVANCED CREATIVE NONFICTION
Short Title: ADVANCED CREATIVE NONFICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers students an opportunity to continue to practice writing creative nonfiction in a guided workshop format. The primary emphasis in the course will be on the professor and students reading and providing constructive feedback on the students' creative nonfiction writings. In addition, the students will read further examples of various types of creative nonfiction writing and complete writing exercises designed to allow them to work on the voice, structure, and technique of their writing. This course is designed for students with experience in writing creative nonfiction, such as completion of MLSC 617 or a similar course or creative writing workshop experience elsewhere. For those who have not taken a creative nonfiction course in the MLS program, consultation with the instructor is recommended before enrolling. Department Permission Required.

MLSC 625 - THE SHAPES OF POETRY: A WORKSHOP
Short Title: THE SHAPES OF POETRY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines fundamental architecture of poetry. How do poets create a sense of shape? What are the nuts and bolts of a poem? Students will read widely in the history of poetry, from traditional meters and historical forms to contemporary free verse and experimental or open forms. Part workshop and part seminar, this course will feature critical and creative assignments and is designed for writers and non-writers of any level of experience. Department Permission Required.
MLSC 626 - THE BROTHERHOOD: LIVES AND LOVES OF THE PRE-RAPHAELITES
Short Title: PRE-RAPHAELITES LIVES & LOVES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Pre-Raphaelite Brotherhood (PRB), founded in 1848, was a small group of British artists who boldly challenged the conventions of Victorian-era art and the materialism of industrialized England. While the PRB influenced the British art world for the remainder of the century, this course will focus on the intriguing personal lives of the artists, including Dante Gabriel Rossetti, William Holman Hunt, and John Millais, rather than the art they created. These artists, along with their wives, paramours, and models (often all one and the same) were part of a highly prolific Victorian creative class which for this course will revolve around the locale of central London and the influence of the towering figure of art and architecture - critic John Ruskin. Department Permission Required.

MLSC 627 - JOHN RUSKIN AND HIS WORLD
Short Title: JOHN RUSKIN AND HIS WORLD
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine John Ruskin (1819-1900), who rose from a troubled childhood to become one of the most influential critics of art and architecture of his century, forever fulminating the notion that art had a moral purpose and especially that art and architecture produced in France and Italy in the Middle Ages. Department Permission Required.

Short Title: THE BIRTH OF MODERNISM
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: One hundred years have passed since the momentous decade that brought us the beginnings of modernism, the "war to end all wars," and post war cynicism. This course will examine those tumultuous years from the perspective of the wide array of music written to satisfy all types of tastes and circumstances. Department Permission Required.

MLSC 629 - EFFECTIVE THINKING
Short Title: EFFECTIVE THINKING
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The basis of success in everything, academics, personal relationships, professional life, business leadership, or anything, is effective thinking. This course will address the process and practice of how to think effectively, analytically, and creatively. Department Permission Required.

MLSC 630 - POST-BOP JAZZ'S GOLDEN AGE
Short Title: JAZZ'S GOLDEN AGE
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course we will explore the music of some of the most influential and important jazz musicians of the period, and we will also study the social, cultural and political context within which the music was created. We will focus in particular on Charlie Parker, Thelonious Monk, Billie Holiday, Miles Davis, Charles Mingus, and John Coltrane. Department Permission Required.

MLSC 631 - INTRODUCTION TO READING AND WRITING FICTION
Short Title: INTRO READING WRITING FICTION
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to reading fiction critically and writing short fiction successfully. The reading portion of the class focuses on the primary elements of fiction: scenes, tension and conflict, character, point of view, structure, voice, and dialogue. For the writing portion, students will compose original prose and provide feedback on one another's work in a workshop format. Department Permission Required.

MLSC 632 - MUSIC MYTH AND MADNESS
Short Title: MUSIC MYTH AND MADNESS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of biographical narratives about musicians including Bach, Bob Dylan, Thelonious Monk, Mozart, and Schumann. Considers the nature of creativity and inspiration. Examines the extent to which biography borrows from mythology and literary fiction. Materials include memoirs, letters, novels, and films. Department Permission Required.
MLSC 633 - HOW TO READ A NOVEL
Short Title: HOW TO READ A NOVEL
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We will start this course by making one of Jane Austen's novels our "norm" and then read a survey of the novel's great variety through the nineteenth, twentieth, and twenty-first centuries. As we read the novels, we will keep asking what we mean by narrative, point of view, the nature of character, the paradigm of character relationships each novel creates, and the meaning of the end. Department Permission Required.

MLSC 634 - CONCEPTS OF MODELS, METAPHORS AND ANALOGIES
Short Title: MODELS, METAPHORS & ANALOGIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will start by developing the concepts of model, metaphor, and analogy. The model is a basis for the scientific method and rational thought. The metaphor is a powerful tool in literature and description. Analogy ties all of this together. We will finish by looking at a computer simulation (model) of the world. Department Permission Required.

MLSC 635 - THE ORIGINS OF CHRISTIANITY
Short Title: THE ORIGINS OF CHRISTIANITY
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the origins and earliest history of Christianity, from Jesus to the second century CE. The class is based on a close reading of tests; Jewish texts; texts from the Old Testament; Christianity, from Jesus to the second century CE. and Christian texts from the second century CE. Department Permission Required.

MLSC 636 - THE LITERATURE OF THE SIXTIES
Short Title: THE LITERATURE OF THE SIXTIES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Some decades are not simply a ten-year period but a cultural phase. The Sixties, it seems, started in 1963 with the assassination of JFK and lasted until 1975, when we withdrew our military forces from Saigon and quit the war we lost. The literature of the period reflects some of this upheaval-new themes, greater candor, many different kinds of experiments.

MLSC 637 - THE ART AND ART HISTORY OF EUROPE IN THE LONG NINETEENTH CENTURY (1789-1918)
Short Title: 19TH-CENTURY EUROPEAN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will consider European art from the long nineteenth century, looking in detail at the key movements and artists from this dramatic period of history. We will begin by placing Neo-Classicism in the context of the emergence of the French Revolution, while ending with the emergence of abstraction in the era of the First World War. In so doing we will also consider the varied art historical methods through which scholars have addressed the art of this period. Department Permission Required.

MLSC 638 - THE ART AND ART HISTORY OF EUROPE IN THE LONG NINETEENTH CENTURY (1789-1918)
Short Title: 19TH-CENTURY EUROPEAN ART
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will consider European art from the long nineteenth century, looking in detail at the key movements and artists from this dramatic period of history. We will begin by placing Neo-Classicism in the context of the emergence of the French Revolution, while ending with the emergence of abstraction in the era of the First World War. In so doing we will also consider the varied art historical methods through which scholars have addressed the art of this period. Department Permission Required.

MLSC 639 - EXPLORING THE ARTS
Short Title: EXPLORING THE ARTS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to introduce students to an array of contemporary and traditional arts practices and to deepen experience and understanding of those arts through writing. Engaging with the arts offerings available during the semester, the course will cover concepts in theater, opera, dance, and art exhibitions. Department Permission Required.

MLSC 640 - AMERICA THROUGH FOREIGN EYES
Short Title: AMERICA THROUGH FOREIGN EYES
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the perceptions and interactions of five regions – Africa, China, France, Mexico, and Russia – with America. Some course content is online, taught by Rice experts of these regions. The course introduces students to various disciplinary approaches to the study of intercultural exchange and representation. Department Permission Required.

MLSC 641 - PHILOSOPHIES OF INDIA & TIBET: RELIGION, ART, HEALTH, SCIENCE & SPIRITUALITY
Short Title: PHILOSOPHIES OF INDIA & TIBET
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examining the philosophies and religious traditions from India and Tibet, can give us a broader view of some of the landscape of thought in Asia, from the early Harappan culture and Vedic worldview, to the religious traditions of Hinduism, Jainism, Islam, Bon and Buddhism among others. Department Permission Required.
**MLSC 642 - ASIAN RELIGIOUS AND MEDICAL TRADITIONS: INDIA, CHINA AND TIBET**

*Short Title:* ASIAN RELIGIONS AND MEDICINE  
*Department:* School of Continuing Studies  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credit Hours:* 3  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* Exploring the philosophical and religious traditions of India, China, and Tibet, this course will look at their own understanding of well-being and thus, the medical systems and methods they create accordingly—particularly mind-body conceptions and practices. We will thus examine the relationship between body and mind, illness, suffering, treatment, healing, and death. Department Permission Required.

**MLSC 677 - SPECIAL TOPICS**

*Short Title:* SPECIAL TOPICS  
*Department:* School of Continuing Studies  
*Grade Mode:* Standard Letter  
*Course Type:* Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
*Credit Hours:* 1-4  
*Restrictions:* Enrollment is limited to Graduate or Visiting Graduate level students.  
*Course Level:* Graduate  
*Description:* Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

**MLSC 699 - CAPSTONE SEMINAR**

*Short Title:* CAPSTONE SEMINAR  
*Department:* School of Continuing Studies  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Seminar  
*Credit Hour:* 1  
*Restrictions:* Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* This seminar course is designed to familiarize students with the academic requirements of the MLS Capstone Project and to assist students with the research, preparation, and defense of the MLS Capstone Proposal. Required for all MLS students who have completed at least 24 hours. Department Permission Required. Recommended Prerequisite(s): Completion of at least 24 hours of MLSC coursework. Repeatable for Credit.

**MLSC 700 - CAPSTONE I**

*Short Title:* CAPSTONE I  
*Department:* School of Continuing Studies  
*Grade Mode:* Satisfactory/Unsatisfactory  
*Course Type:* Research  
*Credit Hours:* 1-9  
*Restrictions:* Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* The capstone course is designed to help students utilize the knowledge gained in the previous courses and to demonstrate mastery of the intellectual skills required for a Master of Liberal Studies degree. The capstone course will culminate in an extensive written paper (or original creative work such as poetry or fiction) and an oral presentation to MLS faculty and fellow students. The capstone course may be completed in one term as one course, or, optionally, the student may with the advisor’s approval, take two terms to complete the capstone. The determination as to whether the capstone will be a one or two term project should, in most cases, be made before the start of the first term. Department Permission Required. Repeatable for Credit.

**MLSC 701 - CAPSTONE II**

*Short Title:* CAPSTONE II  
*Department:* School of Continuing Studies  
*Grade Mode:* Standard Letter  
*Course Type:* Research  
*Credit Hours:* 1-9  
*Restrictions:* Enrollment is limited to students with a major in Liberal Studies. Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* Continuation of MLSC 700 Capstone I; or for students who plan to take only one term to complete the capstone. Department Permission Required. Repeatable for Credit.

**MLSC 750 - INTRODUCTION TO DIPLOMA RESEARCH**

*Short Title:* INTRO TO DIPLOMA RESEARCH  
*Department:* School of Continuing Studies  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credit Hours:* 3  
*Restrictions:* Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.  
*Course Level:* Graduate  
*Description:* Open only to students in the Diploma in Liberal Studies Program. The purpose of this course is to prepare students for diploma research in general and for the diploma project research in particular. The course will accomplish this by giving students an opportunity to gain knowledge of research in the two chosen disciplines outlined in their Diploma Proposal. Department Permission Required.
MLSC 797 - ADVANCED INDEPENDENT READINGS
Short Title: ADVANCED INDEPENDENT READINGS
Department: School of Continuing Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent study under faculty supervision and open only to students in the Diploma in Liberal Studies Program. The primary purpose of this course is to allow for study centrally relevant to the two disciplines chosen by the DLS student not covered by existing coursework in liberal studies curriculum. Department Permission Required. Repeatable for Credit.

MLSC 798 - DIPLOMA PROJECT I
Short Title: DIPLOMA PROJECT I
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for Diploma Project. Open only to students in the Diploma in Liberal Studies program. This is the first of a two-term course sequence in which the diploma student works on his or her diploma project under the supervision of the diploma first reader (advisor), second reader and third reader. Department Permission Required. Repeatable for Credit.

MLSC 799 - DIPLOMA PROJECT II
Short Title: DIPLOMA PROJECT II
Department: School of Continuing Studies
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment limited to students in the DLS program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research for Diploma Project. Open only to students in the Diploma in Liberal Studies program. This is the second and final course in the two-term course sequence in which the diploma student works on his or her diploma project under the supervision of the diploma first reader (advisor), second reader and third reader. Department Permission Required. Repeatable for Credit.

Lifetime Phys Activity Credit (LPCR)

LPCR 200 - ADVANCED MENTAL TRAINING
Short Title: ADVANCED MENTAL TRAINING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to focus on the psychology of performance excellence. Specifically, it will highlight the relationship between mental toughness and performance and will explore the ways in which the psychological skills training can be applied to a variety of performance setting (e.g. business, music, drama and sport). LPCR 200 is excluded and cannot be substituted or used to meet the University LPAP Requirement for graduation. Instructor Permission Required.

LPCR 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

LPCR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Lifetime Phys Activity Program (LPAP)

LPAP 100 - INTRODUCTION TO TENNIS
Short Title: INTRODUCTION TO TENNIS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class will provide the student with foundational knowledge of tennis skills and rules as well as appropriate sports person-like qualities so that the game can be played with confidence and competence throughout one’s lifetime.
LPAP 101 - STRETCH LAB
Short Title: STRETCH LAB
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Description: As a basic component of fitness, flexibility is needed to perform everyday activities with a relative amount of ease. To get out of bed, lift objects, or clean our room, we need healthy range of motion around our joints. Over time, our inefficient habits of movement, and the decreased suppleness of muscle tissue that occurs naturally as we age can lead to reduced mobility of joints and compromised body positions. Staying active and stretching regularly reduces the chance of experiencing occasional and chronic musculoskeletal pain and helps prevent this loss of mobility. No previous experience is required and all fitness levels are welcome.

LPAP 102 - PENCAK SILAT: INDONESIAN MARTIAL ARTS
Short Title: PENCAK SILAT
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will introduce students to the traditional martial arts of Indonesia, also known as pencak silat. Topics include fundamentals of self-defense, physical conditioning, yoga, and traditional dance. Because of its longstanding cultural relevance, pencak silat’s history, philosophy and widespread impact will also be explored.

LPAP 104 - INTRODUCTION TO RACQUETBALL, SQUASH, AND BADMINTON
Short Title: INTRO RACQUET SPORTS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to basic skills and knowledge necessary to play badminton, racquetball and squash at the beginning level.

LPAP 107 - INTERMEDIATE TENNIS
Short Title: INTERMEDIATE TENNIS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class is for the student who already possesses a fundamental knowledge of tennis and is looking to hone and sharpen her/his skills.

LPAP 109 - INTRODUCTION TO FOXTROT AND WALTZ
Short Title: INTRO TO FOXTROT AND WALTZ
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will provide a broad overview of sport psychology concepts that are relevant to most performance related activity. Specifically, the class will cover topics designed to enhance performance such as arousal and anxiety regulation, behavior modification, goal setting, leadership and communication skills, intrinsic motivation and self-confidence.
LPAP 115 - MINDFULNESS: MEDITATION FOR STRESS REDUCTION
Short Title: MINDFULNESS MEDITATION
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Description: This course is designed to help students cultivate mindfulness by intentionally bringing awareness to the present, and noticing and letting go of judgment, critical thoughts and preconceived ideas. The course consists of instruction in and practice of mindfulness meditations as well as discussion of integrating mindfulness into everyday life.

LPAP 116 - INTERMEDIATE SALSA/CHA CHA
Short Title: INTERMEDIATE SALSA/CHA CHA
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Description: Students will develop increased proficiency at leading and following and creating complex turns/footwork as are commonly utilized in American style salsa and cha cha.

LPAP 117 - INTRODUCTION TO OUTDOOR LEADERSHIP
Short Title: INTRO TO OUTDOOR LEADERSHIP
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will establish a foundation for leading groups in the outdoors. An 8-week class schedule covers leadership theory, risk management and facilitation. The course is supplemented with required outdoor weekend trips to put new skills into practice. There is a $45 fee associated with this course. Instructor Permission Required.

LPAP 118 - INTRODUCTION TO TEAM SPORTS
Short Title: INTRODUCTION TO TEAM SPORTS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to offer an introduction to the skills, basic rules, and strategies of a variety of team sports.
LPAP 130 - CONTACT IMPROVISATION  
**Short Title:** CONTACT IMPROVISATION  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course is designed to help students develop the physical and perceptual skills basic to the movement of Contact Improvisation including: falling, rolling, responding to touch, momentum and gravity, and developing awareness to the physical environment. Additionally, the course provides an overview of the history of Contact Improvisation and its relevance as a global social dance form.

LPAP 131 - INTRODUCTION TO MIDDLE EASTERN DANCE  
**Short Title:** INTRO TO MIDDLE EASTERN DANCE  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This is a beginning level course which will introduce the basic movements of Middle Eastern Dance. Students will also be expected to develop a knowledge and appreciation of Middle Eastern dance as a cultural, communal, and recreational activity. Due to cultural restrictions, this course is for women only.

LPAP 132 - INTERMEDIATE MIDDLE EASTERN DANCE  
**Short Title:** INTER MIDDLE EASTERN DANCE  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Prerequisite(s):** LPAP 131  
**Description:** This is an intermediate course which will introduce advanced movements of Middle Eastern Dance. Students will also be expected to develop a knowledge and appreciation of Middle Eastern dance as a cultural, communal, and recreational activity. Due to cultural restrictions, this course is for women only.

LPAP 133 - CAPOEIRA  
**Short Title:** CAPOEIRA  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Capoeira is a truly unique art, combining martial arts, dance and music. Students will learn the history, traditions and essential moves and strategies, as well as how to play the music associated with this activity.

LPAP 134 - INDIAN DANCE: FROM CLASSICAL TO BOLLYWOOD  
**Short Title:** INDIAN DANCE  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course focuses on the Bharatanatyam form of dance that is very popular in South India. Bharatanatyam is the oldest of all classical Indian forms and its narrative style is known for its grace, purity, tenderness and statuesque poses.

LPAP 135 - INTRODUCTION TO DANCE  
**Short Title:** INTRODUCTION TO DANCE  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This survey course introduces students to various dance techniques, (e.g. hip-hop, modern, ballet), choreography, improvisation, and performance as fundamental elements in the art of dance. Students will investigate dynamic and expressive methods of dance, and will develop foundational dance abilities including aerobic conditioning, coordination, alignment and dexterity.

LPAP 136 - INTRODUCTION TO LATIN DANCE: MERENGUE AND SAMBA  
**Short Title:** INTRO TO MERENGUE AND SAMBA  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Course content includes demonstration of and brief lectures on Merengue and Samba. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 137 - INTRODUCTION TO EAST COAST SWING  
**Short Title:** INTRO TO EAST COAST SWING  
**Department:** Lifetime Physical Activity  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Course content includes demonstration of and brief lectures on the East coast Swing, including swing and triple step versions. Students will participate in drills to improve footwork, arm positioning, and leading and following skills.
LPAP 138 - INTRODUCTION TO LATIN DANCE - SALSA/MAMBO & CHA CHA
**Short Title:** INTRO TO SALSA/MAMBO & CHA CHA
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Description:** Course content includes demonstration of and brief lectures on the American Style Salsa/Mambo and Cha Cha. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 139 - INTRODUCTION TO BALLROOM DANCE - TANGO AND RUMBA
**Short Title:** INTRO TO TANGO & RUMBA
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Description:** Course content includes demonstration of and brief lectures on the American Style Tango and Rumba. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 141 - INTERMEDIATE BALLROOM DANCE
**Short Title:** INTER BALLROOM DANCE
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Prerequisite(s):** LPAP 109
**Description:** Course content includes demonstration of and brief lectures on intermediate-level American Style Foxtrot and Waltz. Students will participate in drills created to improve footwork, arm positioning, and leading and following skills.

LPAP 143 - MUSICAL THEATER JAZZ
**Short Title:** MUSICAL THEATER JAZZ
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Description:** This course will focus on fundamental musical theater vocabulary and steps. Students will study musical theater styles from the golden era of Broadway to contemporary shows.

LPAP 144 - INTRODUCTION TO COUNTRY WESTERN DANCE
**Short Title:** COUNTRY WESTERN DANCE
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Description:** Course content includes demonstration of and brief lectures on the intermediate level of East Coast Swing, including single step and triple step versions.

LPAP 147 - INTERMEDIATE EAST COAST SWING DANCE
**Short Title:** INTER EAST COAST SWING DANCE
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Prerequisite(s):** LPAP 137
**Description:** Course content includes demonstration of and brief lectures on the intermediate level of East Coast Swing, including single step and triple step versions.

LPAP 148 - DANCE CHOREOGRAPHY
**Short Title:** CHOREOGRAPHY
**Department:** Lifetime Physical Activity
**Grade Mode:** Standard Letter
**Course Type:** Activity Course
**Credit Hour:** 1
**Restrictions:** Enrollment is limited to Undergraduate level students.
**Course Level:** Undergraduate Lower-Level
**Description:** This course teaches basic dance making skills (choreography) for all styles of dance. Units covered will include the creation of inventive movement through improvisation, structures for dance, how to extend your movement ideas, partnering, working with a group, and the selection of dance themes, music, and props. Students will be required to compose short dance studies that will be critiqued in class through codified dance criticism methods then revise work.
LPAP 150 - IMPROVISATION DANCE
Short Title: IMPROVISATION DANCE
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will introduce students to the basic principles and steps of ballet technique. Students must have dance experience (ballet preferred) to take this class. Students are required to attend a ballet performance during the semester.

LPAP 155 - INTRODUCTION TO BALLET
Short Title: INTRODUCTION TO BALLET
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 155 or LPCR 155
Description: A beginning level dance class that teaches basic technique, performance, dance fitness, alignment, and introduces the stylistic and historical components of jazz dance and hip/hop.

LPAP 159 - LIFEGUARDING
Short Title: LIFEGUARDING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides the skills and knowledge to become lifeguard certified. Students will learn to prevent and respond to aquatic emergencies. $35 book fee. Students must be able to swim at least 300 yards.
LPAP 164 - FITNESS SWIMMING
Short Title: FITNESS SWIMMING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to offer basic knowledge and skill development in a variety of aquatic activities. Focus will be given to basic swimming and diving techniques as well as competitive, recreational and fitness activities.

LPAP 165 - INTERMEDIATE FITNESS SWIMMING
Short Title: INTERMEDIATE FITNESS SWIMMING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LPAP 164
Description: This intermediate course is designed to increase fitness through the sport of swimming. Course includes information regarding fitness, health, stroke mechanics and wellness. The objective of the course is for students to design their own swimming workouts to meet their fitness goals. You must be able to swim at least 300 yards.

LPAP 166 - BEGINNING SWIMMING
Short Title: BEGINNING SWIMMING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to offer basic knowledge and skill for the beginning swimmer. The following strokes and skills will be taught during the class: water entries, floating, rhythmic breathing patterns, front crawl, elementary back stroke, back crawl, deep water exploration, and treading water.

LPAP 167 - TAI CHI
Short Title: TAI CHI
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Translated as Grand Ultimate Boxing, Taijiquan (also Tai Chi Chuan) has five major family styles in practice today. These are the Chen, Yang, Wu, Wu (Hao), and Sun styles. Through kung fu warm ups and a series of special Chen Taiji drills called silk reeling, students will be introduced to a deeper awareness of physical fitness, body movement, and mental clarity. The student will then be taught a basic introductory level form designed to give a taste of what Chen Style Taijiquan has to offer. The students will also be introduced to some Push Hands training (a two person drill) and basic martial applications.

LPAP 168 - FENCING INTRODUCTION
Short Title: INTRODUCTION TO FENCING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Fencing is a fast paced sport that develops mental agility and focus. This class will teach students the fundamentals of movement, bladework, and basic strategies in foil. Course goals are to compete at a beginner level and to understand the history and rules of the sport. Students will use exercises, drills, and bouts to develop their abilities and meet these goals.
LPAP 173 - INTERMEDIATE FENCING  
Short Title: INTER FENCING  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): LPAP 172  
Description: This course is designed to introduce the student to the skills and strategy necessary to participate in fencing at the intermediate level.

LPAP 175 - INTRODUCTION TO MARTIAL ARTS  
Short Title: INTRO TO MARTIAL ARTS  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to introduce students to the basic principles of Martial Arts. Students will learn the philosophy and physical conditioning components associated with this martial arts form with a particular emphasis on reflex development, timing, eye-hand coordination, balance and a sense of well-being.

LPAP 176 - SELF DEFENSE FOR WOMEN  
Short Title: SELF DEFENSE FOR WOMEN  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course exposes students to a program of realistic self-defense tactics and techniques. It is a comprehensive course for women that begins with awareness, prevention, risk reduction and avoidance, while progressing through the basics of hands-on defense training.

LPAP 177 - INTERMEDIATE YOGA TECHNIQUES  
Short Title: INTER YOGA  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): LPAP 170  
Description: This course builds on the primary principles of yoga theory and practice that are learned in basic yoga courses. This class will introduce more advanced physical poses, breath control and meditation techniques.

LPAP 178 - THE ART OF RELAXATION  
Short Title: THE ART OF RELAXATION  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: This course is designed to provide students with an overview of the evolution of relaxation techniques and the various forms they have taken in different cultures across time. Each class will focus on the stress-relieving benefits of and different modalities for relaxation practice.

LPAP 180 - WALK, JOG, RUN  
Short Title: WALK, JOG, RUN  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: The purpose of this class is to teach students how to improve cardiovascular and muscular strength and endurance as well as stress management through fitness walking and jogging.

LPAP 181 - PERSONAL FITNESS  
Short Title: PERSONAL FITNESS  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Class will consist of brief lectures on health and fitness topics. Students will be exposed to activities that may be incorporated into an individualized personal fitness program. The goal of this course is to motivate the students to include physical activity as an integral part of his/her lifestyle.

LPAP 182 - WEIGHT TRAINING  
Short Title: WEIGHT TRAINING  
Department: Lifetime Physical Activity  
Grade Mode: Standard Letter  
Course Type: Activity Course  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: The class will consist of brief lectures and discussions on topics related to weight training. Students will be exposed to several different types of weight training techniques throughout the semester that may be incorporated into an individual’s personal fitness program.
LPAP 183 - WEIGHT TRAINING AND CONDITIONING
Short Title: WEIGHT TRAINING & CONDITIONING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to provide female students with a non-intimidating environment in which they can learn the fundamental principles of resistance training, the focus of the course will be on safe lifting practices, exercise variation/manipulation, and program design.

LPAP 185 - CARDIO KICKBOXING
Short Title: CARDIO KICKBOXING
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is a beginning level course designed to offer an introduction to the fundamentals and beginner/intermediate classic Pilates mat work exercises. The acquisition and understanding of these exercises, their goal, and intent will be presented through activity and lecture sessions and will be evaluated through physical performance, participation, and written assessment.

LPAP 186 - PILATES
Short Title: PILATES
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is a beginning level course designed to offer an introduction to the fundamentals and beginner/intermediate classic Pilates mat work exercises. The acquisition and understanding of these exercises, their goal, and intent will be presented through activity and lecture sessions and will be evaluated through physical performance, participation, and written assessment.

LPAP 187 - GROUP FITNESS
Short Title: GROUP FITNESS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this class will be to provide students a learning opportunity in the broad area of group exercise.

LPAP 187 - GROUP FITNESS
Short Title: GROUP FITNESS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will be exposed to several different types of weight training and cardiovascular conditioning techniques throughout the semester that may be incorporated into an individual’s personal fitness program.

LPAP 190 - INTRODUCTION TO OUTDOOR RECREATION
Short Title: INTRO TO OUTDOOR RECREATION
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course offers the opportunity to explore a variety of outdoor activities including camp craft, canoeing, rock climbing and team building. The class is divided between 8 weeks of instruction supplemented with required weekend trips to put skills into practice. $45 fee associated with course.

LPAP 192 - EXERCISE AND WEIGHT MANAGEMENT
Short Title: EXERCISE & WEIGHT MANAGEMENT
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is intended to help overweight students gain a comprehensive understanding of weight and exercise management, including nutrition/portion control, emotional eating, medical perspectives and creating sustainable exercise programs. Participants will gain the necessary skills and understanding for obtaining optimum health. All classes will feature both lecture and physical activity.

LPAP 193 - WEIGHT TRAINING FOR WOMEN
Short Title: WEIGHT TRAINING FOR WOMEN
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is intended to help overweight students gain a comprehensive understanding of weight and exercise management, including nutrition/portion control, emotional eating, medical perspectives and creating sustainable exercise programs. Participants will gain the necessary skills and understanding for obtaining optimum health. All classes will feature both lecture and physical activity.

LPAP 194 - OPEN WATER SCUBA
Short Title: SCUBA
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will learn the basics of SCUBA in accordance with P.A.D.I. standards. Topics include diving equipment, physiology, planning and safety, and there will be practical sessions in both pool and open water sites. An additional course fee of $400, which covers the cost of all equipment, and transportation/entrance fees to dive sites, is required.
LPAP 195 - CRITICAL THINKING IN SEXUALITY
Short Title: CRITICAL THINKING IN SEXUALITY
Department: Dean of Undergraduates
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Course Level: Undergraduate Lower-Level
Description: CTIS will draw from a public health model of violence prevention to teach students the dynamics of domestic and sexual violence, bystander intervention, healthy relationships and healthy sexuality. This course is only available to first time matriculants in the fall but anyone can register for it in the spring.

LPAP 197 - DISCOVERING PERSONAL WELLNESS: CREATING AWARENESS & DEVELOPING SKILLS FOR BEHAVIOR CHANGE
Short Title: DISCOVERING PERSONAL WELLNESS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students will discuss the many factors that influence personal well-being, giving particular attention to individual needs and behavior change goals. Major areas to be covered include: time management, coping strategies, healthy relationships, body image, food choices, self-esteem, physical activity, spirituality, environmental awareness, alternative medicine and self-care.

LPAP 198 - NUTRITION
Short Title: NUTRITION
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The class will consist of lectures and discussions on the science of nutrition.

LPAP 199 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Independent Study is intended for the student who shows interest in an area of study not offered or who wishes to pursue a discipline in greater depth than possible through the regular curriculum. A contract between the student and the teacher shall define the responsibilities of both student and the teacher, and will specify standards for the successful completion of the project. Department Permission Required.

LPAP 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Lifetime Physical Activity
Grade Mode: Standard Letter
Course Type: Activity Course, Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Linguistics (LING)

LING 200 - INTRODUCTION TO THE SCIENTIFIC STUDY OF LANGUAGE
Short Title: INTRO TO STUDY OF LANGUAGE
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Overview of the scientific study of the structure and function of language. Introduces the main fields of linguistics: phonetics, phonology, morphology, syntax, semantics, discourse, historical linguistics, sociolinguistics, and psycholinguistics. Highlights the interdisciplinary relationship of linguistics with anthropology, sociology, psychology, and cognitive sciences. Section 002 is for new matriculants only (first year students). Cross-list: ANTH 200.

LING 205 - LANGUAGE AND SOCIETY
Short Title: LANGUAGE AND SOCIETY
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course treats language as a social phenomenon to show how language, personal identity and institutions of social control inter-relate. The course focuses on linguistic interaction in daily life and how gender, ethnic, class, activity, and geographic variation affect language use. Cross-list: SWGS 205.
LING 216 - WORDS IN ENGLISH  
Short Title: WORDS IN ENGLISH  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Introduction to the systematic study of English words. Topics include word formation, origins and history of English, etymology, new words, slang and jargon. Students will investigate words using online lexical tools and collect and describe neologisms. Understanding of word formation helps increase mastery of English vocabulary for GRE and other tests. No linguistics background required. Mutually Exclusive: Cannot register for LING 216 if student has credit for ENGL 215/LING 215.

LING 301 - PHONETICS  
Short Title: PHONETICS  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): LING 200 or ANTH 200  
Description: Introductory study of sound as it relates to speech and sound systems in the world's languages. Speech sounds are examined in terms of production mechanisms (articulatory phonetics), propagation mechanisms (acoustic phonetics), and perception mechanisms (auditory phonetics). Includes a basic introduction to Digital Signal Processing. Mutually Exclusive: Cannot register for LING 301 if student has credit for LING 501.

LING 300 - LINGUISTIC ANALYSIS  
Short Title: LINGUISTIC ANALYSIS  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (LING 200 or ANTH 200) and (ANTH 301 or LING 301)  
Description: A hands-on, data-oriented approach to how different languages construct words and sentences. Students will develop skills in linguistic problem solving and the foundations for pursuing grammatical description. Topics: word classes, morphology, tense-aspect-modality, clause structure, word order, grammatical relations, existentials/possessives/locatives, voice/valence, questions, negation, relative clauses, complements, causatives. Mutually Exclusive: Cannot register for LING 300 if student has credit for LING 500.

LING 305 - HISTORICAL LINGUISTICS  
Short Title: HISTORICAL LINGUISTICS  
Department: Linguistics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (LING 200 or ANTH 200) and (ANTH 301 or LING 301)  
Description: Exploration of the nature of language change. Topics covered include sound change, syntactic and semantic change, modeling language splits, the sociolinguistics of language change, and the history of European languages. Mutually Exclusive: Cannot register for LING 305 if student has credit for LING 505.
LING 306 - LANGUAGE, THOUGHT, AND MIND
Short Title: LANGUAGE, THOUGHT, AND MIND
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 200 or ANTH 200
Description: Study of language as a cognitive system. Linguistic data as evidence for the cognitive structures and processes that enable people to learn and use language; how linguistic structure influences concept formation and patterns of thinking. Mutually Exclusive: Cannot register for LING 306 if student has credit for LING 506.

LING 309 - PSYCHOLOGY OF LANGUAGE
Short Title: PSYCHOLOGY OF LANGUAGE
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Study of human and other animal communication. Includes the structure of human language, word meaning and semantic memory, psychological studies of syntax, bilingualism, language and thought, and language errors and disorders. Cross-list: PSYC 309.

LING 315 - INTRODUCTION TO SEMANTICS
Short Title: INTRODUCTION TO SEMANTICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 200 or ANTH 200
Description: Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Cross-list: PSYC 315. Recommended Prerequisite(s): LING 200 or ANTH 200. Mutually Exclusive: Cannot register for LING 315 if student has credit for LING 515.

LING 320 - ORIGINS AND EVOLUTION OF HUMAN LANGUAGE
Short Title: ORIGIN&EVOLUTION OF HUMAN LANG
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 200 or ANTH 200
Description: How did Human Language arise, and what role did language play in the evolution of our species? This course introduces the basic sources of evidence (e.g., fossil remains, comparative primatology, neonatal development) for knowledge of human linguistic prehistory, including the spread of modern humans and human language throughout the world.

LING 321 - LANGUAGE AND LAW
Short Title: LANGUAGE AND LAW
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 200 or LING 200
Description: This course investigates how language defines, manages, and determines the outcomes of all aspects of the legal arena. Emphasis is placed on forensic linguistics, linguistic variability and its impact on the legal arena, language policy, and legal language.

LING 322 - LANGUAGE AND ETHNICITY
Short Title: LANGUAGE AND ETHNICITY
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 205 or SWGS 205 or ANTH 200 or LING 200
Description: This course explores the role that ethnicity plays in various language varieties used in the U.S., and the role that language varieties play in ethnic identity. We examine this from both speech production and speech perception perspectives.
LING 325 - LANGUAGE ACQUISITION
Short Title: LANGUAGE ACQUISITION
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: The aim of this course is to explore language development closely through a variety of theories and research findings. Students will become familiar with different theories concerning language development, and develop an understanding of relevant issues, theoretical positions and relevant methodologies in language development using critical thinking skills. Cross-list: PSYC 325.

LING 336 - INTRO TO INDO-EUROPEAN
Short Title: INTRO TO INDO-EUROPEAN
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will begin with a brief survey of the Indo-European languages, followed by a detailed reconstruction of Proto-Indo-European phonology, morphology, and syntax. The second half of the course will deal with Indo-European culture, laws, society and poetics, together with a consideration of advanced topics in the individual branches. Cross-list: CLAS 336.

LING 393 - STRUCTURE OF ENGLISH
Short Title: STRUCTURE OF ENGLISH
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the structure of English and its nature as a cognitive and communicative system. Through critical examinations of traditional and modern theories of grammar as well as various methodologies for analyzing English data, students learn to discover and test generalizations underlying linguistic structure and its social function.

LING 397 - SPEECH AND HEARING SCIENCE
Short Title: SPEECH AND HEARING SCIENCE
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (LING 200 or ANTH 200) and (ANTH 301 or LING 301)
Description: This course will describe the basics of speech and hearing science, including but not limited to: anatomy and physiology of speech and hearing mechanisms, neural pathways involved in speech and hearing, speech pathology and audiology, types of speech and hearing disorders, their causes, and types of therapies available for the remediation of these disorders. Mutually Exclusive: Cannot register for LING 397 if student has credit for LING 212.

LING 400 - LINGUISTIC ANALYSIS II
Short Title: LINGUISTIC ANALYSIS II
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 300 or ANTH 300
Description: Analysis of language beyond the clausal level. Grammatical and semantic analyses using corpora and concordance queries. Recording, transcription, and analysis of natural spoken discourse. The intricate relation between meaning, grammar, and discourse (i.e. the 'usage-based model'). The socially contextualized nature of language. The complex relationship between discourse and ideology.

LING 401 - ANALYSIS OF SOUND PATTERNS
Short Title: ANALYSIS OF SOUND PATTERNS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ANTH 301 or LING 301
Description: Introduction to various theories of phonological knowledge. Course involves extensive work in the collection and analysis of empirical data, in both English and other languages, including corpora analysis, and acoustic and experimental analysis. Attention is paid to the way phonetic data informs phonological theory.
LING 409 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 200 or ANTH 200
Description: Special Topics in linguistics. Please contact the department for details on offered topics. SPRING 2020 TOPIC: RESEARCH ON BRAILLE. This semester's Special Topics course introduces students to the linguistic, cognitive, and social aspects of braille. Students will gain a basic understanding and appreciation of braille, its relevance to the reading sciences (and vice versa) and thorough grounding in the research literature. Students will also have a chance to help design experiments and studies for future research. Repeatable for Credit.

LING 411 - NEUROLINGUISTICS
Short Title: NEUROLINGUISTICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of language and the brain. Includes localization of speech, language, and memory functions, hemispheric dominance, pathologies of speech and language associated with brain damage, and hypotheses of the representation and operation of linguistic information in the cortex. Cross-list: NEUR 411.

LING 415 - SOCIOLINGUISTICS
Short Title: SOCIOLINGUISTICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 301 or ANTH 301 or LING 311 or ANTH 323 or LING 501 or ANTH 501 or LING 511 or ANTH 523
Description: This course covers contemporary sociolinguistic theory and methodological issues. We examine the linguistic consequences to speakers of their group memberships such as gender, race, class and sexuality. Cross-list: SWGS 415.

LING 416 - LANGUAGE UNIVERSALS AND TYPOLOGY
Short Title: LANGUAGE UNIVERSALS & TYPOLOGY
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 300 or ANTH 300 or LING 500 or ANTH 500
Description: Investigation of what human languages have in common and a range of ways in which they can differ. Includes marking patterns in particular linguistic domains (e.g., case marking, animacy, and passives) and theoretical and methodological issues.

LING 419 - MULTILINGUALISM
Short Title: MULTILINGUALISM
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 200 or ANTH 200
Description: This course analyzes multilingualism from a variety of perspectives including cognitive linguistic and socio-cultural viewpoints. Topics to be covered include neural activation, conceptual representations of the lexicon, lexical, phonological, syntactic and pragmatic interference, code switching, cultural identity, etc.

LING 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

LING 480 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

LING 481 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: Linguistics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
LING 482 - HONORS PROJECT
Short Title: HONORS PROJECT
Department: Linguistics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent directed research toward preparation of an undergraduate honors project or thesis. Instructor Permission Required. Repeatable for Credit.

LING 499 - RESEARCH SEMINAR
Short Title: RESEARCH SEMINAR
Department: Linguistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (LING 300 or ANTH 300) and (LING 301 or ANTH 301) and LING 400 and LING 401
Description: A topics research course with different issues investigated every semester, and it is repeatable for credit. The range of topics explored follows the research interests of the students and faculty. Repeatable for Credit.

Management (MGMT)

MGMT 500 - APPLIED BUSINESS EXPERIENCE
Short Title: APPLIED BUSINESS EXPERIENCE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Full-time MBA students will participate in enriching and meaningful work experiences (including traditional summer internships) as a critical complement to what is offered in the classroom and in other applied learning experiences, such as the Global Field Experience. Work experiences allow students to refine their fluency, capabilities, and confidence in a business setting, while taking what they learn in the classroom into a professional setting.

MGMT 501 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the preparation, analysis, and use of corporate financial reports. Covers the basic techniques of financial reporting and analysis from the perspective of managers as well as external users of information such as investors. Required for MBA.

MGMT 502 - MANAGERIAL ACCOUNTING
Short Title: MANAGERIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the use of financial and cost information by managers in budgeting, resource allocation, pricing, quality control, and other contexts to help managers set goals and monitor and evaluate performance.

MGMT 503 - MANAGEMENT CONTROL
Short Title: MANAGEMENT CONTROL
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course builds on earlier courses on cost management and corporate strategy and focuses on the management control systems that can be used for the effective implementation of strategy. Included topics are the balanced scorecard, stretch budgets, performance evaluation and incentives, organizational and operational controls, and the development of metrics to motivate and evaluate performance.

MGMT 510 - ORGANIZATIONAL BEHAVIOR
Short Title: ORGANIZATIONAL BEHAVIOR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of the many factors, which influence how individuals, groups, and teams behave and function in complex organizations and how they can be effectively managed. Required for MBA.

MGMT 511 - LEADERSHIP
Short Title: LEADERSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course aims to develop a more thorough understanding of leadership and the leadership process. Through this exploration, it is hoped that students will come to understand themselves better within the leadership context (i.e., as a follower, as a self-leader, and as a leader of others).
MGMT 512 - LEADING CHANGE
Short Title: LEADING CHANGE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Emphasizes understanding of what constitutes effective organizational designs; considers both the macro designing of change initiatives and the micro execution of those initiatives.

MGMT 513 - NEGOTIATIONS ILE
Short Title: NEGOTIATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course provides opportunities for students to experience different phases of two-part, multi-party, and team negotiations. Its interactive format facilitates development of analytical and behavioral skills for effective negotiation. Topics include diagnosing conflict, decision making, adversarial vs. cooperative strategies, ethical and cultural factors, and third-party intervention.

MGMT 514 - ORGANIZATIONAL CHANGE ILE
Short Title: ORGANIZATIONAL CHANGE ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The primary goal of this course is to help you become effective leaders of organizational change. Students will learn, discuss and put into action an important framework for managing organizational change. Participation in this course will: 1) Provide you with an effective framework for managing organizational change. 2) Improve your competencies as both a leader and participant in change.

MGMT 515 - GLOBAL FIELD EXPERIENCE
Short Title: GLOBAL FIELD EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This unique experiential learning opportunity requires students to apply what was learned in the first year of the program through consulting projects on the ground in a designated country. The course fosters a global mindset and further develops the ability to tackle business challenges in dynamic, divers and complex environments. Department Permission Required. Repeatable for Credit.

MGMT 521 - BUSINESS LAW
Short Title: BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the broad subject of law as it relates to business and is designed to help the student develop “legal astuteness.” That is, the ability to communicate effectively with counsel and to work together with counsel to solve complex problems and/or to protect and leverage the firm’s resources.

MGMT 527 - INTRODUCTION TO ENTREPRENEURSHIP
Short Title: INTRO TO ENTREPRENEURSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the broad subject of law as it relates to business and is designed to help the student develop “legal astuteness.” That is, the ability to communicate effectively with counsel and to work together with counsel to solve complex problems and/or to protect and leverage the firm’s resources.

MGMT 531 - THE NEW ENTERPRISE
Short Title: THE NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Evaluating opportunities for a new innovation-based enterprise; conceptualizing and developing a venture plan through an iterative process; articulating venture assumptions. Intended for students who want to start their own venture, join an early-stage venture, be entrepreneurial within an existing organization, or want to understand entrepreneurs and how to think entrepreneurially.

MGMT 540 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: We study production and pricing decisions under different assumptions about firm market power. Emphasis is placed on understanding the relevant costs in firm decision-making. Examples are used from marketing and accounting areas. Required for MBA.
MGMT 541 - ECONOMIC ENVIRONMENT OF BUSINESS
Short Title: ECONOMIC ENVIRONMENT OF BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 543 - FINANCE
Short Title: FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the theory and practice of corporate finance, with emphasis on topics such as valuation, capital budgeting, risk and return, and capital structure. Required for MBA.

MGMT 549 - COMPETITIVE STRATEGY
Short Title: COMPETITIVE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the necessary ethical and legal bases of managerial decision making and the positive social and environmental contributions of the business firm.

MGMT 550 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 551 - BUSINESS-GOVERNMENT RELATIONS
Short Title: BUSINESS-GOVERNMENT RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of how public policy influences the private competitive environment of the firm. Examines the major political institutions and actors—Congress, the President, interest groups, the media, and administrative agencies—that shape U.S. public policy. Students analyze business political strategies and formulate several of their own.

MGMT 560 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the ethical and legal bases of managerial decision making and the social dimension of the business firm.

MGMT 561 - CORPORATION RELATIONS
Short Title: CORPORATION RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 562 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the ethical and legal bases of managerial decision making and the social dimension of the business firm.

MGMT 563 - COMPETITIVE STRATEGY
Short Title: COMPETITIVE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the ethical and legal bases of managerial decision making and the social dimension of the business firm.

MGMT 564 - BUSINESS-GOVERNMENT RELATIONS
Short Title: BUSINESS-GOVERNMENT RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of how public policy influences the private competitive environment of the firm. Examines the major political institutions and actors—Congress, the President, interest groups, the media, and administrative agencies—that shape U.S. public policy. Students analyze business political strategies and formulate several of their own.

MGMT 565 - CORPORATION RELATIONS
Short Title: CORPORATION RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 566 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An exploration of the ethical and legal bases of managerial decision making and the social dimension of the business firm.
MGMT 580 - MARKETING
Short Title: MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the key concepts underlying the function of marketing and its interaction with other functions in a business enterprise. Explores marketing's role in defining, creating, and communicating value to customers. Primarily case-based with capstone simulation exercise, providing a foundation for advanced course work in marketing. Required for MBA.

MGMT 591 - ACCOUNTING THEORY
Short Title: ACCOUNTING THEORY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 601
Description: The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the "political" intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. The prerequisite for undergraduates is BUSI 405, but the course will also be open also to a small number of other students who have taken just BUSI 305. MBA students: Prerequisite is MGMT 601. PhD students: no prerequisites. All students must obtain the prior permission of the instructor. Course may not be taken pass/fail and may not be audited. Enrollment will be limited. Mutually Exclusive: Cannot register for MGMT 591 if student has credit for BUSI 491/MACC 591.

MGMT 592 - STRATEGIC BUSINESS COMMUNICATIONS
Short Title: STRATEGIC BUSI COMMUNICATION
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMSA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the strategy and practice of business presentations. Includes frequent oral presentations (both individual and team) and feedback.

MGMT 593 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis.

MGMT 594 - STRATEGIC BUSINESS COMMUNICATION I
Short Title: STRAT BUSINESS COMMUNICATION I
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the strategy and practice of business presentations. Includes frequent oral presentations (both individual and team) and feedback.

MGMT 595 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis.

MGMT 596 - STRATEGIC BUSINESS COMMUNICATION II
Short Title: STRATEGIC BUSINESS COMM MM II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Continued instruction in the core strategic business communication skills that were introduced during Strategic Business Communication I. In addition to a mandatory writing workshop, students will have the opportunity to select other communication topics, based on individual needs and interest.
MGMT 597 - DATA ANALYSIS II
Short Title: DATA ANALYSIS II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covering the following topics: sampling, descriptive statistics, probability distributions, and regression analysis. Required for MBA.

MGMT 598 - CAPSTONE CONSULTING PROJECT
Short Title: CAPSTONE CONSULTING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMBa program. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: This course gives students the opportunity to apply the multi-functional (strategy, finance, marketing, organizational behavior, etc.) knowledge that they have gained in the program and their own professional experience to solve a complex, real-world managerial problem.

MGMT 599 - ACTION LEARNING PROJECT
Short Title: ACTION LEARNING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: The Action Learning Project (ALP) is a team-based, student consulting program where students will work with corporate and non-profit organizations across a variety of industries to tackle a robust real-world problem for them. Projects may include some combination of strategy, marketing, finance, operations & supply chain management, HR/talent management, etc. The teams will work with their company and ALP faculty to perform research and assessments to develop their detailed recommendations and present them to senior leadership.

MGMT 600 - INTERNATIONAL ENERGY SIMULATION
Short Title: INTL ENERGY SIMULATION
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: The Jones Graduate School of Business International Energy Simulation is designed to create a real world environment in which multiple actors align and compete to achieve their distinct objectives. We will use a fictitious country that has a wide range of challenges and possible opportunities. You will be assigned to one of about 15 teams including government, energy companies, media, villagers, public policy institutions and others. Critical success factors include strategic thinking, the ability to build alliances, and a deep understanding of the perspectives of multiple stakeholders. Expect the unexpected.

MGMT 601 - FINANCIAL STATEMENT ANALYSIS
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: Study of how investors, financial analysts, creditors, and managers use financial statement information in evaluating firm performance and in valuing firms. Emphasizes industry and firm-level analysis of accounting information using financial accounting concepts and finance theory. Mutually Exclusive: Cannot register for MGMT 601 if student has credit for BUSI 401.

MGMT 603 - INCOME TAXATION AND BUSINESS DECISIONS
Short Title: INCOME TAX & BUS. DECISIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: Course covers 1) the types of taxes and the history of the U.S. income tax; 2) tax policy in light of worldwide business taxation; 3) measurement of business income and deductions; 4) tax reporting and 5) the choice of entity among U.S. forms of business organization.
MGMT 604 - MINDFULNESS AND PERFORMANCE IN THE WORKPLACE  
**Short Title:** MINDFULNESS & PERF AT WORK  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** Throughout contemporary society and corporate America, we frequently hear people touting the value of “mindfulness.” What exactly is this concept – and how can it foster high performance in the workplace and improve the quality of workers’ lives? This course addresses these questions through cases and experiential-learning activities.

MGMT 605 - BUSINESS TAXATION II  
**Short Title:** BUSINESS TAXATION II  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Prerequisite(s):** MGMT 603 (may be taken concurrently)  
**Description:** Fundamentals of income tax planning; taxation of property dispositions/mergers and acquisitions; individual tax planning and taxation of investment activity; international business tax considerations/U.S. foreign tax credit concept. MGMT 603 may be taken concurrently.

MGMT 606 - GLOBAL CORPORATE REPORTING: CULTURES AND POLITICS  
**Short Title:** GLOBAL CORPORATE REPORTING  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** The object of this course is to understand how the political lobbying of standard setters, together with countries’ different business, accounting and regulatory cultures, have shaped the globalization of corporate reporting. It will help students become informed financial analysts and financial executives in the integrated global corporate reporting world.

MGMT 607 - COMPETITIVE STRATEGIES AND EMERGING MARKETS  
**Short Title:** COMP STRATEGY & EMERGING MKTS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Prerequisite(s):** (MGMT 570 or MGMP 570 or MGMW 570 or EMBA 991) and (MGMT 571 or MGMP 571 or MGMW 571 or EMBA 993 (may be taken concurrently))  
**Description:** Emerging markets in recent times have become important players in the global economy. Competitive dynamics in these markets affects almost every manager, even those who have no direct interest in these markets. We will examine how emerging markets differ from developed economies and what such differences mean for businesses. EMBA 993 may be taken concurrently with MGMT 607.

MGMT 608 - DISRUPTION IN COMMERCIAL REAL ESTATE  
**Short Title:** DISRUPTION IN COMMERCIAL RE  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** With a seismic shift in commercial real estate due to technology-driven changes to distribution networks and the digitization of the economy, developers face challenging and evolving opportunities. How do you adapt and thrive when customer desires change at lightning speed and everyone competes against Amazon? Through simulations and a real-time case study, students learn to capture the rewards of customer-centric design using psychographics and quantitative methodologies.
MGMT 609 - MANAGING ENERGY TRANSITIONS

Short Title: MANAGING ENERGY TRANSITIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBB Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: "Managing in a Carbon-Constrained World" focuses on the business challenges and opportunities presented by the fast-changing dynamics of climate change and renewable/alternative sources of energy - at the international, federal, and state levels. Consideration will be given to successes and failures of "first movers." We will consider how to reconcile conflicts between the goal of a lower carbon future and the priorities of energy security and restoring a strong, sustainable, economy. The course will close with corporate responses to the challenge. The course is intended to benefit students who intend to pursue careers as leaders in industry, finance, government, diplomacy, international agencies, non-government organizations (NGO's), media, or in academia. The course will challenge you to understand diverse points of view. A background in economics, finance, management, engineering, or public policy will provide a strong foundation, but other disciplines may also apply.

MGMT 610 - FUNDAMENTALS OF THE ENERGY INDUSTRY

Short Title: FUNDAMENTALS OF THE ENERGY IND
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBB Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: The course is based on the principle that one cannot understand commodity markets without a good grasp of the technology and physical infrastructure behind production, transportation, and distribution of energy commodities and linkages between different segments of the energy complex. The review of the industry infrastructure will be followed by discussion of the institutional framework of the energy markets in the US and other developed economies, including discussion of the different types of participating business entities, types of transactions and regulatory infrastructure. The course will be divided into three groups of lectures, covering the natural gas industry, power and coal business and oil / refined products markets, with an additional shorter lecture on regulatory issues.

MGMT 611 - GEOPOLITICS OF ENERGY

Short Title: GEOPOLITICS OF ENERGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBB Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: This course examines global trends in the production and use of energy, its impact on governance and the environment, and the dynamic forces shaping the sector: energy security, trade, and climate change. We examine the firm's role in these areas, and the "above ground" risks arising from political, social and environmental forces. We also examine energy from the perspective of states, whether the big exporters like Russia and the Middle East, demand centers in Asia and Europe, or underdeveloped countries in Latin America and Africa seeking to leverage domestic reserves for export revenues and domestic development. Students will use academic theory and case discussion to highlight energy business challenges in countries with diverse political systems and wide-ranging levels of economic development.

MGMT 612 - COMPETITION, CARBON AND ELECTRICITY POLICY

Short Title: COMP CARBON & ELECT POLICY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBB Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: MGMT 612 covers the changes that have occurred over the last twenty years in the electric power industry and the challenges and profit potential of efforts to reduce the industry's emissions of carbon dioxide. The course will use original source materials to explore the impacts of policy choices on companies and consumers. We will cover economics, finance, engineering, and public policy, and a background in those disciplines will prove useful. Repeatable for Credit.

MGMT 613 - SYSTEMS THINKING IN INNOVATION AND ENTREPRENEURSHIP

Short Title: SYSTEMS THINKING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBB Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: This course explores the human and social dynamics critical to the evolving world of technology innovation and entrepreneurship. Topics include: social systems; entrepreneurial mindset; the future of work and organizations; understanding new fields and data; the changing relationship between humans and technology; and questions in privacy, security, and regulation.
MGMT 614 - STRATEGIC SOCIAL NETWORKS
Short Title: STRATEGIC SOCIAL NETWORKS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students learn how, why, and when social networks can lead to successful career advancement, innovation, and investment opportunities, using data-analytics, exercises, and real-world cases.

MGMT 615 - BARGAINING
Short Title: BARGAINING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will help you become a better negotiator by better understanding the values, motivations, and psychological biases that drive people's behaviors in negotiations. To achieve this goal, we will discuss theory and research on bargaining, and we will play strategic games that illustrate important concepts of negotiation situations.

MGMT 616 - ENERGY MARKET ORGANIZATION
Short Title: ENERGY MARKET ORGANIZATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 617 - THE INFORMATION ECONOMY: THEORY AND APPLICATIONS
Short Title: INFO ECONOMY: THEORY & APPL
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course offers an advanced introduction into the Economics of Information with an emphasis on core business applications.

MGMT 618 - BESTSELLERS: THE SCIENCE AND WISDOM
Short Title: BESTSELLERS: SCIENCE & WISDOM
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: There have been a lot of business books written over the years, making it difficult to navigate which ones contain wisdom grounded in sound science, and which ones make questionable claims and shaky promises. In this seminar, we'll examine some bestselling books to help make us better people, leaders, and consumers of business advice.

MGMT 620 - THE ENTREPRENEURIAL TOOLKIT
Short Title: THE ENTREPRENEURIAL TOOLKIT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

MGMT 621 - THE NEW ENTERPRISE
Short Title: THE NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Evaluating opportunities for a new innovation-based enterprise; conceptualizing and developing a venture plan through an iterative process; articulating venture assumptions; testing venture assumptions through experimentation. Intended for students who want to start their own venture, join an early-stage venture, be entrepreneurial within an existing organization, or want to understand entrepreneurs and how to think entrepreneurially.
MGMT 622 - FOUNDATIONS OF SUPPLY CHAIN MANAGEMENT
Short Title: FOUNDATIONS OF SUPPLY CHAIN
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.
Course Level: Graduate
Description: This course explores strategic operations and supply chain management. It provides content and pragmatic executive perspectives on overall operations/supply chain strategies as well as delve into four major capabilities (supply & demand management, sourcing & procurement, manufacturing/service delivery, and performance improvement/quality). The concepts are applicable to manufacturing and service industries; and, they are applicable to large corporations and small businesses. Course activities provide the opportunity to build content knowledge, apply their expertise to operations and supply chain management situations, and explore cutting-edge topics in operations and supply chain management. They will benefit students who may be relatively new to operations and supply chain management, as well as students who may bring real-world experience. The course environment will be collegial, collaborative, and highly interactive with a mixture of team-based and individual activities. Class sessions include multiple activities and student preparation will be critical to maximize the value of the class to themselves, as well as their classmates. Repeatable for Credit.

MGMT 623 - EARLY DEVELOPMENT AND ENTREPRENEURSHIP IN A BIOTECH/MEDTECH STARTUP
Short Title: ENTREPRENEURSHIP IN BIOTECH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.
Course Level: Graduate
Description: Provides an insider’s perspective on workings and challenges of early to mid-stage biotech (pharmaceutical) and medtech (medical device) startups. Live case studies highlight issues unique to this space including pre-clinical & clinical development, licensing & business development, the FDA, and intellectual property and patent strategies. Intended for students considering a career in an entrepreneurial life sciences company. Previous or contemporaneous coursework in entrepreneurship or healthcare is preferred.

MGMT 624 - REAL ESTATE
Short Title: REAL ESTATE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.
Course Level: Graduate
Description: This course emphasizes the components and processes of real estate industry including identification and analysis of investment and development opportunities from an entrepreneurial standpoint. It utilizes Harvard Cases and requires a major field project. Guest lectures will constitute a portion of most sessions.

MGMT 625 - DESIGN THINKING
Short Title: DESIGN THINKING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.
Course Level: Graduate
Description: Design Thinking is a problem-solving process that can be used to reduce risk when launching a new idea and increase your chances of developing an innovative solution that people want. Through our human-centered approach we will gain new insights into high-potential problem spaces and use an iterative experimentation process to ensure efficient resource utilization.

MGMT 626 - VENTURE CAPITAL
Short Title: VENTURE CAPITAL
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.
Course Level: Graduate
Description: Overview of the venture capital industry; the organization and operation of venture capital funds; investment methodology; monitoring and portfolio liquidation; leveraged investing; and specialized investments.

MGMT 627 - ENTERPRISE ACQUISITION
Short Title: ENTERPRISE ACQUISITION
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.
Course Level: Graduate
Description: The needs approach to buying and selling businesses; enterprise valuation; deal and contract structuring; mergers and acquisitions; leveraged buyouts; consolidating fragmented industries.
MGMT 628 - INTRODUCTION TO USER EXPERIENCE
Short Title: INTRO TO USER EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces the user experience concepts needed to lead UX projects including key UX concepts, the UX lifecycle, user research, and design. Course will include seminal readings about UX, business case studies, and project-based course work.

MGMT 629 - BUSINESS PLAN DEVELOPMENT
Short Title: BUSINESS PLAN DEVELOPMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This project-based course introduces the user experience concepts needed to lead UX projects including key UX concepts, the UX lifecycle, user research, and design. Course will include seminal readings about UX, business case studies, and project-based course work.

MGMT 630 - FINANCIAL MARKETS AND INSTRUMENTS
Short Title: FINANCIAL MARKETS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is based on reading, analyzing and discussing business plans of actual companies in motion. Class participation is important for this course. Reading the material, discussing the business plans, and interacting with company management will also make the course more enjoyable and meaningful. During the course, we will have entrepreneurs and founders as guest lecturers. SalvageSale, BizSupplies and SimDesk are examples of business plans we will discuss.

MGMT 631 - HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS
Short Title: HEALTH INSURANCE IN THE U.S.
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The basics that all executives, especially those working in the health care industry, need to know about health insurance programs, public and private markets, pricing, risk management and how insurance companies think about their business. After covering the basics, the course examines the rapid shifts occurring as a result of the Affordable Care Act and other environmental and legislative changes.

MGMT 632 - CONSUMER FINANCE
Short Title: CONSUMER FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to household financial decision making and consumer financial products. We will use rational and behavioral models to understand how financial products serve consumers’ needs with respect to managing risk, borrowing, investing, and moving funds. We will discuss how technology, data, and regulation are affecting the consumer finance sector.

MGMT 633 - ROLES OF PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA'S IN HIGH-TECH STARTUPS
Short Title: LIFE SCIENCE ENTREPRENEURSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This pragmatic course combines core lectures on entrepreneurship with special guest presentations by notable life science entrepreneurs. It explores the roles that physicians, scientists, engineers, and MBA's play in biotech, medical device, and healthcare companies, as well as major trends in Angel and Venture Capital Financings of Startups. Lectures on entrepreneurial team building, leadership and career planning are included. Cross-list: BIOE 633.
MGMT 634 - USING FINANCIAL STATEMENTS TO EVALUATE FIRM PERFORMANCE
Short Title: USING FINANCIAL STATEMENTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is designed to develop basic skills in financial statement analysis with special emphasis on understanding, organizing and summarizing financial data for decision making purposes related to valuation. The course focuses on financial and accounting analysis which consists of documenting and understanding a firm's profitability relative to past performance and comparable firms. Ratio analysis, accounting quality, and earnings management are the focal points of this portion of the course.

MGMT 635 - ACCOUNTING-BASED VALUATION
Short Title: ACCOUNTING-BASED VALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Prerequisite(s): MGMT 634 (may be taken concurrently)
Description: This course covers two major topics: 1) forecasting financial statements based on a complete historical analysis of the firm; 2) deriving firm value under a variety of approaches including discounted cash flows (DCF) and residual operating income valuation (ROPI).

MGMT 636 - MARKETING FOR SMALL BUSINESS
Short Title: MARKETING FOR SMALL BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB, XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is designed to help students develop and manage a creative and economical marketing strategy for a small business. We will use real world examples to learn how to effectively market through the use of web sites, search engine optimization (SEO), social media, online and local advertising. Students will experience a balance of theory and practical learning to apply these tools in harmony which will intensify awareness and profitability. Repeatable for Credit.

MGMT 637 - DILEMMAS IN FOUNDING NEW VENTURES
Short Title: DILEMMAS IN FOUNDING VENTURES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB, XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Frameworks for making informed decisions about human capital when founding a new venture, including co-founders, early hires, advisors, board members, and investors.

MGMT 638 - QUANTITATIVE INVESTMENT STRATEGIES
Short Title: QUANTITATIVE INVESTMENT STRATEGIES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB, XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.
Prerequisite(s): MGMT 782 (may be taken concurrently)
Description: This course introduces students to common strategies and techniques employed by quantitative money managers, focusing especially on equity management. The central questions are whether managers can generate alpha by selecting stocks based on quantitative characteristics and how to manage risks of portfolios created in that way. The prerequisite may be taken concurrently.

MGMT 639 - MARKETING OF PROFESSIONAL SERVICES IN THE GLOBAL ECONOMY
Short Title: MKTING OF PROF SERVICES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMB, or XMB A programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This fast-paced, highly interactive and energetic course will explore the fundamental concepts, strategies and best practices of marketing professional services in today's global economy—and how this marketing differs from marketing tangible goods and non-professional services. Students will learn the importance of branding, public relations, crisis communications and Web 2.0 to promoting professional services today, and how to successfully integrate those vehicles with traditional marketing strategies. Repeatable for Credit.
MGMT 640 - INTRODUCTION TO PRIVATE BUSINESS VALUATION
Short Title: PRIVATE BUSINESS VALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an opportunity to learn the framework for determining the market value of privately-owned business enterprises. The methods presented in this course are used by accredited business appraisers, investment bankers, and other valuation practitioners, often involved in the valuation of privately-owned businesses.

MGMT 641 - ENTREPRENEURIAL STRATEGY
Short Title: ENTREPRENEURIAL STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an integrated strategy framework for entrepreneurs. The course is structured to provide a deep understanding of the core strategic challenges facing start-up innovators, and a synthetic framework for choosing and implementing entrepreneurial strategy in dynamic environments, as well as a general understanding of the financing options for early stage startups, including angel investment, accelerators, crowdfunding and the venture capital industry. A central theme of the course is that, to achieve competitive advantage, technology entrepreneurs must balance the process of experimentation and learning inherent to entrepreneurship with the selection and implementation of a strategy that establishes competitive advantage. The course identifies the types of choices that entrepreneurs must make to take advantage of a novel opportunity and the logic of particular strategic commitments and positions that allow entrepreneurs to establish competitive advantage. The course includes an in-depth overview of the organization, operation and economics of different funding sources; venture capital and angel investment term sheets and deal structures; startup investment methodology – deal sourcing, monitoring and liquidation; the role of VCs as key advisors and board members; and current issues in early stage financing as a result of a changing global and economic environment. The course combines interactive lectures, speakers and case analyses. The cases and assignments offer an opportunity to integrate and apply the principles taught in the course in a practical way, and draws from a diverse range of industries and settings.

MGMT 642 - FUTURES AND OPTIONS I
Short Title: FUTURES AND OPTIONS I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An introduction to forward, futures, option, and swap contracts, including the basic valuation principles, the use of these contracts for hedging financial risk, and an analysis of option-like investment decisions. Recommended for finance students.

MGMT 643 - EQUITY PRACTICUM I - WRIGHT FUND
Short Title: EQUITY PRACTICUM I WRIGHT FUND
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA WMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): (MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843) and (MGMT 648 (may be taken concurrently) or MGMT 848 (may be taken concurrently))
Description: The first course in the two semester sequence where students gain hands on exposure to many aspects of investment management by managing the M.A. Wright Fund, a 'live' stock portfolio of endowed assets. The first semester's work is predominately focused on individual stock analysis including qualitative, financial, and quantitative analysis and valuation. Admission is by application and interview only. Students must continue to MGMT 644. Instructor Permission Required.

MGMT 644 - EQUITY PRACTICUM II - WRIGHT FUND
Short Title: EQUITY PRACTICUM II WRIGHT FND
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 643 and MGMT 645 (may be taken concurrently)
Description: The second course in the two semester sequence where students gain hands on exposure to many aspects of investment management by managing the M.A. Wright Fund, a 'live' stock portfolio of endowed assets. The second semester's work is predominately focused on quantitative and qualitative sector analysis and portfolio risk and return analysis and management. Admission is for students continuing from MGMT 643 only, who have been accepted by application and interview only. Instructor Permission Required.
MGMT 645 - PORTFOLIO MANAGEMENT
Short Title: PORTFOLIO MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Review of classic investment theory, with emphasis on measuring and managing investment risk and return. Includes the development of modern portfolio theory and asset pricing models, an introduction to option and futures contracts, market efficiency, and stock valuation. Recommended for most finance students.

MGMT 646 - CORPORATE INVESTMENT POLICY
Short Title: CORPORATE INVESTMENT POLICY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the investment decisions faced by corporate financial managers. We begin by developing a general framework for corporate valuation, and then we use this framework to review and expand on the capital budgeting issues developed in the core finance course. For example, we review the foundations of option valuation, and then apply these tools to value real options. We also cover new material on estimating the cost of capital and the effects of leverage. In this course, you will learn the state of the art in the analysis of corporate investment decisions. The course format is a mixture of theory, empirical evidence, and practical application. The theory provides the framework for our analysis. The empirical evidence provides a core of stylized facts to support our theoretical intuition. And, the practical applications put to use the theoretical foundations and empirical evidence in real world decision making.

MGMT 647 - CORPORATE FINANCIAL POLICY
Short Title: CORPORATE FINANCIAL POLICY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of corporate investment and financing, with emphasis on valuation methods and how financial policy impacts corporate value. Includes the implications of agency costs, asymmetric information and signaling, taxes, mergers and acquisitions, corporate restructuring, real and embedded options, and financial risk management. Recommended for finance students.

MGMT 648 - APPLIED FINANCE
Short Title: APPLIED FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843
Description: Study of the theory and practice of the fundamental principles in finance, emphasizing hands-on experience with a wide range of corporate finance and investment applications. The course provides extensive opportunity to implement finance theory at a practical level and to develop advanced analytical spreadsheet expertise, including financial statement forecasting, regression analysis, Monte Carlo simulation, and portfolio optimization.

MGMT 649 - DATA MINING FOR BUSINESS ANALYTICS
Short Title: DATA MINING FOR BUS ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 595 or MGMP 595 or MGMW 595
Description: This course covers fundamental principles behind data mining applications, introduce popular data mining algorithms and techniques, examine how data mining technology can be used in decision making, work on real-world data "hands-on" with open-source software, explore Deep Learning and their impact. Repeatable for Credit.

MGMT 650 - FUTURES AND OPTIONS II
Short Title: FUTURES AND OPTIONS II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 543 or MGMP 543 or MGMW 543 or MGMT 843
Description: In-depth analysis of the theory and practice of derivative securities. Develops a general set of valuation, hedging, and risk management techniques which are then applied to the equity, interest rate, currency, and commodity markets. Prerequisite MGMT 642 may be taken concurrently.
MGMT 651 - FIXED INCOME MANAGEMENT
Short Title: FIXED INCOME MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of fixed income securities and markets in the U.S. and abroad, with an emphasis on the term structure of interest rates and the pricing of fixed income securities, derivatives, and portfolios. Include Treasury, Corporate Debt, and Mortgage-Backed Securities.

MGMT 652 - MERGERS AND ACQUISITIONS
Short Title: MERGERS & ACQUISITIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course examines the merger and acquisition process from the perspectives of buyers and sellers. Attention is paid to the internal (make) versus external (buy) growth opportunities and their value consequences. The course also analyzes the M&A transaction process through the study of cases. An additional focus will be in the interaction of strategic planning, value planning, financial strategies, and investment decisions.

MGMT 653 - BLOCKCHAIN: DIGITAL ASSETS AND THE INTERNET OF VALUE
Short Title: BLOCKCHAIN: INTERNET OF VALUE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Understand the design principles of the blockchain economy and its implementation challenges. Analyze the potential application of this “protocol of truth,” beyond currency: to develop decentralized networks, to optimize logistics and trade; to record value and identity (smart contracts, birth certificates, insurance claims, art, land titles and even votes).

MGMT 654 - REAL ESTATE CAPITAL MARKETS: PUBLIC & PRIVATE
Short Title: RE CAP MARKETS: PUBLIC & PRIV
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course has two major objectives: First, to provide an overview of topics related to real estate capital markets. Specifically, this course will focus on how to raise capital for various uses. This course will devote time to understand the working of the Capital Markets. Second, to prepare students interested in Real Estate to learn concepts related to accessing capital from various sources. Finally, you will learn from various guest speakers who are highly recognized in the industry, what their experience has taught them and how to use it to make a team presentation “pitch” for capital.

MGMT 655 - THE MONEY REVOLUTION: DIGITAL DISRUPTION IN FINANCE
Short Title: THE MONEY REVOLUTION
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: We consider the financial services industry in an era of rapid disruption. We analyze how firms like Square, PayPal, Stripe, Lending Club, OnDeck or Robinhood are disrupting the value chain in financial services. We seek to understand what drives the development of disruptive platforms and why incumbents are missing out on these opportunities. We consider funding sources; competition from Asian fintech dragons as they redefine financial services through e-commerce and social payments; and the democratizing of access. Finally, we consider the next wave of technologies poised to accelerate the disruption including blockchain, cryptocurrencies, and robotics. After completing this course, you will understand how financial technology disruptors are capturing revenue pools of incumbent firms in payments, consumer and small business lending, wealth management, and advisory services.

MGMT 656 - ENERGY DERIVATIVES
Short Title: ENERGY DERIVATIVES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This class covers analytical techniques related to pricing financial derivatives used extensively in the energy industry, including European, American, Asian, binary and spread options on forwards. In addition, the class will cover applications of financial derivatives in market and credit risk management in the energy industry.
MGMT 657 - INTERNATIONAL FINANCE
Short Title: INTERNATIONAL FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA Wdba XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Exploration of special problems encountered by financial officers in international arenas. Includes the economics of the foreign exchange market, exchange rate risk management, international portfolio management, capital budgeting for international projects, and international financing strategies.

MGMT 658 - APPLIED RISK MANAGEMENT
Short Title: APPLIED RISK MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA Wdba XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 642 (may be taken concurrently)
Description: This course focuses on applied risk management projects. The hands-on experience allows in-depth analysis and understanding of practical risk management issues and exposure to different risk management tools including Value at Risk. The course is a combination of lectures and application of skills.

MGMT 659 - REAL ESTATE FINANCE: ASSET VALUATION
Short Title: REAL ESTATE FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA Wdba XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course has two primary objectives: 1) provide an overview of the fundamental frameworks commonly used in the Real Estate industry and 2) provide a detailed understanding of the discounted cash flow (DCF) model, the primary quantitative financial decision tool used in the real estate industry. Students learn how to build robust DCF models incorporating important features and conventions for application to real estate assets.

MGMT 660 - REAL ESTATE CONTRACT NEGOTIATIONS FOR BUSINESS PROFESSIONALS
Short Title: REAL ESTATE CONTRACT NEG
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA Wdba XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Legal risk pervades business dealings. This course explores legal risk by educating the student on legal theories, then how to identify, quantify, reduce and accept legal risk, in the context of real estate transactions. Effective interaction with legal counsel will be emphasized. Repeatable for Credit.

MGMT 661 - INTERNATIONAL BUSINESS LAW
Short Title: INTERNATIONAL BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA Wdba XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Exploration of U.S. and foreign law relating to the law-business interface of transnational commercial ventures, including structuring operations and investments, addressing import-export problems and regulations, shipping issues, regular and internet-based financial transactions, and intellectual property. Emphasis is given to real cases demonstrating practical and cost-effective resolutions for international disputes.

MGMT 662 - INTERNATIONAL CORPORATE GOVERNANCE
Short Title: INT'L CORPORATE GOVERNANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA Wdba XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an overview of successful strategies managers use to navigate their companies in the international environment governed by different laws and norms. By discussing detailed case studies of companies, students will learn about the ways global markets, local governments, and interorganizational networks shape the actions of multinational firms.
MGMT 663 - MANAGING STAKEHOLDER RISK
Short Title: MANAGING STAKEHOLDER RISK
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on protecting and creating firm value by engaging external stakeholders (e.g., communities, NGOs, politicians) in challenging socio-political environments. Students learn how to: exercise due diligence to manage socio-political risk; engage stakeholders to earn a social license to operate; and integrate stakeholder-based initiatives into financial and operational management.

MGMT 664 - OPERATIONS LEADERSHIP LAB
Short Title: OPERATIONS LEADERSHIP LAB
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 670
Description: This course is designed to give students a close up and personal view of two private Houston companies whose owners have led successful change efforts in the operations of their businesses. Repeatable for Credit.

MGMT 665 - REAL ESTATE DEVELOPMENT: FEASIBILITY
Short Title: RE DEVELOPMENT: FEASIBILITY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces students to the methods used in analyzing commercial real estate markets, considering the perspective of decision-makers who are considering potential development, investment, or financing decisions. Required reading combined with lectures and guest speakers within the industry will enhance the student understanding of when and why market conditions are suitable for investment capital. Analytic data provided by real time research organizations as well as "boots on the ground" field work will be critical in understanding the current states of the market for each different asset type (Retail, Office, Industrial, Hospitality and Residential).

MGMT 666 - INTERNATIONAL TRADE AND BUSINESS STRATEGY
Short Title: INTL TRADE & BUSINESS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An overview of the economic and political environment of international trade, foreign investment, and competitiveness, focusing on institutions that affect international commerce.
MGMT 673 - COST ANALYSIS IN HEALTHCARE
Short Title: COST ANALYSIS IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 502 or MGMP 502 or MGMW 502 or MGMT 802
Description: As healthcare costs continue to rise at an alarming rate in U.S. over the past decade (about 20% of GDP by some accounts), issues relating cost measurement and management in the delivery of healthcare have also taken center stage. Experts in business and management have argued that extant cost systems do a poor job of measuring how much it costs to treat patients. Absent accurate measurement of these costs, many decisions could go wrong. Cost management and efficiency initiatives would be misguided, and medical reimbursements would lack proper cost bases. These concerns have triggered advances in cost measurement and management techniques that are useful not just in the healthcare setting, but also in other service organizations. The purpose of this elective is to help students develop a critical understanding of the nature of costs in healthcare delivery, their measurement in a variety of decision contexts, and how they can be managed and improved. Students will be exposed to tools such as the break-even analysis, role of cost allocations, activity-based costing, time-driven activity based costing, and cost control.

MGMT 674 - REAL ESTATE FINANCE: SECURITIES
Short Title: REAL ESTATE FINANCE: SECURITIES
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate

MGMT 675 - CORPORATE REAL ESTATE
Short Title: CORPORATE REAL ESTATE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 676 - SOCIAL ENTERPRISE
Short Title: SOCIAL ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: What might constitute social responsibility in a market setting? If social responsibility connotes a connection between a person and a social problem say between you and a poor person in Bangladesh or Houston how might it be exercised in a market transaction of buying or selling? Is there a role of private enterprise or of private consumption for alleviating some of the social problems (e.g., health, education, pollution, poverty, etc.) that we observe and experience in communities across the world? Social Enterprise explores these and related questions in the context of business.

MGMT 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate, Graduate Quadmester or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MGMT 678 - BUSINESS OF HEALTHCARE
Short Title: BUSINESS OF HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Sequence of offerings that provides an introduction to the business of health care in the U.S. Topics include health care systems, health service organizations, and issues relating to the aging problem and the technology explosion in health care. Required elective for MD/MBA’s dual degree students. Repeatable for Credit.
MGMT 679 - MACHINE LEARNING FOR BUSINESS - I  
Short Title: MACHINE LEARNING FOR BUS. - I  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: This course introduces students to machine learning techniques used in business applications to draw managerial insights from data. The methods that will be covered include naïve Bayes classifier, classification and regression trees, feed forward neural networks, and visualization methods. Students will learn to apply these methods in a wide range of settings such as marketing, finance, healthcare and other business areas, and will gain hands-on experience through assignments and a group project.

MGMT 680 - CUSTOMER LIFETIME VALUE  
Short Title: CUSTOMER LIFETIME VALUE  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Customer Lifetime Value (CLV) is a metric of burgeoning interest for firms, venture capitalists, financial analysts, and marketers. In this course, students learn how to build powerful and predictive data-driven CLV models. Topics covered include valuing firm equity using customer data, using RFM segmentation for direct marketing, customer driven CLV models. Topics covered include valuing firm equity using customer data, using RFM segmentation for direct marketing, customer acquisition and retention, and measuring the impact of a loyalty program.

MGMT 681 - MANAGING CUSTOMER PERCEPTIONS  
Short Title: MANAGING CUSTOMER PERCEPTIONS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: This course is designed to offer you an overview of the major principles of persuasion. The emphasis will be on developing a marketing communications approach that will fit into a firms' marketing program. The course will cover how to set effective communication objectives, decide what to communicate and how to develop a message execution approach.

MGMT 682 - PRICING STRATEGIES  
Short Title: PRICING STRATEGIES  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Study of the paradigm that success of a product lies not only in its acceptance by the end consumer but also in how it is priced and how it reaches the intended consumer, with emphasis on understanding and analyzing the issues, problems, and opportunities characteristic of the channel relationship and of the various faces of pricing. Repeatable for Credit.

MGMT 683 - INTRODUCTION TO BRAND STRATEGY  
Short Title: INTRODUCTION TO BRAND STRATEGY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Intensive Learning Experience  
Credit Hours: 0.75  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Introduction to Brand Strategy is designed to introduce students to core branding concepts through case analysis (done out of class) and branding exercises completed in class within brand teams including: brand audit, brand positioning, brand platform. Brand strategy elements to be introduced include: choice between branded house vs house of brands; sponsored and endorsed brands; brand architecture and brand portfolio; brand equity. Mutually Exclusive: Cannot register for MGMT 683 if student has credit for MGMT 684.

MGMT 684 - BRAND STRATEGY  
Short Title: BRAND STRATEGY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: The Brand Strategy course is designed to build on your first-year MBA marketing course and will explore the elements of brand strategy to build capabilities on brand management and how brands drive business strategy and long-term value: what it is, what it is not, how to manage, execute, measure and value. Mutually Exclusive: Cannot register for MGMT 684 if student has credit for MGMT 683.
MGMT 685 - GO-TO-MARKET STRATEGY
Short Title: GO-TO-MARKET STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An effective “Go-to-Market” strategy is a critical component of commercial success and building customer preference. This course is designed to build capability in the design and management of route-to-market channels. Students will gain understanding of the importance of customer-focused channel design, how to build channel power (and use it responsibly), and create a performance-driven channel culture.

MGMT 686 - INTRODUCTION TO MARKETING RESEARCH
Short Title: INTRO TO MARKETING RESEARCH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students will learn the most common methods managers use to gain insight about customers and markets as well as the objectives/advantages/disadvantages associated with different research designs such as qualitative methods, surveys and experiments. Students will not learn specific analytic methods but rather how to design studies to yield valid results.

MGMT 687 - APPLIED MARKETING STRATEGY
Short Title: APPLIED MARKETING STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course lays out a framework for marketing strategy and guides students through each step in the development process. While business challenges are inevitable, developing and following a well-structured marketing strategy, as laid out in this course, will help avoid many of the pitfalls that can lead businesses into trouble. Case studies, together with examples from the professor’s lengthy business career, will be used to illustrate the principles and identify pathways out of trouble should it occur. Repeatable for Credit.

MGMT 688 - BUYER BEHAVIOR
Short Title: BUYER BEHAVIOR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Drawing on established theoretical frameworks of cognitive and social psychology, this course examines three aspects of consumer behavior: (1) individual, social and cultural influences on consumers, (2) psychological mechanisms of pre- and post-consumption processes such as decision-making and attitude formation and change, and (3) methodological issues in consumer analysis. Implications for strategy as well as marketing program design, measurement and execution are discussed. These topics will be studied through discussion of academic articles, cases and projects.

MGMT 689 - DECISION MODELS
Short Title: DECISION MODELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Successful management requires the ability to recognize a decision situation, understand its essential features, and make a choice. However, many of these situations - particularly those involving uncertainty and/or complex interactions - may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. This course introduces spreadsheet modeling, simulation, decision analysis and optimization to represent and analyze such complex problems. The skills learned in this course are applicable in almost all aspects of business and should be helpful in future courses. The course is divided into two parts. In the first part, we discuss the use of decision trees for structuring decision problems under uncertainty. In the second part of the course, we discuss Monte Carlo simulation, a technique for simulating complex, uncertain systems. Throughout the course, we will use Microsoft Excel as a modeling environment, using add-in programs as necessary. Familiarity with Excel is an important prerequisite for this course. Repeatable for Credit.
MGMT 690 - HEALTHCARE STRATEGY
Short Title: HEALTHCARE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Healthcare sector, which includes areas such as health care delivery, payment, pharmaceuticals, medical equipment, etc., is an important part of any economy and society in all countries of the world including the US. This sector presents an exciting platform for upcoming business leaders in pursuit of a promising and transformational professional career. This elective course offer students interested in this sector the opportunity to study and review core strategy concepts, analytical techniques, and frameworks relevant to developing, evaluating, and implementing value-creating strategies for organizations operating in various sectors of the healthcare space. Instructor Permission Required.

MGMT 691 - BREAKTHROUGH NEGOTIATIONS IN A HEALTH CARE CONTEXT
Short Title: BREAKTHROUGH NEGOTIATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is tailored for an audience interested in healthcare. We will talk about how the characteristics of the healthcare industry impinge on negotiations, and the exercises and simulations conducted are based in a healthcare context. Repeatable for Credit.

MGMT 692 - CUSTOMER RELATIONSHIP MANAGEMENT
Short Title: CUSTOMER RELATIONSHIP MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Increasingly, firms want to enhance profitability by using strategies and tactics that fall under the broad domain of customer relationship management (CRM). In this course, students take a marketer’s perspective when assessing the strategic and operational impacts of CRM in a variety of industry/customer settings. Because CRM requires crossfunctional coordination, successful implementation often expands the role and impact of the marketing organization within the firm. Thus, students also will learn how customeentricity, as an organizational mindset, changes expectations chief marketing officers, as well as other senior marketing managers, as they attempt engage others in CRM strategy development and execution. Three perspectives serve as a foundation for learning about CRM in this course: (1) CRM as a strategy that prioritizes the allocation of organizational resources toward serving customers profitably, (2) CRM as a organizational capability to gather and use customer intelligence to create value for both customers and the firm and 3) CRM as a technology-enabled process that supports customer-centric goals and tactics. Thus, students will gain an appreciation for the critical roles that information management and technology play in supporting CRM strategies but content of the course will focus on strategic and operational issues related to CRM success. Repeatable for Credit.

MGMT 693 - NEW PRODUCTS
Short Title: NEW PRODUCTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Exploration of the critical role of new products within the corporation and in small businesses, focusing on consumer products. Discusses the critical steps in new product development from ideal generation to business analysis and cross-functional team management to product launch into the marketplace. Students will work in groups to develop their own new products and to prepare the key elements of a new product introduction. Repeatable for Credit.
MGMT 694 - INTERPERSONAL COMMUNICATION IN HEALTHCARE
Short Title: INTERPERSONAL COMM IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or Quadmester level students.
Course Level: Graduate
Description: How to listen well, converse productively, use body language, and communicate across different cultures – all these fundamentals are covered and customized to healthcare settings. The course integrates lecture, discussion, and in-class exercises every week, providing many opportunities to apply lessons and practice skills. Students often break into small teams to simulate typical healthcare interactions and receive feedback on what they are doing well and what can be improved. Repeatable for Credit.

MGMT 695 - VALUE-BASED HEALTHCARE
Short Title: VALUE-BASED HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Value-Based Care is a framework for restructuring health care systems around the globe with the overarching goal of value for patients—not access, cost containment, convenience, or customer service. This class will serve as an introduction to value-based care and as an integration of several concepts from finance, accounting, strategy and general management applied into health care.

MGMT 697 - STRATEGIES FOR PROBLEM SOLVING
Short Title: STRATEGIES FOR PROBLEM SOLVING
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is focused on identifying and developing logical tools for gaining precise insights into what are otherwise complex and seemingly intractable real life situations. The format is one of in-class group case solutions from the perspective of business consultants, followed by class discussion of the specific tools that works for broad classes of alike problems.

MGMT 698 - APPLIED BUSINESS PROCESS OPTIMIZATION
Short Title: BUSINESS PROCESS OPTIMIZATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An analytic introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on quantitatively understanding, managing and improving processes and flows of products, customers, and information and using measurable techniques to address bottlenecks, manage inventory, improve quality, and other strategic issues in operations.

MGMT 699 - CAPITAL INVESTMENT IN HEALTHCARE
Short Title: CAPITAL INVESTMT IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is focused on investment in the healthcare industry when the economic underpinnings have been challenged and are in transition. Students will gain an overview of the U.S. healthcare industry and the legislative and policy revisions impacting the economy of healthcare and will learn frameworks for evaluation capital investment decisions amid changes in policy and payment models.

MGMT 700 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Management
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 0.75-3
Restrictions: Enrollment limited to students in the following programs: MBA O MBA PMBA WMBA X MBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Independent study or directed reading on an approved project under faculty supervision. Contact MBA program office for application information. No more than 3 credit hours of independent study will count towards graduation unless approved by the Jones School Academic Standard Committee. Department Permission Required. Repeatable for Credit.
MGMT 701 - MARKETING EXPERIMENTATION
Short Title: MARKETING EXPERIMENTATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will focus on gathering interpretable and actionable information from your customers via experiments and surveys. The first part of the course will focus on measurements: what you want versus what you can get. Then we will run actual surveys or online experiments and present the outcomes.

MGMT 702 - RICE BUSINESS INTERNATIONAL STUDY
Short Title: RICE BUSINESS INTNL STUDY
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Rice Business offers opportunities for students to attend international seminars hosted by other business schools around the world. These seminars, typically lasting one to three weeks, bring together MBA students from top programs around the world to focus on contemporary local and global business issues. Department Permission Required. Repeatable for Credit.

MGMT 703 - FIELD STUDY IN AMERICAN BUSINESS I
Short Title: FIELD STUDY - AMERICAN BUS I
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a summer internship with a firm in the United States. The readings are meant to complement much of your course work in the first year of the MBA program. A final paper is due at end of summer to summarize experience. Instructor Permission Required.

MGMT 704 - FIELD STUDY IN AMERICAN BUSINESS II
Short Title: FIELD STUDY - AMERICAN BUS II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a fall internship with a firm in the United States. The readings are meant to complement much of your course work in the second year of the MBA program. Report due at end of term summarizing work experience.

MGMT 705 - FIELD STUDY IN AMERICAN BUSINESS III
Short Title: FIELD STUDY - AMERICAN BUS III
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The purpose of this course is to expose students to the American business enterprise. This exposure is accomplished through two primary means: (1) readings about the drivers of success in U.S. firms; and (2) a spring internship with a firm in the United States. The readings are meant to complement much of your course work in the second year of the MBA program. Department Permission Required.

MGMT 706 - ANALYTICS IN HEALTHCARE
Short Title: ANALYTICS IN HEALTHCARE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces a data-driven culture in healthcare operations and patient care. Lectures cover fundamentals of data management, analytics maturity models, and using data to enhance collaboration and research. Invited speakers cover applications of machine learning and AI for healthcare automation. Overall goal is delivering value-based healthcare with enhanced safety.
MGMT 707 - ADVANCED MARKETING RESEARCH
Short Title: ADVANCED MARKETING RESEARCH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students focus on conjoint analysis, a state-of-the-art method for discovering consumer preferences. This framework enables a quantitative approach to new product design that encompases analysis of market share, segmentation, targeting, and positioning. In this project-based course, student teams design a set of new product concepts using conjoint analysis, analyze related survey data, and present a data-driven strategic marketing plan for their chosen concept.

MGMT 708 - PRICING STRATEGIES: OIL & GAS INDUSTRY
Short Title: PRICING STRATEGIES-OIL&GAS IND
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: In rapidly changing business environments, with global competition and maturing markets, demonstrating in-market growth and competitive advantage is extremely important. This class explores how companies utilize existing information and custom data to create frameworks that facilitate strategic growth-oriented decisions. The class also focuses on new trends in digital transformation within O&G markets with Pricing and Sales effectiveness as the focus. Class sessions will emphasize experimental learning and will include a combination of case studies, real-time business examples and hands-on fieldwork where applicable.

MGMT 709 - MARKETING IN THE ENERGY INDUSTRY
Short Title: MARKETING IN THE ENERGY IND.
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 710 - LEADERSHIP ILE
Short Title: LEADERSHIP ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students engage in an intensive learning experience to grow their leadership skills. Each student serves as the interim CEO of a manufacturing company, leading the management team responsible for strategy, marketing, financing, operations, research, and development. Students analyze financial, consumer, and operations data and develop tools to make predictions in an uncertain and changing marketplace. Keeping the company profitable - or even out of bankruptcy - is itself a challenge. In addition, the team faces difficult situations throughout the simulation that test skills learned in the core organizational behavior course and other core courses.

MGMT 711 - NEGOTIATIONS ILE
Short Title: NEGOTIATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Course provides opportunities for students to experience different phases of two-party, multi-party, and team negotiations. Its interactive format facilitates development of analytical and behavioral skills for effective negotiation. Topics include diagnosing conflict, decision making, adversarial vs. cooperative strategies, ethical and cultural factors, and third-party intervention.

MGMT 712 - PROCESS MANAGEMENT AND QUALITY IMPROVEMENT
Short Title: PROCESS MGMT & QUALITY IMPROV
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides students with tools, techniques, and frameworks for recognizing and analyzing operating performance opportunities along with a process-centric lens with respect to commercial competitiveness. The course provides a team project opportunity to identify business performance issues and take action by diagnosing and addressing relevant process components.
MGMT 713 - STRATEGIC ISSUES FOR GLOBAL BUSINESS
Short Title: STRAT ISSUES FOR GLOBAL BUS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Seeks to provide students with the skills, knowledge and sensitivity required to attain and maintain sustainable competitive advantage within a global environment. Emphasizes a strategic perspective and highlights topics such as global environment analysis, global strategy, global strategic alliances, and the important role of organizational structure and strategic control.

MGMT 714 - CAREER STRATEGY
Short Title: CAREER STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: You will deploy business strategy principles to develop your own career strategy; determine your long-term aspirations, set a long-term plan of initiatives to build the strengths and presence needed to realize those aspirations, prepare to find opportunities to execute that plan in the short-term, and decide which opportunity to accept. Instructor Permission Required.

MGMT 715 - STRATEGIC INNOVATION AND COMPETITIVE ADVANTAGE
Short Title: STRATEGIC INNOV & COMP ADV
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course will help students apply the key strategic management frameworks and concepts into the innovation management context in technology industries and help them understand that innovation is an essential and integral part of strategic management. Within this strategic perspective, this course draws upon strategic management, organization theory, product innovation, and technology management for analytical tools to address important challenges faced by managers in technology-based firms. Repeatable for Credit.

MGMT 717 - PROJECT MANAGEMENT
Short Title: PROJECT MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on the fundamentals of project management. Students will have the opportunity in this course to apply many of the subjects discussed in the MBA program in practical ways through case studies and consulting with company project managers.

MGMT 718 - MARKETING BASED PROJECT ANALYSIS
Short Title: MARKETING BASED PROJ ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an overview of the role of market research in real estate development. Students will learn the steps used to conduct a market study, the role of economic data in evaluating a market, the use of comparable properties in preparing financial projections for a real estate project and the importance of public/private financing options in making a project feasible. This course would be useful to students interested in pursuing a career in real estate development. Students interested in real estate investments may also benefit from this course. While the principals learned in the course are applicable to all real estate development, the examples used in the course will focus on hotel development. Repeatable for Credit.

MGMT 719 - SUPPLY CHAIN MANAGEMENT
Short Title: SUPPLY CHAIN MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Developing strategies to optimize the integrated planning and execution of processes that facilitate the flow of materials, information and financial capital. Topics explored include Materials Demand Planning, Procurement Systems, Inventory Management, Strategic Sourcing, Supplier Relationship Management, Logistics and Asset Management.
MGMT 720 - STRATEGY AND MANAGING INTERNATIONAL STRATEGIC ALLIANCES
Short Title: STR & MNG INTL STRAT ALLIANCES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course seeks to provide students with the skills, knowledge, and sensitivity required to structure and manage strategic alliances/joint ventures within a global environment. This course will discuss the following topics: motivations for joining strategic alliances/joint ventures, partner selection, structuring strategic alliances/joint ventures to meet firms' strategic objectives, control and management of alliances/joint ventures, evaluation of performance of alliances/joint ventures, and exiting alliances/joint ventures. Case studies will also be used to develop students' capacity to identify issues, to reason carefully through various options and improve students' ability to manage the organizational process by which alliances/joint ventures get formed and executed. We will also read and discuss recent articles from the business press and academic journals.

MGMT 721 - BUSINESS LAW
Short Title: BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the broad subject of law as it relates to business and is designed to help the student develop "legal astuteness." That is, the ability to communicate effectively with counsel and to work together with counsel to solve complex problems and/or to protect and leverage the firm's resources. It is designed to be a guide to understanding how the law impacts daily management decisions and business strategies, to spotting legal issues before they become legal problems, and to using laws and legal tools to marshal resources and manage risk.

MGMT 722 - SUPPLY CHAIN MANAGEMENT: MAINTAINING AND OPTIMIZING VALUE
Short Title: SUPPLY CHAIN: OPTIMIZING VALUE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Executing sourcing strategies for materials or services that sustain value, drives performance, encourages innovation and ethical behaviors. Topics explored include Operations to Commercial Translation, Contract Negotiation, Contracting, Performance Management, Risk Assessment, Risk Mitigation, Supplier Relationships, Stakeholder Engagement and Communication.

MGMT 723 - PROFESSIONAL SERVICE FIRMS
Short Title: PROFESSIONAL SERVICE FIRMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Professional service firms -- consulting, money management, private equity, venture capital, advertising, medical service, and law firms -- are confronted with significant challenges as they experience increased competition from boutique firms as well as global and international competitors. Clients are more demanding, and there are significant, strategic and organizational challenges which require different approaches from traditional approaches. One observer noted that this competition has moved from gentlemanly competition to a "blood sport". Interestingly, the service sector in the US furnishes 68 percent of the GDP1 and this is growing in emerging economies; for example, the service sector in India contributed 56 percent to the GDP during 2008-09. Additionally, many of these firms' leaders are overwhelmed by the expectation of a dual role where they are not only managers but also high profile producers. As such, it is important for a course to examine the strategy and leadership challenges these firms face and likewise to expose students to the challenges they will face as professionals in one of these organizations, and ultimately as leaders in such professional service firms. The course will also include visits from managers associated with professional service firms. Repeatable for Credit.

MGMT 724 - SOCIAL ENTREPRENEURSHIP – PRACTICAL BUSINESS PLANNING
Short Title: SOCIAL ENTREPRENEURSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This practical course will study social entrepreneurship and its ability to create social change by applying business principles and earned income strategies. Light on Powerpoint slides and theory, and heavy on real-world leadership and discussions, students will consider social enterprise solutions to real social needs, and write a business plan utilizing knowledge gained throughout their MBA program.
MGMT 725 - INTELLECTUAL PROPERTY STRATEGY FOR ENTREPRENEURS: LEGAL AND STRATEGIC ASPECTS

Short Title: IP FOR ENTREPRENEURS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides a practical, business-oriented overview of three important strategic considerations for a new enterprise: (1) identifying and monetizing the business's potential intellectual property; (2) identifying and addressing other people's IP-ownership claims, including data-privacy considerations; and (3) long-term planning for a liquidity event.

MGMT 726 - FIXED INCOME PRACTICUM I - RICE FI FUND

Short Title: FIXED INCOME PRACTICUM I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 648 (may be taken concurrently) and MGMT 645 (may be taken concurrently)
Co-requisite: MGMT 651
Description: The first course in the two semester sequence where students gain hands-on experience in managing fixed income portfolios. Students manage both the Rice FI Fund, a $2.5 million Rice University endowment bond portfolio, and a simulated long-term portfolio. Students use Finance Center resources to conduct in-depth quantitative and qualitative analysis of sectors and individual securities across different fixed income asset classes, develop portfolio strategies, and manage risk and return. This applied course builds on foundations provided in MGMT 651, a co-requisite. Admission is by application only. Instructor Permission Required. Repeatable for Credit.

MGMT 727 - FIXED INCOME PRACTICUM II - RICE FI FUND

Short Title: FIXED INCOME - PRACTICUM II
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 648 and MGMT 726 and MGMT 645 (may be taken concurrently)
Description: The second course in the two semester sequence where students gain hands-on experience in managing fixed income portfolios. Students manage both the Rice FI Fund, a $2.5 million Rice University endowment bond portfolio, and a simulated long-term portfolio. Students use Finance Center resources to conduct in-depth quantitative and qualitative analysis of sectors and individual securities across different fixed income asset classes, develop portfolio strategies, and manage risk and return. Admission is for students continuing from MGMT 726 only, who have been accepted by application only. Instructor Permission Required.

MGMT 728 - REAL ESTATE DEVELOPMENT

Short Title: REAL ESTATE DEVELOPMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Real Estate Development course follows the development process from an entrepreneurial and "deal making" point-of-view. Course topics include market analysis, site selection, project budgeting/financial analysis, land acquisition, marketing and leasing, joint ventures, financing, design and construction management, and dispositions.

MGMT 729 - CURRENT ISSUES IN TECHNOLOGY MANAGEMENT

Short Title: CURRENT ISSUES IN TECH MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Companies that successfully select, adopt, and exploit technology gain a competitive advantage. Business leaders, executives, strategists, innovators and line managers each play a key role. Their decisions and actions determine a business's ability to leverage technology successfully. In the classroom, our focus will be on current technology related issues faced by businesses, including security, privacy and emerging technologies such as AI and IoT. We will examine these topics through recent research and use case studies to develop strategies students can use in their environment. The course is focused on managing business impact, business risk, and externalities related to technology. It is not industry specific and no prior technical knowledge is required.
MGMT 730 - LEGAL ASPECTS OF ENTREPRENEURSHIP
Short Title: LEGAL ASPECTS OF ENT.
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course focuses on the legal dimensions of entrepreneurship and is designed to help students develop the managerial capability to work effectively with legal counsel to solve complex problems and to protect and leverage firm resources. Like information technology, the legal dimensions of business should not be treated as an after-thought or add-on to the business strategy development process. Corporate leaders with an understanding of American law have a unique capacity to protect and enhance shareholder wealth. Conversely, managers who lack the ability to integrate law into the development of strategy can place the firm at a competitive disadvantage and imperil its economic viability. The overarching purpose of Legal Aspects of Entrepreneurship is to prepare students to meet the legal and regulatory challenges and opportunities they can expect to encounter as entrepreneurs, venture capitalists, and managers of private and public businesses. The course provides a conceptual framework for understanding both the societal context within which businesses are organized and operate, as well as the various legal tools available to managers engaged in evaluating and pursuing opportunities. Legal Aspects of Entrepreneurship will offer strategies and tactics for working with counsel to use the law as a positive force to increase realizable value while managing the attendant risks and keeping the legal costs under control. The objective is not to teach business students how to think like lawyers, but rather to teach students how to become more legally astute so they can handle with confidence the legal aspects of entrepreneurship and management. This includes developing legal literacy and learning what to look for when selecting an attorney and knowing when to call one. Repeatable for Credit.

MGMT 732 - TECH PRODUCT MANAGEMENT
Short Title: TECH PRODUCT MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This is a project based course where students choose a product and practice managing it. Students will learn how to set a vision, empathize with the user, prioritize, create product management artifacts and best practices when working within agile frameworks. This course is intended for students who want to understand the role of a product manager at a technology company, manage their own product offering as an entrepreneur, or learn how to apply agile product management techniques to their own careers.

MGMT 733 - STRATEGIES FOR GROWTH
Short Title: STRATEGIES FOR GROWTH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): (MGMW 570 or MGMP 570 or MGMT 570 or EMBA 991) and (MGMW 571 or MGMP 571 or MGMT 571 or EMBA 993)
Description: This course focuses on examining various strategies that companies can adopt to achieve sustainable and profitable growth. The course will use a variety of real-life cases of companies and supplement them with relevant readings, lectures, or other exercises, as necessary.

MGMT 734 - TECHNOLOGY ENTREPRENEURSHIP
Short Title: TECH ENTREPRENEURSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The goal of this course is to provide the student with exposure to early stage technology entrepreneurship. Evaluation of opportunities, business model, capitalization, and early operations are covered. The focus is on the parts of entrepreneurship that are unique to technology companies and how to apply this knowledge to their own careers. Repeatable for Credit.
MGMT 735 - MARKETING LAB  
Short Title: MARKETING LAB  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hours: 1.5-3  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Prerequisite(s): MGMT 580 or MGMP 580 or MGMW 580 or MGMT 880  
Description: This course affords students the opportunity to apply their academic marketing knowledge to a real-world project, in a consultative role with a firm that serves as the client/project sponsor. Clients represent a variety of industries and challenge their student-managed teams to address a focused and strategically important marketing-related problem. In addition to core marketing, students must have taken at least one marketing elective. Instructor Permission Required.

MGMT 736 - LEADERSHIP IN A WORLD ON FIRE  
Short Title: LEADERSHIP IN A WORLD ON FIRE  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: The course examines strategic and moral perspectives on grand challenges and social-environmental problems facing businesses. Examples of such issues include: pandemic, accelerating climate change, corporate social responsibility (CSR) and citizenship, bottom of the pyramid, inequality, and demands for justice. Through active discussion, the course focuses on implications of grand challenges for business leadership.

MGMT 737 - INVESTOR RELATIONS  
Short Title: INVESTOR RELATIONS  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Students learn theory and practice of investor relations, with emphasis on the role of investor relations/financial communications. Subjects covered include: history of the stock market, formation of the SEC, evolution of SEC regulations, dynamics of the equity markets, flow of investor information, planning and implementing an investor relations program, fitting investor relations into a corporation’s communications program. Students will be mentored by local investor relations practitioners who will serve as real world guides for course assignments. Students will learn specifics about filing with the SEC, the creation of annual reports, road shows, stockholder meetings, preparing financials, and more. Investor relations managers, analysts, and CEOs will serve as guest lecturers to talk about their challenges in today’s workplace.

MGMT 738 - CUSTOMER FOCUS IN HEALTH CARE AND SERVICE INDUSTRIES: A STRATEGIC APPROACH  
Short Title: CUSTOMER FOCUS IN HEALTH CARE  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.  
Prerequisite(s): MGMT 683  
Description: A capstone course for second year MBAs. Students form a private startup exploration and production company that grows to become a mid-cap ($10 billion) and then suffers a severe contraction. Students learn the various forms of capital available depending on the size of the company and state of the capital and commodity markets.

MGMT 739 - CAPITAL FORMATION IN ENERGY AND INFRASTRUCTURE  
Short Title: CAPITAL FORMATION IN ENERGY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMB A Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Students will identify, screen, and evaluate start-ups for investment by the Rice venture capital fund. Through this highly experiential course, students will learn tools for rigorously evaluating startup ventures for investment, valuing early stage companies, and structuring investments. Students will present their investment recommendations to an advisory committee. Graduate/Undergraduate Equivalency: BUSI 465. Mutually Exclusive: Cannot register for MGMT 740 if student has credit for BUSI 465.
MGMT 741 - MANAGING GROWTH
Short Title: MANAGING GROWTH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Description: Companies are either thought of as small start-ups or large, mature businesses. The small start-up is considered to be the domain of the entrepreneur, where by force of personality, spark of creativity, or bold opportunism, a business is formed ex nihilo. On the other extreme, the large business is considered to be the domain of the manager, where by force of scale and scope, imposition of process, and careful analysis, an empire is sustained and expanded. In summary, the focus of the course will be how to create wealth by buying a small business, putting systems and processes in place to create a foundation for future growth, driving growth both internally and externally, and, finally, selling the business. Students will learn to apply those skills to small businesses with growth potential.

MGMT 742 - INTERNATIONAL PRIVATE EQUITY REAL ESTATE
Short Title: INTL PRIVATE EQTY REAL ESTATE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Description: Course covers general concepts in international RE investments, market selection, private equity funding structures, along with the perspectives of LPs and GPs/Managers. An analysis of risks and rewards associated with developments vs acquisitions, management/operations and exit in less developed markets, with a focus on the institutional asset class.

MGMT 743 - MANAGING INNOVATION IN ENERGY TECHNOLOGIES
Short Title: INNOVATION IN ENERGY TECH
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Description: Innovation is critical to the survival of the energy industry, both for traditional carbon-based energy and for renewable and "green" energy. Management of innovation requires a special set of skills beyond those of typical management. We will discuss the issues faced by energy managers in addressing innovation, and look at cases where these issues played a central role.

MGMT 744 - SERVICES OPERATIONS
Short Title: SERVICES OPERATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Description: This course examines how energy companies construct portfolios of international assets. The first half of the course focuses on the life cycle of international energy projects, from the point at which a company decides it wishes to acquire an international project to the point at which the company divests that interest. These initial classes will discuss the business development processes companies employ to identify, analyze and acquire overseas assets; the typical commercial structures and contracts used to acquire rights and obligations in different types of energy projects; how companies build and manage relationships with host governments, including cultural difference, negotiation and corruption; issues related to joint ventures and joint operations with other companies; threats to international project cash flow such as renegotiation, expropriation and force majeure; and how companies structure exits and divestments from international energy projects. The course concludes with students being divided into teams or “companies” and then engaging in a dynamic bid round and petroleum exploration exercise, whereby students compete with one another to acquire acreage and then create (or destroy) net present value.

MGMT 745 - INTERNATIONAL ENERGY DEVELOPMENT
Short Title: INTL ENERGY DEVELOPMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Description: This course examines how energy companies construct portfolios of international assets. The first half of the course focuses on the life cycle of international energy projects, from the point at which a company decides it wishes to acquire an international project to the point at which the company divests that interest. These initial classes will discuss the business development processes companies employ to identify, analyze and acquire overseas assets; the typical commercial structures and contracts used to acquire rights and obligations in different types of energy projects; how companies build and manage relationships with host governments, including cultural difference, negotiation and corruption; issues related to joint ventures and joint operations with other companies; threats to international project cash flow such as renegotiation, expropriation and force majeure; and how companies structure exits and divestments from international energy projects. The course concludes with students being divided into teams or “companies” and then engaging in a dynamic bid round and petroleum exploration exercise, whereby students compete with one another to acquire acreage and then create (or destroy) net present value.

MGMT 746 - REAL PROPERTY
Short Title: REAL PROPERTY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Description: Survey course providing a short but intensive overview of real estate and the real estate industry.


**MGMT 747 - REGULATORY ENVIRONMENT OF BUSINESS**

*Short Title:* REG ENVIRONMENT OF BUSINESS  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 1.5  
*Restrictions:* Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

*Description:* This course examines the broad subject of government regulation of business and financial markets and is designed to help the student develop what the authors of the text term “legal astuteness.” That is, the ability to exercise informed judgment based on context-specific knowledge of the law and the regulatory environment. To achieve this, we will apply the methodology of neoclassical economic analysis to understand the role and function of government and governmental decision-making; explore the intersection between economics and the law; and learn to spot legal issues before they become grounds for termination, lawsuits, or criminal indictments. Emphasis is placed on high impact regulatory programs, such as antitrust, security regulation, civil rights, and environmental laws. Repeatable for Credit.

**MGMT 748 - PROCESS IMPROVEMENT TOOLKIT**

*Short Title:* PROCESS IMPROVEMENT TOOLKIT  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 0.75  
*Restrictions:* Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

*Course Level:* Graduate  
*Description:* Process performance improvement requires a fundamental set of analytical and statistical tools. This course provides students with the knowledge of key process improvement tools, how they are planned, applied and how to interpret their output. The course includes practical application of the tools through hands-on exercises.

**MGMT 749 - PROCESS IMPROVEMENT CAPSTONE**

*Short Title:* PROCESS IMPROVEMENT CAPSTONE  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 1.5  
*Restrictions:* Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

*Course Level:* Graduate  
*Prerequisite(s):* MGMT 748 (may be taken concurrently)  
*Description:* This course provides students with a detailed Lean Six Sigma roadmap and critical-thinking skills for leading a process improvement project from codifying the business problem, understanding baseline state, identifying root causes to performance shortfalls, developing and implementing the solution, and sustaining improved performance.

**MGMT 750 - STRATEGIC CONSIDERATIONS IN HEALTH INFORMATICS**

*Short Title:* HEALTH INFORMATICS  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Lecture  
*Credit Hours:* 1.5  
*Restrictions:* Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

*Course Level:* Graduate  
*Description:* Repeatable for Credit.

**MGMT 751 - ECONOMICS OF HEALTH CARE SECTORS**

*Short Title:* ECON OF HEALTH CARE SECTORS  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Seminar  
*Credit Hours:* 1.5  
*Restrictions:* Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.

*Course Level:* Graduate  
*Description:* Repeatable for Credit.

**MGMT 752 - SUPPLY CHAIN MANAGEMENT LAB**

*Short Title:* SUPPLY CHAIN MANAGEMENT LAB  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Laboratory  
*Credit Hours:* 1.5-3  
*Restrictions:* Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

*Course Level:* Graduate  
*Description:* This operations lab provides students with an opportunity to build their operations and supply chain management skills and experiences by either (1) applying their coursework to a hands-on, real-world project with a company, or (2) performing an in-depth research project on a cutting-edge topic in operations and supply chain management. Students in this course can work with any industry and may involve the full spectrum of operations and supply chain topics. This is a project-centric course with a customized schedule to the specific project. Instructor Permission Required.

**MGMT 753 - OPERATIONS LAB: HEALTH CARE**

*Short Title:* OPERATIONS LAB: HEALTH CARE  
*Department:* Management  
*Grade Mode:* Standard Letter  
*Course Type:* Laboratory  
*Credit Hours:* 3  
*Restrictions:* Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.

*Course Level:* Graduate  
*Prerequisite(s):* MGMT 712  
*Description:* This course provides the needed skills, along with the experience of leading and facilitating change in a live, healthcare environment with actual processes, staff and business value on the line. Students are paired, given a real business problem in a major Houston healthcare system and guided to deliver the solution, implementation plan and control plan. Instructor Permission Required.
MGMT 754 - REAL ESTATE: ULI LAB  
Short Title: REAL ESTATE: ULI LAB  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBa programs. Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  

MGMT 756 - CORPORATE REAL ESTATE POST PANDEMIC  
Short Title: CORP REAL ESTATE POST PANDEMIC  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 0.75  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: In this short course, students explore the current pandemic and prior crises to understand the impacts on personal, organizational and market resiliency particularly as it relates to office work and, therefore, strategic corporate real estate management. In an applied setting, students gain key insights to prepare for the future of work and the workplace as business leaders.  

MGMT 757 - REAL ESTATE LAB: DEVELOP, DESIGN AND CONSTRUCTION  
Short Title: RE LAB: DEVELOP DESIGN CONSTR  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Prerequisite(s): MGMT 659 (may be taken concurrently) or MGMT 667 (may be taken concurrently) or MGMT 669 (may be taken concurrently)  
Description: Cross-list: ARCH 691. Repeatable for Credit.  

Course URL: www.arch.rice.edu/academics/current-courses (http://www.arch.rice.edu/academics/current-courses/)  

MGMT 758 - ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) ISSUES IN STRATEGY  
Short Title: ESG ISSUES IN STRATEGY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Organization’s success does not only depend on its strategic repertoire within a given market, but also on how well it incorporates environmental, social, and governance (ESG) factors in its strategy. By engaging with peer organizations, non-governmental agencies, the media, and other external stakeholders, firms can proactively identify and address ESG issues. Consideration of ESG factors in strategy can help simultaneously achieve a long-term competitive advantage as well as enhance a firm’s social and environmental impact. The goal of this course is to provide you with analytical tools that help managers assess a firm’s broader environment and make decisions that are beneficial for the firm and for society at large.  

MGMT 759 - DIGITAL TRANSFORMATION  
Short Title: DIGITAL TRANSFORMATION  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Description: Using real cases across industries and visits of industry experts, Digital Transformation is designed to equip students to confidently conceive, lead and execute digital innovation and transformation initiatives and develop new business models for existing and insurgent organizations.  

MGMT 760 - E-LAB: VENTURE CAPITAL  
Short Title: E-LAB: VENTURE CAPITAL  
Department: Management  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Laboratory  
Credit Hours: 1.5-3  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBa Enrollment is limited to Graduate or Graduate Quadmester level students.  
Course Level: Graduate  
Prerequisite(s): MGMP 626 (may be taken concurrently) or MGMT 626 (may be taken concurrently)  
Description: Students learn by working with early stage investors including angel and venture capital organizations. Students learn through hands on support and are expected to be at the sponsoring organizations office 8 - 10 hours per week and attend investor pitches. The Venture Capital E-Lab is not a standard class and requires meeting off campus. It is also not affiliated in anyway with the Venture Capital class. Instructor Permission Required. Repeatable for Credit.
MGMT 761 - E-LAB: ENTERPRISE ACQUISITION
Short Title: E-LAB: ENTERPRISE ACQUISITION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 627 (may be taken concurrently)
Description: Students follow the processes learned in MGMT 627 to acquire an existing business or start a search fund. Students develop selection criteria, network to connect with sellers, conduct preliminary due diligence, perform a business valuation, develop potential deal structures and have the opportunity to move forward on any potential opportunities on their own after graduation. Students attend a check-in class every other week to present updates and receive feedback from faculty, students and alumni mentors. Instructor Permission Required. Repeatable for Credit.

MGMT 762 - E-LAB: NEW ENTERPRISE
Short Title: E-LAB: NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 621 or MGMT 927
Description: Students working on their own startup have the opportunity to apply the processes learned in the New Enterprise course to their startup. Students attend a check-in class every other week to present updates and receive feedback from faculty, students and alumni mentors. Department Permission Required. Repeatable for Credit.

MGMT 763 - ENTREPRENEURSHIP LAB
Short Title: ENTREPRENEURSHIP LAB
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the OMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MGMT 531 and MGMT 627
Description: Two tracks are available in the Entrepreneurship Lab: New Enterprise and Enterprise Acquisition. In the New Enterprise track, students apply the processes and lessons from the New Enterprise course to further evaluate and continue working on a startup idea. In the Enterprise Acquisition track students develop their own acquisition plan and can start the process to acquire a company, support an active student or alumni searcher, or start their own Search Fund. In both tracks, students are assigned a coach and attend check-in meetings to present updates and receive feedback from faculty, mentors and other students in the course. Department Permission Required.

MGMT 764 - E-LAB: DEAL EVALUATION
Short Title: E-LAB: DEAL EVALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1.5-3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students will learn the processes and frameworks for evaluating incoming deal flow for early stage and private equity investments and gain hands on experience by applying the processes to applications for the Jones School Veteran Business Battle competition, the Rice Angel Network and other Rice affiliated competitions. Instructor Permission Required. Repeatable for Credit.

MGMT 765 - IGNITE ENTREPRENEURSHIP
Short Title: IGNITE ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Ignite Trek provides entrepreneurial students the opportunity to meet successful and up-and-coming entrepreneurs in Silicon Valley. Students hear the personal stories of entrepreneurs working to build their companies and learn from the successes (and failures) of the best-and-brightest that Silicon Valley has to offer. Students also have the opportunity to visit startups first-hand and see their innovative work spaces. This is an intense immersion experience with company visits and entrepreneurial speakers throughout the trek. Department Permission Required.

MGMT 766 - HEALTHCARE INNOVATION AND ENTREPRENEURSHIP LAB
Short Title: HEALTHCARE INNOV & ENTREP LAB
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students work with nascent medical device startups created out of the Healthcare Innovation and Entrepreneurship course. Students work 10 hours per week on various aspects of a business plan and preparation for business plan competitions.
MGMT 767 - QUANTITATIVE FINANCE LAB  
Short Title: QUANTITATIVE FINANCE LAB  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.  
Course Level: Graduate  
Prerequisite(s): MGMT 638 and MGMT 648  
Description: This course is a sequel to MGMT 638, Quantitative Investment Strategies. Students will work in groups to design, implement, and evaluate data-driven investment strategies. Groups will have freedom to select the signals they wish to consider for forming portfolios. Attention will be given to optimally combining multiple strategies, using market signals to rotate between strategies, and controlling portfolio turnover. Performance metrics will include alphas, Sharpe ratios, information ratios, skewness, kurtosis, and attribution analysis. Repeatable for Credit.

MGMT 768 - THE NEW FOOD ECONOMY  
Short Title: THE NEW FOOD ECONOMY  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This is a survey course of contemporary topics in the new food economy. We pay particular attention to social justice issues surrounding the production, distribution, marketing and sales, and consumption of food. A sample of covered topics may include: access to capital for non-traditional agriculture, organic & GMO, new technologies and production and distribution, food waste, food insecurity, food marketing, food assistance policies, and other public policies.

MGMT 770 - CONSULTATIVE SELLING  
Short Title: CONSULTATIVE SELLING  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.  
Course Level: Graduate  
Description: This course introduces students to the communication skills and behaviors required for success in the field of consultative selling, including effective questioning, active listening, assessing client communication style, and delivering persuasive presentations.

MGMT 771 - DIGITAL MARKETING  
Short Title: DIGITAL MARKETING  
Department: Management  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1.5  
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadrimester level students.  
Course Level: Graduate  
Description: Course provides an introduction to digital marketing and examines ways it should be implemented. In addition to learning fundamental constructs and principles, students will focus on tools and skills needed for setting goals, implementing campaigns, and measuring success. Guest speakers and in-class exercises are used to provide insights and relevancy to this swiftly expanding area of marketing.

MGMT 774 - LEADERSHIP AND TEAM COACHING  
Short Title: LEADERSHIP AND TEAM COACHING  
Department: Management  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 0.75  
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadrimester level students.  
Course Level: Graduate  
Description: The best leaders understand the importance of developing the next generation - ensuring they have prepared successors and effective teams. This course will examine models and frameworks for coaching and development and is intended for those interested in practicing coaching as a manager or peer. Department Permission Required. Repeatable for Credit.
MGMT 775 - SUPPLY CHAIN ILE
Short Title: SUPPLY CHAIN ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The Supply Chain for most companies is a very vital ingredient in their success, maybe even survival. Whether you are a company such as Apple, where your core competency is the design/ styling of products, or your company designs, manufactures and distributes all of your products, the supply chain's has to perform at a high level. In the face of increasing customer expectations and global competitions, companies have to become more efficient in controlling the flow of materials throughout the supply chain. This ILE is designed to provide an introduction to the major components important in the Supply Chain. Topics discussed will include: Strategies for the Supply Chain, Procurement & Global Financial Decisions Processes such as Sales and Operations Planning (S&OP), Negotiation, Supplier Selection Systems for Manufacturing Planning & Control, & MRP/ERP Management of Suppliers using Performance Assessments, Developing Capabilities Decisions affecting Inventory, and Logistics. Jobs in the Supply Chain Corporate Social Responsibility in the Supply Chain. The course will be a combination of lectures and some thought-provoking activities and discussions of current events from the Supply Chain affecting companies will be part of the class, and participants are encouraged to bring in relevant examples from their previous work experience to share. Repeatable for Credit.

MGMT 776 - INTRODUCTION TO REAL ESTATE INDUSTRY
Short Title: INTRO TO REAL ESTATE INDUSTRY
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: An introductory survey course intended to provide a foundational understanding of the real estate industry. This course aims to be useful to students interested in pursuing a career in the real estate industry who have no or limited experience in real estate. This course is open to MBA students in each program. Outside graduate students can enroll with instructor permission provided space is available. Repeatable for Credit.

MGMT 777 - INVESTMENT BANKING AND MARKETS ILE
Short Title: INVESTMENT BANKING & MARKETS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 778 - CUSTOMER EXPERIENCE MANAGEMENT
Short Title: CUSTOMER EXPERIENCE MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the key issues in managing customer experience in customer-focused service organizations. Its learning objectives are to understand the customer decision journey framework, diagnose and solve problems with journey mapping, design a transformative customer experience, measure experience, and manage unforeseen mishaps and setbacks.

MGMT 779 - BUSINESS AND URBAN ANALYTICS
Short Title: BUSINESS & URBAN ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The project based class offers the unique opportunity for students from distinct fields of business and engineering to solve a real world data driven problem in a collaborative way. The data and the problem statement will come from the Rice University’s Administrative Center for Sustainability and Energy Management (ACSEM) at the start of the semester. Instructor Permission Required. Cross-list: ENGI 779.

MGMT 780 - WHEN YOUR BUSINESS IS SUED
Short Title: WHEN YOUR BUSINESS IS SUED
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course provides an understanding of a lawsuit from the viewpoint of business leadership. Lectures cover causes of action, procedure, evidence, case evaluation and resolution. Practical exercises provide insight into the importance of discovery and depositions. Classic business litigation cases will be presented. The course ends with a mini-trial based on class materials.
write useful SQL statements.

SQL functions, join techniques, database schemas, and will be able to
and simple query skills. Upon completion, participants will understand
database fit and design, requirements gathering, formatting deliverables,
resources. Topics covered include relational database architecture,
business problems and the communication with users and technical
fundamentals and SQL programming skills in the context of complex
doing business in different parts of the world, increase sensitivity to

Description:

Prerequisite(s): MGMT 510 or MGMP 510 or MGMT 895

Description: This course teaches students relational database
and SQL clients, Excel, and python. Teaches how to filter, reshape, summarize,
and visualize data in python. Provides an introduction to machine
learning methods for forecasting, including data transformations and
ways to avoid overfitting. Teaches how to implement the methods in
python.

Course Level: Graduate

Restrictions: Enrollment limited to students in the following programs:

Graduate or Graduate Quadmester level students.

Prerequisite(s): MGMT 595 or MGMP 595 or MGMW 595 or MGMT 895

Description: Introduces tools for business data analysis beyond Excel,
including python and SQL. Teaches how to query SQL databases using
SQL clients, Excel, and python. Teaches how to filter, reshape, summarize,
and visualize data in python. Provides an introduction to machine
learning methods for forecasting, including data transformations and
ways to avoid overfitting. Teaches how to implement the methods in
python.

Course Level: Graduate

Restrictions: Enrollment limited to students in the following programs:

Graduate or Graduate Quadmester level students.

This course teaches students relational database
fundamentals and SQL programming skills in the context of complex
business problems and the communication with users and technical
resources. Topics covered include relational database architecture,
database fit and design, requirements gathering, formatting deliverables,
and simple query skills. Upon completion, participants will understand
SQL functions, join techniques, database schemas, and will be able to
write useful SQL statements.

Description:

Prerequisite(s): MGMT 510 or MGMP 510 or MGMT 895

Description: This course focuses on corporate real estate as a critical
component of achieving any organization’s strategic objectives.

Corporate real estate is foundational to culture, organizational
transformation, and, done right, drives integrated business value. This
course provides a framework for understanding decision making in
corporate real estate using practical applications, case studies, and
interaction with industry leaders.

Course Level: Graduate

Restrictions: Enrollment limited to students in the following programs:

Graduate or Graduate Quadmester level students.

This course teaches students relational database
fundamentals and SQL programming skills in the context of complex
business problems and the communication with users and technical
resources. Topics covered include relational database architecture,
database fit and design, requirements gathering, formatting deliverables,
and simple query skills. Upon completion, participants will understand
SQL functions, join techniques, database schemas, and will be able to
write useful SQL statements.

Description:

Prerequisite(s): MGMT 510 or MGMP 510 or MGMT 895

Description: This course teaches students relational database
fundamentals and SQL programming skills in the context of complex
business problems and the communication with users and technical
resources. Topics covered include relational database architecture,
database fit and design, requirements gathering, formatting deliverables,
and simple query skills. Upon completion, participants will understand
SQL functions, join techniques, database schemas, and will be able to
write useful SQL statements.

Description:

Prerequisite(s): MGMT 510 or MGMP 510 or MGMT 895

Description: This course teaches students relational database
fundamentals and SQL programming skills in the context of complex
business problems and the communication with users and technical
resources. Topics covered include relational database architecture,
database fit and design, requirements gathering, formatting deliverables,
and simple query skills. Upon completion, participants will understand
SQL functions, join techniques, database schemas, and will be able to
write useful SQL statements.
MGMT 787 - FINANCIAL CRISIS
Short Title: FINANCIAL CRISIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA
Description: This course examines the financial crises both domestic and global through time. The focus is on financial market structures, economic incentives and policies, and case studies.

MGMT 788 - CORPORATE RIVALRY
Short Title: CORPORATE RIVALRY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA
Description: This course is about learning to think like a game theorist and developing a systematic way to evaluate strategic problems. Emphasis is on real-world applications and in-class exercises.

MGMT 789 - GLOBAL FIELD EXPERIENCE
Short Title: GLOBAL FIELD EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: This unique experiential learning opportunity requires students to apply what was learned in the first year of the program through consulting projects on the ground in a designated country. The course fosters a global mindset and further develops the ability to tackle business challenges in dynamic, divers and complex environments. Department Permission Required.

MGMT 791 - ORGANIZATIONAL CHANGE INTENSIVE
Short Title: ORG CHANGE INTENSIVE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.5
Restrictions: Enrollment limited to students in the MBA program.
Description: An intensive one day course on leading change. This class builds on the core MGMT 512 (Leading Change) class and is taught primarily using a team-based simulation. You will learn a very versatile process model of change and how to apply it to a variety of organizational-level changes.

MGMT 792 - PRINCIPLES OF SURVEY DESIGN
Short Title: PRINCIPLES OF SURVEY DESIGN
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA
Description: This course will teach students principles of survey design to prepare them to conduct surveys during and after business school. The course will cover articulating clear research objectives, defining the appropriate audiences to survey, determining the best methodology, and writing an actionable survey.

MGMT 793 - CREATING THE DATA DRIVEN BUSINESS
Short Title: CREATING DATA DRIVEN BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA or OMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: This course provides an understanding of how to build and lead a data driven business. Lectures cover fundamentals of data management, analytics maturity models, the role of "Big Data," application of artificial intelligence, machine learning, and cognitive computing technologies for predictive and adaptive analytics, and creating value-based business analytics strategies.

MGMT 794 - PROFESSIONAL SEMINAR
Short Title: PROFESSIONAL SEMINAR
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program.
Description: This course explores current business challenges through engagement with business leaders. Guest instructors lead students through challenges in their functional areas and through state-of-the-art applications of emerging technologies. Students engage with executives, rising middle managers, and subject matter experts. Repeatable for Credit.
<table>
<thead>
<tr>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 795 - DEAN'S LEADERSHIP SEMINAR</td>
<td>Management</td>
<td>Satisfactory/Unsatisfactory</td>
<td>Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA</td>
<td>Graduate</td>
<td>This course examines leadership challenges as they apply to contemporary issues in business and organizational change through engagement with C-suite executives, entrepreneurs and other leaders of complex organizations.</td>
</tr>
<tr>
<td>MGMT 797 - EDGE INTERSESSION ABROAD - SOUTH AMERICA</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Enrollment limited to students in the EMBA program.</td>
<td>Graduate</td>
<td>This course draws from psychology and management research, exploring complexity of professional lives and identity dynamics, underlying career decisions, compromises, and regrets. Through exercises, cases, and discussions, students develop an understanding of the type of professional path they want and why, and how to get it and overcome setbacks and successes.</td>
</tr>
<tr>
<td>MGMT 798 - PSYCHOLOGICAL FOUNDATIONS OF PROFESSIONAL LIVES</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA</td>
<td>Graduate</td>
<td>This course provides an understanding of how to build innovative medical technologies. Students work in interdisciplinary teams comprised of engineering, business, and medical students. Key concepts include: how to validate and scope clinical needs, ideate solutions, draft a business model, and determine regulatory and reimbursement strategies. Instructor Permission Required.</td>
</tr>
<tr>
<td>MGMT 800 - INDEPENDENT STUDY</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Enrollment limited to students in the EMBA program.</td>
<td>Graduate</td>
<td>This course examines leadership challenges as they apply to contemporary issues in business and organizational change through engagement with C-suite executives, entrepreneurs and other leaders of complex organizations.</td>
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<tr>
<td>MGMT 801 - FINANCIAL ACCOUNTING</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Enrollment limited to students in the EMBA program.</td>
<td>Graduate</td>
<td>This course provides an understanding of how to build innovative medical technologies. Students work in interdisciplinary teams comprised of engineering, business, and medical students. Key concepts include: how to validate and scope clinical needs, ideate solutions, draft a business model, and determine regulatory and reimbursement strategies. Instructor Permission Required.</td>
</tr>
<tr>
<td>MGMT 802 - MANAGERIAL ACCOUNTING</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Enrollment limited to students in the EMBA program.</td>
<td>Graduate</td>
<td>This course provides an understanding of how to build innovative medical technologies. Students work in interdisciplinary teams comprised of engineering, business, and medical students. Key concepts include: how to validate and scope clinical needs, ideate solutions, draft a business model, and determine regulatory and reimbursement strategies. Instructor Permission Required.</td>
</tr>
<tr>
<td>MGMT 804 - CREATING THE DATA DRIVEN BUSINESS</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Enrollment limited to students in the EMBA program.</td>
<td>Graduate</td>
<td>This course examines leadership challenges as they apply to contemporary issues in business and organizational change through engagement with C-suite executives, entrepreneurs and other leaders of complex organizations.</td>
</tr>
</tbody>
</table>
MGMT 817 - DECISION STRATEGIES
Short Title: DECISION STRATEGIES
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBB XMBB. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Making good decisions is core to success in business and in life. Decision analysis is the discipline that helps people choose wisely under conditions of uncertainty and often competing objectives. In this course students learn the decision analysis process and tools to make great decisions.

MGMT 813 - LEADING FOR CREATIVITY AND INNOVATION
Short Title: LEADING FOR CREATIVITY & INNOV
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Study of the nature of creativity, creative thinking skills and ways to encourage, promote, and effectively manage creativity and innovation in complex organizations.

MGMT 806 - EXECUTIVE 2ND YEAR CAPSTONE
Short Title: EXEC 2ND YEAR CAPSTONE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The second-year capstone is an applied management course in the program's core curriculum, where student teams learn how to work through an end-to-end strategic assessment and planning effort on a current real-life strategic challenge faced by a Houston-based, socially-oriented community organization. It provides students the opportunity to apply their multi-functional (strategy, finance, marketing, organizational behavior, etc.) knowledge from the program and their own professional experience, as well as provides background on management of non-profit organizations. Repeatable for Credit.

MGMT 821 - DIVERSITY EQUITY AND INCLUSION IN BUSINESS
Short Title: BUSINESS DIVERSITY & INCLUSION
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBB XMBB. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Students consider optimal ways to plan for, encourage, and manage diversity in organizations. We explore the data and analyze the business case for diversity and evaluate strategies to recruit and retain diverse talent. This active-learning course relies on the latest empirical research and provides practical skills for managing tomorrow's workforce.

MGMT 830 - STRATEGIC IT
Short Title: STRATEGIC IT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Today, businesses spend several trillion dollars annually on information technology (IT). To gain the greatest benefit from this investment, managers need to understand the interaction of this technology with ways of working. Our focus will be on cases in which business leaders have tried to use IT to enhance organizational development and support competitive strategy. From our analysis of their experiences, we will develop some management guidelines for businesses seeking to exploit IT.

MGMT 833 - STRATEGY IN TECHNOLOGY ECOSYSTEMS
Short Title: STRATEGY IN TECH ECOSYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBB XMBB. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course deals with strategic management topics of interest to ventures that operate in technological ecosystems. Topics covered include platforms, network effects, coping with disruptive innovation, and how technology can create new markets and revolutionize existing ones.

MGMT 840 - ECONOMICS FOR BUSINESS
Short Title: ECONOMICS FOR BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
MGMT 841 - ECONOMIC ENVIRONMENT OF BUSINESS
Short Title: ECONOMIC ENVIR OF BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Examination of the global economic environment that serves as a backdrop for business decision making, with emphasis on the key macroeconomic policy goals and tools and how they affect exchange rates, interest rates, business cycles, and long-term economic growth.

MGMT 843 - CORPORATE FINANCIAL MANAGEMENT
Short Title: CORPORATE FINANCIAL MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course emphasizes concepts and skills related to valuation tasks in a corporate setting. Topics include financial market structure and efficiency, time value of money, net present value, internal rate of return, capital budgeting, risk and return, capital asset pricing model, cost of capital, capital structure, payout policy, and real options analysis.

MGMT 845 - CORPORATE FINANCIAL STRATEGY FOR EXECUTIVES
Short Title: CORP FIN STRATEGY FOR EXECS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This is a case study course based on current corporate finance transactions and topics. The intent is to expose Executive MBA candidates to some of the practical challenges and opportunities when tackling financial decisions governed by Corporate Financial policies (Capital Structure, Financial Risk Management, Liquidity, Funding/Financing, and Payout Policy).

MGMT 848 - APPLIED FINANCE
Short Title: APPLIED FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces students to the knowledge, skills, and behaviors required for success in the field of consultative selling. Topics include effective questioning, active listening, client learning style and personality assessment, principles of influence, effective sales call planning and execution, and delivering persuasive presentations.

MGMT 865 - GLOBALIZATION OF BUSINESS
Short Title: GLOBALIZATION OF BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course examines the increasing importance of trade and foreign direct investment and the global political-economy to U.S. business. We first study the historical roots of globalization and move forward to consider the impact on business of the global trade rules promulgated by the World Trade Organization. We also consider U.S. policies towards trade and foreign direct investment.

MGMT 874 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products, customers, and information. Touching upon bottlenecks, inventory, quality management, and strategic issues in operations.

MGMT 880 - STRATEGIC MARKETING
Short Title: STRATEGIC MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Introduction to the key concepts and perspectives underlying the function of marketing in a business enterprise. Emphasis is placed on strategic marketing issues and the formulation of marketing strategies. Includes value proposition; customer & market analysis; segmentation & targeting; product strategy; branding; pricing strategy; marketing channels; marketing communication and selling. Lectures and extensive analysis of marketing management case studies.

MGMT 881 - CONSULTATIVE SELLING
Short Title: CONSULTATIVE SELLING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course introduces students to the knowledge, skills, and behaviors required for success in the field of consultative selling. Topics include effective questioning, active listening, client learning style and personality assessment, principles of influence, effective sales call planning and execution, and delivering persuasive presentations.
MGMT 885 - MARKETING CHANNELS
Short Title: MARKETING CHANNELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMT 886 - DECISION MODELS
Short Title: DECISION MODELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Successful management requires the ability to recognize a decision situation, understand its essential features, and make a choice. However, many of these situations - particularly those involving uncertainty and/or complex interactions - may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. This course introduces spreadsheet modeling, simulation, decision analysis and optimization to represent and analyze such complex problems. The skills learned in this course are applicable in almost all aspects of business and should be helpful in future courses. The course is divided into two parts. In the first part, we discuss the use of decision trees for structuring decision problems under uncertainty. In the second part of the course, we discuss Monte Carlo simulation, a technique for simulating complex, uncertain systems. Throughout the course, we will use Microsoft Excel as a modeling environment, using add-in programs as necessary. Familiarity with Excel is an important prerequisite for this course.

MGMT 895 - BUSINESS ANALYTICS
Short Title: BUSINESS ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data, and the explosion of the amount of data available, has resulted in an increased role for data analysis as an aid to business decision-making. This course exposes the student to the most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: Sampling, Descriptive Statistics, Probability Distributions, and Regression Analysis. Students are strongly encouraged to bring data from work; projects from previous years have returned significant monetary value to students’ current employers and examples of these projects will be provided in class. Repeatable for Credit.

MGMT 899 - APPLIED DATA SCIENCE: AN INQUIRY BASED LEARNING APPROACH
Short Title: APPLIED DATA SCIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBIA Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is open to MBA students who can bring data for use in the course – especially data from real or developing businesses. One can anticipate applying several of the following: 1) Sampling; 2) 1-Way, 2-Way, 3-Way Anova; 3) Simple and Multiple Regression; 4) Factor Analysis; 5) The General Linear model; 6) Binary and multinomial Logit; and 7) Cluster Analysis. Instructor Permission Required.

MGMT 901 - FINANCIAL STATEMENT ANALYSIS
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Examines the role of financial statements in the evaluation of a firm’s financial condition and the prediction of its future prospects. Covers the strategic, financial, and accounting analysis of a firm’s profitability and riskiness by means of financial statement data, and introduces the fundamentals of financial statement forecasting and building pro-forma financial statements.

MGMT 903 - TAXES AND MULTINATIONAL BUSINESS STRATEGY
Short Title: TAXES/MULTINATIONAL BUS STRAT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program.
Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 904</td>
<td>MANAGEMENT CONTROL SYSTEMS</td>
<td>MANAGEMENT CONTROL SYSTEMS</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>1.5</td>
<td>Enrollment limited to students in the EMBA program.</td>
</tr>
<tr>
<td>MGMT 906</td>
<td>VALUATION APPLICATIONS IN ACCOUNTING</td>
<td>VALUATION</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>1.5</td>
<td>Enrollment limited to students in the EMBA program.</td>
</tr>
<tr>
<td>MGMT 910</td>
<td>THE WASHINGTON CAMPUS: STRATEGICALLY MANAGING</td>
<td>WASHINGTON CAMPUS</td>
<td>Management</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>1.5</td>
<td>Enrollment limited to students in the following programs: EMBA MBA OMBA PMBA WMBA XMB</td>
</tr>
</tbody>
</table>
MGMT 927 - THE NEW ENTERPRISE
Short Title: THE NEW ENTERPRISE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Evaluating new opportunities and developing a business concept; de-risking a new venture, attracting stakeholders, the legal forms of business, financing options, deal structure, lean startup versus traditional business planning and exit strategy options.

MGMT 952 - MERGERS AND ACQUISITIONS
Short Title: MERGERS AND ACQUISITIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Critical study of the motivation, valuation, and integration of merging established businesses. While focusing on the application of M&A to further corporate strategy, the course also investigates the role of private equity, hostile transactions and asset restructurings in the M&A process.

MGMT 954 - CORPORATE FINANCIAL RESTRUCTURING
Short Title: CORP FINANCIAL RESTRUCTURING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Houstonians know every boom inevitably leads to a bust. From Enron to Lyondell to American Airlines, discover how to create value through corporate restructuring. Learn why companies fail, distressed M&A bidding strategies, insolvency versus illiquidity, diamond-in-the-rough versus fool's gold, fraudulent transfer risks, distressed valuation, credit default swaps, and much more.

MGMT 955 - ADVANCED FINANCIAL RESTRUCTURING
Short Title: ADV FINANCIAL RESTRUCTURING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Prerequisite(s): MGMT 954 (may be taken concurrently)
Description: After mastering MGMT 954 terms and frameworks, gain a deeper understanding of issues and tactics for complex reorganizations, international insolvencies, energy bankruptcies, long/short investing in distressed debt, and hedging and alpha investing with credit default swaps. Discover long-term macroeconomic themes impacting corporate restructuring. Author case study in teams of 2-3.

MGMT 959 - STRATEGY AND MANAGING INTERNATIONAL STRATEGIC ALLIANCES
Short Title: STRAT & MANAGING INTL STRAT.
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.

MGMT 960 - STRATEGIC INNOVATION MANAGEMENT
Short Title: STRATEGIC INNOVATION MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Innovation is critical for firms to achieve better performance and sustainable competitive advantage. However, the management of innovation is inherently difficult and risky because customer demand and preferences change quickly and technological changes are highly unpredictable and thus most new products and technologies are not a commercial success. This course is designed to help executives apply the key strategic management frameworks and concepts to address important challenges they face in innovation management: How to manage market uncertainty, technological uncertainty and competitive volatility? what are the enemies of innovation in both new ventures and successful established firms? How to build strategic alliances for technology/product innovation? And how to manage innovation in the global market?

MGMT 961 - BUSINESS LAW
Short Title: BUSINESS LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: An overview of the legal system and survey of legal standards applicable to companies, including laws impacting corporate formation and governance, contracts, tort liability, employment law and unfair competition. The course is designed to help executives understand how to manage risk in light of applicable standards.

MGMT 962 - APPLIED CONTRACT LAW
Short Title: APPLIED CONTRACT LAW
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
MGMT 970 - OPERATIONS STRATEGY
Short Title: OPERATIONS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the EMBA program. Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: Examination of strategic planning approaches and methods for managing 21st Century organizations. Emphasizes design and implementation of planning systems that are highly responsive to the dynamic, competitive, stakeholder-influenced planning contexts facing modern organizations.

MGMT 973 - OPERATIONS LEADERSHIP
Short Title: OPERATIONS LEADERSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: This course considers the operations executive's role in delivering to corporate objectives, in peer-to-peer executive relationships, and in operations organization leadership. The student will select a business case study that applies concepts discussed in the textbook, such as capacity planning, supply chain management, cost reduction and technology insertion. In preparing the case study, the student will consider the influence of process maturity, process improvement, corporate structure, and the operating challenges presented by the energy transition to a more carbon-neutral, climate-neutral future.

MGMT 985 - ADVANCED BUSINESS ANALYTICS
Short Title: ADVANCED BUSINESS ANALYTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMB A XMBA Enrollment is limited to Graduate or Graduate Quadmester level students.
Description: The main purpose of this course is to expose students to the interactive process of analyzing and exploring enterprise data to find insights that can be leveraged for competitive advantage. We will apply analytical tools to data in order to learn how to discover patterns and associations in business data that would otherwise be ignored. We will understand the difference between supervised and unsupervised learning, and learn how to select the correct tools for descriptive and predictive analytics.

Managerial Economics and Organizational Sciences (MEOS)

MEOS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Economics
Grade Mode: Standard Letter
Course Type: Seminar, Independent Study, Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory
Credit Hours: 1-4
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MEOS 404 - MANAGEMENT COMMUNICATIONS IN A CONSULTING SIMULATION
Short Title: MANAGEMENT COMMUNICATIONS
Department: Economics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Managerial Studies. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ECON 100 and PSYC 231 and (ECON 343 or BUSI 343)
Description: The capstone course for the MEOS curriculum, students work on professional-level skills in communication sub-disciplines involving business strategy, writing in business and management contexts, intercultural communication challenges, and the presentation of business analysis. The class format combines elements of a workshop along with a lecture/discussion-oriented teaching environment. Students apply knowledge gained in previous MEOS courses - including economics, psychology, statistics, accounting, policy studies, and finance - to cases that require complex communications for multiple audiences.
Managerial Studies (MANA)

MANA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Managerial Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MANA 404 - MANAGEMENT COMMUNICATIONS IN A CONSULTING SIMULATION
Short Title: MANAGEMENT COMMUNICATIONS
Department: Managerial Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Managerial Studies. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (BUSI 343 or ECON 343) and (ECON 100 or BUSI 305) and (BUSI 310 or PSYC 231)
Description: The capstone course for the MANA curriculum, students work on professional-level skills in communication sub-disciplines involving business strategy, writing in business and management contexts, intercultural communication challenges, and the presentation of business analysis. The class format combines elements of a workshop along with a lecture/discussion-oriented teaching environment. Students apply knowledge gained in Managerial Studies' previous courses - including economics, psychology, statistics, accounting, policy studies, and finance - to cases that require complex communications for multiple audiences.

MANA 407 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Managerial Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MANA 498 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Managerial Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Managerial Studies. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research project with a Faculty member in the Jones Graduate School of Management. Only for students in the Honors Program of Managerial Studies. Must have the approval of the Director of Managerial Studies and the participating Jones School Faculty Member. Instructor Permission Required.

MANA 499 - LEGAL THEMES IN ENGINEERING AND MANAGING PRACTICE
Short Title: LEGAL THEMES IN ENGI PRACTICES
Department: Managerial Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to fundamental legal concepts of the American legal system for upper level undergraduate students, primarily aimed at what engineers, scientists and other professionals could expect to encounter in their professional careers. The primary focus is to provide students with the basic tools to understand and interact with lawyers.

Master Accounting (MACC)

MACC 500 - INTERNSHIP IN ACCOUNTING
Short Title: INTERNSHIP IN ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 6
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised off-campus, non-group instruction, including field experiences, practica, or internships in applied accounting. Written and oral critique of activity required. Internship plan must be approved in advance by the MAcc Program Director. Instructor Permission Required.
MACC 501 - ACCOUNTING ETHICS AND PROFESSIONALISM
Short Title: ETHICS IN ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The purpose of the course is to prepare the future CPA for ethical judgement. Course materials emphasize ethical reasoning and giving voice to values; principles of integrity, objectivity, independence (in fact and appearance) and avoidance of intentional misrepresentation of facts; the role of core values in a dynamically changing global economy; and professional and ethical issues in accounting practice.

MACC 502 - BUSINESS LAW FOR ACCOUNTANTS
Short Title: BUSINESS LAW FOR ACCOUNTANTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the broad subject of law as it relates to business and is designed to help the accounting student develop "legal astuteness." The course provides an initial exposure to contracts and crucial concepts of tort, crime, agency, and business organization, as well as federal legal and regulatory schemes.

MACC 503 - ACCOUNTING AND CORPORATE GOVERNANCE
Short Title: ACCOUNTING & CORP GOVERNANCE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will engage in an intensive 5-day learning program held partially or fully off-campus. An accounting faculty member will oversee the course, and various officials involved in public policy will lead many presentations and discussions. The grade for this course will be 100% based on accounting and business writing.

MACC 504 - FINANCE FOR ACCOUNTANTS
Short Title: FINANCE FOR ACCOUNTANTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Coverage of core concepts in the areas of 1) corporate finance, 2) financial portfolio management, and 3) financial futures and options.

MACC 505 - ECONOMIC ENVIRONMENT OF BUSINESS
Short Title: ECONOMIC ENVIRONMT OF BUSINESS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: EEB stresses an understanding of the major macroeconomic forces affecting business in today's global economy. Fluency in major macroeconomic concepts and forces enhances business decision-making in the globally competitive product, financial, and labor markets that characterize the modern business environment.

MACC 506 - JUDGMENT AND DECISION MAKING FOR ACCOUNTANTS
Short Title: JUDGMENT/DECISION MAKING-ACCTS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Decisions in the workforce are often made under conditions of bias, conflict of interest, and missing information. In this course, accountants will learn how to identify and overcome common judgment and decision making errors through lecture, discussion, and experiential activities.

MACC 511 - ISSUES IN FINANCIAL REPORTING II
Short Title: ISSUES IN FIN REPORTING II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include: accounting for dilutive securities and stock-based compensation; recognition and de-recognition of investments, leases, deferred taxes, and pension and other postretirement obligations; advanced topics on inter-corporate investment accounting. Codification research will be integrated throughout course. Comparison of U.S. GAAP and IFRS.

MACC 512 - FINANCIAL STATEMENT ANALYSIS AND VALUATION
Short Title: FINANCIAL STATEMENT ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The first half of the course focuses on documenting and understanding a firm's profitability relative to past performance and comparable firms. The second half of the course covers: 1) forecasting financial statements and 2) deriving firm value under a variety of approaches, including DCF and residual income valuation (RIV).
MACC 531 - ADVANCED MANAGEMENT ACCOUNTING
Short Title: ADVANCED MGMT ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The use of management accounting information to serve management decision-making; review of cost accounting concepts; use of standards and variances; relevance and decision making; role of cost allocations; different costs for different purposes; product costing systems; and managing customers.

MACC 541 - ACCOUNTING CONTROL SYSTEMS
Short Title: ACCOUNTING CONTROL SYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MACC 542
Description: Examines the concepts of the integrated audit of internal control over financial reporting in accordance with PCAOB Audit Standard 5. Also covers fundamental procedures used in financial statement audits, specifically in the client acceptance and continuance, planning and risk assessment, and audit comfort cycle phases of the engagement.

MACC 542 - ADVANCED AUDITING
Short Title: ADVANCED AUDITING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BUSI 440
Description: This course provides students with an in-depth understanding of professional standards, the audit process, advanced auditing techniques, and the auditor's role. This course will use case studies to explore audit topics not extensively covered in a typical intro-auditing course, including planning/risk assessment, design and execution of procedures, testing techniques, and software tools.
MACC 561 - ACCOUNTING INFORMATION SYSTEMS
Short Title: ACCOUNTING INFORMATION SYSTEMS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of automated systems of processing data for accounting information. The accounting system is discussed from the perspective of developing and maintaining systems capable of producing information for internal decision-making and external reporting. Hands-on experience may include general ledger, ERP, flowcharting software and other relevant computer technology.

MACC 562 - AUDITING: A DATA ANALYTICS APPROACH
Short Title: DATA ANALYTICS IN AUDITING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course applies accounting and critical thinking skills to real-world data analytics examples from auditing and forensics. The focus is on (1) the methodologies of transforming raw and unstructured data into workable data sets, (2) how to interpret data sets, and (3) the presentation of data to decision makers.

MACC 563 - DATA ANALYTICS FOR ACCOUNTANTS I
Short Title: DATA ANALYTICS FOR ACCT I
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to using data analytics in an accounting context. Topics include how data are structured, methodologies for cleaning and merging data, and tools for analyzing and visualizing data.

MACC 564 - DATA ANALYTICS FOR ACCOUNTANTS II
Short Title: DATA ANALYTICS FOR ACCT II
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced methods of leveraging data analytics in an accounting context. Students develop coding capabilities to extract, organize, and analyze various types of structured and unstructured financial data. Topics include statistical data analysis, probability, and introduction to machine learning.

MACC 571 - FEDERAL TAXATION
Short Title: FEDERAL TAXATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to federal income tax principles. Emphasis on general skills in identifying and resolving tax issues, understanding the administrative and public policy and reasoning underlying tax law choices and integrating the tax laws into business and personal decisions and planning. Coverage of taxation of C-corporations, S-corporations, and partnerships.

MACC 572 - TAXES AND BUSINESS STRATEGY
Short Title: TAXES AND BUSINESS STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Prerequisite(s): MACC 571
Description: An examination of how taxes affect companies’ decision-making and their financial and operational structure.

MACC 581 - GOVERNMENT AND NOT-FOR-PROFIT ACCOUNTING
Short Title: GOVT AND NFP ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MACC MBA PMBA WMBA XMBA. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Financial reporting, managerial, auditing, taxation, and information systems issues in governmental and nonprofit entities; ethics and professional standards; fund accounting concepts and practices, as well as government-wide financial reporting similar to private business consolidated reporting and the relationships between the two; not-for-profit budgeting, accounting, and reporting standards.
MACC 591 - ACCOUNTING THEORY  
**Short Title:** ACCOUNTING THEORY  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The aim of this seminar is to impart an understanding of the historical evolution of the literature on financial accounting theory and accounting principles, as well as emerging developments in accounting research. A companion objective is to come to understand the evolving dynamic of the standard-setting process for financial reporting in the United States and at the international level, including consideration of the “political” intrusions into this process. Readings will be drawn from the periodical literature, books and monographs, and reports. A term paper will be required. Mutually Exclusive: Cannot register for MACC 591 if student has credit for BUSI 491/MGMT 591.

MACC 599 - INDEPENDENT STUDY  
**Short Title:** INDEPENDENT STUDY  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment limited to students in the MACC program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Specialized aspect or topic in an area directly related to public accounting that is chosen by student and an appropriate faculty member. Department Permission Required. Repeatable for Credit.

MSNE 201 - INTRODUCTION TO NANOTECHNOLOGY FOR ENGINEERS  
**Short Title:** INTRO TO NANO TECH FOR ENGR  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group III  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction to the properties of nanomaterials and their applications in engineering, technology, chemistry, energy, biology, and medicine. General discussion of nanotechnology, from multidisciplinary research to consumer products, suitable for all levels and specializations. Students will develop the understanding needed to separate the hype from the real in one of the most dynamic and prolific areas of research in the last ten years. Includes demonstrations, student-lead projects, and lab tours. Required for MSNE majors.

MSNE 210 - WILD TOPICS IN CHEMISTRY AND NANOTECHNOLOGY  
**Short Title:** WILD TOPICS CHEM AND NANO TECH  
**Department:** Materials Science & NanoEng  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** A variety of topics related to chemistry and nanotechnology will be discussed. Some topics are classical while others are current. Topics may include nanocars, molecular electronics, how to form a start-up company. Grades will be based upon attendance and quizzes. Cross-list: CEVE 210, CHEM 210. Repeatable for Credit.

MSNE 238 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
MSNE 301 - MATERIALS SCIENCE FOR ENGINEERS
Short Title: MATERIALS SCIENCE FOR ENGRS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the science of solid materials. Includes metals, ceramics, plastics, and semiconductors, as well as the properties of solid materials from atomic and macroscopic points of view. Required for materials science and engineering majors. NOTE: Freshman can also register for this course.

MSNE 302 - MATERIALS PROCESSING AND NANOMANUFACTURING
Short Title: MATERIALS PROCESSING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MATH 212
Description: An overview of mass, momentum, and heat transport with applications in materials processing and nanomanufacturing. Emphasis is on analytical modeling of processing techniques with a view towards improving their efficiency and yield.

MSNE 304 - MATERIALS SCIENCE JUNIOR LAB
Short Title: MATERIALS SCIENCE JUNIOR LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 301 (may be taken concurrently)
Description: Through this course, you will be able to independently operate various types of common materials testing and metallography equipment. The labs provide a path of self-discovery about the depth of your knowledge and your intuitive insight into the quality of experimental data. You will learn, acquire and demonstrate Materials Laboratory fundamentals. Open only to junior materials science and engineering majors. Required for materials science and engineering majors. Instructor Permission Required. Mutually Exclusive: Cannot register for MSNE 304 if student has credit for MSNE 303.

MSNE 311 - MATERIALS SELECTION AND DESIGN
Short Title: MATERIALS SELECTION & DESIGN
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 301 and MSNE 304
Description: Diverse types of commercially available materials are considered for applications of current economic importance based on their various useful properties. Student learning is primarily through a hands-on team project and deconstruction of commercial products as well as individual oral presentations. Instructor Permission Required.

MSNE 365 - NANOMATERIALS FOR ENERGY
Short Title: NANOMATERIALS FOR ENERGY
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce students to the fundamental science of nanomaterials. Many of the concepts will be explained by drawing from applications in sustainability (photovoltaics, solar-to-fuel conversion thermionic, thermoelectric, fuel cells). Students will design a lab demo from scratch using amongst others the infrastructure provided by the photonics measurement lab. Cross-list: ELEC 365.

MSNE 389 - ETHICS & SAFETY FOR MATERIALS ENGINEERS
Short Title: ETHICS & SAFETY FOR MATER ENG
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Moral duty as well as legal and contractual obligations related to the practice of materials engineering. Issues of importance include safety, conflicts of interest, noncompetition & nondisclosure agreements, as well as confidential and proprietary information. Several examples of ethical lapses and various fraudulent activities will be reviewed, as well as “special processes” which pose the greatest risk for ethics violations. Graduate/Undergraduate Equivalency: MSNE 589.
MSNE 406 - PHYSICAL PROPERTIES OF SOLIDS
Short Title: PHYSICAL PROPERTIES OF SOLIDS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MSNE 301
Description: Survey of the electrical, magnetic, and optical properties of metals, semiconductors, and dielectrics based upon elementary band theory concepts. Required for materials science and engineering majors. Graduate/Undergraduate Equivalency: MSNE 506. Mutually Exclusive: Cannot register for MSNE 406 if student has credit for MSNE 506.

MSNE 402 - MECH PROPERTIES OF MATERIALS
Short Title: MECH PROPERTIES OF MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MSNE 301
Description: Survey of the mechanical properties of solid materials. Includes basic mechanics, elasticity, plasticity, fracture, fatigue, creep, hardening mechanisms, mechanical testing, and structure-property relationships. Required for materials science and engineering majors. Graduate/Undergraduate Equivalency: MSNE 502. Mutually Exclusive: Cannot register for MSNE 402 if student has credit for MSNE 502.

MSNE 408 - CAPSTONE DESIGN PROJECT II
Short Title: CAPSTONE DESIGN PROJECT II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 303 and MSNE 311
Description: An interdisciplinary capstone design experience in materials science and nanoeengineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build an engineering system/device to meet a prescribed set of requirements. Must complete MSNE 408 to receive credit for MSNE 407 and both courses must be taken the same academic year. Required for MSNE majors in B.S. program. Instructor Permission Required.

MSNE 411 - MATERIALS CHARACTERIZATION FROM NANO TO MACRO
Short Title: MATERIALS CHARACTERIZATION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MSCI 301 or MSNE 301) and MSNE 304
Description: Sample preparation, visible light microscopy, optical interferometry used for profilometry, scanning electron microscopy, x-ray spectroscopy and microanalysis, hardness testing, calorimetry, and thermo-gravimetric analysis. Applications include evaluation of composition, structure, properties, and defects as well as fractography and failure analysis. Structures of primary interest are those resulting from nonequilibrium processing. Required for the BS-MSNE. Graduate/Undergraduate Equivalency: MSNE 511.
MSNE 413 - 3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS
Short Title: ADDITIVE MANUFACTURING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Basic principles and applications of additive manufacturing (AM). Various AM processes. Materials science such as polymers, metals, ceramics, composites, and bio-materials for AM. Selection of material and process for design applications such as structures, electronics, biomedical, and consumer products. Hands-on experience and analysis from digital data to physical objects. Graduate/Undergraduate Equivalency: MSNE 513. Mutually Exclusive: Cannot register for MSNE 413 if student has credit for MSNE 513.

MSNE 415 - CERAMICS AND GLASSES
Short Title: CERAMICS AND GLASSES
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 301 or MSCI 301
Description: Fundamentals of ceramic and glassy materials, including phase relations, theoretical properties, structure, bonding, and design.

MSNE 417 - ELECTRONIC, OPTICAL AND MAGNETIC PROPERTIES OF POLYMERS
Short Title: POLYMER ELECTRONICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CHEM 211 or MSNE 301
Description: Covers physical and material concepts and engineering applications of electronic polymers. Examines the structural origins of the diverse electronic, optoelectronic, photonic and magnetic properties of conjugated polymers. Topics include synthesis, electronic structure, physico-chemical characterization, applications in LEDs, solar cells, transistors, spintronics, and bioelectronics. Graduate/Undergraduate Equivalency: MSNE 517. Mutually Exclusive: Cannot register for MSNE 417 if student has credit for MSNE 517.

MSNE 433 - COMPUTATIONAL MATERIALS MODELING
Short Title: COMPUTATIONAL MATERIALS MODEL
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Physico-chemical principles augmented by ever-advancing computation technology have become a tool for explaining rich materials properties, designing nano-structures and their possible functionality. This course overviews basic quantum principles of materials structure, and a hierarchy of approximations broadly used in computational models. This includes classical multi-body potentials, tight-binding approximations, electronic density functional theory methods, etc. Graduate/Undergraduate Equivalency: MSNE 533. Mutually Exclusive: Cannot register for MSNE 433 if student has credit for MSNE 533.

MSNE 435 - CRYSTALLOGRAPHY & DIFFRACTION
Short Title: CRYSTALLOGRAPHY & DIFFRACTION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 301 or MSCI 301
Description: Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/space group symmetry, experiment design (sources, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 535 (less course work for the undergraduate class). Graduate/Undergraduate Equivalency: MSNE 535. Mutually Exclusive: Cannot register for MSNE 435 if student has credit for MSNE 535.

MSNE 437 - CRYSTALLOGRAPHY & DIFFRACT LAB
Short Title: CRYSTALLOGRAPHY & DIFFRAC LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MSNE 435 (may be taken concurrently)
Description: Selected laboratory experiments in materials science, focusing on lattice symmetry, crystallography, phase identification, and metallurgy. Required for undergraduate MSNE major. Prerequisite MSNE 435 may be taken concurrently. Instructor Permission Required. Graduate/Undergraduate Equivalency: MSNE 537. Mutually Exclusive: Cannot register for MSNE 437 if student has credit for MSNE 537.
MSNE 450 - MATERIALS SCIENCE SEMINAR
Short Title: MATERIALS SCIENCE SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A series of seminars on selected topics in Materials Science. Recommended for Materials Science and NanoEngineering majors.

MSNE 451 - MATERIALS SCIENCE SEMINAR
Short Title: MATERIALS SCIENCE SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A series of seminars on selected topics in Materials Science. Recommended for Materials Science and NanoEngineering majors.

MSNE 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MSNE 490 - MATERIALS SCIENCE RESEARCH PROJECTS
Short Title: MATERIALS SCIENCE RESEARCH PROJ
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in materials science. Research under the direction of a selected faculty member. Instructor Permission Required. Repeatable for Credit.

MSNE 491 - SUPERVISED RESEARCH
Short Title: SUPERVISED RESEARCH
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: Supervised research, reports and/or final reports required. Sponsorship by faculty member required. Instructor Permission Required. Repeatable for Credit.

MSNE 499 - CURRENT TOPICS
Short Title: CURRENT TOPICS
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-9
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for undergraduate materials science students. Topics vary from term to term. Please consult with the department for additional information.

MSNE 500 - MATERIALS SCIENCE SEMINAR
Short Title: MATERIALS SCIENCE SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A series of seminars on selected topics in Materials Science. Required for Materials Science and Engineering majors. Repeatable for Credit.

MSNE 501 - GRADUATE STUDENT SEMINAR
Short Title: GRADUATE STUDENT SEMINAR
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Two graduate students will present every week, except for 1st year graduate students who will present 3 per class. Every week, students will be encouraged to fill out peer evaluation forms and include anonymous comments/suggestions for improving the presentation. The results of these comments will not be shared, but given to the presenter for their reference. Repeatable for Credit.

MSNE 502 - MECH PROPERTIES OF MATERIALS
Short Title: MECH PROPERTIES OF MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the mechanical properties of solid materials. Includes basic mechanics, elasticity, plasticity, fracture, fatigue, creep, hardening mechanisms, mechanical testing, and structure-property relationships. Required for Materials Science and Engineering majors. Additional work required. Graduate/Undergraduate Equivalency: MSNE 402. Mutually Exclusive: Cannot register for MSNE 502 if student has credit for MSNE 402.
MSNE 510 - SCALING CONCEPTS IN 2D MATERIALS AND POLYMER PHYSICS
Short Title: SCALING CONCEPTS IN MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is an introduction to symmetry breaking, scaling and universality in low dimensional materials and polymers. Using simple models as examples, the course addresses 2D crystals and melting, surface roughening, scaling properties of polymers, phase transitions and the mean field approach. It then goes over to explain how renormalization works in condensed matter, and how it gives rise to universality. Recommended Prerequisite(s): MSNE 401

MSNE 511 - MATERIALS CHARACTERIZATION FROM NANO TO MACRO
Short Title: MATERIALS CHARACTERIZATION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sample preparation, visible light microscopy, optical interferometry used for profilometry, scanning electron microscopy, x-ray spectroscopy and microanalysis, hardness testing, calorimetry, and thermo-gravimetric analysis. Applications include evaluation of composition, structure, properties, and defects as well as fractography and failure analysis. Structures of primary interest are those resulting from nonequilibrium processing. Instructor Permission Required. Graduate/Undergraduate Equivalency: MSNE 411.

MSNE 512 - QUANTUM MATERIALS ENGINEERING
Short Title: QUANTUM MATERIALS ENGINEERING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the fundamentals of quantum materials and the experimental techniques to engineer solid-state quantum phenomena. Students must have completed quantum mechanics and physical properties of solids (or equivalent) before enrollment. Recommended Prerequisite(s): Quantum Mechanics and Physical properties of solids (or solid state physics)

MSNE 513 - 3D PRINTING AND ADDITIVE MANUFACTURING: THEORY AND APPLICATIONS
Short Title: ADDITIVE MANUFACTURING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Basic principles and applications of additive manufacturing (AM), Various AM processes. Materials science such as polymers, metals, ceramics, composites, and bio-materials for AM. Selection of material and process for design applications such as structures, electronics, biomedical, and consumer products. Hands-on experience and analysis from digital data to physical objects. Graduate/Undergraduate Equivalency: MSNE 413. Mutually Exclusive: Cannot register for MSNE 513 if student has credit for MSNE 413.
MSNE 517 - ELECTRONIC, OPTICAL AND MAGNETIC PROPERTIES OF POLYMERS
Short Title: POLYMER ELECTRONICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers physical and material concepts and engineering applications of electronic polymers. Examines the structural origins of the diverse electronic, optoelectronic, photonic and magnetic properties of conjugated polymers. Topics include synthesis, electronic structure, physico-chemical characterization, applications in LEDs, solar cells, transistors, spintronics, and bioelectronics. Graduate/Undergraduate Equivalency: MSNE 417. Mutually Exclusive: Cannot register for MSNE 517 if student has credit for MSNE 417.

MSNE 523 - PROPERTIES, SYNTHESIS AND DESIGN OF COMPOSITE MATERIALS
Short Title: DESIGN OF COMPOSITE MATERIALS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the science of interfaces and the properties that govern their use in composite materials. Not offered every year. The study of composite processing and methods for synthesis polymer, metal and ceramic matrix composition.

MSNE 533 - COMPUTATIONAL MATERIALS MODELING
Short Title: COMPUTATIONAL MATERIALS MODEL
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Physico-chemical principles augmented by ever-advancing computation technology have become a tool for explaining rich materials properties, designing nano-structures and their possible functionality. This course overview basic quantum principles of materials structure, and a hierarchy of approximations broadly used in computational models. This includes classical multi-body potentials, tight-binding approximations, electronic density functional theory methods, etc. MSNE 533 requires additional work. Graduate/Undergraduate Equivalency: MSNE 433. Mutually Exclusive: Cannot register for MSNE 533 if student has credit for MSNE 433.

MSNE 534 - NANO SCIENCE AND NANO TECHNOLOGY I
Short Title: NANO SCIENCE & NANO TECHNOLOGY I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Enrollment is open to all students. Undergraduate enrollment requires instructor permission via special registration form. An introduction to the basic principles of nanoscience and nanotechnology. Size dependent physical properties of nanoscopic solids will be described using solid state physics and molecular orbital theory as a foundation. Wet chemical techniques that produce nanoscale materials (e.g. carbon nanotubes, semiconductor and metallic nanocrystals, dendrimers...) will be introduced in the second half of the semester. Expected to be taught Spring 2019. Cross-list: CEVE 533, CHEM 533.

MSNE 535 - CRYSTALLOGRAPHY & DIFFRACTION LAB
Short Title: CRYSTALLOGRAPHY & DIFFRACTION
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/group symmetry, experiment design (sources, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 435 (additional work for the graduate version). Cross-list: PHYS 535. Graduate/Undergraduate Equivalency: MSNE 435. Mutually Exclusive: Cannot register for MSNE 535 if student has credit for MSNE 435.

MSNE 537 - CRYSTALLOGRAPHY & DIFFRAC LAB
Short Title: CRYSTALLOGRAPHY & DIFFRAC LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Selected laboratory experiments in materials science, focusing on lattice symmetry, crystallography, phase identification, and metallurgy. Required for undergraduate MSNE major. Credit may be given for only one, MSNE 537 or MSNE 437. Instructor Permission Required. Graduate/Undergraduate Equivalency: MSNE 437. Mutually Exclusive: Cannot register for MSNE 537 if student has credit for MSNE 437.
MSNE 538 - COMPUTATIONAL NANOSCIENCE FOR GREEN INFRASTRUCTURE
Short Title: COMPUTATIONAL NANOSCIENCE
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Computational methods such as first principles, kinetic Monte Carlo (KMC), classical MC (in Canonical, Grand Canonical, and isobaric-isothermal ensembles), and classic MD in predicting materials formation and properties. Case studies include cementitious materials, metals, and thermolectric materials. Other case studies are possible depending on the student’s background and instructor’s approval. Cross-list: CEVE 538.

MSNE 555 - MATERIALS IN NATURE AND BIO-MIMETIC STRATEGIES
Short Title: BIO-MIMETIC STRATEGIES
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course will discuss the origin of several materials that exists in nature from a technology perspective and strategies to replicate them using synthetic materials processing protocols. Silicates, carbon based materials, abalone shell, bone etc. will be used to discuss the fascinating architecture developed by nature. Similarly several functional structures designed by nature such as Gecko tape and IR sensors will be discussed for designing bio-medic structure and devices. NOTE: Not offered every year.

MSNE 560 - COLLOIDAL AND INTERFACIAL PHENOMENA
Short Title: COLLOIDAL & INTERFACIAL PHENOM
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course will provide knowledge into the fundamentals of colloidal interactions (e.g., stabilisation, adsorption, self-assembly) and the techniques currently applied for their assessment. Apart from the theoretical background, the course will also provide applicable knowledge by covering current and emerging applications involving these phenomena. Interfacial tension, wetting and spreading, contact angle hysteresis, interaction between colloid particles, stability of interfaces, flow and transport near interfaces will be covered. NOTE: Offered in alternative year with MSNE 594/CHBE 594. Cross-list: CHBE 560.

MSNE 569 - SCIENCE AND APPLICATIONS OF CORROSION SCIENCE AND ENGINEERING
Short Title: CORROSION SCIENCE& ENGINEERING
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MSCI 301 or MSNE 301
Description: Students will learn basics of corrosion science of metals and alloys exposed to different classes of conditions, prevalent forms of corrosion, consequences of corrosion and corrosion mitigation approaches in a range of industries. Discussion of nano science aspects related to corrosion control in industry will be included.

MSNE 570 - SENIOR DESIGN THESIS PROJECT
Short Title: SENIOR DESIGN THESIS PROJECT
Department: Materials Science & NanoEng
Grade Mode: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A design project in the materials science field will be undertaken by the student in close collaboration with at least one materials science faculty member.

MSNE 571 - SENIOR DESIGN THESIS PROJECT
Short Title: SENIOR DESIGN THESIS PROJECT
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A design project in the materials science field will be undertaken by the student in close collaboration with at least one materials science faculty member.

MSCI 301 or MSNE 301

MSNE 580 - MICROSCOPY METHODS IN MATERIALS SCIENCE
Short Title: MICROSCOPY METHODS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers theory and applications of electron microscopy techniques with an emphasis on transmission and scanning transmission electron microscopy (TEM, STEM). Topics include modern instrumentation and hardware, electron diffraction, imaging modes, tomography, and spectroscopy (energy dispersive x-ray spectroscopy (EDS), electron-energy loss spectroscopy (EELS), cathodoluminescence (CL)). Previous experience with electron microscopes recommended. Can be taken alone or concurrently with lab course MSNE 582. Instructor Permission Required. Cross-list: CHEM 580.
MSNE 581 - MICRO AND NANO HEAT TRANSPORT METHODOLOGIES AND DESIGN
Short Title: MICRO & NANO HEAT TRANSPORT
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering or Materials Science & NanoEng. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 481

MSNE 582 - ELECTRON MICROSCOPY CENTER LAB
Short Title: ELECTRON MICROSCOPY CENTER LAB
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: MSNE 580
Description: Hands-on laboratory using the instruments in the electron microscopy center. The students will gain the knowledge necessary to operate the instruments and analyze data independently. Must be taken concurrently with MSNE 580. Instructor Permission Required. Cross-list: CHEM 582.

MSNE 589 - ETHICS & SAFETY FOR MATERIALS ENGINEERS
Short Title: ETHICS & SAFETY FOR MATER ENG
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Moral duty as well as legal and contractual obligations related to the practice of materials engineering. Issues of importance include safety, conflicts of interest, noncompetition & nondisclosure agreements, as well as confidential and proprietary information. Several examples of ethical lapses and various fraudulent activities will be reviewed, as well as “special processes” which pose the greatest risk for ethics violations. Graduate/Undergraduate Equivalency. MSNE 389.

MSNE 593 - INTRODUCTION TO POLYMER PHYSICS AND ENGINEERING
Short Title: POLYMER PHYSICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course focuses on demonstrating how the physical properties of polymers can be understood from simple models. Students will be introduced to the terminology and mathematics involved in the physical understanding of polymer systems. The course is intended for students who would like to gain an understanding of modern approaches to polymer physics. NOTE: Not offered every year. Cross-list: CHBE 593.

MSNE 594 - PROPERTIES OF POLYMERS
Short Title: PROPERTIES OF POLYMERS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (CHEM 211 or CHEM 251) and (MATH 211 or MATH 221)
Description: The course will introduce basic concepts in polymer science including the synthesis and chemical modification of polymers as well as physical properties of polymers. Topics include approaches to polymer synthesis, processing and characterization of polymer materials, and an introduction to mathematical models applied to describe the structure and dynamics of polymeric materials. NOTE: Offered in alternative year with MSNE 560/CHBE 560. Cross-list: CHBE 594. Repeatable for Credit.

MSNE 593 - INTRODUCTION TO POLYMER PHYSICS AND ENGINEERING
Short Title: POLYMER PHYSICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHEM 211 and CHEM 212
Description: The course focuses on demonstrating how the physical properties of polymers can be understood from simple models. Students will be introduced to the terminology and mathematics involved in the physical understanding of polymer systems. The course is intended for students who would like to gain an understanding of modern approaches to polymer physics. NOTE: Not offered every year. Cross-list: CHBE 593.

MSNE 599 - LAB ROTATIONS AND ADVISOR SELECTION
Short Title: LAB ROTATION ADVISOR SELECTION
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Open to first year doctoral students. Students will rotate through three research groups to familiarize themselves with the research projects and environment offered by each group, and complete the advisor selection form at the end of the rotations. Department Permission Required.

MSNE 609 - RISK ASSESSMENT AND ASSET INTEGRITY IN OIL AND GAS PRODUCTION AND REFINING OPERATIONS I
Short Title: OIL AND GAS ASSET INTEGRITY I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course integrates risk assessment and mitigation, asset integrity management, corrosion control and materials selection across the oil and gas value chain, from production to refining and retail. The full course covers 2 semesters. Session "I" to be delivered in the Spring 2017 semester. Session "II" will be delivered in the Fall 2017 semester. Instructor Permission Required. Cross-list: CHBE 609.
MSNE 613 - SPECIAL TOPICS I
Short Title: SPECIAL TOPICS I
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Electrochemical materials, energy, and methods. The course emphasizes the principles of electrochemical devices including batteries, supercapacitors, fuel cells, and electrochemical sensors. Topics will emphasize the latest trends and challenges in the chemistry, materials, and physics involved in the materials design, electrochemical measurements, and characterization of these devices as well as the thermodynamics and kinetics related to different electrode processes at the macroscopic and microscopic levels. This will be a three-credit hour course. Repeatable for Credit. Repeatable for Credit.

MSNE 614 - SPECIAL TOPICS II
Short Title: SPECIAL TOPICS II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 2-DIMENSIONAL QUANTUM MATERIAL, this course offers the exciting promise of new applications such as dissipationless electronics using topological currents and quantum spins, secure quantum computing and communication, and of different realms in energy harvesting using photovoltaics and thermoelectric. In this course, the emergence of 2-dimensional Quantum materials and their properties will be discussed. This will be a 3-credit hour course. Repeatable for Credit. Repeatable for Credit.

MSNE 615 - SPECIAL TOPICS III
Short Title: SPECIAL TOPICS III
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: INDUSTRIAL NANOTECHNOLOGY. The course will provide knowledge of industrial applications of nanotechnology enabled by research advances in different areas of nanoscience and engineering, including materials science, chemistry, physics, energy, environment, and aerospace. Overview of synthesis of nanomaterials through bottom-up and top-down strategies. Characterization of nanomaterials, particle size, shape and surface properties relationships, surface modification tailored to specific industrial applications. Safety related to nanomaterials and nanostructures in the environment and industrial nanotechnology development projects. Discussion of selected application case studies originating from nanotechnology invention and commercial implementation. At the end of the course, student will be able to explain the advantages of nanotechnology, give examples of current industrial applications of nanotechnology, and forecast the future technological advancements and increasing role of nanotechnology in each industry. This will be a 3 credit hour course. Repeatable for Credit. Repeatable for Credit.
MSNE 622 - M.M.S. RESEARCH PROJECT II
Short Title: M.M.S. RESEARCH PROJECT II
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the second part of the M.M.E. research project and continuation of MSNE 621. Course requirements will include a final report. Instructor Permission Required. Repeatable for Credit.

MSNE 650 - NANOMATERIALS AND NANOMECHANICS
Short Title: NANOMATERIALS & NANOMECHANICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The primary goal of this course is to introduce important current developments in the field of nanomaterials and nanomechanics. The course will discuss synthesis and characterization of nanomaterials, the behaviors especially mechanical behaviors in the broad sense of such materials, and their technological applications. The basic physics and fundamental mechanisms responsible for nanoscale induced changes in properties will be stressed.

MSNE 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Materials Science & NanoEng
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MSNE 700 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students who serve as teaching assistants are required to register this course. Students will hold recitations or office hours and assist instructors in lectures. Open to graduate students in Materials Science and NanoEngineering and only in exceptional circumstances to undergraduates. Repeatable for Credit.

MSNE 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Materials Science & NanoEng
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to students with a major in Materials Science & NanoEng. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis research Repeatable for Credit.

Mathematics (MATH)

MATH 101 - SINGLE VARIABLE CALCULUS I
Short Title: SINGLE VARIABLE CALCULUS I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Limits, continuity, differentiation, integration, and the Fundamental Theorem of Calculus. Mutually Exclusive courses may only be taken with instructor permission. May substitute MATH 111-112 or take MATH 101 after completing MATH 111. Should not be taken if student already has credit for MATH 102, MATH 211, MATH 212, or MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 101 if student has credit for MATH 105/MATH 112. Course URL: math.rice.edu (http://math.rice.edu)

MATH 102 - SINGLE VARIABLE CALCULUS II
Short Title: SINGLE VARIABLE CALCULUS II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of MATH 101. Includes further techniques of integration, as well as infinite sequences and series, Taylor polynomials and Taylor series, parametric equations, arc length, polar coordinates, complex numbers, and Fourier polynomials. Should not be taken if student already has credit for MATH 211, MATH 212, or MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 102 if student has credit for MATH 106. Course URL: math.rice.edu (http://math.rice.edu)
MATH 105 - AP/OTH CREDIT IN CALCULUS I
Short Title: AP/OTH CREDIT IN CALCULUS I
Department: Mathematics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in calculus, such as the AB Calculus Advanced Placement exam or the International Baccalaureate higher-level calculus exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of MATH 101, but does not count for distribution. Mutually Exclusive: Cannot register for MATH 105 if student has credit for MATH 101/MATH 111/MATH 112.

MATH 106 - AP/OTH CREDIT IN CALCULUS II
Short Title: AP/OTH CREDIT IN CALCULUS II
Department: Mathematics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in calculus, such as the BC Calculus Advanced Placement exam or the International Baccalaureate higher-level calculus exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of MATH 102, but does not count for distribution. Mutually Exclusive: Cannot register for MATH 106 if student has credit for MATH 101/MATH 105.

MATH 105 - AP/OTH CREDIT IN CALCULUS I
Short Title: AP/OTH CREDIT IN CALCULUS I
Department: Mathematics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in calculus, such as the AB Calculus Advanced Placement exam or the International Baccalaureate higher-level calculus exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of MATH 101, but does not count for distribution. Mutually Exclusive: Cannot register for MATH 105 if student has credit for MATH 101/MATH 111/MATH 112.

MATH 106 - AP/OTH CREDIT IN CALCULUS II
Short Title: AP/OTH CREDIT IN CALCULUS II
Department: Mathematics
Grade Mode: Transfer Courses
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Provides transfer credit based on student performance on approved examinations in calculus, such as the BC Calculus Advanced Placement exam or the International Baccalaureate higher-level calculus exams. This credit counts toward the total credit hours required for graduation, and satisfies major requirements in lieu of MATH 102, but does not count for distribution. Mutually Exclusive: Cannot register for MATH 106 if student has credit for MATH 101/MATH 105.

MATH 111 - CALCULUS: DIFFERENTIATION AND ITS APPLICATIONS
Short Title: CALCULUS: DIFFERENTIATION
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of calculus, forming with MATH 112 a version of MATH 101/102 that does not cover infinite series. MATH 111 covers functions, limits, continuity, and derivatives and their applications. Mutually Exclusive courses may only be taken with instructor permission. Should not be taken if student already has credit for MATH 101, MATH 102, MATH 112, MATH 211, MATH 212, or MATH 221 without permission. Mutually Exclusive: Cannot register for MATH 111 if student has credit for MATH 105.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 112 - CALCULUS: INTEGRATION AND ITS APPLICATIONS
Short Title: CALCULUS: INTEGRATION + APPS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of the study of calculus from MATH 111. Integration, the Fundamental Theorem of Calculus, techniques of integration and applications. Should not be taken if student already has credit for MATH 102, MATH 211, MATH 212, MATH 221, without permission. Mutually Exclusive: Cannot register for MATH 112 if student has credit for MATH 101/MATH 105.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 115 - THE ART OF MATHEMATICS
Short Title: THE ART OF MATH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Math 115 is intended primarily for students majoring in non-STEM fields seeking knowledge of the nature of mathematics as well as training in mathematical thinking and problem-solving. The goal of the course is to demonstrate that math is not necessarily about formulas, but is rather a process of thinking which is relevant to them on a daily basis. Instructor Permission Required.

MATH 211 - ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
Short Title: ORD DIFFERENTIAL EQUATIONS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of ordinary differential equations (e.g., solutions to separable and linear first-order equations and to higher-order linear equations with constant coefficients, the properties of solutions to differential equations, and numerical solution methods) and linear algebra (e.g., vector spaces and solutions to algebraic linear equations, dimension, eigenvalues, and eigenvectors of a matrix), as well as the application of linear algebra to first-order systems of differential equations and the qualitative theory of nonlinear systems and phase portraits. Mutually Exclusive: Cannot register for MATH 211 if student has credit for MATH 220.
MATH 222 - HONORS CALCULUS IV
Short Title: HONORS CALCULUS IV
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Calculus of multiple variables. Vectors, partial derivatives and gradients, double and triple integrals, vector fields, line and surface integrals, Green's theorem, Stokes's theorem, and Gauss's theorem. May substitute Math 221 and 222. Mutually Exclusive: Cannot register for MATH 222 if student has credit for MATH 222.
Course URL: math.rice.edu

MATH 212 - MULTIVARIABLE CALCULUS
Short Title: MULTIVARIABLE CALCULUS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to Calculus of several variables, linear and multilinear algebra, theory of determinants, eigenvalues, and the inverse and determinant of a linear operator. May substitute Math 211 and 212. Mutually Exclusive: Cannot register for MATH 212 if student has credit for MATH 222.
Course URL: math.rice.edu

MATH 221 - HONORS CALCULUS III
Short Title: HONORS CALCULUS III
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A rigorous introduction to the study of ordinary differential equations, including results about the existence, uniqueness and stability of solutions. Some concepts from multi-variable calculus and linear algebra will be introduced along the way. This course will introduce students to the understanding and writing of proofs. Mutually Exclusive: Cannot register for MATH 220 if student has credit for MATH 211.

MATH 220 - HONORS ORDINARY DIFFERENTIAL EQUATIONS
Short Title: HONORS ORDINARY DIFFERENTIAL EQNS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course and MATH 222 include the material of MATH 212 and much more. Topology of R^n, calculus for functions of several variables, linear and multilinear algebra, theory of determinants, inner product spaces, integration on manifolds.

MATH 222 - HONORS CALCULUS IV
Short Title: HONORS CALCULUS IV
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: See MATH 221. A student may not receive credit for both MATH 222 and MATH 212. Mutually Exclusive: Cannot register for MATH 222 if student has credit for MATH 212.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 304</td>
<td>ELEMENTS OF KNOT THEORY</td>
<td></td>
<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
</tr>
<tr>
<td>MATH 306</td>
<td>ELEMENTS OF ABSTRACT ALGEBRA</td>
<td></td>
<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
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</tr>
<tr>
<td>MATH 321</td>
<td>INTRODUCTION TO ANALYSIS I</td>
<td></td>
<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. Prerequisite(s): MATH 221 or MATH 354 or MATH 355.</td>
<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
</tr>
<tr>
<td>MATH 322</td>
<td>INTRODUCTION TO ANALYSIS II</td>
<td></td>
<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. Prerequisite(s): MATH 220 or MATH 221 or MATH 302 or MATH 354.</td>
<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
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<tr>
<td>MATH 331</td>
<td>HONORS ANALYSIS</td>
<td>HONORS ANALYSIS</td>
<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. Prerequisite(s): MATH 221 or MATH 331.</td>
<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
</tr>
<tr>
<td>MATH 323</td>
<td>INTRODUCTION TO MATHEMATICAL CRYPTOGRAPHY</td>
<td>INTRO TO MATH CRYPTOGRAPHY</td>
<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. Prerequisite(s): COMP 382 or COMP 448 or MATH 448 or MATH 365.</td>
<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
</tr>
<tr>
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<td>HONORS ANALYSIS</td>
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<td>Mathematics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
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<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
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<td></td>
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<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. Prerequisite(s): MATH 221 or MATH 331.</td>
<td>math.rice.edu (<a href="http://math.rice.edu">http://math.rice.edu</a>)</td>
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</tbody>
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MATH 354 - HONORS LINEAR ALGEBRA
Short Title: HONORS LINEAR ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Vector spaces, linear transformations and matrices, theory of systems of linear equations, determinants, eigenvalues and diagonalizability, inner product spaces; and optional material chosen from: dual vector spaces, spectral theorem for self-adjoint operators, Jordan canonical form. Content is similar to that of MATH 355, but with more emphasis on theory. The course will include instruction on how to construct mathematical proofs. This course is appropriate for potential Mathematics majors and others interested in learning how to construct rigorous mathematical arguments. Recommended Prerequisite(s): A 200-level math class. Mutually Exclusive: Cannot register for MATH 354 if student has credit for MATH 355.

MATH 355 - LINEAR ALGEBRA
Short Title: LINEAR ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Linear transformations and matrices, solution of linear equations, inner products eigenvalues and eigenvectors, the spectral theorem for real symmetric matrices, applications of Jordan canonical form. Mutually Exclusive: Cannot register for MATH 355 if student has credit for MATH 354.

MATH 356 - ABSTRACT ALGEBRA I
Short Title: ABSTRACT ALGEBRA I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355) and (MATH 302 or MATH 354 or MATH 220 or MATH 221)
Description: An introduction to algebraic structures. Covers basic group theory (including subgroups and quotients, permutation and matrix groups, group actions) and basic ring theory (including ideals and quotients, polynomial rings, unique factorization). Mutually Exclusive: Cannot register for MATH 356 if student has credit for MATH 306.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 357 - ABSTRACT ALGEBRA II
Short Title: ABSTRACT ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 356
Description: Fields and field extensions, modules over rings, further topics in groups, rings, fields, and their applications.

MATH 356 - NUMBER THEORY
Short Title: NUMBER THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 220 or MATH 221 or MATH 302 or MATH 354 or COMP 182
Description: Prime numbers and factorization, modular arithmetic, Diophantine equations, quadratic reciprocity, and other topics such as cryptography or continued fractions.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 365 - NUMBER THEORY
Short Title: NUMBER THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics chosen from Euclidean, spherical, hyperbolic, and projective geometry, with emphasis on the similarities and differences found in various geometries. Isometries and other transformations are studied and used throughout. The history of the development of geometric ideas is discussed. This course is strongly recommended for prospective high school teachers.

MATH 366 - GEOMETRY
Short Title: GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics chosen from Euclidean, spherical, hyperbolic, and projective geometry, with emphasis on the similarities and differences found in various geometries. Isometries and other transformations are studied and used throughout. The history of the development of geometric ideas is discussed. This course is strongly recommended for prospective high school teachers.

MATH 367 - TOPICS IN COMBINATORICS
Short Title: TOPICS IN COMBINATORICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of combinatorics and discrete mathematics. Topics that may be covered include graph theory, Ramsey theory, finite geometries, combinatorial enumeration, combinatorial games.
MATH 370 - CALCULUS ON MANIFOLDS
Short Title: CALCULUS ON MANIFOLDS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 302 or MATH 321 or MATH 331) and (MATH 354 or MATH 355)
Description: Differentiation and integration on manifolds: calculus on Rn, exterior differentiation, differentiation forms, vector fields, Stokes' theorem.
Course URL: math.rice.edu

MATH 371 - LIE THEORY
Short Title: LIE THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 306 or MATH 356
Description: Study of classical groups as symmetries of Euclidean spaces. Geometry of complex numbers and quaternions, rotations and reflections of Rn, the orthogonal, unitary and sympletic groups. Tangent spaces to matrix groups, Lie algebras and the exponential map. If time permits: the structure of Lie algebras and the matrix logarithm. Recommended Prerequisite(s): MATH 354 or MATH 355 (may be taken the same semester).
Course URL: math.rice.edu

MATH 373 - ELLIPTIC CURVES
Short Title: ELLIPTIC CURVES
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 306 or MATH 356
Description: Elliptic curves are central to modern number theory and instrumental in the proof of Fermat's Last Theorem. Topics will include: The addition law, solutions over the rational numbers, explicit computations, applications to factorization and cryptography; if time permits, infinite series attached to elliptic curves and the Birch-Swinnerton-Dyer conjecture. Recommended Prerequisite(s): 200 Level Math Course
Course URL: math.rice.edu

MATH 374 - INTRODUCTION TO REPRESENTATION THEORY
Short Title: INTRO TO REPRESENTATION THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 306 or MATH 356
Description: First course in representation theory, with an emphasis on concrete examples, especially the symmetric group. Topics include representations of finite groups, characters, classification, symmetric functions, Young symmetrizers, and Schur-Weyl duality. Prior experience with proofs is necessary; some familiarity with linear or abstract algebra would be helpful, but can be acquired along the way. Recommended Prerequisite(s): Linear Algebra (MATH 221, MATH 354, or MATH 355) and MATH 356.
Course URL: math.rice.edu

MATH 376 - ALGEBRAIC GEOMETRY
Short Title: ALGEBRAIC GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355) and (MATH 306 or MATH 356)
Description: Introduction to algebraic geometry, with an emphasis on concrete examples, especially the symmetric group. Topics will include: polynomial rings and ideals, Groebner bases and elimination theory, affine varieties, Hilbert's Nullstellensatz, and the Algebra-Geometry correspondence. Projective varieties; Bezout's Theorem.
Course URL: math.rice.edu

MATH 381 - INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS
Short Title: INTRO PARTIAL DIFF EQUATIONS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 306 or MATH 356) and the Algebra-Geometry correspondence. Projective varieties; Bezout's Theorem.
Course URL: math.rice.edu

MATH 306 or MATH 356
Description: Laplace transform: inverse transform, applications to constant coefficient differential equations. Boundary value problems: Fourier series, Bessel functions, Legendre polynomials. Recommended Prerequisite(s): MATH 211.
MATH 382 - COMPUTATIONAL COMPLEX ANALYSIS  
Short Title: COMPUTATIONAL COMPLEX ANALYSIS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Study of the Cauchy integral theorem, Taylor series, residues, as well as the evaluation of integrals by means of residues, conformal mapping, and application to two-dimensional fluid flow. Recommended Prerequisite(s): MATH 212 OR 221. Mutually Exclusive: Cannot register for MATH 382 if student has credit for MATH 427/MATH 517.  
Course URL: math.rice.edu (http://math.rice.edu)  

MATH 390 - UNDERGRADUATE COLLOQUIUM  
Short Title: UNDERGRADUATE COLLOQUIUM  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Lectures by undergraduate students on mathematical topics not usually covered in other courses. Presentation of one lecture and attendance at all sessions required. Distribution Credit for MATH 390 no longer eligible beginning Fall 2019. Repeatable for Credit.  

MATH 401 - DIFFERENTIAL GEOMETRY OF CURVES AND SURFACES  
Short Title: DIFF GEOM OF CURVES/SURFACES  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (MATH 222 or MATH 354 or MATH 355) and (MATH 321 or MATH 331)  
Description: Study of the differential geometry of curves and surfaces in R3. Includes an introduction to the concept of curvature and thorough treatment of the Gauss-Bonnet theorem. Recommended Prerequisite(s): MATH 211 or MATH 220 or familiarity with ODEs  
Course URL: math.rice.edu (http://math.rice.edu)  

MATH 402 - DIFFERENTIAL GEOMETRY  
Short Title: DIFFERENTIAL GEOMETRY  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 444 or MATH 539  
Description: MATH 402 is the undergraduate version of the graduate class MATH 500 (being generic for all related instances of dual enrollment classes). This is a course in smooth and Riemannian manifolds. Tensors, Riemannian metrics, differential forms. Lie derivatives. Distributions and foliations, including the Frobenius Theorem and an introduction to contact structures. Lie groups and the exponential map. Connections on Vector Bundles. Geodesics and completeness. Curvature. First and second variations of length and area. Jacobi Fields. Additional topics may vary from year to year. Graduate/Undergraduate Equivalency: MATH 500. Mutually Exclusive: Cannot register for MATH 402 if student has credit for MATH 500.  

MATH 410 - CALCULUS OF VARIATIONS  
Short Title: CALCULUS OF VARIATIONS  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (MATH 211 or MATH 212 or MATH 221 or MATH 222)  
Description: Study of classical and modern theories about functions having some integral expression which is maximal, minimal, or critical. Geodesics, brachistochrone problem, minimal surfaces, and numerous applications to physics. Euler-Lagrange equations, 1st and 2nd variations, Hamilton's Principle.  

MATH 412 - PROBABILITY THEORY  
Short Title: PROBABILITY THEORY  
Department: Mathematics  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group III  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): MATH 321 or MATH 331  
Description: A simultaneous introduction to probability theory and measure theory, from basic definitions to the central limit theorem. The selection of topics in measure theory is in the service of probability theory, and the course carefully examines interplay between the analytic and probabilistic notions.
MATH 423 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQNS I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level

MATH 424 - TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS
Short Title: TOPICS IN PARTIAL DIFF EQNS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 423
Course URL: math.rice.edu (http://math.rice.edu)

MATH 425 - INTEGRATION THEORY
Short Title: INTEGRATION THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 331
Description: Lebesgue theory of measure and integration. Graduate/Undergraduate Equivalency: MATH 515. Mutually Exclusive: Cannot register for MATH 425 if student has credit for MATH 515.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 426 - TOPICS IN REAL ANALYSIS
Short Title: TOPICS IN REAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 425
Description: Content varies from year to year. May include Fourier series, harmonic analysis, probability theory, advanced topics in measure theory, ergodic theory, and elliptic integrals. Graduate/Undergraduate Equivalency: MATH 516. Mutually Exclusive: Cannot register for MATH 426 if student has credit for MATH 516. Repeatable for Credit.

MATH 427 - COMPLEX ANALYSIS
Short Title: COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 354 or MATH 222 or MATH 302
Description: Study of the Cauchy-Riemann equation, power series, Cauchy's integral formula, residue calculus, and conformal mappings. Emphasis on the theory. Graduate/Undergraduate Equivalency: MATH 517. Recommended Prerequisite(s): MATH 321 or MATH 331. Mutually Exclusive: Cannot register for MATH 427 if student has credit for MATH 382/MATH 517.
Course URL: math.rice.edu (http://math.rice.edu)

MATH 428 - TOPICS IN COMPLEX ANALYSIS
Short Title: TOPICS IN COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 382 or MATH 427
Description: Special topics include Riemann mapping theorem, Runge's Theorem, elliptic function theory, prime number theorem, Riemann surfaces, et al. Graduate/Undergraduate Equivalency: MATH 518. Mutually Exclusive: Cannot register for MATH 428 if student has credit for MATH 518. Repeatable for Credit.
Course URL: math.rice.edu (http://math.rice.edu)
MATH 435 - DYNAMICAL SYSTEMS
Short Title: DYNAMICAL SYSTEMS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Existence and uniqueness for solutions of ordinary differential equations and difference equations, linear systems, nonlinear systems, stability, periodic solutions, bifurcation theory. Theory and theoretical examples are complemented by computational, model driven examples from biological and physical sciences. Cross-list: CAAM 435.
Recommended Prerequisite(s): (MATH 212 or MATH 221) and (CAAM 335 or MATH 355 or MATH 354) and (MATH 302 or MATH 321 or MATH 331)
Course URL: math.rice.edu/~jkn3/geotop.html

MATH 443 - GENERAL TOPOLOGY
Short Title: GENERAL TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 331
Description: Study of basic point set topology. Includes a treatment of cardinality and well ordering, as well as metrization. Graduate/Undergraduate Equivalency: MATH 538. Mutually Exclusive: Cannot register for MATH 443 if student has credit for MATH 538.
Course URL: math.rice.edu

MATH 444 - GEOMETRIC TOPOLOGY
Short Title: GEOMETRIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 357 and MATH 443 and (MATH 322 or MATH 370 or MATH 401)
Course URL: math.rice.edu/~jkn3/geotop.html

MATH 445 - ALGEBRAIC TOPOLOGY
Short Title: ALGEBRAIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 444
Description: Introduction to the theory of homology. Includes simplicial complexes, cell complexes and cellular homology and cohomology, as well as manifolds, and Poincare duality. Graduate/Undergraduate Equivalency: MATH 540. Mutually Exclusive: Cannot register for MATH 445 if student has credit for MATH 540.

MATH 448 - CONCRETE MATHEMATICS
Short Title: CONCRETE MATHEMATICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 182 or MATH 220 or MATH 221 or MATH 302 or MATH 354
Description: Concrete mathematics is a blend of continuous and discrete mathematics. Major topics include sums, recurrences, integer functions, elementary number theory, binomial coefficients, generating functions, discrete probability and asymptotic methods. Cross-list: COMP 448.

MATH 463 - ADVANCED ALGEBRA I
Short Title: ADVANCED ALGEBRA I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 357
Description: This course will cover graduate level topics in group theory, ring theory, and module theory. Specific topics include the isomorphism theorems for groups, rings, and modules; group actions; solvable and nilpotent groups; Sylow's theorems; semi-direct products of groups; ideals; rings of fractions; various unique factorization domains; Hilbert's Basis Theorem; Gröbner Bases; tensor product of modules and universal property; modules over principal ideal domains; and canonical forms. The course will also include an introduction to category theory as time permits. Graduate/Undergraduate Equivalency: MATH 563. Mutually Exclusive: Cannot register for MATH 463 if student has credit for MATH 563.
MATH 464 - ADVANCED ALGEBRA II
Short Title: ADVANCED ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 463
Description: Continuation of MATH 463. Tensor and exterior algebra, introductory commutative algebra, structure of modules, and elements of homological algebra. Additional advanced topics may include representations of finite groups and affine algebraic geometry. Graduate/Undergraduate Equivalency: MATH 564. Mutually Exclusive: Cannot register for MATH 464 if student has credit for MATH 564.

MATH 465 - TOPICS IN ALGEBRA: INTRODUCTION TO ALGEBRAIC GEOMETRY
Short Title: TOPICS IN ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Varieties as solution sets of systems of polynomial equations, varieties in projective space, rational and regular functions, maps of varieties, local properties and singularities. Graduate/Undergraduate Equivalency: MATH 565. Mutually Exclusive: Cannot register for MATH 465 if student has credit for MATH 565. Repeatable for Credit.

MATH 466 - TOPICS IN ALGEBRA II
Short Title: TOPICS IN ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Content varies from year to year. Graduate/Undergraduate Equivalency: MATH 566. Mutually Exclusive: Cannot register for MATH 466 if student has credit for MATH 566.

MATH 468 - POTPOURRI
Short Title: POTPOURRI
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with miscellaneous special topics not covered in other courses. Repeatable for Credit.

MATH 469 - ADVANCED CARTAN GEOMETRY
Short Title: ADVANCED CARTAN GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MATH 471 - MATHEMATICS OF APERIODIC ORDER
Short Title: MATHEMATICS OF APERIODIC ORDER
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 321 or MATH 354 or MATH 355
Description: Mathematical models of quasicrystals, whose discovery in the early 1980's led to a paradigm shift in materials science. Topics include: classical theory of ordered structures (i.e., lattices modeling crystals), Delone subsets and tilings of Euclidean space, aperiodically ordered structures generated by inflation or cut-and-project schemes. Graduate/Undergraduate Equivalency: MATH 571. Recommended Prerequisite(s): MATH 356. Mutually Exclusive: Cannot register for MATH 471 if student has credit for MATH 571.

MATH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MATH 479 - MATHEMATICS UNDERGRADUATE RESEARCH
Short Title: MATH UNDERGRADUATE RESEARCH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Course URL: math.rice.edu (http://math.rice.edu)

MATH 490 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MATH 498 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 498, STAT 498. Graduate/Undergraduate Equivalency: MATH 698. Mutually Exclusive: Cannot register for MATH 498 if student has credit for MATH 698. Repeatable for Credit.

MATH 499 - MATHEMATICAL SCIENCES VIGRE SEMINAR
Short Title: MATHEMATICAL SCIENCES VIGRE SEMINAR
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MATH 500 - DIFFERENTIAL GEOMETRY
Short Title: DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 444 or MATH 539

MATH 501 - TOPICS IN DIFFERENTIAL GEOMETRY
Short Title: TOPICS DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 502 - TOPICS IN DIFFERENTIAL GEOMETRY
Short Title: TOPIC DIFFERENTIAL GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 513 - PARTIAL DIFFERENTIAL EQUATIONS I
Short Title: PARTIAL DIFFERENTIAL EQNS I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: First order of partial differential equations. The method of characteristics. Analysis of the solutions of the wave equation, heat equation and Laplace’s equation. Integral relations and Green’s functions. Potential theory, Dirichlet and Neumann problems. Asymptotic methods: the method of stationary phase, geometrical optics, regular and singular perturbation methods. Additional course work is required beyond the undergraduate course requirements. Cross-list: CAAM 523. Graduate/Undergraduate Equivalency: MATH 423. Recommended Prerequisite(s): MATH 321 AND MATH 322 Mutually Exclusive: Cannot register for MATH 513 if student has credit for MATH 423.

MATH 514 - TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS
Short Title: TOPICS IN PARTIAL DIFF EQNS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 513 or MATH 423
Course URL: math.rice.edu (http://math.rice.edu)

MATH 515 - INTEGRATION THEORY
Short Title: INTEGRATION THEORY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: . Graduate/Undergraduate Equivalency: MATH 425. Mutually Exclusive: Cannot register for MATH 515 if student has credit for MATH 425.
MATH 516 - TOPICS IN REAL ANALYSIS
Short Title: TOPICS IN REAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 425
Description: Graduate/Undergraduate Equivalency: MATH 426. Mutually Exclusive: Cannot register for MATH 516 if student has credit for MATH 426. Repeatable for Credit.

MATH 517 - COMPLEX ANALYSIS
Short Title: COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: MATH 427. Mutually Exclusive: Cannot register for MATH 517 if student has credit for MATH 382/MATH 427.

MATH 518 - TOPICS IN COMPLEX ANALYSIS
Short Title: TOPICS IN COMPLEX ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 382 or MATH 427
Description: Graduate/Undergraduate Equivalency: MATH 428. Mutually Exclusive: Cannot register for MATH 518 if student has credit for MATH 428. Repeatable for Credit.

MATH 521 - ADVANCED TOPICS IN REAL ANALYSIS
Short Title: ADV TOPIC: REAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 522 - TOPICS IN ANALYSIS
Short Title: TOPICS IN ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 523 - FUNCTIONAL ANALYSIS
Short Title: FUNCTIONAL ANALYSIS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Banach spaces: review of L^p spaces, linear operators, dual space, Hahn-Banach theorem, weak topologies, Banach-Alaoglu theorem, compact and bounded operators, closed graph theorem; Hilbert spaces: self-adjoint and unitary operators (including spectral theorem), symmetric operators and self-adjoint extensions; if time allows, distributions and Sobolev spaces. Repeatable for Credit.

MATH 524 - TOPICS IN PARTIAL DIFFERENTIAL EQUATIONS
Short Title: TOPICS IN PDE
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 527 - ERGODIC THEORY AND TOPOLOGICAL DYNAMICS
Short Title: ERGODIC THRY&TOP DYNAMICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topic to be announced. Repeatable for Credit.

MATH 528 - ERGODIC THEORY AND TOPOLOGICAL DYNAMICS
Short Title: ERGODIC THRY&TOPOLOGICAL DYN
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 538 - GENERAL TOPOLOGY
Short Title: GENERAL TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 539 - GENERAL TOPOLOGY
Short Title: GENERAL TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
MATH 539 - GEOMETRIC TOPOLOGY
Short Title: GEOMETRIC TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 356 and MATH 443
Description: Graduate/Undergraduate Equivalency: MATH 444. Mutually Exclusive: Cannot register for MATH 539 if student has credit for MATH 444.

MATH 540 - ALGEBRAIC TOPOLOGY
MATH 444.
Exclusive: Cannot register for MATH 539 if student has credit for

MATH 542 - TOPICS IN ADVANCED TOPOLOGY
Short Title: TOPICS IN ADVANCED TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 539
Description: Graduate/Undergraduate Equivalency: MATH 445. Mutually Exclusive: Cannot register for MATH 540 if student has credit for MATH 444.

MATH 543 - TOPICS IN LOW-DIMENSIONAL TOPOLOGY
Short Title: TOPICS IN L-D TOPOLOGY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 544 - TOPOLOGY OF MANIFOLDS
Short Title: TOPOLOGY OF MANIFOLDS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MATH 444 or MATH 539) and (MATH 445 or MATH 540)
Description: A graduate course on the topology of fiber bundles, especially vector bundles and principal bundles, as well as their characteristic classes. It will cover differential forms as well as Stiefel-Whitney, Euler, Chern, and Pontryagin classes. If time allows, other topics may be included. The prerequisites for the class are the material from Math 444/539 and Math 445/540. In particular, the student should be familiar with smooth manifolds, the tangent spaces, homotopy groups, covering spaces, and homology groups.

MATH 563 - ADVANCED ALGEBRA I
Short Title: ADVANCED ALGEBRA I
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 357
Description: This course will cover graduate level topics in group theory, ring theory, and module theory. Specific topics include the isomorphism theorems for groups, rings, and modules; group actions; soluble and nilpotent groups; Sylow's theorems; semi-direct products of groups; ideals; rings of fractions; various unique factorization domains; Hilbert's Basis Theorem; Gröbner Bases; tensor product of modules and universal property; modules over principal ideal domains; and canonical forms. The course will also include an introduction to category theory at time permits. Graduate/Undergraduate Equivalency: MATH 463. Mutually Exclusive: Cannot register for MATH 563 if student has credit for MATH 463.

MATH 564 - ADVANCED ALGEBRA II
Short Title: ADVANCED ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MATH 463 or MATH 563
Description: This course will cover graduate level topics in field theory, Galois theory, and advanced topics in commutative algebra and in multilinear algebra. Specific topics include various algebraic field extensions; fundamental theorem of Galois theory; soluble and radical extensions; transcendental extensions; tensor, symmetric, and exterior algebras; projective, injective, and flat modules; advanced ideal theory; localization; and chain conditions for rings and modules. The course will also additional advanced topics, such as homological algebra, as time permits. Graduate/Undergraduate Equivalency: MATH 464. Mutually Exclusive: Cannot register for MATH 564 if student has credit for MATH 464.
MATH 565 - TOPICS IN ALGEBRA: INTRODUCTION TO ALGEBRAIC GEOMETRY
Short Title: TOPICS IN ALGEBRA
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Varieties as solution sets of systems of polynomial equations, varieties in projective space, rational and regular functions, maps of varieties, local properties and singularities. Graduate/Undergraduate Equivalency: MATH 465. Mutually Exclusive: Cannot register for MATH 565 if student has credit for MATH 465. Repeatable for Credit.

MATH 566 - TOPICS IN ALGEBRA II
Short Title: TOPICS IN ALGEBRA II
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: MATH 466. Mutually Exclusive: Cannot register for MATH 566 if student has credit for MATH 466. Repeatable for Credit.

MATH 567 - TOPICS IN ALGEBRAIC GEOMETRY
Short Title: TOPICS IN ALGEBRAIC GEOMETRY
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Possible topics include rational points on algebraic varieties, moduli spaces, deformation theory, and Hodge structures. Recommended Prerequisite(s): MATH 463 and MATH 464. Repeatable for Credit.

MATH 571 - MATHEMATICS OF APERIODIC ORDER
Short Title: MATHEMATICS OF APERIODIC ORDER
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mathematical models of quasicrystals, whose discovery in the early 1980's led to a paradigm shift in materials science. Topics include: classical theory of ordered structures (i.e., lattices modeling crystals), Delone subsets and tilings of Euclidean space, aperiodically ordered structures generated by inflation or cut-and-project schemes. Graduate/Undergraduate Equivalency: MATH 471. Recommended Prerequisite(s): MATH 356 Mutually Exclusive: Cannot register for MATH 571 if student has credit for MATH 471.

MATH 590 - CURRENT MATHEMATICS SEMINAR
Short Title: CURRENT MATHEMATICS SEMINAR
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lectures on topics of recent research in mathematics delivered by mathematics graduate students and faculty. Repeatable for Credit.

MATH 591 - GRADUATE TEACHING SEMINAR
Short Title: GRADUATE TEACHING SEMINAR
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion on teaching issues and practice lectures by participants as preparation for classroom teaching of mathematics. Repeatable for Credit.

MATH 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MATH 680 - MATHEMATICS COLLOQUIUM
Short Title: MATHEMATICS COLLOQUIUM
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presentations of research topics in mathematics and related fields. Repeatable for Credit.

MATH 681 - TOPOLOGY SEMINAR
Short Title: TOPOLOGY SEMINAR
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presentations of research topics in topology and related areas. Repeatable for Credit.
MATH 682 - ALGEBRAIC GEOMETRY SEMINAR
Short Title: ALGEBRAIC GEOMETRY SEMINAR
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presentations of research in algebraic geometry and related areas. Repeatable for Credit.

MATH 683 - GEOMETRY AND ANALYSIS SEMINAR
Short Title: GEOMETRY AND ANALYSIS SEMINAR
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presentations of research in geometric analysis, mathematical physics, dynamics and related areas. Repeatable for Credit.

MATH 690 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 698 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 698, STAT 698. Graduate/Undergraduate Equivalency: MATH 498. Mutually Exclusive: Cannot register for MATH 698 if student has credit for MATH 498. Repeatable for Credit.

MATH 699 - MATHEMATICAL SCIENCES VIGRE SEMINAR
Short Title: MATHEMATICAL SCIENCES
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MATH 700 - SUMMER RESEARCH FOR PHD STUDENTS
Short Title: SUMMER RESEARCH
Department: Mathematics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 9
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Doctor of Philosophy degree.
Course Level: Graduate
Description: Summer research for MATH PhD students. Can be repeated for credit. Repeatable for Credit.

MATH 800 - GRADUATE THESIS AND RESEARCH
Short Title: GRADUATE THESIS AND RESEARCH
Department: Mathematics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MBA for Professionals-Evening (MGMP)

MGMP 500 - PMBA LAUNCH
Short Title: PMBA LAUNCH
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Rice MBA Program Launch is composed of a rigorous one week experience intended to help acclimate students to the Jones School Culture, as well as the rapid pace of a top-tier graduate business program. At the end of Launch, students will be better prepared academically, professionally, administratively, and culturally to reap the full benefits of the MBA experience. The Rice MBA Program Launch is a mandatory activity for all incoming students.

MGMP 501 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the preparation, analysis, and use of corporate financial reports. Covers the basic techniques of financial reporting analysis from the perspective of managers as well as external users of information such as investors. Required for MBA.
MGMP 502 - MANAGERIAL ACCOUNTING  
**Short Title:** MANAGERIAL ACCOUNTING  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction to the use of financial and cost information by managers in budgeting, resource allocation, pricing, quality control, and other contexts to help managers set goals and monitor and evaluate performance.

MGMP 510 - ORGANIZATIONAL BEHAVIOR  
**Short Title:** ORGANIZATIONAL BEHAVIOR  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Study of the many factors, which influence how individuals, groups, and teams behave and function in complex organizations and how they can be effectively managed.

MGMP 511 - ORGANIZATIONAL CHANGE  
**Short Title:** ORGANIZATIONAL CHANGE  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Emphasizes understanding what constitutes effective organizational designs, considers both the macro designing initiatives and the micro execution of those initiatives.

MGMP 540 - MANAGERIAL ECONOMICS  
**Short Title:** MANAGERIAL ECONOMICS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** We study production and pricing decisions under different assumptions about firm market power. Emphasis is placed on understanding the relevant costs in firm decision-making. Examples are used from marketing and accounting areas. Required for MBA.

MGMP 543 - FINANCE  
**Short Title:** FINANCE  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction to the theory and practice of corporate finance, with emphasis on topics such as valuation, capital budgeting, risk and return, and capital structure.

MGMP 560 - CORPORATE SOCIAL RESPONSIBILITY  
**Short Title:** CORP SOCIAL RESPONSIBILITY  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An exploration of the necessary ethical and legal basis of managerial decision making and the positive social and environmental contributions of the business firm.

MGMP 570 - COMPETITIVE STRATEGY  
**Short Title:** COMPETITIVE STRATEGY  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Systematic examination of models and techniques used to analyze a competitive situation within an industry from a strategic perspective. Examines the roles of key players in competitive situations and the fundamentals of analytical and fact-oriented strategic reasoning. Examples of applied competitive and industry analysis are emphasized. Required for MBA.

MGMP 571 - STRATEGY FORMULATION AND IMPLEMENTATION  
**Short Title:** STRATEGY FORMULATION  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course focuses on formulating and implementing effective organizational strategy, including competitive positioning, core competencies and competitive advantage, cooperative arrangements, and tools for implementation.
MGMP 574 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the principles of production management and process improvement. Repeatable for Credit.

MGMP 580 - MARKETING
Short Title: MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this practically oriented, theoretically grounded course, students learn core marketing concepts through the completion of integrative case studies and interactive class discussion. Specifically, students learn how to apply strategies and tactics related to assessing market fundamentals as well as developing and implementing marketing strategy (e.g. developing a quantitative forecast to support a new product launch decision, preparing a pricing/cost analysis to support a distribution channel partnership decision).

MGMP 594 - STRATEGIC BUSINESS COMMUNICATION I
Short Title: STRAT BUSINESS COMMUNICATION I
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the strategy and practice of business presentations. Includes frequent oral presentations (both individual and team) and feedback.

MGMP 595 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The ever-increasing capacity of computers to analyze data and the explosion of the amount of data available have resulted in an increase role for data analysis as an aid to business decision-making. This course exposes the student to most important ideas and methods relevant for data analysis in a business context. Emphasizing practical applications to real problems, the course covers the following topics: sampling, descriptive statistics, probability distributions, and regression analysis. Required for MBA.

MGMP 596 - STRATEGIC BUSINESS COMMUNICATION II
Short Title: STRATEGIC BUSINESS COMM II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continued instruction in the core strategic business communication skills that were introduced during Strategic Business Communication I. In addition to a mandatory writing workshop, students will have the opportunity to select other communication topics, based on individual needs and interest.

MGMP 597 - INTEGRATIVE COMPETITIVE EXERCISE ILE
Short Title: ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course is designed with two major objectives in mind. First, is to thoroughly understand, and be able to competently apply, those statistical methods typically used in the analysis of business data. Secondly, is to affect how you think about problems. If data can help you resolve a business problem, this course should enable you to: structure the problem in a way that facilitates its analysis; specify the data that needs to be analyzed; decide on the appropriate statistical technique(s); most appropriate for analyzing the data; apply the technique correctly; and, insightfully interpret the results in terms of their implications for the original problem.

MGMP 600 - EDUCATION LEADERSHIP INDEPENDENT STUDY
Short Title: EDUCATION LEADERSHIP IND STUDY
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Independent Study
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.
MGMP 601 - USING FINANCIAL STATEMENTS TO EVALUATE FIRM PERFORMANCE
Short Title: USING FINANCIAL STATEMENTS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to develop basic skills in financial statement analysis with special emphasis on understanding, organizing and summarizing financial data for decision making purposes related to valuation. The course focuses on financial and accounting analysis which consists of documenting and understanding a firm’s profitability relative to past performance and comparable firms. Ratio analysis, accounting quality, and earnings management are the focal points of this portion of the course. Mutually Exclusive: Cannot register for MGMP 601 if student has credit for BUSI 401.

MGMP 602 - ACCOUNTING-BASED VALUATION
Short Title: ACCOUNTING-BASED VALUATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MGMP 601 (may be taken concurrently)
Description: This course covers two major topics: 1) forecasting financial statements based on a complete historical analysis of the firm; 2) deriving firm value under a variety of approaches including discounted cash flows (DCF) and residual operating income valuation (ROPI). Mutually Exclusive: Cannot register for MGMP 602 if student has credit for BUSI 401.

MGMP 603 - FEDERAL TAXATION
Short Title: FEDERAL TAXATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Graduate or Graduate Quadmester level students may not enroll.
Course Level: Graduate
Description: Taxes affect most business decisions in the industrialized world. This course provides the body of tax knowledge that corporate executives and professionals need as a part of basic business decision making. The course is designed for those with no formal tax background and for those whose tax work is dated or has not included a focus on business entities. The course emphasizes corporate tax matters and questions to consider in choosing a business entity. Class members should be tax literate at the end of the course.

MGMP 626 - FINANCING THE STARTUP VENTURE
Short Title: FINANCING THE STARTUP VENTURE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to provide students with an overview of financing options for startups. The course covers crowdfunding, angel investors, accelerators, and the venture capital industry; the organization and operation of venture capital funds; investment methodology; monitoring and portfolio liquidation.

MGMP 627 - ENTERPRISE EXCHANGE
Short Title: ENTERPRISE EXCHANGE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: Repeatable for Credit.

MGMP 651 - FIXED INCOME MANAGEMENT
Short Title: FIXED INCOME MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: The course provides an in-depth analysis of the concepts that are most often encountered in the market for fixed income securities. The goals of the course are twofold: (i) to illustrate the fundamental concepts that are commonly used for analyzing fixed income instruments; (ii) to investigate how the fundamental concepts are related to the institutional structures that are most often encountered in practice. The course will focus on topics that are most likely to have practical relevance for students once they graduate. The goals are accomplished via a combination of case studies, lectures, problem sets (to be handed in). Some of the topics that will be covered include term structure of interest rate, duration-based analysis, inverse floater, corporate bond markets, mortgage-backed securities. Repeatable for Credit.
MGMP 659 - REAL ESTATE FINANCE

Short Title: REAL ESTATE FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.
Course Level: Graduate
Description: This course has two major objectives: First, this course provides an overview of topics related to real estate finance. Specifically, this course provides a detailed description of the Discounted Cash Flow (DCF) model applied to real estate. The DCF model is the main financial decision tool used in the real estate industry and we use it extensively in this course. In addition, this course also describes the connection between financial markets and real estate. A large part of this course is devoted to the study of public traded securities that have their cash flows tied to real property cash flows, such as commercial mortgage-backed securities and REITs. Second, this course is the first elective related to real estate in a series available to Rice MBA students, and hence it briefly overviews basic concepts commonly used in the Real Estate Industry. Repeatable for Credit.

MGMP 677 - SPECIAL TOPICS

Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MGMP 684 - BRAND STRATEGY

Short Title: BRAND STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Brand Management is an elective class that addresses important branding decisions faced by an organization. Its basic objectives are: 1) to provide students with a complete understanding of the consumer and of how consumers develop brand attitudes and behaviors; 2) to increase understanding of the important issues in planning and evaluating brand strategies; and 3) to provide a forum for students to apply branding strategies in a variety of domains. Particular emphasis is placed in the course on understanding psychological principles at the consumer or customer level that will improve managerial decision-making with respect to brands. One aim of the course is to make these concepts relevant for any type of organization (public or private, large or small, etc).

MGMP 689 - DECISION MODELS

Short Title: DECISION MODELS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Successful management requires the ability to recognize a decision situation, understand its essential features, and make a choice. However, many of these situations - particularly those involving uncertainty and/or complex interactions - may be too difficult to grasp intuitively, and the stakes may be too high to learn by experience. This course introduces spreadsheet modeling, simulation, decision analysis and optimization to represent and analyze such complex problems. The skills learned in this course are applicable in almost all aspects of business and should be helpful in future courses. The course is divided into two parts. In the first part, we discuss the use of decision trees for structuring decision problems under uncertainty. In the second part of the course, we discuss Monte Carlo simulation, a technique for simulating complex, uncertain systems. Throughout the course, we will use Microsoft Excel as a modeling environment, using add-in programs as necessary. Familiarity with Excel is an important prerequisite for this course. Repeatable for Credit.

MGMP 700 - REEP SUMMER INSTITUTE: EDUCATION ENTREPRENEURSHIP

Short Title: EDUCATION ENTREPRENEURSHIP
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Graduate or Graduate Quadmester level students may not enroll.
Course Level: Graduate

MGMP 701 - COMMUNICATION I ILE

Short Title: COMMUNICATION I ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Internal and Interpersonal Communications Students discuss and practice effective ways to communicate both to groups within and organization and one-on-one. Content includes analyzing pitfalls of hierarchical communication; listening skills; productive vs. unproductive feedback; etc. Repeatable for Credit.
MGMP 703 - CORPORATE RESPONSIBILITY II
Short Title: CORPORATE RESPONSIBILITY II
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: This ILE expands on the topics of the first ILE with three learning objectives in mind: 1. Heightened moral imagination defined as the ability to recognize ethical dilemmas / moral problems in business situations. 2. Increased skill at analyzing those dilemmas / problems in terms of economic outcomes, legal requirement, and moral duties through use of ethical decision-making frameworks. 3. Increased skill at ethical leadership as an executive / manager in presenting your moral point of view to others in order to best develop and maintain an ethical climate / culture in all our organizations, communities, and societies. Repeatable for Credit.

MGMP 704 - COMMUNICATION II ILE
Short Title: COMMUNICATION II ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.

Course Level: Graduate
Description: Crisis Communications Students discuss and practice the methodology of managing crisis in business settings. Both proactive and reactive actions are reviewed; historic examples of both good and bad communication in a crisis are studied. Guest lecturer will discuss crisis communications. Repeatable for Credit.

MGMP 707 - COMMUNICATIONS ILE
Short Title: COMMUNICATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the MBA, PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.

Course Level: Graduate
Description: Intercultural Communications Students focus on understanding how to conduct business in cultures different from their own. Content includes cultural and emotional intelligence; cross-cultural exercises; and ways to approach and learn about foreign culture and its related business practices.

MGMP 708 - LEADERSHIP ILE
Short Title: LEADERSHIP ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.

Course Level: Graduate
Description: The purpose of this course is to teach you some skills and give you some hands on practice around leading others in group settings. The course will focus on Fundamental Leadership Skills: Influence and Vision; Fundamental Leadership Skills: Leading a Key Decision; Fundamental Leadership Skills: Interpretive Leading under Crisis; Putting it Together: Climbing Mt. Everest.

MGMP 709 - NEGOTIATIONS ILE
Short Title: NEGOTIATIONS ILE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.

Course Level: Graduate
Description: Managers and professionals cannot be successful without possessing effective negotiation skills and strategies. The purpose of this ILE is to help one understand the processes of negotiation in a variety of settings. The ILE will cover a broad spectrum of negotiation problems faced by managers and professionals. This ILE helps students develop negotiation skills by tackling a series important topics central to effective negotiation.

MGMP 789 - GLOBAL FIELD EXPERIENCE
Short Title: GLOBAL FIELD EXPERIENCE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment limited to students in the PMBA, WMBA or XMBA programs. Enrollment is limited to Graduate level students.

Course Level: Graduate
Description: This unique experiential learning opportunity requires students to apply what was learned in the first year of the program through consulting projects on the ground in a designated country. The course fosters a global mindset and further develops the ability to tackle business challenges in dynamic, divers and complex environments. Department Permission Required.
MGMW 798 - STRATEGIC MANAGEMENT SIMULATION
Short Title: STRATEGIC MGMT SIMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This core course uses a capstone business strategy simulation conducted in close proximity to the required formulation/implementation course. Student teams operate simulated companies in a highly competitive industry. Emphasis is placed on integrating strategy, financial control, operational excellence, and team building. Teams make presentations at the end of the course.

MGMP 799 - CAPSTONE CONSULTING PROJECT
Short Title: CAPSTONE CONSULTING PROJECT
Department: Management
Grade Mode: Standard Letter
Course Type: Intensive Learning Experience
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the PMBA or XMBA programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The PMBA Capstone course is a comprehensive, real-world strategic planning course with a unique twist to challenge student teams – they will work with a non-corporate, Houston-based, community organization. Students will apply all of the disciplines (strategy, finance, marketing, organizational behavior, etc.) that they have learned in the program to thoroughly assess the organization’s current situation and develop a strategy, detailed functional design, business case, and implementation plan for the senior executives and board of directors at these organizations.

MBA for Professionals-Weekend (MGMW)

MGMW 500 - PMBA LAUNCH
Short Title: PMBA LAUNCH
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the W MBA program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Rice MBA Program Launch is composed of a rigorous one week experience intended to help acclimate students to the Jones School Culture, as well as the rapid pace of a top-tier graduate business program. At the end of Launch, students will be better prepared academically, professionally, administratively, and culturally to reap the full benefits of the MBA experience. The Rice MBA Program Launch is a mandatory activity for all incoming students.

MGMW 501 - FINANCIAL ACCOUNTING
Short Title: FINANCIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Financial statements are a key source of information about the economic activities of a firm. This course addresses the construction and interpretation of financial statements. The goal of the course is not to train you to become an accountant. Rather, the course should equip you to become an informed user of financial statement information. Because annual reports are somewhat formidable, we will study how firms present the information for various accounts in their financial statements, including the footnotes. By the end of the course, you should have a basic understanding of financial statements and the ability to use them for decision making. Fulfillment of these objectives involves acquiring several skills. The course will emphasize (i) gaining familiarity with the types of transaction firms engage in, (ii) the mapping of transactions into accounting numbers, (iii) understanding the accounting-related choices that managers have for transactions and the rationale behind the various methods, (iv) developing fluency in accounting terminology, and (v) appreciating the complexity of accounting due to the (often considerable) discretion and judgment involved in choosing among alternative accounting methods, making estimates, and disclosing information in financial statements.

MGMP 502 - MANAGERIAL ACCOUNTING
Short Title: MANAGERIAL ACCOUNTING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program.
Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course provides an introduction to accounting systems that managers use to support decision making and to align behaviors. The objective of cost management systems is to provide information about costs; including, but not limited to costs of products and services. While financial accounting requires that product cost information be accumulated in particular ways for external reporting, these approaches often provide inadequate information for managing the firm. Management accounting is distinct from financial accounting in its focus on internal (to the firm) uses of accounting and nonfinancial data and in the relative absence of external rules-making bodies such as the SEC or FASB and external monitors such as public accounting firms.
MGMW 510 - ORGANIZATIONAL BEHAVIOR
Short Title: ORG. BEHAVIOR
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Issues involving power and influence, norms and values, and incentives and rewards shape individual and group behavior in organizations. Throughout your work life, you have accrued a number of experiences and insights concerning the “human” side of management. In this course, we will discuss your experiences, evaluate and interpret them, and develop a toolkit that will further enhance your ability to make effective decisions, motivate and lead employees, and understand the processes underlying social interaction in organizations.

MGMW 511 - ORGANIZATIONAL CHANGE
Short Title: ORGANIZATIONAL CHANGE
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Over the course of your life you have already encountered—and will continue to encounter—the need to lead change or, at a minimum, adapt to change. Chances are good that you already do an adequate job navigating change and may have experienced satisfactory or even better-than-expected results. However, by applying frameworks that elevate your abilities beyond the “common sense” level of performance, you can markedly improve the degree and/or frequency of your success. The primary goal of this course is to help you become an effective leader of organizational change. In this very brief class, you will learn, discuss and put into action an important framework for managing organizational change. Your participation in this course will: 1) provide you with an effective framework for managing organizational change and its adoption, 2) improve your competencies as both a leader and participant in change.

MGMW 540 - MANAGERIAL ECONOMICS
Short Title: MANAGERIAL ECONOMICS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Managerial economics deals with the application of microeconomic analysis to managerial decision-making. It is therefore a very broad subject and serves as the foundation for making decisions in finance, accounting, marketing, and management/strategy.

MGMW 541 - ECONOMIC ENVIRONMENT OF BUSINESS
Short Title: ECONOMIC ENV. OF BUSINESS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: EEB stresses an understanding of the major macroeconomic forces affecting business in today’s global economy. Fluency in major macroeconomic concepts and forces enhances business decision making in the globally competitive product, financial, and labor markets that characterize the modern business environment. With this in mind, the learning objectives for the course include an understanding of 1) the key economic policy goals and how they are related: low unemployment, price stability and long-term sustainable growth; 2) the primary economic policy tools: fiscal policy and monetary policy; and 3) key economy-wide prices: inflation, interest rates, and exchange rates. Repeatable for Credit.

MGMW 543 - FINANCE
Short Title: FINANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective of this course is to introduce you to the theory and practice of corporate finance, and to provide you with a set of analytical tools necessary to answer the most important questions related to firms’ financing and investment policies. The theory of corporate finance consists of the following building blocks: Valuation, Investment Decisions, Risk and Return, Financing Decisions, Derivative Securities.

MGMW 560 - CORPORATE SOCIAL RESPONSIBILITY
Short Title: CORP SOCIAL RESPONSIBILITY
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: MGMW 560 is an interdisciplinary, interactive study of business ethics and the social responsibility of business organizations. It is not designed to dictate individual values, but to show how values can be integrated effectively in successful business decision-making. It encompasses an in-depth examination of the sorts of ethical conflicts that arise in business and an exploration of the interplay between professional and applied ethics, law and management. Emphasis is placed on consideration of stakeholder concerns and the development of personal ethical decision-making skills. Repeatable for Credit.
MGMW 561 - BUSINESS - GOVERNMENT RELATIONS
Short Title: BUS - GOVERNMENT RELATIONS
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: MGMW 561 is a study of the relationship between business and government and its impact on the formation of public policy. The course examines how business issues are influenced by: political structures and institutions, information, relationships, stakeholders, crisis, media and ethics. Students will participate in a Congressional simulation exercise and create an issue management plan that applies class lectures, readings and independent research to an issue of their choice.

MGMW 570 - COMPETITIVE STRATEGY
Short Title: COMPETITIVE STRATEGY
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The field of strategic management explores how firms achieve competitive advantage in a dynamic and complex environment from the general manager’s perspective. This course is organized around fundamental frameworks to assist you in analyzing a wide range of strategic issues facing a firm. It will: 1) Cover theories for in-depth industry analysis, for anticipating and predicting future industry developments; 2) Examine some of the firm specific underpinnings of competitive advantage and growth in both domestic and international settings; 3) Explore some of the challenges in implementing the strategy that has been formulated. Nevertheless, the best analysis in the world will have little effect if it cannot be communicated to others. Managers must be able to articulate their views coherently and persuasively, and they must be skilled at understanding and critiquing other points of view. Management is a “verbal sport,” perhaps 90% of a typical manager’s day is consumed by oral communication. Time is often scarce. You must learn to make convincing arguments and to make them quickly, or the merits of your ideas are likely to become simply irrelevant. This skill takes practice, and we will place a great deal of emphasis on it in class.

MGMW 571 - STRATEGY FORMULATION AND IMPLEMENTATION
Short Title: STRATEGY FORMULATION
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is to expose students to core concepts, ideas and analytical techniques that can be used to create sustainable advantage and growth in difficult competitive environments. The perspective adopted is that of a general manager who has overall responsibility for the performance of the firm as whole. To this end, the course will attempt to build students’ ability to develop, evaluate, and implement value-creating strategies at the business and corporate level. In doing so, the course will not only introduce new or advanced concepts in strategy, but also review and build upon some of the concepts students have already studied in the first core course in strategy. Given the integrative nature of strategic management, we shall attempt to establish links with important concepts that students have been exposed to in other functional areas.

MGMW 574 - OPERATIONS MANAGEMENT
Short Title: OPERATIONS MANAGEMENT
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the design and integration of successful operations tactics both within the organization and across the supply chain. The course focuses on understanding, managing and improving processes and flows of products, customers, and information. Touching upon bottlenecks, inventory, quality management, and strategic issues in operations.

MGMW 580 - MARKETING
Short Title: MARKETING
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is built around the premise that providing superior value to customers is a central means of creating value for the firm’s stakeholders. The course focuses on marketing strategy – the strategic decision of what value to provide, how to provide it, and to whom. You will learn the importance of balancing effectiveness and efficiency through formulation, implementation, evaluation, and control of marketing mix programs directed at target segments.
MGMW 594 - STRATEGIC BUSINESS COMMUNICATION I  
**Short Title:** STRAT BUSINESS COMMUNICATION I  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction to the strategy and practice of business presentations. Includes frequent oral presentations (both individual and team) and feedback.

MGMW 595 - DATA ANALYSIS  
**Short Title:** DATA ANALYSIS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The objective of this course is to help you learn to analyze data and use methods of statistical inference in making business decisions.

MGMW 596 - STRATEGIC BUSINESS COMMUNICATION II  
**Short Title:** STRATEGIC BUSINESS COMM II  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Lecture  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the WMBA program. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Continued instruction in the core strategic business communication skills introduced in Strategic Business Communication I. In addition to a mandatory writing workshop, students have the opportunity to select workshops on other communication topics, based on individual needs and interests.

MGMW 597 - ICE ILE  
**Short Title:** ICE ILE  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 1.5  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or X MBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** The Ice Cream Game is a realistic, competitive game set in a Marketing Context. Student teams have a fixed budget to spend on Production and Advertising across each of three different time periods. They control: 1) How many different product types they offer (up to 4); 2) What specific raw material ingredient combinations make up those products; 3) How many units of each product type to produce; 4) What price to charge; 5) How much money to allocate to advertising (if any) for each product in each media; and, 6) How much to spend stressing each product attribute. All teams compete with each other for share, sales, and profit in a world composed of three segments which (may) differ in their preferences – thus each team’s strategy can definitely affect all the other team’s results. The game allows the student to apply what they have learned in Data Analysis, Marketing, Economics, Strategy, and Organization Behavior all in a world where both analysis and creativity are important ingredients in the recipe for success.

MGMW 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MGMW 700 - 2ND YEAR IMMERSION  
**Short Title:** 2ND YEAR IMMERSION  
**Department:** Management  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 0.75  
**Restrictions:** Enrollment limited to students in the MBA, PMBA, WMBA or X MBA programs. Enrollment is limited to Graduate or Graduate Quadmester level students.  
**Course Level:** Graduate  
**Description:** Repeatable for Credit.
Repeatable for Credit.

The practice of securing agreements between interdependent parties.

The exercises and other learning activities were chosen to help you gain a feel for how this science informs negotiation. The course aims to improve your ability to negotiate in ways that are consistent with the demands of the situation and your own personal values. The course strives to teach knowledge and skills immediately applicable to solving business communication problems in the 21st century workplace. Repeatable for Credit.

MGMW 706 - LEADERSHIP
Short Title: LEADERSHIP
Department: Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBAC or XMBAC programs. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course aims to develop a more thorough understanding of leadership and the leadership process. Through this exploration, it is hoped that students will come to understand themselves better within the leadership context (i.e., as a follower, as a self-leader, and as a leader of others).

MGMW 709 - NEGOTIATIONS
Short Title: NEGOTIATIONS
Department: Management
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 1.5
Restrictions: Enrollment limited to students in the WMBAC program. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Negotiating is an important part of our everyday lives, whether we realize this or not. As research tends to show, however, most of us are often not as effective as we could be in negotiation situations. The purpose of this course is simply to improve your ability to negotiate in ways that are consistent with the demands of the situation and your own personal values. The course is designed around the premise that negotiation is a science and an art. The assigned readings are informed by the latest research on negotiations. The exercises and other learning activities were chosen to help you gain a feel for how this science informs the practice of securing agreements between interdependent parties. Repeatable for Credit.
MECH 202 - MECHANICS/STATICS
Short Title: MECHANICS/STATICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (MATH 101 or MATH 105) and (MATH 102 or MATH 106) and (PHYS 101 or PHYS 111)
Description: Mechanics is the branch of the physical sciences that deals with the response of bodies to the action of forces and is based on the implementation of Newton's laws. This class is divided into two sections: study of rigid bodies in equilibrium; and strength of materials. Fundamental concepts such as equilibrium, stress and strain, deformations and displacements, elasticity and inelasticity, strain energy, and load-carrying capacity will be covered.

MECH 203 - MECHANICAL ENGINEERING DESIGN TOOLS
Short Title: MECH ENG DESIGN TOOLS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PHYS 101
Description: Learning the use of computer aided design tools for preparing complex solid parts, assemblies, and their dimensioned drawings. Learn to apply black-box simulation tools for stress analysis, heat transfer, vibration, etc. of complex parts and assemblies.

MECH 210 - INTRODUCTION TO NUMERICAL METHODS
Short Title: INTRO TO NUMERICAL METHODS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PHYS 101
Description: Numerical Methods covers computational methods for generating numerical solutions to mathematical problems, with an emphasis on engineering applications and computer implementation in MATLAB.

MECH 211 - ENGINEERING MECHANICS
Short Title: ENGINEERING MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: The study of equilibrium of static systems, the dynamics of a particle and particle systems, and rigid-body dynamics. Cross-list: CEVE 211.

MECH 231 - SOPHOMORE LAB
Short Title: SOPHOMORE LAB
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Instruction in application of engineering thermodynamics. Includes uncertainty analysis, measurement of thermodynamic properties, and design of experiments. Required for mechanical engineering majors in B.S. program. Recommended Prerequisite(s): MECH 200

MECH 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MECH 308 - SENIOR DESIGN JUNIOR OBSERVERS
Short Title: SENIOR DESIGN JUNIOR OBSERVERS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MECH 310 - RIGID BODY DYNAMICS
Short Title: RIGID BODY DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 101 and PHYS 102 and (MATH 101 or MATH 105) and (MATH 102 or MATH 106)
Description: Mechanics is the branch of the physical sciences that deals with the response of bodies to the action of forces and is based on the implementation of Newton's laws. Statics is the study of bodies in equilibrium and is based on Newton's first and third laws, while Dynamics focuses on bodies in motion and is based on Newton's second and third laws. This class focuses on Rigid Body Dynamics.

MECH 311 - MECHANICS OF SOLIDS AND STRUCTURES
Short Title: MECHANICS OF SOLIDS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering, Civil & Environmental Engineer, Civil Engineering or Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): CEVE 211 or MECH 211
Description: Analysis of stress and the deformation of solids with applications to beams, circular shafts, and columns. Required for following undergraduate majors: civil and environmental and mechanical engineering. Cross-list: CEVE 311.

MECH 315 - STRESS ANALYSIS
Short Title: STRESS ANALYSIS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 202 or MECH 211
Description: Stress analysis is integral to much of mechanical engineering, whether in industrial design or academic research. This course is divided into two parts. First, the concepts of stress analysis are introduced for two-dimensional, then three-dimensional bodies. The second part of this course builds upon stress analysis by going into failure – both dynamic and static theories. A series of month long design projects will apply the tools learned in this course to specific engineering problems.

MECH 331 - JUNIOR LABORATORY I
Short Title: JUNIOR LABORATORY I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Corequisite: MECH 371
Description: Instruction in static and impact testing of engineering materials. Includes beam deflection and shear center experiments, as well as the application and testing of strain gauges. Required for mechanical engineering majors in B.S. program.

MECH 332 - JUNIOR LABORATORY II
Short Title: JUNIOR LABORATORY II
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Corequisite: MECH 371
Description: Instruction in fluid mechanics and thermodynamics. Students work in groups and perform classic experiments in fluid flow. This laboratory course provides experimental support to MECH 371. Required course for mechanical engineering majors in B.S. program. See on-line registration for sections.

MECH 340 - INDUSTRIAL PROCESS LAB
Short Title: INDUSTRIAL PROCESS LAB
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Practical experience in, and observation of, selected industrial processes. Must sign up in department office at the beginning of registration for sections; each section is limited to 8 students. Open only to mechanical engineering majors. Required for mechanical engineering majors in B.S. program. Final registration confirmed after the first week's organizational meeting. Meeting announcements posted in the MEMS department.
MECH 343 - MODELING OF DYNAMIC SYSTEMS
Short Title: MODELING OF DYNAMIC SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 211 or CEVE 211 or MECH 310) and MECH 200 and MATH 211
Description: Energy-based modeling of dynamic systems. The focus of the course will be mechanical systems and electrical circuits, but will also involve fluid, thermal and other domains. The course will introduce modeling and simulation of systems via MATLAB, Simulink, and Labview, and an introduction to systems theory. Modeling and simulation of systems via MATLAB, and an introduction to systems theory. Includes laboratory assignments. Required for mechanical engineering majors in B.S. program. Recommended Prerequisite(s): CAAM 335.

MECH 350 - MECHANICAL ELEMENTS
Short Title: MECHANICAL ELEMENTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 315 or MECH 311 or CEVE 311
Description: The principles of mechanics are applied to the design of machine elements, including load path and stress analysis, selection of mechanical components, and materials selection. A semester design project requires using the analysis tools learned in the course. Required for mechanical engineering majors in B.S. program.

MECH 351 - FLUID MECHANICS I
Short Title: FLUID MECHANICS I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 200 and MATH 212
Description: Introduction to fluid statics and dynamics. Includes the development of the fundamental equations of fluid mechanics and their application to problems of engineering interest. Required for mechanical engineering majors in B.S. program. Department Permission Required.

MECH 373 - ACOUSTICS
Short Title: ACOUSTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Basics of technical acoustics, including generation, propagation, reception and reproduction of sound, speech and hearing, musical and architectural acoustics, and noise control. Offered alternate years.

MECH 380 - INTRODUCTION TO MECHANICAL EFFECTS IN TISSUES
Short Title: INTRO TO MECHANICAL EFFECTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 211 and MECH 311 or CEVE 300
Description: Development of a general background in physiology and in advanced mechanics for applications in medicine. Includes bone mechanics in remodeling, cartilage and ligament mechanics, and muscle mechanics, as well as an on paper design project on a subject selected by students.

MECH 383 - INTRODUCTION TO BIOMEDICAL INSTRUMENTATION AND MEASUREMENT TECHNIQUES
Short Title: BIOMED INSTRUMENT&MEASURE TECHN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ELEC 381
Description: Review of basic sensors, measurement principles and analog electronics using operational amplifiers. Includes design problems using operational amplifier circuits (e.g., instrumentation and isolation amplifiers, comparators, timer circuits). Introduction to development of virtual instruments (VIs) using LabView. Discussion of micro and macro-biopotential electrodes, cell cytometry, the measurement of blood pressure, blood flow, and heart sounds, temperature, and the principles of electrical safety (e.g. micro and macro-shock hazards in the clinical environment). Includes discussion of pulmonary instrumentation and medical applications of ultrasound. Two lab exercises and a term project required.
MECH 390 - TOPICAL ISSUES IN ENGINEERING
Short Title: TOPICAL ISSUES IN ENG
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This discussion based class will focus on current events and how engineering can be used to directly address them throughout a career. Topics will include energy, environmental, space, and societal (e.g., inequality, social media, etc.) related issues amongst others.

MECH 400 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 202 or MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: CEVE 400. Graduate/Undergraduate Equivalency: MECH 500. Mutually Exclusive: Cannot register for MECH 400 if student has credit for MECH 500.

MECH 401 - MECHANICAL DESIGN APPLICATIONS
Short Title: MECHANICAL DESIGN APPLICATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 311 or CEVE 311
Description: Brief review of solid mechanics with introduction to failure theories and fatigue analysis. The principles of mechanics are applied to the design of machine elements. A semester design project requires using the analysis tools learned in the course. Required for mechanical engineering majors in B.S. program.

MECH 403 - COMPUTER AIDED DESIGN
Short Title: COMPUTER AIDED DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Investigation of the integration of the computer into the area of mechanical design. Includes such subjects as optimization, finite element, analysis, and commercial software. Graduate/Undergraduate Equivalency: MECH 503. Mutually Exclusive: Cannot register for MECH 403 if student has credit for MECH 503.

MECH 404 - MECHANICAL DESIGN PROJECT
Short Title: MECHANICAL DESIGN PROJECT
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Project based course for group or individual design projects relating to mechanical engineering topics.

MECH 407 - CAPSTONE DESIGN PROJECT I
Short Title: CAPSTONE DESIGN PROJECT I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 343 and (MECH 350 or MECH 401) and MECH 481
Description: An interdisciplinary capstone design experience in mechanical engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete MECH 408 to receive credit for MECH 407. Required for mechanical engineering majors in B.S. program.

MECH 408 - CAPSTONE DESIGN PROJECT II
Short Title: CAPSTONE DESIGN PROJECT II
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An interdisciplinary capstone design experience in mechanical engineering. This course provides an opportunity for students to apply knowledge and skills acquired in previous courses to the solution of a realistic engineering problem. Teams of students will specify, design, and build a system to meet a prescribed set of requirements. The topics covered in this course will include design methodology, effective teamwork, project management, documentation, and presentation skills. Must complete MECH 408 to receive credit for MECH 407. Required for mechanical engineering majors in B.S. program. Department Permission Required.
MECH 411 - DYNAMICS AND CONTROL OF MECHANICAL SYSTEMS  
**Short Title:** DYNAMICS & CONTROL OF MECH SYS  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MECH 343 and MECH 420  
**Description:** The application of the principles of kinematics, dynamics and systems and control theory to the design and analysis of controlled mechanical systems. Kinematics and Newtonian dynamics of particles and rigid bodies, elements of analytical dynamics, system analysis, stability, and simulation of dynamical behavior, control of mechanical systems. Demonstrations and laboratory examples. Graduate/ Undergraduate Equivalency: MECH 501. Mutually Exclusive: Cannot register for MECH 411 if student has credit for MECH 501.

MECH 412 - VIBRATIONS  
**Short Title:** VIBRATIONS  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MECH 343  
**Description:** Analysis of discrete and continuous linear vibrating systems, with emphasis on multi-degree-of-freedom systems. Includes approximate methods. Coverage of statistics (e.g. Gaussian and other distributions; and power spectra) as a foundation for random vibrations analysis. Required for mechanical engineering majors in B.S. program. Graduate/Undergraduate Equivalency: MECH 502. Mutually Exclusive: Cannot register for MECH 412 if student has credit for MECH 502.

MECH 416 - ADVANCED MACHINE DESIGN AND MECHANICAL SYSTEMS  
**Short Title:** MACHINES AND MECHANISMS  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MECH 350  
**Description:** Continuation of topics covered in a standard undergraduate machine design course, as well as an introduction to mechanical systems commonly used in industry and research. Topics to include mechanical fasteners, weldment design, advanced gearing systems, friction and energy storage devices, and fluid power systems.

MECH 417 - FINITE ELEMENT ANALYSIS  
**Short Title:** FINITE ELEMENT ANALYSIS  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (MATH 212 or MATH 222) and (CAAM 210 or CAAM 211)  
**Description:** An introduction to finite element analysis by Galerkin's method and the method of least squares as applied to both ordinary and partial differential equations common in engineering applications. Element interpolations, numerical integration, computational considerations for efficient solution and post-processing methods. Application of the commercial codes to ANSYS and Cosmosworks. Cross-list: CEVE 417. Graduate/Undergraduate Equivalency: MECH 517. Mutually Exclusive: Cannot register for MECH 417 if student has credit for MECH 517.

MECH 420 - FUNDAMENTALS OF CONTROL SYSTEMS  
**Short Title:** FUNDAMENTALS OF CONTROL SYST  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (CAAM 335 and MECH 343) or (MATH 355 and MECH 343) or (CAAM 335 and ELEC 242 and ELEC 244) or (MATH 355 and ELEC 242 and ELEC 244)  
**Description:** Linear systems and the fundamental principles of classical feedback control, state variable analysis of linear dynamic systems, stability of linear control systems, time-domain analysis and control of linear systems, root-locus analysis and design and pole-zero synthesis, frequency domain techniques for the analysis and design of control systems. Required for mechanical engineering majors in B.S. program. Cross-list: ELEC 436. Graduate/Undergraduate Equivalency: MECH 620. Mutually Exclusive: Cannot register for MECH 420 if student has credit for MECH 620.
### MECH 427 - PHYSICS GUIDED MACHINE LEARNING & DATA DRIVEN MODELING FEM

**Short Title:** PHY GUIDED ML-DATA DRIVEN FEM  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** CEVE 311 or MECH 311 or MECH 315  
**Description:** Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Cannot be taken concurrently with CEVE/MECH 527. Prerequisites CEVE/MECH 311. Cross-list: CEVE 427. Mutually Exclusive: Cannot register for MECH 427 if student has credit for MECH 527.  
**Course URL:** Satishnagarajaiah.rice.edu (http://Satishnagarajaiah.rice.edu)

### MECH 430 - TRIBOMECHADYNAMICS

**Short Title:** TRIBOMECHADYNAMICS  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** MECH 315 and MECH 343  
**Description:** Tribomechadynamics is a graduate/upper level undergraduate course that spans the topics of tribology, contact mechanics, and nonlinear dynamics. These three topics are integral to understanding interfacial contact, how assembled structures behave, and how the evolution of damage (wear) over time at the micro-scale influences the structural-scale response of a system. In brief, the subjects covered by this course are:  
- Tribology. Topics will include empirical and heuristic friction models, the fundamentals of wear, lubrication selection and considerations, and fundamental failure modes.  
- Contact Mechanics. Topics will include elastic deformation, constitutive modeling, plasticity, failure criteria, and numerical simulation.  
- Nonlinear Dynamics. Topics will include an overview of linear vibration theory, model reduction theories, nonlinear vibration theory, nonlinear analysis including quasi-static analysis and harmonic balance methods, continuation, and modal analysis. Graduate/Undergraduate Equivalency: MECH 530.

### MECH 431 - SENIOR LABORATORY I

**Short Title:** SENIOR LABORATORY I  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Laboratory  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Laboratory instruction in heat transfer and thermodynamics. Students work in groups doing experiments with emphasis on applied thermodynamics. Required for mechanical engineering majors in B.S. program. See online registration for sections.

### MECH 435 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS

**Short Title:** INTRO TO MECHATRONICS  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** ELEC 242 or ELEC 243  
**Description:** Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Cross-list: ELEC 435. Graduate/Undergraduate Equivalency: MECH 535. Mutually Exclusive: Cannot register for MECH 435 if student has credit for MECH 535.

### MECH 444 - FLUID MECHANICS OF COMPUTING

**Short Title:** FLUID MECHANICS OF COMPUTING  
**Department:** Mechanical Engineering  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The objective is to learn and develop a good understanding of the fluid mechanics concepts and tools that are essential to know for successful computational flow analysis. For successful computational flow analysis, we first have to know the problem we want to solve, set up the computational conditions correctly, have a good idea about what results to expect, and properly interpret and evaluate the computed results. This course will help us learn the fluid mechanics concepts and tools required for that. The course will have both an easy to follow mathematical approach and an easy to relate to physical-interpretation approach. The topics covered include the basic mathematical framework, key fluid mechanics mechanisms, scaling and nondimensional variables and equations, and simple fluid mechanics formulas that can be used in obtaining analytical estimates to the problems solved. Graduate/Undergraduate Equivalency: MECH 544. Recommended Prerequisite(s): MECH 200 and MATH 212 Mutually Exclusive: Cannot register for MECH 444 if student has credit for MECH 544.
MECH 450 - ALGORITHMIC ROBOTICS
Short Title: ALGORITHMIC ROBOTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (COMP 221 or COMP 321) and COMP 215
Description: Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon in life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanisms useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today’s robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: COMP 450, ELEC 450. Graduate/Undergraduate Equivalency: MECH 550.
Mutually Exclusive: Cannot register for MECH 450 if student has credit for MECH 550.

MECH 454 - COMPUTATIONAL FLUID MECHANICS
Short Title: COMPUTATIONAL FLUID MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or CEVE 363 (may be taken concurrently) or CHBE 401 (may be taken concurrently) or BIE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)
Description: Fundamental concepts of finite element methods in fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Cross-list: BIE 454, CEVE 454. Graduate/Undergraduate Equivalency: MECH 554. Mutually Exclusive: Cannot register for MECH 454 if student has credit for MECH 554.

MECH 456 - LEGAL THEMES IN ENGINEERING AND MANAGING PRACTICES
Short Title: LEGAL THEMES IN ENGI PRACTICES
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to fundamental legal concepts of the American legal system for upper level undergraduate students, primarily aimed at what engineers, scientists and other professionals could expect to encounter in their professional careers. The primary focus is to provide students with the basic tools to understand and interact with lawyers. Cross-list: MANA 499. Graduate/Undergraduate Equivalency: MECH 556.
Mutually Exclusive: Cannot register for MECH 456 if student has credit for MECH 556.

MECH 472 - THERMAL SYSTEMS DESIGN
Short Title: THERMAL DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) and MECH 481
Description: Design and synthesis of systems based on applications of thermodynamics, fluid mechanics, heat transfer, economics, and optimization theories. Required for mechanical engineering majors in B.S. program.

MECH 473 - ADVANCED FLUID MECHANICS I
Short Title: ADVANCED FLUID MECHANICS I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371 (may be taken concurrently) or MECH 444 (may be taken concurrently) or MECH 473 (may be taken concurrently) or MECH 481 (may be taken concurrently)
Description: Governing equations for inviscid and viscous flows. Constitutive laws, simple non-Newtonian flows, and surface tension. Derivation and applications of the equations representing the conservation of mass and momentum. Various forms of the Bernoulli equation. Introductory concepts of computational fluid mechanics. Graduate/Undergraduate Equivalency: MECH 573. Mutually Exclusive: Cannot register for MECH 473 if student has credit for MECH 573.
MECH 474 - ADVANCED COMPUTATIONAL MECHANICS
Short Title: ADV COMPUTATIONAL MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 454 or CEVE 454 or MECH 454 or BIOE 554 or CEVE 554 or MECH 554
Description: Undergraduate version of MECH 654. The required semester-end report and presentation will be on the introductory topics of the course. Graduate/Undergraduate Equivalency: MECH 654. Mutually Exclusive: Cannot register for MECH 474 if student has credit for MECH 654.

MECH 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MECH 481 - HEAT TRANSFER
Short Title: HEAT TRANSFER
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 200 and MECH 371)
Description: Study of the general principles of heat transfer by conduction, convection, and radiation. Includes their application to problems of engineering practice. Required for mechanical engineering majors in B.S. program.

MECH 482 - CONVECTIVE HEAT TRANSFER
Short Title: CONVECTIVE HEAT TRANSFER
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 481
Description: Rigorous study of the transfer of heat by free and forced convection. Graduate/Undergraduate Equivalency: MECH 582. Mutually Exclusive: Cannot register for MECH 482 if student has credit for MECH 582.

MECH 484 - MICROSCOPIC THERMODYNAMICS AND TRANSPORT
Short Title: MICRO THERMO & TRANSPORT
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 481
Description: This course introduces concepts in statistical mechanics and non-equilibrium thermodynamics that are used to understand the physical mechanisms of heat transfer, particularly in micro/nanoscale systems. Emphasis is placed on energy storage and thermal transport by electrons, phonons, molecules, and photons. Topics include the kinetic theory of gases, thermodynamic distribution functions, energy carrier dispersion relations, Boltzmann equation modeling of thermal and electrical properties, size effects (classical and quantum-mechanical) on material properties, and thermoelectric energy conversion. Graduate/Undergraduate Equivalency: MECH 584.

MECH 488 - DESIGN OF MECHATRONIC SYSTEMS
Short Title: DESIGN OF MECHATRONIC SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 343 or ELEC 241 or ELEC 243
Description: Analog electronic design for purposes of controlling electromechanical systems, including electromechanical sensors and actuators, analog electronic design of filters, state space and classical controllers, and transistor-based servo amplifiers and high voltage amplifiers. Implementation of digital controllers. Significant laboratory component with design and fabrication of circuits to control electromechanical systems. Graduate/Undergraduate Equivalency: MECH 588. Recommended Prerequisite(s): MECH 211 and ELEC 436 or MECH 420. Mutually Exclusive: Cannot register for MECH 488 if student has credit for MECH 588.

MECH 489 - MICROFLUIDICS: FUNDAMENTALS AND APPLICATIONS
Short Title: MICROFLUIDICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MECH 371
Description: This course presents an introduction to microfluidics, including theoretical analysis of microscale flows, basic understanding of microscale properties, fabrication processes for microfluidic devices and an overview of common applications, many of which are relevant for bioprocessing and biodetection. Basic understanding of physics, chemistry, intermediate calculus and fluid mechanics is required. Graduate/Undergraduate Equivalency: MECH 589.
MECH 490 - MECHANICAL ENGINEERING RESEARCH PROJECTS
Short Title: MECH ENG RESEARCH PROJECTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent investigation of a specific topic or problem in mechanical engineering. Research under the direction of a selected faculty member. Instructor Permission Required. Repeatable for Credit.

MECH 497 - NEUROMUSCULOSKELETAL MODELING AND SIMULATION
Short Title: NEUROMUSCULOSKELETAL MODELING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MECH 211 or CEVE 211 or MECH 310) and CAAM 210
Description: Introduction to computer modeling and simulation of the human neuromusculoskeletal system. Topics include measurement of human movement, 3D kinematic modeling, inverse and forward dynamic simulations, muscle and joint contact force estimation, and neural control modeling. Programming proficiency in Matlab required. Graduate/Undergraduate Equivalency: MECH 597. Mutually Exclusive: Cannot register for MECH 497 if student has credit for MECH 597.

MECH 498 - INTRODUCTION TO ROBOTICS
Short Title: INTRODUCTION TO ROBOTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 354 or MATH 355 or CAAM 335
Description: The course will provide the student with a mathematical introduction to many of the key ideas used in today's intelligent robot systems. The focus of the course is on the analysis and control of manipulators. The course will also give an overview of common approaches to building intelligent robot systems. Cross-list: COMP 498, ELEC 498. Graduate/Undergraduate Equivalency: MECH 598. Recommended Prerequisite(s): MECH 211 or CEVE 211 or MECH 310
Mutually Exclusive: Cannot register for MECH 498 if student has credit for MECH 598.

MECH 499 - CURRENT TOPICS
Short Title: CURRENT TOPICS
Department: Mechanical Engineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for undergraduate mechanical engineering students. Lectures in areas of current interest in mechanical engineering. Topics vary from term to term. Repeatable for Credit.

MECH 500 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADV MECHANICS OF MATERIALS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MECH 211 or CEVE 211) and (MECH 311 or CEVE 311)
Description: Advanced topics in solid mechanics and strength of materials including energy methods, principle of virtual work, conservation laws, constitutive modeling, aspects of elasticity theory, stability and fracture mechanics with application to the analysis and design of reliable structures. Cross-list: CEVE 500. Graduate/Undergraduate Equivalency: MECH 400. Mutually Exclusive: Cannot register for MECH 500 if student has credit for MECH 400.

MECH 501 - DYNAMICS AND CONTROL OF MECHANICAL SYSTEMS
Short Title: DYNAMICS & CONTROL OF MECH SYS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 343 and MECH 420
Description: Graduate version of MECH 411. Offered continually with MECH 411. Graduate/Undergraduate Equivalency: MECH 411. Mutually Exclusive: Cannot register for MECH 501 if student has credit for MECH 411.

MECH 502 - VIBRATIONS
Short Title: VIBRATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 343
Description: Term project is required. Graduate/Undergraduate Equivalency: MECH 412. Mutually Exclusive: Cannot register for MECH 502 if student has credit for MECH 412.

MECH 503 - COMPUTER AIDED DESIGN
Short Title: COMPUTER AIDED DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Investigation of the integration of the computer into the area of design. Includes such subjects as optimization, finite element analysis, and commercial software. Graduate/Undergraduate Equivalency: MECH 403. Mutually Exclusive: Cannot register for MECH 503 if student has credit for MECH 403.

MECH 504 - ADVANCED MECHANICS OF MATERIALS
Short Title: ADVANCED MECHANICS OF MATERIALS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 500 and MECH 501
Description: Advanced study of the mechanics of materials, including advanced topics in solid mechanics and strength of materials. Graduate/Undergraduate Equivalency: MECH 600. Mutually Exclusive: Cannot register for MECH 504 if student has credit for MECH 600.

MECH 505 - DYNAMICS AND CONTROL OF MECHANICAL SYSTEMS
Short Title: DYNAMICS & CONTROL OF MECH SYS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 501
Description: Graduate version of MECH 411. Offered continually with MECH 411. Graduate/Undergraduate Equivalency: MECH 411. Mutually Exclusive: Cannot register for MECH 505 if student has credit for MECH 411.

MECH 506 - VIBRATIONS
Short Title: VIBRATIONS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 502
Description: Term project is required. Graduate/Undergraduate Equivalency: MECH 412. Mutually Exclusive: Cannot register for MECH 506 if student has credit for MECH 412.
MECH 505 - NUMERICAL METHODS FOR ENGINEERS
Short Title: NUMERICAL METHODS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Numerical methods are the computational solution of mathematical problems. This course focuses on developing a competency in the four basic areas of numerical methods: differentiation, integration, optimization, and continuation. These four categories of methods form a tool set that are used throughout the computational solution of engineering problems.

MECH 508 - NONLINEAR SYSTEMS: ANALYSIS AND CONTROL
Short Title: NONLINEAR SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MECH 510 - ELASTO DYNAMICS
Short Title: ELASTO DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MECH 517 - FINITE ELEMENT ANALYSIS
Short Title: FINITE ELEMENT ANALYSIS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (MATH 212 or MATH 222) and (CAAM 210 or CAAM 211)

MECH 519 - ELASTICITY, PLASTICITY AND DAMAGE MECHANICS
Short Title: ELASTICITY/PLASTICITY/DAMAGE
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of phenomena that determine the response of solids to deformation and loading: elasticity, plasticity, damage mechanics and cracking. Review of continuum mechanics with emphasis on the physical mechanisms of deformation and fracture. Classification of the behavior of solids. Modeling of different types of material behavior. The physics underlying the phenomena and methods for the numerical analysis of the resulting equations are discussed. Cross-list: CEVE 519.

MECH 520 - NONLINEAR FINITE ELEMENT ANALYSIS
Short Title: NONLINEAR FEM
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
MECH 523 - PROBABISTIC STRUCTURAL DYNAMICS
Short Title: PROB STRUCTURAL DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): MECH 412 or CEVE 521
Description: Introduction to probability theory and random processes. Includes the dynamic analysis of linear and nonlinear structural systems subjected to stationary and nonstationary random excitations. Reliability studies related to first excursion and fatigue failures, and applications to earthquake engineering, offshore engineering, and wind engineering. Recommended prerequisite(s): Basic knowledge of probability theory.

MECH 524 - ENGINEERING MATHEMATICAL AND NUMERICAL METHODS
Short Title: ENGR MATH & NUMERICAL METHODS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Elements of linear algebra, linear operators, systems of linear differential equations for discrete physical systems, calculus of variations, partial differential equations, Green’s functions, examples from solid and fluid mechanics, discretization of continuous systems, finite element method.

MECH 527 - PHYSICS GUIDED MACHINE LEARNING & DATA Driven MODELING FEM
Short Title: PHY GUIDED ML- DATA Driven FEM
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CEVE 311 or MECH 311
Description: Introduction to physics guided machine learning and data driven modeling from a rigorous finite element analysis and system dynamics (& optimization) perspective. Programming needed will be introduced in the course. The course involves series of assignments involving programming. Project work will be assigned at the end of the semester in lieu of the final exam. Students in CEVE 527 (GR version) will be required to do more advanced assignments and a project.
Prerequisites CEVE/MECH 311. Cross-list: CEVE 527. Mutually Exclusive: Cannot register for MECH 527 if student has credit for MECH 427.
Course URL: Satishnagarajaiah.rice.edu (http://Satishnagarajaiah.rice.edu)

MECH 530 - TRIBOMECHADYNAMICS
Short Title: TRIBOMECHADYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Tribomechadynamics is a graduate/upper level undergraduate course that spans the topics of tribology, contact mechanics, and nonlinear dynamics. These three topics are integral to understanding interfacial contact, how assembled structures behave, and how the evolution of damage (wear) over time at the micro-scale influences the structural-scale response of a system. In brief, the subjects covered by this course are: • Tribology. Topics will include empirical and heuristic friction models, the fundamentals of wear, lubrication selection and considerations, and fundamental failure modes. • Contact Mechanics. Topics will include elastic deformation, constitutive modeling, plasticity, failure criteria, and numerical simulation. • Nonlinear Dynamics. Topics will include an overview of linear vibration theory, model reduction theories, nonlinear vibration theory, nonlinear analysis including quasi-static analysis and harmonic balance methods, continuation, and modal analysis. Graduate/Undergraduate Equivalency: MECH 430.

MECH 535 - INTRODUCTION TO ENERGY-EFFICIENT MECHATRONICS
Short Title: INTRO TO MECHATRONICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to electromechanical systems, focusing on motor mechanics, electric drives & electronics, & modern digital control algorithms. Covers basic principles of electromechanical energy conversion & motor control. Students are introduced to energy efficiency considerations of modern electric drives. Includes hands-on laboratory projects involving digital computer control of various motor types. Additional coursework required beyond the undergraduate course requirements. Cross-list: ELEC 532. Graduate/Undergraduate Equivalency: MECH 435. Mutually Exclusive: Cannot register for MECH 535 if student has credit for MECH 435.

MECH 537 - DESIGN AND CONTROL OF COMPUTER NETWORKS
Short Title: COMMUNICATION NETWORKS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level introduction to design and analysis of communication networks. Topics include wireless networks, medium access, routing, traffic modeling, congestion control, and scheduling. Cross-list: ELEC 537.
MECH 450 - ALGORITHMIC ROBOTICS

*Short Title:* ALGORITHMIC ROBOTICS
*Department:* Mechanical Engineering
*Grade Mode:* Standard Letter
*Course Type:* Lecture
*Credit Hours:* 3
*Restrictions:* Enrollment is limited to Graduate level students.

*Course Level:* Graduate

*Description:* The objective is to learn and develop a good understanding of the fluid mechanics concepts and tools that are essential to know for successful computational flow analysis. For successful computational flow analysis, we first have to know the problem we want to solve, set up the computational conditions correctly, have a good idea about what results to expect, and properly interpret and evaluate the computed results. This course will help us learn the fluid mechanics concepts and tools required for that. The course will have both an easy to follow mathematical approach and an easy to relate to physical-interpretation approach. The topics covered include the basic mathematical framework, key fluid mechanics mechanisms, scaling and nondimensional variables and equations, and simple fluid mechanics formulas that can be used in obtaining analytical estimates to the problems solved. Additional work required for MECH 544. Graduate/Undergraduate Equivalency: MECH 444. Mutually Exclusive: Cannot register for MECH 544 if student has credit for MECH 444. Graduate/Undergraduate Equivalency: MECH 444. Recommended Prerequisite(s): MECH 200 and MATH 212. Mutually Exclusive: Cannot register for MECH 544 if student has credit for MECH 444.

MECH 550 - ALGORITHMIC ROBOTICS

*Short Title:* FLUID MECHANICS OF COMPUTING
*Department:* Mechanical Engineering
*Grade Mode:* Standard Letter
*Course Type:* Lecture
*Credit Hours:* 4
*Restrictions:* Enrollment is limited to Graduate level students.

*Course Level:* Graduate

*Prerequisite(s):* (COMP 221 or COMP 321) and COMP 215

*Description:* Robots have fascinated people for generations. Today, robots are built for applications as diverse as exploring remote planets, de-mining war zones, cleaning toxic waste, assembling cars, inspecting pipes in industrial plants and mowing lawns. Robots are also interacting with humans in a variety of ways: robots are museum guides, robots assist surgeon in life threatening operations, and robotic cars can drive us around. The field of robotics studies not only the design of new mechanisms but also the development of artificial intelligence frameworks to make these mechanism useful in the physical world, integrating computer science, engineering, mathematics and more recently biology and sociology, in a unique way. This class will present fundamental algorithmic advances that enable today’s robots to move in real environments and plan their actions. It will also explore fundamentals of the field of Artificial Intelligence through the prism of robotics. The class involves a significant programming project. Cross-list: BIOE 554 or CEVE 554. Graduate/Undergraduate Equivalency: MECH 450. Mutually Exclusive: Cannot register for MECH 550 if student has credit for MECH 450.

MECH 450 - FLUID MECHANICS OF COMPUTING

*Short Title:* FLUID MECHANICS OF COMPUTING
*Department:* Mechanical Engineering
*Grade Mode:* Standard Letter
*Course Type:* Lecture
*Credit Hours:* 3
*Restrictions:* Enrollment is limited to Graduate level students.

*Course Level:* Graduate

*Prerequisite(s):* COMP 371 (may be taken concurrently) or COMP 444 (may be taken concurrently) or CHBE 363 (may be taken concurrently) or CHBE 420 (may be taken concurrently) or CHBE 420 (may be taken concurrently)

*Description:* Fundamental concepts of fluid mechanics are essential to solving many problems in the physical sciences and engineering. This course presents the fundamental concepts of fluid mechanics through the prism of computational fluid dynamics. Fluid mechanics problems are governed by partial differential equations that are solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, CEVE 554. Graduate/Undergraduate Equivalency: MECH 454. Mutually Exclusive: Cannot register for MECH 554 if student has credit for MECH 454.

MECH 554 - COMPUTATIONAL FLUID MECHANICS

*Short Title:* COMPUTATIONAL FLUID MECHANICS
*Department:* Mechanical Engineering
*Grade Mode:* Standard Letter
*Course Type:* Lecture
*Credit Hours:* 3
*Restrictions:* Enrollment is limited to Graduate level students.

*Course Level:* Graduate

*Prerequisite(s):* (MECH 454 or BIOE 454 or CEVE 454) or (MECH 554 or BIOE 554 or CEVE 554)

*Description:* This course will cover the fundamental concepts of fluid mechanics, including spatial discretization and numerical integration in multidimensions, time-integration, and solution of nonlinear ordinary differential equation systems. Advanced numerical stabilization techniques designed for fluid mechanics problems. Strategies for solution of complex, real-world problems. Topics in large-scale computing, parallel processing, and visualization. Prerequisites may be taken concurrently. Additional work required. Cross-list: BIOE 554, CEVE 554. Graduate/Undergraduate Equivalency: MECH 454. Mutually Exclusive: Cannot register for MECH 554 if student has credit for MECH 454.

MECH 555 - COMPUTATIONAL FLUID-STRUCTURE INTERACTION

*Short Title:* COMPUTATIONAL FSI
*Department:* Mechanical Engineering
*Grade Mode:* Standard Letter
*Course Type:* Lecture
*Credit Hours:* 3
*Restrictions:* Enrollment is limited to Graduate level students.

*Course Level:* Graduate

*Prerequisite(s):* (MECH 454 or Bioe 454 or Ceve 454) or (MECH 554 or Bioe 554 or Ceve 554)

*Description:* This course will cover the fundamental concepts of fluid mechanics and fluid-structure interaction (FSI) computations. Finite element methods for flows with moving interfaces; space-time techniques. Fluid-structure interface projection techniques. Mesh moving and remeshing techniques. FSI coupling techniques for fluid, structure, and mesh equation blocks. FSI computation sequences. FSI contact algorithms, multiscale FSI, cardiovascular FSI, and parachute FSI.
MECH 560 - TRIBOLOGY: THE STUDY OF FRICTION, LUBRICATION, AND WEAR  
Short Title: TRIBOLOGY  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Tribology is the interdisciplinary study of interacting surfaces from the nanoscale to the macro-scale. These surfaces undergo friction and wear and sometimes, have fluids between them for lubrication. This course will occur mainly in two parts: (i) Contact Mechanics, (ii) Hydrodynamic (fluid) lubrication. Fundamental topics include friction, wear, heat transfer within interfaces, thin-film lubrication and computational Tribology.

MECH 572 - AEROSPACE SYSTEMS ENGINEERING  
Short Title: AEROSPACE SYSTEMS ENGINEERING  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Integration of engineering problem solving methodologies based on systems concepts. Applications to complex, large scale aerospace systems and problems faced by engineering managers. Recommended Prerequisite(s): MECH 472 and MECH 594.

MECH 573 - ADVANCED FLUID MECHANICS I  
Short Title: ADVANCED FLUID MECHANICS I  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Additional work required. Graduate/Undergraduate Equivalency: MECH 473. Mutually Exclusive: Cannot register for MECH 573 if student has credit for MECH 473.

MECH 574 - TURBULENCE  
Short Title: TURBULENCE  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of the fundamentals of fluid dynamic turbulence including origins, nature, turbulent transport of momentum and heat, statistical description, spectral dynamics, and numerical modeling.

MECH 575 - INTRODUCTION TO HYDRODYNAMIC STABILITY  
Short Title: INTRO HYDRODYNAMIC STABILITY  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to linear and nonlinear instabilities that cause transition from laminar to turbulent flows in thermos-fluid systems. The physics of various canonical instability mechanisms and the mathematical and numerical frameworks common in stability analysis are discussed. Examples from industrial, geophysical, environmental, and astrophysical flows are presented. Recommended Prerequisite(s): MECH 371 or CEVE 363 or ESCI 460 or CAAM 436 or CHBE 401. Repeatable for Credit.

MECH 576 - STRUCTURAL DYNAMIC SYSTEMS  
Short Title: STRUCTURAL DYNAMIC SYSTEMS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to structural dynamic systems. Linear SDOF and MDOF systems, undamped and damped systems, free and forced vibration, dynamic response to periodic and arbitrary excitations, numerical evaluation of dynamic response, response spectrum and modal analysis. Additional topics for graduate version 576: Linear systems theory, transform methods, state space methods, feedback control, observers and identification. Applications using MATLAB. Demonstrations and laboratory examples. Students will be required to do more advanced assignments and a project. Cross-list: CEVE 576. Recommended Prerequisite(s): (CEVE 521 or CIVI 521 or MECH 502) and (CEVE 527 or CIVI 527).

MECH 578 - ORBITAL MECHANICS AND MISSION DESIGN  
Short Title: ORBITAL MECHANICS AND MISSION  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MECH 343  
Description: Develop an understanding of orbital mechanics. Obtain a detailed knowledge of the two-body problem and its solutions with applications to geocentric orbits and interplanetary transfers. Understand the concept of impulsive thrusting and its use in orbital transfers including plane changes. Obtain a knowledge of time-of-flight relations on two-body trajectories, using both classical and universal variables.
MECH 579 - LAUNCH VEHICLE AND SPACECRAFT DESIGN
Short Title: LV AND SPACECRAFT DESIGN
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the design of launch vehicles and spacecraft, including the impacts of the atmosphere and the space environment on requirements and configurations. The principles and design aspects of the structure, propulsion, power, thermal, communication, and control subsystems will be examined.

MECH 580 - MECHANICS AND KINEMATICS OF RESPIRATORY MUSCLE IN OBESITY
Short Title: RESPIRATORY MECH IN OBESITY
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course is designed to understand unique aspects of remodeling the respiratory system mechanics in obesity. Focus will be on remodeling of diaphragm muscle and chest wall as a consequence of obesity. In particular, alteration in the kinematics and mechanics of the diaphragm in obese subjects will be evaluated.

MECH 581 - MICRO AND NANO HEAT TRANSPORT METHODOLOGIES AND DESIGN
Short Title: MICRO & NANO HEAT TRANSFER
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering or Materials Science & NanoEng. Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 481

MECH 582 - CONVECTIVE HEAT TRANSFER
Short Title: CONVECTIVE HEAT TRANSFER
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Rigorous study of the transfer of heat by free and forced convection. Graduate/Undergraduate Equivalency: MECH 482. Mutually Exclusive: Cannot register for MECH 582 if student has credit for MECH 482.

MECH 584 - MICROSCOPIC THERMODYNAMICS AND TRANSPORT
Short Title: MICRO THERMO & TRANSPORT
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces concepts in statistical mechanics and non-equilibrium thermodynamics that are used to understand the physical mechanisms of heat transfer, particularly in micro/nanoscale systems. Emphasis is placed on energy storage and thermal transport by electrons, phonons, molecules, and photons. Topics include the kinetic theory of gases, thermodynamic distribution functions, energy carrier dispersion relations, Boltzmann equation modeling of thermal and electrical properties, size effects (classical and quantum-mechanical) on material properties, and thermoelectric energy conversion. Graduate/Undergraduate Equivalency: MECH 484.

MECH 586 - RESPIRATORY SYSTEM MECHANICS
Short Title: RESPIRATORY SYSTEM MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mechanics of ventilation, respiratory muscle mechanics, rib cage mechanics, mechanical coupling between the respiratory muscles and the rib cage, and inferences on mechanics from respiratory muscle anatomy. The class will meet in the Pulmonary Division at Baylor College of Medicine in the Texas Medical Center. Cross-list: BIOE 586.
MECH 587 - INTERFACIAL PHENOMENA, CAPILLARITY, AND WETTING
Short Title: CAPILLARITY AND WETTING
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide the fundamental knowledge required for students to analyze, model, and design systems based on interfacial phenomena, with applications including wetting, enhanced oil recovery, cosmetics, pharmaceuticals, microfluidic devices, phase change heat transfer, and even everyday food and drink. After completing this course, students will exhibit a strong understanding of surface tension and surface energy, adsorption and adhesion, surface-tension-driven flows, capillarity, capillary instabilities, contact angle, fluid spreading, wetting of textured surfaces leading to superhydrophobicity and superhydrophilicity, and self-cleaning surfaces. Recommended Prerequisite(s): MECH 200 (or equivalent) and MECH 371 (or equivalent)
Course URL: N/A (http://N/A)

MECH 588 - DESIGN OF MECHATRONIC SYSTEMS
Short Title: DESIGN OF MECHATRONIC SYSTEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Additional work required. Graduate/Undergraduate Equivalency: MECH 488. Mutually Exclusive: Cannot register for MECH 588 if student has credit for MECH 488.

MECH 589 - MICROFLUIDICS: FUNDAMENTALS AND APPLICATIONS
Short Title: MICROFLUIDICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course presents an introduction to microfluidics, including theoretical analysis of microscale flows, basic understanding of microscale properties, fabrication processes for microfluidic devices and an overview of common applications, many of which are relevant for bioprocessing and biodetection. Basic understanding of physics, chemistry, intermediate calculus and fluid mechanics is required. Additional work required for Graduate course. Graduate/Undergraduate Equivalency: MECH 489.

MECH 590 - AEROSPACE PROPULSION
Short Title: AEROSPACE PROPULSION
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Aspects of one-dimensional compressible flow, including isentropic flow and normal shocks; effects of friction and combustion; analysis and design of and air-breathing and rocket engines, including performance and cycle analysis; flow in nozzles, diffusers, compressors, and turbines; combustion chamber processes and propellants.

MECH 591 - GAS DYNAMICS
Short Title: GAS DYNAMICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371
Description: Study of the fundamentals of compressible, one-dimensional gas flows with area change, normal shocks, friction, and heat addition. Includes oblique shocks, Prandtl-Meyer flows expansions, and numerical techniques.

MECH 592 - DESIGN FOR AEROSPACE ENVIRONMENTS
Short Title: AEROSPACE ENVIRONMENTS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate course on aerospace environments, including theoretical bases. Topics include key mission phases, orbital mechanics, the effects of the sun, plasma, particles and ionizing radiation, neutral atmosphere, contamination, micrometeoroid/orbital debris, thermal and aerothermal environments. Extraterrestrial environments are briefly discussed.

MECH 593 - MECHANICAL ENGINEERING PROBLEMS
Short Title: MECH ENGINEERING PROBLEMS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An approved investigation or design project under the direction of a member of the staff. Open only to mechanical engineering majors. Repeatable for Credit.

MECH 594 - INTRODUCTION TO AERONAUTICS
Short Title: INTRODUCTION TO AERONAUTICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MECH 371
Description: Development of theories for the prediction of aerodynamic forces and moments acting on airfoils, wings, and bodies. Includes their design applications.
MECH 595 - MODELING TISSUE MECHANICS  
Short Title: MODELING TISSUE MECHANICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Independent study and seminar course which focuses on modeling the mechanical properties of biological tissues. Data from experiments will be used to refine the predictions of nonlinear mathematical computer models. Aimed at juniors, seniors, and graduate students. Laboratory work performed at Baylor College of Medicine, computer work at Rice University. Cross-list: BIOE 595.

MECH 596 - INTRODUCTION TO ROBOTICS  
Short Title: INTRO TO ROBOTICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Additional work required for Graduate course. Cross-list: COMP 598, ELEC 598. Graduate/Undergraduate Equivalency: MECH 498. Mutually Exclusive: Cannot register for MECH 498 if student has credit for MECH 497.

MECH 597 - NEUROMUSCULOSKELETAL MODELING AND SIMULATION  
Short Title: NEUROMUSCULOSKELETAL SIMULATION  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to computer modeling and simulation of the human neuromusculoskeletal system. Topics include measurement of human movement, 3D kinematic modeling, inverse and forward dynamic simulations, muscle and joint contact force estimation, and neural control modeling. Programming proficiency in Matlab required. Additional work required for Graduate course. Graduate/Undergraduate Equivalency: MECH 497. Mutually Exclusive: Cannot register for MECH 597 if student has credit for MECH 497.

MECH 598 - INTRODUCTION TO ROBOTICS  
Short Title: INTRO TO ROBOTICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to the kinematics, dynamics, and control of robot manipulators and to applications of artificial intelligence and computer vision in robotics. Additional work required for Graduate course. Cross-list: COMP 598, ELEC 598. Graduate/Undergraduate Equivalency: MECH 498. Mutually Exclusive: Cannot register for MECH 598 if student has credit for MECH 498.

MECH 599 - CURRENT TOPICS IN MECHANICAL ENGINEERING  
Short Title: SPECIAL TOPICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Designed for senior and graduate level students. Lectures in areas of current interest in mechanical engineering. Topics may vary from term to term. Fall 2019, Section 003: This course focuses on numerical techniques for solving partial differential equations (PDEs) including the full incompressible Navier-Stokes equations. Several spatial-temporal discretization methods will be taught, primarily the finite difference method, but also moderate exposure to the finite volume method, and light exposure to the finite element method. Explicit and implicit approaches, in addition to methods to solve linear equations are employed to study fluid flows. A review of various finite difference methods which will be used to analyze elliptic, hyperbolic, and parabolic partial differential equations and the concepts of stability, consistency and convergence are taught to familiarize the students with general numerical PDE methods. Commercial computational fluid dynamics (CFD) software used in the field will be briefly introduced. Repeatable for Credit.

MECH 601 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1-9  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Topics may vary. Please consult with the department for additional information. FA 2016, Section 001: Special Topics: Advanced Topics and Tools in Particle Flows & Tribology. Instructor Permission Required.

MECH 602 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 1-9  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Topics may vary. Please consult with the department for additional information.

MECH 606 - GRADUATE SEMINAR  
Short Title: GRADUATE SEMINAR  
Department: Mechanical Engineering  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.
MECH 611 - INDEPENDENT STUDY  
Short Title: INDEPENDENT STUDY  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MECH 612 - INDEPENDENT STUDY  
Short Title: INDEPENDENT STUDY  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MECH 620 - FUNDAMENTALS OF CONTROL SYSTEMS  
Short Title: FUNDAMENTALS OF CONTROL SYST  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Linear systems and the fundamental principles of classical feedback control, state variable analysis of linear dynamic systems, stability of linear control systems, time-domain analysis and control of linear systems, root-locus analysis and design and pole-zero synthesis, frequency domain techniques for the analysis and design of control systems. Required for mechanical engineering majors in B.S. program. Additional work required for MECH 620. Cannot be taken if MECH 420 or ELEC 436 was previously taken. Instructor Permission Required. Graduate/Undergraduate Equivalency: MECH 420. Mutually Exclusive: Cannot register for MECH 620 if student has credit for MECH 420.

MECH 621 - M.M.E. RESEARCH PROJECT I  
Short Title: M.M.E. RESEARCH PROJECT I  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This is the first part of the M.M.E. research project course. The faculty advisor, taking into account the background and research interests of the student as well as the research interests of the faculty advisor, will determine the contents. Course requirements will include a final report. Instructor Permission Required.

MECH 622 - M.M.E. RESEARCH PROJECT II  
Short Title: M.M.E. RESEARCH PROJECT II  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This is the second part of the M.M.E. research project and continuation of MECH 621. Course requirements will include a final report.

MECH 622 - M.M.E. RESEARCH PROJECT II  
Short Title: M.M.E. RESEARCH PROJECT II  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MECH 624 - NONLINEAR DYNAMIC BEHAVIOR IN MECHANIC SYSTEMS AND STRUCTURES  
Short Title: NONLINEAR DYNAMICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MECH 502  
Description: Nonlinear vibrations are studied in structural and mechanical systems. Methods for the qualitative and quantitative analysis of these systems are applied. The classification and stability of equilibrium and periodic solutions are discussed for continuous time systems and discrete maps. Floquet theory and Poincare maps are used to study periodic behavior.

MECH 665 - ANALYSIS OF VIBRATIONS IN NONLINEAR SYSTEMS  
Short Title: NONLINEAR VIBRATIONS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MECH 502  
Description: Nonlinear vibrations are studied in structural and mechanical systems. Methods for the qualitative and quantitative analysis of these systems are applied. The classification and stability of equilibrium and periodic solutions are discussed for continuous time systems and discrete maps. Floquet theory and Poincare maps are used to study periodic behavior.

MECH 667 - NONLINEAR DYNAMIC BEHAVIOR IN MECHANIC SYSTEMS AND STRUCTURES  
Short Title: NONLINEAR DYNAMICS  
Department: Mechanical Engineering  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MECH 502  
Description: Various types of nonlinear dynamic behavior are studied in mechanical systems and structures. The course will focus mainly on quasi-periodic and chaotic behavior but will also include periodic behavior. Modeling and analysis methods will be discussed for both discrete and continuous time systems including Lyapunov exponents and pseudo-state space. Recommended Prerequisite(s): MECH 665
MECH 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MECH 678 - APPLIED STOCHASTIC MECHANICS
Short Title: APPLIED STOCHASTIC MECHANICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Nonlinear random vibrations, Statistical Linearization, ARMA filters modeling, Monte Carlo Simulation, Wiener-Volterra series, time-variant structural reliability, and Stochastic Finite Elements are presented from a perspective of usefulness to aerospace, civil, marine, and mechanical applications. Cross-list: CEVE 678.

MECH 679 - APPLIED MONTE CARLO ANALYSIS
Short Title: APPLIED MONTE CARLO ANALYSIS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Probability density and power spectrum based simulation concepts and procedures are discussed. Scalar and vectorial simulation are addressed. Spectral decomposition and digital filter algorithms are presented. Applications from aerospace, earthquake, marine, and wind engineering, and from other applied science disciplines are included. Cross-list: CEVE 679.

MECH 683 - RADIATIVE HEAT TRANSFER I
Short Title: RADIATION HEAT TRSF I
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Rigorous study of the transfer of heat by radiant exchange in the absence of absorbing media.

MECH 691 - INTRODUCTION TO HYPERSONIC AERODYNAMICS
Short Title: INTRO TO HYPERSONICS
Department: Mechanical Engineering
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Recommended Prerequisite(s): MECH 591.

MECH 800 - RESEARCH AND THESIS
Short Title: RESEARCH AND THESIS
Department: Mechanical Engineering
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-12
Restrictions: Enrollment is limited to students with a major in Mechanical Engineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

Medieval/Early Modern Studies (MDEM)

MDEM 101 - ELEMENTARY LATIN I
Short Title: ELEMENTARY LATIN I
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of the fundamentals of Latin grammar with emphasis on acquisition of reading skills. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: LATI 101.

MDEM 102 - ELEMENTARY LATIN II
Short Title: ELEMENTARY LATIN II
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 101 or MDST 101
Description: Continuation of LATI 101 and MDST 101. Graduate students require permission of instructor. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: LATI 102.

MDEM 103 - INTRODUCTION TO JEWISH MYSTICISM
Short Title: INTRO TO JEWISH MYSTICISM
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Surveys the historical development and central themes of Jewish mysticism. From the bible to ancient mysticism to medieval Kabbalah to modern expressions, we will critically reflect the ideas such as divine presence in the world, the cultivation of insight and magical powers, contemplative and restorative practices, and charismatic authority. Cross-list: RELI 104.
MDEM 105 - INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT
Short Title: MEDIEVAL CHRISTIAN THOUGHT
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of major medieval Christian thinkers. Primary focus on high and late middle ages (12th-15th century), with some attention to spiritual and apocalyptic writings and dissenting thought in this period. Cross-list: RELI 105.

MDEM 111 - INTRODUCTION TO THE HISTORY OF WESTERN ART I: ANTIQUITY TO GOThic
Short Title: INTRO TO HIST OF WESTERN ART I
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: CLAS 102, HART 101. Mutually Exclusive: Cannot register for MDEM 111 if student has credit for HART 220.

MDEM 116 - MYSTICISM THROUGHOUT THE AGES
Short Title: MYSTICISM THROUGHOUT THE AGES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: RELI 116.

MDEM 120 - MEDIEVAL CIVILIZATIONS
Short Title: MEDIEVAL CIVILIZATIONS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of painting, sculpture, and architecture from Antiquity through the 15th century. Cross-list: CLAS 102, HART 101. Mutually Exclusive: Cannot register for MDEM 111 if student has credit for HART 220.

MDEM 205 - MEDIEVAL MEDITERRANEAN WORLD
Short Title: MEDIEVAL MEDITERRANEAN WORLD
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Course examines the political, institutional, military, and cultural development of the societies that successively dominated the "Middle Sea" from AD 500-1500 in Europe and the Islamic World. It highlights the Mediterranean legacy of commercial, cultural, and religious exchange and coexistence, as well as its history of confrontation and warfare. Cross-list: HIST 205.

MDEM 210 - MEDIEVAL VIOLENCE
Short Title: MEDIEVAL VIOLENCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Discussion course looks at private and large-scale warfare during the European Middle Ages. It considers how violence was legitimized and carried out, and examines attitudes towards violence and its effects on society. Topics include theoretical approaches to violence, crusading, chivalry, Truce of God, rituals of violence, military technologies, and cinematic portrayals of medieval warfare. Cross-list: HIST 211.

MDEM 211 - INTERMEDIATE LATIN I: PROSE
Short Title: INTERMEDIATE LATIN I: PROSE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Review of grammar and readings in Latin prose. Cross-list: LATI 201.
MDEM 212 - INTERMEDIATE LATIN II
Short Title: INTERMEDIATE LATIN II
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): LATI 201 or MDST 211

MDEM 222 - MEDIEVAL AND RENAISSANCE ERAS
Short Title: MEDIEVAL AND RENAISSANCE ERAS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): MUSI 211 or MUSI 317
Description: Introduction to the study of Western music history, with emphasis on music before 1600. Score reading ability required. Cross-list: MUSI 222.

MDEM 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MDEM 271 - MEDIEVAL POPULAR CHRISTIANITY
Short Title: MEDIEVAL POPULAR CHRISTIANITY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For much of the Middle Ages, literacy was a luxury that ordinary people could not afford. How could peasants participate in Christian traditions? Course surveys devotional practices engaged by the laity, including penance, pilgrimage, plays, charms and spells, as well as traditions of lay interaction with dead saints and ghosts. Cross-list: RELI 271.

MDEM 281 - GOLDEN AGE OF ISLAM
Short Title: GOLDEN AGE OF ISLAM
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the Islamic World from the 8th century to the 13th century. Topics include conquests and classical Islamic states, Arabization, Jewish and Christian communities, impact of Turkic peoples, and the Ottoman Empire, with emphasis on social, cultural, artistic, and scientific trends that shaped the region's history. Cross-list: HIST 281.

MDEM 306 - DISABILITY IN THE MEDIEVAL AND EARLY MODERN WORLD
Short Title: DISABILITY IN MED & EARLY MOD
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A study of disability and impairment during the medieval and early modern periods. Students will approach the subject through primary and secondary readings, including theoretical tests on disability studies and the humanities.

MDEM 308 - THE WORLD OF LATE ANTIQUITY
Short Title: THE WORLD OF LATE ANTIQUITY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the social, religious, and political history of the Roman world from Diocletian to the rise of Islam, with emphasis on the breaking of the unity of the Mediterranean world and the emergence of early medieval societies in the east and west. Cross-list: HIST 308.

MDEM 311 - THE ARCHAEOLOGY OF AFRICA
Short Title: THE ARCHAEOLOGY OF AFRICA
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Thematic coverage of developments throughout the continent from the Lower Paleolithic to medieval times, with emphasis on food production, metallurgy and the rise of cities and complex societies. Cross-list: ANTH 312.
MDEM 312 - OLD ENGLISH LITERATURE AND LANGUAGE
Short Title: OLD ENGL LIT AND LANGUAGE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey course in Old English literature and language. Cross-list: ENGL 312. Repeatable for Credit.

MDEM 316 - CHAUCER
Short Title: CHAUCER
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain’s three religious communities - Christians, Jews, and Muslims. Cross-list: ASIA 323, HART 323.

MDEM 320 - DIRECTED READING IN MEDIEVAL STUDIES
Short Title: DIRECTED READING MEDIEVAL STDY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Student works one-on-one with an individual faculty member on a topic directly related to Medieval Studies. Instructor Permission Required.

MDEM 323 - BUDDHIST AND DAOIST ART IN CHINA
Short Title: BUDDHIST & DAOIST ART IN CHINA
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual materials that shed light on pre-modern China's Buddhist, Daoist, and other diverse religious and ritual practices. We will examine the range of social and ethnic backgrounds that participated in the making, spreading, and use of religious visual culture in traditional China. Topics may include: funeral art and ritual; images of heaven, hell, and rebirth; and representations of gender, among others. Students will develop analytical skills, critical thinking skills, and holistic views regarding the meaning, function, and style of the arts of diverse religious traditions in China. Cross-list: ASIA 323, HART 323.

MDEM 324 - CONFLICT AND COEXISTENCE IN MEDIEVAL SPAIN
Short Title: COEXISTENCE IN MEDIEVAL SPAIN
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores the history of the Iberian Peninsula from late Antiquity to the early 16th century, focusing on coexistence and conflict between medieval Spain’s three religious communities - Christians, Jews, and Muslims. Cross-list: HIST 324.

MDEM 327 - EUROPEAN FRONTIER SOCIETIES
Short Title: MEDIEVAL BORDERLANDS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Courses examines the military, political, social and cultural developments on the European frontiers between 500-1500 AD. Topics include colonization and conquest, crusades and Spanish Reconquista, piracy, slavery, encounters with native peoples, spread of Christianity, medieval colonial regimes, map-making and cultural exchanges. Cross-list: HIST 327.
MDEM 330 - EARLY MEDIEVAL ART
Short Title: EARLY MEDIEVAL ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of art and architecture produced in the late Romanesque period. This course begins with a study of the art and architecture of the Ostrogoths, Visigoths, Lombards, Celts, Anglo-Saxons, Franks, and Merovingians, and the transformation of Roman World through new Germanic, Barbarian, and Christian forces. The second part of the course considers the cultural Renaissance of the Carolingian and Ottonian Periods under rulers such as Charlemagne and Otto III. The last third of the course focuses on themes of pilgrimage, relics, crusades and the emergence of new monumental tradition in art and architecture during the Romanesque Period. Cross-list: HART 330.

MDEM 331 - GOTHIC ART
Short Title: GOTHIC ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the full array of sacred art and architecture produced in the early and high gothic periods in northern Europe. Includes cathedral architecture, sculpture, stained glass, manuscripts, and metalwork studies in relationship to the expansion of royal and Episcopal power. Cross-list: HART 331.

MDEM 332 - ART OF THE COURTS
Short Title: ART OF THE COURTS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of art and architecture produced in the late gothic period within three distinct settings-the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, city hall and hospital, and the chapel and parish church. Cross-list: HART 332.

MDEM 340 - NORTHERN RENAISSANCE ART
Short Title: NORTHERN RENAISSANCE ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the works of the greatest painters and sculptors in Europe during the Baroque period. Includes Rembrandt, Rubens, Caravaggio, Poussin, Claude, and Velazquez. Cross-list: HART 340.

MDEM 343 - MASTERS OF THE BAROQUE ERA
Short Title: MASTERS OF THE BAROQUE ERA
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the full array of sacred art and architecture produced in the late Gothic period within three distinct settings-the court, the city, and the church. Includes private, public, and religious life as expressed in the objects, architecture, and decoration of the castle and palace, the house, city hall and hospital, and the chapel and parish church. Cross-list: HART 332.

MDEM 350 - DEMONS, MENTAL ILLNESS AND MEDICINE
Short Title: DEMONS/MENTAL ILLNESS/MEDICINE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Treats complex connections between religious beliefs/practices and formulation of human psychology in western tradition, through a historical reckoning with demonology. Consider the way demons are represented – from semi-corporeal beings to marks of mental illness – by looking at texts from the ancient world to modern psychiatry. Cross-list: RELI 350.

MDEM 357 - JEWS AND CHRISTIANS IN MEDIEVAL EUROPE
Short Title: JEWS & CHRISTIANS-MEDIEVAL EUR
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will focus on Jewish-Christian coexistence in medieval Europe. Will examine the Jews’ legal status in Christendom, their communal life, economic activities, intellectual achievements, while also focusing on the complex dynamics of Jewish-Christian interaction, and the shifting patterns of persecution and acceptance. Cross-list: HIST 357.
### MDEM 370 - INTRODUCTION TO TRADITIONAL CHINESE POETRY

**Short Title:** INTRO TO TRAD CHINESE POETRY  
**Department:** Medieval/Early Modern Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course seeks to decode enchanting features of traditional Chinese poetry through examining the transformation of poetic genres, the interaction between poetic creation and political, social and cultural changes, and the close association of poetry with art. Thus, this course also serves to understand Chinese culture and history through poetic perspectives. All readings in English translation. Cross-list: ASIA 330, CHIN 330.

### MDEM 373 - CHINESE ART AND VISUAL CULTURE

**Short Title:** CHINESE ART AND VISUAL CULTURE  
**Department:** Medieval/Early Modern Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Chinese Art and Visual Culture is an introductory seminar studying the history of traditional Chinese art and visual culture from ancient times to the nineteenth century. This course draws upon masterpieces and monuments from both archaeological finds and museum collections, including bronze vessels, funeral objects, painting, calligraphy, sculptures, architecture, ceramics, and so on. Designed for students who have no background in Chinese art, Chinese history, or art history, the seminar uses diverse teaching materials in multiple media beyond traditional textbook-based readings to achieve four main goals: 1) Develop visual literacy through a direct encounter with objects. The development of specialized vocabulary to describe, analyze, and communicate function, composition, and meaning in art. 2) Understand major artistic movements of art and architecture within historical, social, political contexts. 3) Develop specialized knowledge in art from specific geographical locations (e.g. China), time periods, artists or artistic movements. 4) Evaluate and use primary and secondary source materials. Cross-list: ASIA 372, HART 372.

### MDEM 375 - INTRODUCTION TO CLASSICAL CHINESE NOVELS

**Short Title:** CLASSICAL CHINESE NOVELS  
**Department:** Medieval/Early Modern Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Examination of the basic characteristics of classical Chinese novels, primarily through six important works from the 16th to 18th centuries: Water Margin, Monkey, Golden Lotus, Scholars, Romance of the Three Kingdoms, and Dream of the Red Chamber. All readings in English translation. Cross-list: ASIA 335, CHIN 335.

### MDEM 376 - EAST & WEST: MEDIEVAL VISUAL CULTURE IN CHINA AND NORTHERN EUROPE

**Short Title:** EAST AND WEST  
**Department:** Medieval/Early Modern Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course explores a series of issues that are critically important for the medieval art of both China and northern Europe. Topics include materials and techniques; public and private art: commerce, technology and prints; art and motion; archaeology; paradise and hell; maps and space; the gaze; erotica; patronage; and multiculturalism. Cross-list: ASIA 376, HART 376.

### MDEM 377 - MEDIEVAL MANUSCRIPTS

**Short Title:** MEDIEVAL MANUSCRIPTS  
**Department:** Medieval/Early Modern Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This seminar explores illuminated European manuscripts from late antiquity through the early sixteenth century. It examines manuscripts’ functions, patrons, makers, and materials and technique, as well as such issues as the relationship between text and image and the manuscript’s ideological stance. Students have the opportunity to study original medieval illuminations. Cross-list: HART 377.

### MDEM 378 - DUTCH ART IN THE AGE OF REMBRANDT

**Short Title:** DUTCH ART IN AGE OF REMBRANDT  
**Department:** Medieval/Early Modern Studies  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will examine Dutch and Flemish seventeenth-century art, including major masters, such as Rembrandt, Rubens, and Vermeer, and major developments, such as the rise of still life, genre, and landscape painting. Cross-list: HART 378.
MDEM 379 - WOMEN IN CHINESE LITERATURE
Short Title: WOMEN IN CHINESE LITERATURE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women's roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women's lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women's incorporation of the Western Tradition. Cross-list: ASIA 399, SWGS 399.

MDEM 391 - THE REFORMATION & ITS RESULTS
Short Title: THE REFORMATION & ITS RESULTS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group 1
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theology and church-state issues from 16th-century Reformation to 17th-century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Cross-list: RELI 391. Mutually Exclusive: Cannot register for MDEM 391 if student has credit for RELI 286.

MDEM 398 - INDEPENDENT STUDY IN MEDIEVAL AND EARLY MODERN STUDIES
Short Title: INDEPENDENT STUDY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study reading, or special research in medieval and early modern studies. Repeatable for Credit.

MDEM 402 - MIDDLE HIGH GERMAN
Short Title: MIDDLE HIGH GERMAN
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the phonology and morphology of Middle High German, such as will prepare students to read 'Tristan', 'Parzifal', and the 'Niebelungenlied', as well as the great lyric poets of that period. Emphasis will be on pronunciation and grammatical distinctions between Middle High and Modern High German as well as on the diverging semantic developments of the two vocabularies.

MDEM 404 - BEGINNINGS OF THE LANGUAGE AND LITERATURE OF FRANCE
Short Title: THE LANG AND LIT OF FRANCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course includes and external history of the French language, an examination of hagiographic literature and the chanson de geste in their cultural and artistic contexts, as well as bibliographic component to acquaint the students with library tools available for research emphasizing medieval resources but not excluding those for later periods. Student will acquire a reading knowledge of Old French. Course taught in French. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: FREN 404. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

MDEM 411 - THE LITERARY AND HISTORICAL IMAGE OF THE MEDIEVAL WOMAN
Short Title: LIT & HIST IMAGE MED WOMAN
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FREN 311 or FREN 312
Description: Comparison and contrast of the presentation of the medieval woman in literature with evidence of historical women from contemporary documents and records.

MDEM 425 - COURTLY LOVE IN MEDIEVAL FRANCE
Short Title: COURTLY LOVE MEDIEVAL FRANCE
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the Occitan and Old French poetry that served as the source of the kind of love that came to be called "Amour courtois" in the nineteenth century. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: FREN 415. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

MDEM 427 - TOPICS IN EARLY MUSIC
Short Title: TOPICS IN EARLY MUSIC
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description:
MDEM 431 - ARCHITECTURE OF THE GOTHIC CATHEDRAL FROM THE MIDDLE AGES TO THE TWENTIETH CENTURY
Short Title: ARCH OF GOTHIC CATHEDRAL
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on one of the most important contributions to the history of western architecture-- the Gothic cathedral. The course will approach the material from a number of different perspectives--the formal and technical development of Gothic architecture; the Medieval architect and the design of Gothic buildings; the social, economic, and political history of "big church" building in the Middle Ages; Gothic architecture as experience and metaphor; and the afterlife of the Gothic cathedral from Vasari to the National Cathedral in Washington, D.C. Cross-list: HART 431.

MDEM 434 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: HART 434, SWGS 434.

MDEM 435 - MULTICULTURAL EUROPE, 1400-1700
Short Title: MULTICULTURAL EUROPE,1400-1700
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The art of Europe was never the product of a single culture working in isolation. This seminar will explore the multicultural aspects of medieval and early modern Europe by focusing on the visual culture of groups who defined themselves or are today defined by nationality, race, or religion. Cross-list: HART 435, HIST 443.

MDEM 436 - LITERATURE AND CULTURE OF THE MIDDLE AGES: KING ARTHUR
Short Title: LIT & CULTURE OF MIDDLE AGES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the origins of the legend of King Arthur and reasons for its popularity, particularly in literature of the French Middle Ages but also in other medieval literatures of Western Europe. Includes discussion of the legend's influence in diverse areas even in modern times. Effective May 15, 2019, this course does not carry D1 credit. Taught in French. Cross-list: FREN 416. Recommended Prerequisite(s): Completion of one 300-level course or permission of instructor

MDEM 444 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Cross-list: RELI 444.

MDEM 456 - COLLEGIUM MUSICUM
Short Title: COLLEGIUM MUSICUM
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Performance of music up to the early 17th century. Does not count as chamber music. Instructor permission required. Repeatable for credit. Instructor Permission Required. Cross-list: MUSI 436. Repeatable for Credit.

MDEM 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
MDEM 478 - MEDIEVAL STUDIES
Short Title: MEDIEVAL STUDIES
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Special Topics in medieval Europe comparative literature. Repeatable for Credit.

MDEM 481 - ANCIENT AND MEDIEVAL PHILOSOPHY
Short Title: ANCIENT & MEDIEVAL PHILOSOPHY
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics in the history of philosophy from the 4th century B.C. through the 14th century. Mutually Exclusive: Cannot register for MDEM 481 if student has credit for CLAS 301/MDEM 301/MDST 301/PHIL 301.

MDEM 494 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate Medieval and Early Modern Studies majors who wish to write a senior thesis. Students may enroll in MDEM 494 only with consent of a faculty advisor and the program director, and only if they intend to enroll in MDEM 495 as well. Senior Thesis is a year-long research course. Applicants will normally be required to have completed courses relevant to the proposed thesis topic (e.g. English, History, Art History, etc.), to be determined by the thesis advisor. Instructor Permission Required.

MDEM 495 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Medieval/Early Modern Studies
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MDEM 494
Description: Independent research course for undergraduate Medieval and Early Modern Studies majors who wish to write a senior thesis. Students may enroll in MDEM 495 only with consent of a faculty advisor and the program director, and only if they enrolled in MDEM 494 in the previous semester. Senior Thesis is a year-long research course. Instructor Permission Required.

Mgmt Integrated Crse Offering (MICO)

MICO 601 - CRITICAL THINKING AND STRATEGIC DECISION MAKING
Short Title: CRITICAL THINKING & DECISION
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MICO 602 - CUSTOMER FOCUS PRODUCT MANAGEMENT FOR OILFIELD SERVICES FIRMS
Short Title: CUSTOMER FOCUS PRODUCT MGMT
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Understanding customer needs, and developing products that successfully meet those needs is a cornerstone of success for oilfield services firms. Products in such firms may range from nuts and bolts to multi#million dollar rigs. How should firms ensure that their products, processes, people, and pricing strategies are aligned to customer needs? The course will introduce a strategic framework that can enable firms to become customer focused, gain competitive advantage, become financially disciplined, and develop strategic focus. Case studies and articles from business press will be used to illustrate the key concepts. Department Permission Required.

MICO 603 - STRATEGIC DESIGN AND MANAGEMENT OF LOGISTICS DISTRIBUTION NETWORKS FOR THE ENERGY INDUSTRY
Short Title: STRATEGY DGN & MGMT: LOGISTICS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides the necessary quantitative modeling techniques for managers to address logistics problems – that is, finding the least expensive way to transport products from their origin to their destinations. Real logistic problems are often coupled with manufacturing / plant location decisions. We will study both Linear and Non#Linear modeling techniques. Many of these problems have a natural graphical network representation and are part of the minimum cost network flow model. Specific examples of network optimization problems include plant location problems, transportation problems, shortest route problems, maximal flow problems, equipment replacement problems and others. We will develop the basic concepts behind those methodologies with simple examples and then use them to solve complex problems in the oil and gas industry. We will use excel and other appropriate software. Department Permission Required.
Military Science (MILI)

MILI 106 - INTERMEDIATE PHYSICAL FITNESS
Short Title: INTERMEDIATE PHYSICAL FITNESS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Physically demanding. Develops skills through team competition. Land navigation, assembly/disassembly of weapon, tactics, assembly of one-man rope bridge. Students are also required to attend fitness training 5 times a week. Participants compete for Ranger Challenge slots. Selected cadets compete against other teams at the annual Ranger Challenge competition. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Recommended prerequisite(s): Must be ROTC cadet. MUST BE ENROLLED IN ONE OF THE FOLLOWING COURSES: MILI 121, MILI 201, MILI 301 OR MILI 401. Faculty: Al Francis. Repeatable for Credit.

MILI 109 - INTRODUCTION TO PHYSICAL FITNESS
Short Title: INTRO TO PHYSICAL FITNESS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Open to all students. Utilizes Army fitness techniques; develops strength, flexibility and endurance; develops self-confidence through leadership training and physical activities. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Repeatable for Credit.

MILI 121 - INTRODUCTION TO LEADERSHIP
Short Title: INTRODUCTION TO LEADERSHIP
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Principles of effective leadership and reinforcement of self-confidence through participation in physically and mentally challenging training with upper-division ROTC students; develop communication skills to improve individual performance and group interaction. One hour classroom session and a required lab. No military commitment is required for attending this course. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.

MICO 604 - MINDFULNESS AND PERFORMANCE IN HIGH RELIABILITY ORGANIZATIONS
Short Title: MINDFULNESS AND PERFORMANCE
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: While organizations frequently discuss the importance of safety, safety incidents are both commonplace and costly across a number of industries. This course is designed to equip you with tools and insights that will help you and your organization prevent costly, safety-related errors and achieve higher and more reliable performance. Department Permission Required.

MICO 605 - MANAGING FOREIGN MARKET ENTRY FOR THE ENERGY INDUSTRY
Short Title: MANAGING FOREIGN MARKET ENTRY
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 0.75
Restrictions: Enrollment limited to students in the following programs: EMBA MBA PMBA WMBA XMBAA Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The energy industry is global in nature. This course is designed to equip you and your organization with the skills, knowledge and sensitivity required to successfully manage foreign market entries in the energy industry. This course will cover the following issues: (1) how to mitigate political risk in the global environment, (2) how to choose foreign entry strategies, (3) how to manage partnerships with local firms, (4) how to manage relationships with local stakeholders, and (5) the environmental concerns in the global energy industry. The course is structured around cases and newspaper articles to highlight the relevance and applications of the course concepts. We will also have guest speakers from major energy companies to join us and share their experiences and insights.

MICO 606 - POST-MERGER INTEGRATION PROCESS FOR THE ENERGY INDUSTRY
Short Title: POSTMERGER INTEGRATION PROCESS
Department: Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1.5
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The post-merger integration process for the energy industry is critical to the success of the merged entity. This course covers the key steps in the integration process and the challenges that arise when integrating energy companies. Students will gain valuable insights into the integration process and learn how to manage the complexities of merging two large organizations.

MICO 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILI 122</td>
<td>INTRODUCTION TO LEADERSHIP II</td>
<td>Military Science</td>
<td>Standard</td>
<td>Lecture</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Lower-Level</td>
<td>Continuation of MILI 121. One hour classroom session and a required lab. No military commitment is required for attending this course. Course taught at the University of Houston. Must provide CC Form 139-r and DA 3425 to Military Science Dept. at UH prior to attendance. Department Permission Required.</td>
</tr>
<tr>
<td>MILI 123</td>
<td>LEADERSHIP LAB</td>
<td>Military Science</td>
<td>Standard</td>
<td>Laboratory</td>
<td>0</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Lower-Level</td>
<td>Day, evening. This course is designed to prepare students for Leader Development Assessment Course (LDAC). In addition to class, students must attend lab and physical fitness training. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.</td>
</tr>
<tr>
<td>MILI 201</td>
<td>FOUNDATIONS OF LEADERSHIP</td>
<td>Military Science</td>
<td>Standard</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Lower-Level</td>
<td>Continuation of MILI 201. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.</td>
</tr>
<tr>
<td>MILI 202</td>
<td>FOUNDATIONS OF LEADERSHIP II</td>
<td>Military Science</td>
<td>Standard</td>
<td>Lecture</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Lower-Level</td>
<td>Continuation of MILI 201. Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.</td>
</tr>
<tr>
<td>MILI 203</td>
<td>LEADERSHIP LABORATORY</td>
<td>Military Science</td>
<td>Standard</td>
<td>Laboratory</td>
<td>0</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Lower-Level</td>
<td>Course taught at the University of Houston. Must provide CC Form 139-r to Military Science Dept. at UH prior to attendance. Department Permission Required.</td>
</tr>
<tr>
<td>MILI 281</td>
<td>LEADER TRAINING COURSE (LTC)</td>
<td>Military Science</td>
<td>Standard</td>
<td>Seminar</td>
<td>8</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Lower-Level</td>
<td>Four week off campus field training practicum. Introduces students to the Army and Leadership. No military obligation is associated with this course. Course taught at the University of Houston. Department Permission Required.</td>
</tr>
<tr>
<td>MILI 301</td>
<td>ADVANCED LEADERSHIP</td>
<td>Military Science</td>
<td>Standard</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Upper-Level</td>
<td>Leadership training, preparing combat orders, military instruction principles, small unit tactics, and tactical communications. Course is designed to prepare students for Leader Development Assessment Course (LDAC). In addition to class, students must attend lab and physical fitness training. Course taught at the University of Houston. Department Permission Required.</td>
</tr>
</tbody>
</table>
MILI 302 - ADVANCED LEADERSHIP II
Short Title: ADVANCED LEADERSHIP II
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MILI 301. Course taught at the University of Houston. Department Permission Required.

MILI 304 - LEADERSHIP LABORATORY
Short Title: LEADERSHIP LABORATORY
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.

MILI 349 - LEADER DEVELOPMENT ASSESSMENT
Short Title: LEADER DEVELOPMENT ASSESSMENT
Department: Military Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MILI 302
Description: Off campus field training practicum stressing application of leadership management with emphasis on tactical and special military skills. Course taught at the University of Houston. Department Permission Required.

MILI 398 - SPECIAL PROBLEMS
Short Title: SPECIAL PROBLEMS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.

MILI 401 - ADAPTIVE LEADERSHIP
Short Title: ADAPTIVE LEADERSHIP
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MILI 302
Description: Leadership and command, military law, administrative/staff operations and procedures, dynamics of the military team, training management, ethics and professionalism. Prepares students for commissioning as an Army Officer. In addition to class, students must attend lab and physical fitness training. Course taught at the University of Houston. Department Permission Required.

MILI 402 - LEADERSHIP IN A COMPLEX WORLD
Short Title: LEADERSHIP IN A COMPLEX WORLD
Department: Military Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MILI 401
Description: Continuation of MILI 401. Course taught at the University of Houston. Department Permission Required.

MILI 403 - LEADERSHIP LABORATORY
Short Title: LEADERSHIP LABORATORY
Department: Military Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.

MILI 439 - SPECIAL PROBLEMS
Short Title: SPECIAL PROBLEMS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course taught at the University of Houston. Department Permission Required.
MILI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Military Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MUCH 308 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Museums and Cultural Heritage
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Formerly offered as HURC 308/508 and HART 312/540. Mutually exclusive with HURC 308, HURC 508, HART 312, and HART 540. Credit cannot be earned for MUCH 308/508 if either HURC or HART course has been taken previously. Cross-list: HART 312. Graduate/Undergraduate Equivalency: MUCH 508.

MUCH 401 - MASTER CLASS IN CULTURAL HERITAGE
Short Title: MASTER CLASS CULTURAL HERITAGE
Department: Museums and Cultural Heritage
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course consists of a series of sessions with Rice faculty and outside speakers that focus on specific texts to explore important critical questions and debates. There will be 14 master class sessions per term. At the end of the semester, the students will present their own work in a symposium. Formerly offered as HURC 401. Mutually exclusive with HURC 401; credit cannot be earned for both HURC 401 and MUCH 401. Instructor Permission Required. Repeatable for Credit.

MUCH 404 - THE POET AND THE MUSEUM
Short Title: THE POET AND THE MUSEUM
Department: Museums and Cultural Heritage
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research-based course is conducted in partnership with cultural heritage institutions in Houston. Qualified and advanced students work 10 hours/week on site with curators, artists, archivists, center directors, and others to develop projects in specific research areas. Students meet regularly with instructor to discuss research and to present work at an end of semester symposium. Formerly offered as HURC 404. Mutually exclusive with HURC 404; credit cannot be earned for both HURC 404 and MUCH 404.

MUCH 423 - PRACTICUM IN CULTURAL HERITAGE
Short Title: PRACTICUM IN CULTURAL HERITAGE
Department: Museums and Cultural Heritage
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This research-based course is conducted in partnership with cultural heritage institutions in Houston. Qualified and advanced students work 10 hours/week on site with curators, artists, archivists, center directors, and others to develop projects in specific research areas. Students meet regularly with instructor to discuss research and to present work at an end of semester symposium. Formerly offered as HURC 423. If HURC 423 was taken previously, the total number of repetitions is four, whether taken as HURC 423 or MUCH 423. Instructor Permission Required. Repeatable for Credit.

MUCH 508 - ADVANCED STUDY IN MUSEUMS AND HERITAGE: ARTS OF ANCIENT MEDITERRANEAN AT THE MENIL COLLECTION
Short Title: ADV STUDY IN MUSEUMS/HERITAGE
Department: Museums and Cultural Heritage
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to advanced ethical, legal and practical issues facing museums as they acquire and maintain collections from areas prone to looting and destruction, especially the Ancient Mediterranean. We will examine the civic engagement and operation of the Menil Collection through close, on-site archival and object study. Formerly offered as HURC 308/508 and HART 312/540. Mutually exclusive with HURC 308, HURC 508, HART 312, and HART 540. Credit cannot be earned for MUCH 308/508 if either HURC or HART course has been taken previously. Cross-list: HART 312. Graduate/Undergraduate Equivalency: MUCH 308. Mutually Exclusive: Cannot register for MUCH 508 if student has credit for HART 312/HART 540/HURC 308/HURC 508.
Music (MUSI)

MUSI 117 - FUNDAMENTALS OF MUSIC I
Short Title: FUNDAMENTALS OF MUSIC I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For non-music majors with minimal music preparation. Rudiments of pitch and duration. Study of scales, chord structure, tonality, and forms.

MUSI 119 - EXPERIENCING MUSIC, EXPRESSING CULTURE: AN INTRODUCTION TO CHINESE MUSIC
Short Title: INTRODUCTION TO CHINESE MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is an introduction to Chinese music in the context of its historical and cultural evolution. It will explore the music on its own terms and in comparison to Western classical music.

MUSI 125 - TOPICS IN MUSIC THEORY FOR NON-MAJORS
Short Title: TOPICS IN MUS THEORY NONMAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is an umbrella listing for a small number of special topics courses offered to non-music majors. Each one will be a special topic that focuses on a different aspect of music. Each course will have its own syllabus, which will be uploaded when appropriate. FALL 2021, Section 003: For Indians, Pakistanis and other South Asians far from their homelands, native culture forms an essential part of their identity in the new environment. Among first-generation immigrants, traditional South Asian music was an important aspect of cultural retention, while second and later generations have created new musical expressions reflecting their dual identity as descendants of immigrants as well as nationals of their own homeland. This class focuses on the hybrid musical creations of emergent youth cultures, with particular emphasis on Bhangra-pop, the Asian Underground movement in 1990's Britain, and "desi" electronic party music in North America.

MUSI 141 - CLASSICAL GUITAR/NON-MAJOR
Short Title: CLASSICAL GUITAR/NON-MAJOR
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Private instruction on guitar. Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 151 - FLUTE FOR NON-MAJORS
Short Title: FLUTE FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 153 - OBOE FOR NON-MAJORS
Short Title: OBOE FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 155 - CLARINET FOR NON-MAJORS
Short Title: CLARINET FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 157 - BASSOON FOR NON-MAJORS
Short Title: BASSOON FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
<th>Department Permission Required</th>
<th>Repeatable for Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 161</td>
<td>HORN FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 163</td>
<td>TRUMPET FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 165</td>
<td>TROMBONE FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 167</td>
<td>TUBA FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 171</td>
<td>PERCUSSION FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 173</td>
<td>VOICE FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 181</td>
<td>PIANO FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 183</td>
<td>ORGAN FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 187</td>
<td>HARP FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MUSI 191</td>
<td>VIOLIN FOR NON-MAJORS</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
MUSI 193 - VIOLA FOR NON-MAJORS
Short Title: VIOLA FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 195 - VIOLONCELLO FOR NON-MAJORS
Short Title: VIOLONCELLO FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 197 - DOUBLE BASS FOR NON-MAJORS
Short Title: DOUBLE BASS FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Must register with the Shepherd School and the Registrar’s Office by the first week of classes. Department Permission Required. Repeatable for Credit.

MUSI 205 - UNDERGRADUATE PERFORMANCE SEMINAR
Short Title: UG PERFORMANCE SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to students with a major in Bassoon Performance, Cello Performance, Clarinet Performance, Composition, Double Bass Performance, Music History, Horn Performance, Harp Performance, Oboe Performance, Organ Performance, Percussion Performance, Piano Performance, Music Theory, Trombone Performance, Trumpet Performance, Tuba Performance, Music Division, Music, Viola Performance, Violin Performance or Vocal Performance. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to create a dynamic performance experience. Practical exercises that harness, develop and enhance performance skills will be a major focus. Areas of study include efficient practice and performance preparation, confidence on stage, and audience communication. A final performance will incorporate skills developed throughout the semester. NOTE: For Music Majors Only

MUSI 211 - THEORY I
Short Title: THEORY I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Intensive study of the fundamentals of pitch, rhythm, and timbre. Introduction to diatonic harmony and harmonic progression.

MUSI 212 - THEORY II
Short Title: THEORY II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Harmony and counterpoint of the Baroque and Classical Eras.

MUSI 220 - SURVEY OF WORLD MUSIC
Short Title: SURVEY OF WORLD MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Traditional, popular and classical musical styles from around the world will be explored for their sonic qualities as well as from an ethno musicological perspective, i.e., in terms of the musics’ interaction with cultural elements such as cosmology, social structure, art, language, economics and politics.
MUSI 221 - MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD  
Short Title: MUSIC, MAGIC, AND SCIENCE  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Modern science, as a privileged domain of knowledge of the world and of ourselves, has profoundly affected almost every aspect of our lives. This class will take a historical perspective on the relationship between science and modernity with a particular focus on music—a topic which has puzzled philosophers for millennia, and one which poses special problems for the modes of knowledge that characterize scientific modernity. Is music a “universal language”? Why does music so powerfully affect our emotions? Why are some sounds pleasing and others are not? Our goal in this class is to explore what scientific approaches to these questions can tell us about the place of science in the modern world—as well as how and why science has become so important to our imagining of ourselves as thinking, feeling, and willing beings. Armed with this historical knowledge, we will also read recent examples of popular science writing on sound and music a way to think about how we can become better consumers of scientific knowledge as it is disseminated in the public sphere. Graduate/Undergraduate Equivalency: MUSI 530.

MUSI 222 - MEDIEVAL AND RENAISSANCE ERAS  
Short Title: MEDIEVAL AND RENAISSANCE ERAS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Prerequisite(s): MUSI 211 or MUSI 317  
Description: Introduction to the study of Western music history, with emphasis on music before 1600. Score reading ability required. Cross-list: MDEM 222.

MUSI 231 - AURAL SKILLS AND PERFORMANCE TECHNIQUE I  
Short Title: AURAL SKILLS & PERF TECH I  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Preliminary studies in ear-training, sight-singing, and dictation.

MUSI 232 - AURAL SKILLS AND PERFORMANCE TECHNIQUE II  
Short Title: AURAL SKILLS & PERF TECH II  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Continuation of MUSI 231.

MUSI 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MUSI 240 - UNITY AND VARIETY IN MUSIC  
Short Title: UNITY AND VARIETY IN MUSIC  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Distribution Group: Distribution Group I  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: In music, as in life, we need unity and variety: expectations met and occasional surprises. Through studying folk, pop, and art songs, piano solos, instrumental sonatas, chamber and orchestral music, this course helps students become more perceptive listeners by investigating how composers manipulate musical elements to balance unity and variety. Must be able to read music.

MUSI 251 - SECONDARY FLUTE  
Short Title: SECONDARY FLUTE  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Repeatable for Credit.

MUSI 253 - SECONDARY OBOE  
Short Title: SECONDARY OBOE  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Repeatable for Credit.
MUSI 255 - SECONDARY CLARINET
Short Title: SECONDARY CLARINET
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 257 - SECONDARY BASSOON
Short Title: SECONDARY BASSOON
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 261 - SECONDARY HORN
Short Title: SECONDARY HORN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 263 - SECONDARY TRUMPET
Short Title: SECONDARY TRUMPET
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 265 - SECONDARY TROMBONE
Short Title: SECONDARY TROMBONE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 267 - SECONDARY TUBA
Short Title: SECONDARY TUBA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 271 - SECONDARY PERCUSSION
Short Title: SECONDARY PERCUSSION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 273 - SECONDARY VOICE
Short Title: SECONDARY VOICE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 281 - SECONDARY PIANO
Short Title: SECONDARY PIANO
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Fall offerings: Level 1 offered MWF 1-1:50, TR 9:25-10:40. Level 3 offered MWF 8:00-8:50, TR 8-9:15. Spring offerings: Level 2 offered MWF 1-1:50, TR 9:25-10:40. Level 4 offered MWF 8-8:50, TR 8:00-9:15. Repeatable for Credit.

MUSI 283 - SECONDARY ORGAN
Short Title: SECONDARY ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 285 - SECONDARY HARPSICHORD
Short Title: SECONDARY HARPSICHORD
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.
MUSI 287 - SECONDARY HARP
Short Title: SECONDARY HARP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 291 - SECONDARY VIOLIN
Short Title: SECONDARY VIOLIN
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 293 - SECONDARY VIOLA
Short Title: SECONDARY VIOLA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 295 - SECONDARY VIOLONCELLO
Short Title: SECONDARY VIOLONCELLO
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 297 - SECONDARY DOUBLE BASS
Short Title: SECONDARY DOUBLE BASS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.

MUSI 303 - UNDERGRAD COMPOSITION SEMINAR
Short Title: UNDERGRAD COMPOSITION SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 305 - COMPOSITION ELECTIVE
Short Title: COMPOSITION ELECTIVE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Creative composition employing 20th and 21st century vocabularies. Repeatable for Credit.

MUSI 307 - COMPOSITION FOR NON-MAJORS
Short Title: COMPOSITION FOR NON-MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the history of Western music.

MUSI 311 - THEORETICAL STUDIES III
Short Title: THEORETICAL STUDIES III
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analysis of selected works composed since 1900

MUSI 312 - THEORETICAL STUDIES IV
Short Title: THEORETICAL STUDIES IV
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of music from the Classical Era through the late Nineteenth Century, with particular focus on phrase structure, form and chromatic harmony.

MUSI 314 - MUSIC IN WESTERN CULTURE
Short Title: MUSIC IN WESTERN CULTURE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the history of Western music.
MUSI 315 - MULTI-MEDIA COMPOSITION
Short Title: MULTI-MEDIA COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The purpose of this course is to study and analyze works in the repertoire, and to develop new multi-media compositions for performance. Students will be exposed to basic tools and techniques of multi-channel audio, lighting, video, and projection. Students will engage in experiments with sounds, images, movement, and light in space by working to complete a number of short projects. Students will also be encouraged to workshop new pieces as preparation for future performances. Instructor Permission Required. Repeatable for Credit.

MUSI 317 - THEORY FOR NON-MAJORS I
Short Title: THEORY FOR NON MAJORS I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of harmony, melody, rhythm, and form.

MUSI 318 - THEORY FOR NON-MAJORS II
Short Title: THEORY FOR NON-MAJORS II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 317
Description: Continuation of MUSI 317.

MUSI 321 - BAROQUE AND EARLY CLASSICAL ERAS
Short Title: BAROQUE & EARLY CLASSICAL ERAS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MUSI 212 or MUSI 317) and (MUSI 222 or MDEM 222)
Description: Advanced historical studies in music of the seventeenth and eighteenth centuries. Score reading ability required.

MUSI 322 - CLASSICAL AND ROMANTIC ERAS
Short Title: CLASSICAL AND ROMANTIC ERAS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 321
Description: Advanced historical studies in the music of the eighteenth and nineteenth centuries. Score reading ability required.

MUSI 329 - SPECIAL STUDIES IN MUSIC HISTORY
Short Title: SPEC STUDIES IN MUSIC HISTORY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 232.

MUSI 331 - AURAL SKILLS AND PERFORMANCE TECHNIQUES III
Short Title: AURAL SKILLS & PERF TECH III
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 331.

MUSI 332 - AURAL SKILLS AND PERFORMANCE TECHNIQUES IV
Short Title: AURAL SKILLS AND PERF TECH IV
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 331.

MUSI 334 - CAMPANILE ORCHESTRA
Short Title: CAMPANILE ORCHESTRA
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Registration is by audition only. This course requires weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.
MUSI 335 - UNDERGRADUATE CHORUS
Short Title: RICE CHORALE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Operatic techniques for the singer/actor: the cultivation, through study and performance, of free, expressive and significant movement on stage, and the development of musical, dramatic and muscular sensitivity as the basis of good opera theater. Participation in scenes programs. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 336 - UNDERGRADUATE OPERA WORKSHOP
Short Title: UNDERGRADUATE OPERA WORKSHOP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 337 - UNDERGRADUATE ORCHESTRA
Short Title: UNDERGRADUATE ORCHESTRA
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 338 - UNDERGRADUATE CHAMBER MUSIC
Short Title: CHAMBER MUSIC - UG
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Note: ALL STUDENTS INTERESTED IN REGISTERING FOR CHAMBER MUSIC SHOULD REGISTER IN SECTION 1. Repeatable for Credit.

MUSI 339 - UNDERGRADUATE ORCHESTRAL REPERTOIRE
Short Title: UG ORCHESTRAL REP
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Section 1: Violin; Section 2: Viola; Section 3: Cello; Section 4: Double Bass; Section 5: Woodwinds; Section 6: Brass; Section 7: Percussion; Section 8: Harp. Repeatable for Credit.

MUSI 340 - RICE SYMPHONIC BAND
Short Title: RICE SYMPHONIC BAND
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Section 1: SYMPHONIC BAND, TUD Band Hall; Section 2: CHAMBER MUSIC FOR NON-MAJORS: students with already-formed chamber ensembles will apply for this course in the fall. See bands.rice.edu for applications. Those selected will be given instructor permission for the spring semester. Repeatable for Credit.

MUSI 341 - JUNIOR RECITAL
Short Title: JUNIOR RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 342 - RICE JAZZ ENSEMBLE
Short Title: RICE JAZZ ENSEMBLE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Section 1, Jazz Ensemble; Section 2, Jazz Lab. TUD Band Hall. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 345</td>
<td>APPLIED STUDIES IN JAZZ</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Private lessons on specific advanced techniques in jazz improvisation. Must register with the Shepherd School and the Registrar's Office by the first week of classes. Department Permission Required. Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 351</td>
<td>CONCENTRATION FLUTE</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 353</td>
<td>CONCENTRATION OBOE</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 355</td>
<td>CONCENTRATION CLARINET</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 357</td>
<td>CONCENTRATION BASSOON</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 361</td>
<td>CONCENTRATION HORN</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 363</td>
<td>CONCENTRATION TRUMPET</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 365</td>
<td>CONCENTRATION TRUMBOONE</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 367</td>
<td>CONCENTRATION TUBA</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 371</td>
<td>CONCENTRATION PERCUSSION</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
</tr>
<tr>
<td>MUSI 373</td>
<td>CONCENTRATION VOICE</td>
<td>Music</td>
<td>Standard Letter</td>
<td>Studio</td>
<td>2</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Repeatable for Credit.</td>
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</tbody>
</table>
MUSI 377 - UNDERGRADUATE OPERA PERFORMANCE
Short Title: UG OPER PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 1-2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After audition, Director of Opera Studies makes role assignments and grants credit to roles. Leading roles get 2 credits, small roles and chorus in opera get 1 credit. Repeatable for Credit.

MUSI 378 - CLASSICAL, CONTEMPORARY, AND CROSS-CULTURAL ASIAN MUSIC
Short Title: CROSS-CULTURAL ASIAN MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on traditional and contemporary art music from Asia. The classroom lectures are designed to introduce and accompany one or two events which will include live performances, workshops, lectures by invited performers and scholars. This course may be repeated since each year the countries and invited guest performers/scholars will represent different geographical areas. Cross-list: ASIA 378. Repeatable for Credit.

MUSI 379 - CREATIVITY UP CLOSE
Short Title: CREATIVITY UP CLOSE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This inter-disciplinary course explores creativity in human behavior and society. Seminars focus on the neuroscience, psychology, sociology and economics of creativity. Students develop hands-on creative projects in oral history, music, industrial design and video. No prior experiences in study of these disciplines required.

MUSI 381 - CONCENTRATION PIANO
Short Title: CONCENTRATION PIANO
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 383 - CONCENTRATION ORGAN
Short Title: CONCENTRATION ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 384 - CONCENTRATION ORGAN INTENSIVE
Short Title: CONCENTRATION ORGAN INTENSIVE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 387 - CONCENTRATION HARP
Short Title: CONCENTRATION HARP
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 389 - COLLABORATIVE PIANO SKILLS
Short Title: COLLABORATIVE PIANO SKILLS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A practicum exploring the pianist as an ensemble player. 3 sessions weekly. Performance class for pianists in partnership with instrumentalists and singers-particular techniques discovered in balance, pedaling, articulation, style, etc.; Supervised sight-reading private appointment with instructor on individual repertoire-songs, sonatas, concerto reductions, etc. Instructor Permission Required. Repeatable for Credit.

MUSI 391 - CONCENTRATION VIOLIN
Short Title: CONCENTRATION VIOLIN
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 393 - CONCENTRATION VIOLA
Short Title: CONCENTRATION VIOLA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 395 - CONCENTRATION VIOLONCELLO
Short Title: CONCENTRATION VIOLONCELLO
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 397 - CONCENTRATION DOUBLE BASS
Short Title: CONCENTRATION DOUBLE BASS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 401 - COMPOSITION FOR MAJORS
Short Title: COMPOSITION FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
MUSI 403 - BASIC ELECTRONIC MUSIC
Short Title: BASIC ELECTRONIC MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to electronic and computer music.
MUSI 404 - ELECTRONIC MUSIC COMPOSITION
Short Title: ELECTRONIC MUSIC COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of MUSI 403.
MUSI 405 - MUSIC BUSINESS AND LAW
Short Title: MUSIC BUSINESS AND LAW
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A comprehensive overview of entrepreneurship and the music economy, as applicable to the classical musician, and of pertinent sections of intellectual property law.
MUSI 407 - CHAMBER MUSIC IN THE CLASSIC PERIOD
Short Title: CHAMBER MUSIC CLASSIC PERIOD
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Performance styles and rhetoric are examined and directed toward performance approaches to the music of Haydn, Mozart, and early Beethoven, and others. Practical application of dances, textures, and popular topics of the time as well as understanding of harmonic and formal implications. String quartet majors only - other music majors may audit.
MUSI 410 - THE ALEXANDER TECHNIQUE FOR PERFORMANCE
Short Title: ALEXANDER TECH-PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Music students will gain awareness of how the Alexander Technique can offer a powerful means to enhance their preparation for high stakes performances. In gaining an awareness of habitual patterns of movement that may interfere with optimal performance, they will discover constructive ways of working toward their goals. Instructor Permission Required. Repeatable for Credit.
MUSI 413 - INTRODUCTION TO DALCROZE EURHYTHMICS
Short Title: DALCROZE EURHYTHMICS
Department: Music
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Dalcroze Eurhythmics is a musical education which aims to engage and utilize one's whole being in the learning process. Students will explore very basic to quite complex rhythmic concepts through experiencing their own inner fluidity and spacial energy. The class is designed around the philosophy and teachings of Emile Jaques-Dalcroze. Department Permission Required.
MUSI 414 - PIANO CHAMBER MUSIC LITERATURE
Short Title: PIANO CHAMBER MUSIC LITERATURE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Survey on 20th and 21st century chamber music with piano. Instructor Permission Required.

MUSI 415 - BAND ARRANGING
Short Title: BAND ARRANGING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Creative band arranging for marching, jazz, and concert bands. Study of contemporary harmony, musical style, and scoring supported by practical performance and analysis of student projects. Meets in TUD S101A. Repeatable for Credit.

MUSI 416 - ORCHESTRATION
Short Title: ORCHESTRATION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Intensive study of the individual instruments of the orchestra and orchestral techniques from the classical period through the present. Works for analysis include those by Mozart, Beethoven, and Ravel. Students will also form an ensemble and arrange/orchestrate works for the ensemble.

MUSI 417 - MUSIC FOR MEDIA
Short Title: MUSIC FOR MEDIA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of writing music for linear and non-linear media, includes motion pictures, television, interactive and passive multimedia and digital games. Instructor Permission Required.

MUSI 421 - THE MODERN ERA
Short Title: THE MODERN ERA
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MUSI 322
Description: Advanced historical studies in music of the twentieth and twenty-first centuries. Score reading ability required.

MUSI 426 - PIANO LITERATURE - SURVEY
Short Title: PIANO LITERATURE - SURVEY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level

MUSI 432 - GRADUATE AURAL SKILLS REVIEW
Short Title: GRADUATE AURAL SKILLS REVIEW
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A remedial course in ear-training, sight-singing, and musical dictation.

MUSI 435 - CONTEMPORARY MUSIC ENSEMBLE
Short Title: CONTEMPORARY MUSIC ENSEMBLE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Note: Does not count as chamber music. Not offered regularly. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.
MUSI 436 - COLLEGIUM MUSICUM  
Short Title: COLLEGIUM MUSICUM  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A study in skills of harmonization at the keyboard, realization of figured bass, score and clef reading, transposition, and modulation.

MUSI 441 - SENIOR RECITAL  
Short Title: SENIOR RECITAL  
Department: Music  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Studio  
Credit Hours: 0  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Cross-list: MDE 456. Repeatable for Credit.

MUSI 444 - PRACTICUM IN CONTEMPORARY MUSIC  
Short Title: PRACTICUM IN CONTEMPORARY MUSI  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A creative course in which the students both compose and perform. The course includes both compositional studies and free composition, and culminates in a class concert of original works written for the class ensemble. Repeatable for Credit.  
Prerequisite(s): MUSI 483 or MUSI 683

MUSI 446 - KEYBOARD HARMONY AND FIGURED BASS II  
Short Title: KEYBOARD HARMONY & FIG BASS II  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A continued exploration of skills introduced in MUSI 445. In addition to further study in score reading, and harmonization at the keyboard, students will learn to realize continuo accompaniments from scores using figured bass.

MUSI 447 - INTRODUCTION TO PIANO TECHNOLOGY  
Short Title: INTRO TO PIANO TECHNOLOGY  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to the tuning and maintenance of pianos. Includes the theory and acoustics of tuning, a brief history of the piano, and a general exposure to restoration, as well as "hands-on" experience.

MUSI 448 - PIANO TECHNOLOGY PRACTICUM FOR PIANISTS  
Short Title: PIANO TECH PRACTICUM PIANISTS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A practicum exploring the basic maintenance procedures of the modern pianoforte. Students will learn cleaning and unison tuning as well as basic action regulation.  
Prerequisite(s): MUSI 446

MUSI 449 - UNDERGRAD INDEPENDENT STUDY  
Short Title: UNDERGRAD INDEPENDENT STUDY  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 450 - QUALIFYING RECITAL  
Short Title: QUALIFYING RECITAL  
Department: Music  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Studio  
Credit Hours: 0  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.
MUSI 451 - FLUTE FOR MAJORS
Short Title: FLUTE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 453 - OBOE FOR MAJORS
Short Title: OBOE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 455 - CLARINET FOR MAJORS
Short Title: CLARINET FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 457 - BASSOON FOR MAJORS
Short Title: BASSOON FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Instruction for Music Majors in bassoon. Repeatable for Credit.

MUSI 461 - HORN FOR MAJORS
Short Title: HORN FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 463 - TRUMPET FOR MAJORS
Short Title: TRUMPET FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 465 - TROMBONE FOR MAJORS
Short Title: TROMBONE FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 467 - TUBA FOR MAJORS
Short Title: TUBA FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 471 - PERCUSSION FOR MAJORS
Short Title: PERCUSSION FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 472 - GENERAL PERCUSSION STUDIES
Short Title: GENERAL PERCUSSION STUDIES
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A class that will address other issues of percussion playing to prepare for a job that is not related to regular classical studies, i.e. drum set, jazz kits, rudimental drumming, instrument building, playing shows, sight-reading, etc. The emphasis of the class will vary each semester. Repeatable for Credit.
MUSI 473 - VOICE FOR MAJORS  
Short Title: VOICE FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Undergraduate Performance Seminar is required for all freshmen and sophomores. The seminar will meet on Tuesday and Thursday from 1:00-1:50. Repeatable for Credit.

MUSI 475 - THEORY OF VOCAL PERFORMANCE TECHNIQUES  
Short Title: THEORY OF VOCAL PERFORM TECH  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Primarily for conductors and composers.

MUSI 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

MUSI 481 - PIANO FOR MAJORS  
Short Title: PIANO FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 483 - ORGAN FOR MAJORS  
Short Title: ORGAN FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 487 - HARP FOR MAJORS  
Short Title: HARP FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 491 - VIOLIN FOR MAJORS  
Short Title: VIOLIN FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 492 - STRING TECHNOLOGY  
Short Title: STRING TECHNOLOGY  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An introduction and practicum in the maintenance and repair of string instruments. Instructor Permission Required.

MUSI 493 - VIOLA FOR MAJORS  
Short Title: VIOLA FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.

MUSI 495 - VIOLONCELLO FOR MAJORS  
Short Title: VIOLONCELLO FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Repeatable for Credit.
MUSI 497 - DOUBLE BASS FOR MAJORS

Short Title: DOUBLE BASS FOR MAJORS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

MUSI 500 - IMAGINATION AND COMMUNICATION: DEVELOPING MUSICAL SKILLS THROUGH THEATRICAL TECHNIQUES

Short Title: IMAGINATION AND COMMUNICATION
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on teaching communication skills through techniques from other areas of the performing arts. Through exercises that enhance imagination and creativity, students will learn to use their physical presences more effectively, thus becoming more effective communicators with audiences, musician colleagues, and future employers. Department Permission Required.

MUSI 501 - ENHANCED PERFORMANCE: WRITING, SPEAKING, PLAYING

Short Title: MUSIC PERFORMANCE ENHANCEMENT
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course prepares music students to communicate with audiences effectively beyond their musical performance through the use of words, both written and oral. Students will study, practice, and gain practical experience in writing and speaking about music through a variety of performance situations. Department Permission Required.

MUSI 502 - CONDUCTING: AN OVERVIEW OF PRACTICAL SKILLS

Short Title: CONDUCTING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to present an array of conducting tools to instrumentalists, vocalists and composers. Discussions and presentations will cover diverse topics ranging from baton technique to education/outreach programming. Department Permission Required.

MUSI 503 - MUSIC AND PERFORMANCE: THE MIND/BODY CONNECTION

Short Title: MUSIC AND PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on teaching communication skills through techniques from other areas of the performing arts. Through exercises that enhance imagination and creativity, students will learn to use their physical presences more effectively, thus becoming more effective communicators with audiences, musician colleagues, and future employers. Department Permission Required.

MUSI 504 - COMPUTER ASSISTED MUSIC COMPOSITION

Short Title: COMPUTER ASSISTED MUSIC COMP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course not offered regularly. Instructor Permission Required.

MUSI 505 - MULTIMEDIA AUTHORING

Short Title: MULTIMEDIA AUTHORING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course not offered regularly. Instructor Permission Required.

MUSI 507 - TECHNOLOGY FOR MUSICIANS

Short Title: TECHNOLOGY FOR MUSICIANS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide student musicians with the computer skills necessary for modern musical life. Computer assisted notation, the basics of audio/video production, and website creation will be covered as students learn to use a number of computer applications. Department Permission Required.

MUSI 508 - FUNDAMENTALS OF PRIVATE TEACHING

Short Title: PRIVATE TEACHING FUNDAMENTALS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on the teaching of individual lessons to music students. It will emphasize effective ways to start a beginning student, how to develop musicianship, and how to teach good practice habits. Department Permission Required.
MUSI 509 - THE ALEXANDER TECHNIQUE FOR MUSICIANS
Short Title: THE ALEXANDER TECHNIQUE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The Alexander Technique is a mind/body educational process that teaches balance, poise and efficiency of movement. Students will discover how the Technique can be applied to performance and practice, thus gaining greater awareness and ease within their art. Department Permission Required.

MUSI 510 - PROFESSIONAL DEVELOPMENT FOR MUSICIANS
Short Title: PRO DEVELOPMENT FOR MUSICIANS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the practical aspects of building and sustaining a career in music. Using networking, self-promotion, and presentation skills, students will create projects needed for pursuing their careers. Guest speakers will offer additional resources for students as they learn how to navigate the world of the Music Business. Department Permission Required.

MUSI 511 - GRADUATE THEORY REVIEW
Short Title: GRADUATE THEORY REVIEW
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A comprehensive review of Common Practice theory, plus a brief introduction to 20th Century analysis.

MUSI 512 - ANALYTICAL SYSTEMS
Short Title: ANALYTICAL SYSTEMS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of tools for the analysis of rhythm & meter, long-range tonal voice-leading, non-diatonic scales, and timbre/gesture.

MUSI 513 - MODAL COUNTERPOINT
Short Title: MODAL COUNTERPOINT
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applied contrapuntal techniques of the 16th century, and analysis of selected works.

MUSI 514 - SCORE READING AND THEORY AT THE KEYBOARD
Short Title: SCORE READING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced studies in reading an orchestral score at the keyboard. Department Permission Required.

MUSI 515 - MUSIC ENTREPRENEURSHIP
Short Title: MUSIC ENTREPRENEURSHIP
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Music Entrepreneurship introduces the music student to the idea and development of a business strategy via introduction to the business plan model. Students learn to develop mission statements, analyze markets and competition, research advertising and promotional strategies and put together financial assumptions and forecast into business friendly templates. Department Permission Required.

MUSI 516 - ADVANCED ORCHESTRATION
Short Title: ADV ORCHESTRATION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 416
Description: Advanced studies in orchestral techniques from the classical era through the present day.

MUSI 517 - EARLY MODERN MASTERS
Short Title: EARLY MODERN MASTERS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analysis of music from 1900-1950. Repeatable for Credit.

MUSI 518 - THE ART AND BUSINESS OF STUDIO TEACHING
Short Title: ART & BUSINESS STUDIO TEACHING
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent studio teaching offers musicians both income stability and flexibility in scheduling, but requires clarity of approach, organization, and business savvy to be effective and rewarding. In addition to practicing these skills, students will learn how to attract students and build a reputation as an exemplary teacher. Department Permission Required.
MUSI 519 - THEMATIC PROGRAMMING: THE ART OF THE RECITAL
Short Title: THEMATIC PROGRAMMING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course concentrates on ways to revitalize and re-invent the traditional recital so that it appeals to performer and audience alike. After gaining an understanding of innovative and thematic programming, presentational skills and production planning, students will create, produce and perform an invigorating and exiting recital program. Department Permission Required.

MUSI 521 - GRADUATE REVIEW OF MUSIC HISTORY I
Short Title: GRAD REVIEW OF MUSIC HIST I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of Medieval, Renaissance, and Baroque music for graduate students. Assigned on the basis of placement exam only.

MUSI 522 - GRADUATE REVIEW OF MUSIC HISTORY II
Short Title: GRAD REVIEW OF MUSIC HIST II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of Classical, Romantic and 20th century music for graduate students. Assigned on the basis of placement exam only.

MUSI 523 - BIBLIOGRAPHY AND RESEARCH METHODS
Short Title: BIBLIOGRAPHY AND RESEARCH METHODS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of bibliography methods and techniques in research methodology.

MUSI 524 - AMERICAN MUSIC
Short Title: AMERICAN MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Exploration of art music in the United States, ca. 1800-ca. 1940, with reference to earlier American and European styles.

MUSI 525 - PERFORMANCE PRACTICES SEMINAR
Short Title: PERFORMANCE PRACTICES SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of performing practices of music prior to the Romantic era. Topics will range from pre-performance considerations of pitch and tuning systems to those of performance, such as basso continuo realization, improvisation, vibrato, and articulation. Course not offered regularly.

MUSI 527 - TOPICS IN EARLY MUSIC
Short Title: TOPICS IN EARLY MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced study in selected topics in music history prior to 1600. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 528 - TOPICS IN THE 17TH AND 18TH CENTURIES
Short Title: TOPICS IN 17TH & 18TH CENTURIES
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the 17th and 18th Centuries. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 529 - TOPICS IN 19TH AND 20TH CENTURIES
Short Title: TOPICS IN 19TH & 20TH CENTURIES
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the 19th and 20th Centuries. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.
MUSI 530 - MUSIC, MAGIC, AND SCIENCE IN THE MODERN WORLD
Short Title: MUSIC, MAGIC, AND SCIENCE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the place of music vis-a-vis changing conceptions of the natural and supernatural worlds in Western modernity. Topics include music and occult science in the Renaissance, the impact of the Scientific Revolution and the Enlightenment on musical thought; the development of modern acoustics, and contemporary approaches of the field of music cognition. Graduate/Undergraduate Equivalency: MUSI 221.

MUSI 531 - ORCHESTRAL REPERTOIRE
Short Title: ORCHESTRAL REPERTOIRE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Section 1: violin; Section 2: viola; Section 3: cello; Section 4: double bass; Section 5: woodwinds; Section 6: brass; Section 7: percussion; Section 8: harp. Repeatable for Credit.

MUSI 532 - THE FELDENKRAIS METHOD AND THE MUSICIAN'S BODY
Short Title: THE FELDENKRAIS METHOD
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will experience the Feldenkrais Method through the group learning modality of "Awareness Through Movement" in order to develop a practice that will serve to mitigate stress, reduce the likelihood of repetitive use injuries and create a more easeful presence in performance. Department Permission Required.

MUSI 533 - GRADUATE CONDUCTING SEMINAR
Short Title: GRADUATE CONDUCTING SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 534 - PROGRAM MUSIC IN THE 19TH CENTURY
Short Title: PROGRAM MUSIC
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore grammaticism in Western art music with a particular focus on orchestral repertoire of the nineteenth century (including works by Beethoven, Mendelssohn, Berlioz, Liszt, Tchaikovsky, Strauss, Mahler, and Debussy). Alongside formal issues, we will consider historical perspectives on this repertoire as well as long-lived aesthetic debates about music's capacity to represent the external world.

MUSI 536 - LEADERSHIP THROUGH THE ARTS
Short Title: LEADERSHIP THROUGH THE ARTS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore ways individuals in varied disciplines can combine forces to developed launch a creative concept which will be performed of the public on campus. Instructor Permission Required.

MUSI 537 - SATIE, COCTEAU, & LES SIX: PARIS IN THE 1920s AND BEYOND
Short Title: SATIE, COCTEAU, AND LES SIX: PARIS IN THE 1920s AND BEYOND
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the musical realization of Apollinaire's "new spirit" in the works of Erik Satie, as promoted by Jean Cocteau circa 1918, and the attraction that this new aesthetic had for young composers known as Les Six. With special attention to the works of Francis Poulenc, especially those represented in the Lambiotte Poulenc Archive housed in the Woodson Research Center.

MUSI 538 - THE ART OF PERFORMANCE: PRESENCE ON STAGE
Short Title: PRESENCE ON STAGE
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will gain skills promoting stage presence in performance and in daily life. By identifying, developing and implementing elements of mental, physical, visual, aural and musical presence, they will learn how to develop an expressive, confident, communicative, creative and polished performance. Department Permission Required.
MUSI 540 - APPLIED JAZZ IMPROVISATION: DEVELOPING SOLO
IMPROVISATIONAL SKILLS IN THE JAZZ IDIOM
Short Title: APPLIED JAZZ IMPROVISATION
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The goal of this course is to introduce and develop Jazz improvisational skills for the classically trained musician. Students will use "swing style" accompaniment to learn to develop and perform improvised Jazz solos on a variety of harmonic formats. Department Permission Required.

MUSI 543 - MUSIC AND MODERNISM IN FRANCE
Short Title: FRENCH MODERNISM
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course considers musical culture in France around the turn of the twentieth century, particularly the music of Debussy, in light of contemporaneous "modernisms" in visual art and literature (Impressionism, Post-Impressionism, Decadence, Symbolism).

MUSI 545 - LITURGICAL ORGAN PLAYING
Short Title: LITURGICAL ORGAN PLAYING
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: A course devoted to the service-playing skills required of a parish organist. Students will study effective techniques of accompanying congregational song from the organ. Emphasis will be placed on introductions, interludes, modulations for hymns and appropriate choices of registration, repertoire and hymnody for ceremonial occasions and liturgical year. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 546 - ACCOMPANYING AT THE ORGAN
Short Title: ACCOMPANYING AT THE ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: This course explores accompanying skills essential to the professional organist using a variety of choral literature customarily accompanied from the organ. Transcribed accompaniments will be mixed with original choral or vocal works scored for organ accompaniment from a variety of styles and periods. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 547 - CHURCH MUSIC SEMINAR I
Short Title: CHURCH MUSIC SEMINAR I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: A course devoted to the musical and administrative skills required of church music programs serving persons of all ages. Students will develop choral conducting techniques in addition to a knowledge of choral literature, liturgy, and the musical and theological materials available to those who create worship. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 548 - CHURCH MUSIC SEMINAR II
Short Title: CHURCH MUSIC SEMINAR II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: This course will further develop choral conducting techniques and provide instruction in vocal techniques appropriate for use in choral rehearsals. Large-scale choral works will be analyzed and discussed in order to refine systems of score study and rehearsal planning. Further discussion of liturgical traditions and appropriate repertoire selection. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 549 - VOCAL PHYSIOLOGY & FUNCTION
Short Title: VOCAL PHYSIOLOGY & FUNCTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to anatomy, physiology and function of the singing voice.

MUSI 551 - MUSIC OF RICHARD STRAUSS
Short Title: MUSIC OF RICHARD STRAUSS
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of Strauss's musical style and professional reputation in the context of changing aesthetic and political perspectives from the 1880s to the 1940s. Analysis of selected lieder, symphonic poems, and operas, including "Salome" and "Der Rosenkavalier".
MUSI 555 - APPRENTICESHIP
Short Title: APPRENTICESHIP
Department: Music
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 569 - BRASS PEDAGOGY
Short Title: BRASS PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 570 - ADVANCED OPERA STUDIES
Short Title: ADVANCED OPERA STUDIES
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced operatic techniques for the singer/actor, including acting, movement, stage combat, makeup and audition techniques and preparation. On occasion this course may require rehearsals and performances outside of class time. Repeatable for Credit.

MUSI 571 - VOCAL COACHING
Short Title: VOCAL COACHING
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 572 - GRADUATE OPERA PERFORMANCE
Short Title: GRADUATE OPERA PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 1-2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After audition, Director of Opera Studies makes role assignments and grants credit to roles. Leading roles get 2 credits, small roles and chorus in Opera get 1 credit. Repeatable for Credit.

MUSI 573 - ITALIAN DICTION
Short Title: ITALIAN DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A comprehensive survey of operatic arias from the standard repertoire for pianists. The survey will be structured according to vocal Fachs and stylistic/historical perspectives. Instructor Permission Required. Repeatable for Credit.

MUSI 574 - GERMAN DICTION
Short Title: GERMAN DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 575 - VOICE REPERTOIRE I
Short Title: VOICE REPERTOIRE I
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 576 - VOICE REPERTOIRE II
Short Title: VOICE REPERTOIRE II
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 577 - ENGLISH DICTION
Short Title: ENGLISH DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 578 - FRENCH DICTION
Short Title: FRENCH DICTION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

MUSI 581 - ARIA REPERTOIRE
Short Title: ARIA REPERTOIRE
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A comprehensive survey of operatic arias from the standard repertoire for pianists. The survey will be structured according to vocal Fachs and stylistic/historical perspectives. Instructor Permission Required. Repeatable for Credit.
MUSI 583 - INSTRUMENTAL ACCOMPANYING TECHNIQUES
Short Title: INSTRUMENT ACCOMPANY TECHNIQ
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate piano chamber music majors, emphasizing practical skills of accompanying strings and wind instruments in a wide variety of repertoire. Instructor Permission Required.

MUSI 584 - VOCAL ACCOMPANYING TECHNIQUES FOR PIANISTS
Short Title: VOCAL ACCOMP TECH FOR PIANISTS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate piano majors, emphasizing practical skills of accompanying singers. Instructor Permission Required.

MUSI 585 - SONATA CLASS
Short Title: SONATA CLASS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Class focuses on major duo-sonata repertoire for any string or wind instrument with piano. The course consists of up to 10 private coachings; studio class once each month; and final recital. Students may enroll as a duo or as individuals. Students may choose their repertoire and partners for the semester, and may prepare one or two sonatas. Repeatable for Credit.

MUSI 587 - GRADUATE DICTION FOR SINGERS
Short Title: GRADUATE DICTION FOR SINGERS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Principals of lyric diction in Italian, English, French, and German. Repeatable for Credit.

MUSI 588 - PIANO PEDAGOGY
Short Title: PIANO PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of the group piano area which includes a comprehensive study of standard methods, in-depth discussion of group vs. individual lessons, and a supervised student teaching practicum.

MUSI 599 - STRING PEDAGOGY
Short Title: STRING PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A course for graduate piano chamber music majors, emphasizing practical skills of accompanying strings and wind instruments in a wide variety of repertoire. Instructor Permission Required.

MUSI 601 - COMPOSITION FOR MAJORS ADVANCED AND GRADUATES
Short Title: COMPOSITN FOR MAJORS ADV&GRAD
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 603 - GRADUATE COMPOSITION SEMINAR
Short Title: GRAD COMPOSITION SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 605 - ADVANCED ELECTRONIC AND COMPUTER MUSIC SYSTEMS
Short Title: ADV ELECT&COMP MUSIC SYSTEMS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced topics and applications in computer and electronic music composition. Instructor Permission Required. Repeatable for Credit.

MUSI 606 - ADVANCED COMPUTER SOUND SYNTHESIS
Short Title: ADV COMPUTER SOUND SYNTHESIS
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 605
Description: Continuation of MUSI 605. Department Permission Required. Repeatable for Credit.
MUSI 608 - IMPROVISATION AT THE ORGAN
Short Title: IMPROVISATION AT THE ORGAN
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: A course devoted to advancing knowledge and developing skills of improvisation at the organ. Discussion and analysis of themes, modality vs. tonality, modulations, harmonizations of scales, modes, chorales and plainchant will lead to improvisations in such forms as the chorale partita, monothematic sonata, passacaglia, French suite, fugue, and other forms. Concurrent enrollment in MUSI 483 or MUSI 683 is required. Repeatable for Credit.

MUSI 611 - CLASSROOM PEDAGOGY
Short Title: CLASSROOM PEDAGOGY
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The practical application of various teaching methods, and an in depth study of college-level materials.

MUSI 613 - TONAL COUNTERPOINT
Short Title: TONAL COUNTERPOINT
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: 18th Century counterpoint in the style of J.S. Bach. Instructor Permission Required.

MUSI 614 - SPECIAL TOPICS IN MUSIC THEORY AND MUSIC THEORY COMPOSITION
Short Title: MUSIC THEORY & COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 615 - MUSIC OF RAVEL: MUSIC THEORY AND COMPOSTION
Short Title: MUSIC OF RAVEL
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An in-depth study of Ravel's music using several approaches, including investigation of additive harmony, Ravel's use of alternative scales, and the relationship between Ravel's music and contemporary trend in poetry and psychology. Recommended prerequisite(s): Ability to read music well and some previous study in music theory.

MUSI 617 - MUSIC SINCE 1950
Short Title: MUSIC SINCE 1950
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study and analysis of composers and music from Post-World War II to the present.

MUSI 619 - HISTORY OF THE 20TH CENTURY PIANISM
Short Title: 20TH CENTURY PIANISM HISTORY
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A critical survey of the great pianists of the 20th century covering the stylistic and pianistic traits of each, including a selective discography for each pianist.

MUSI 620 - HISTORICAL OVERVIEW OF PIANO TECHNIQUE
Short Title: HIST OVERVIEW OF PIANO TECHNIQ
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of the teaching of piano technique from the historical perspective. The focus will be on documents and quotes from historical pedagogues such as C.P.E Bach, Clementi, Chopin, and the pianists of the 20th century.

MUSI 621 - SELECTED STUDIES IN MUSIC HISTORY
Short Title: SELECTED STUDIES IN MUSIC HIST
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on individual topics in music history. Content varies. Repeatable for Credit.
MUSI 623 - J.S. BACH: CAREER, WORKS, AND CRITICAL RECEPTION  
Short Title: J.S. BACH: CAREER, WORKS & RECEPTN  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: An examination of Bach's music and the social circumstances in which he created it. A substantial portion of the course will focus on issues and controversies in recent Bach scholarship.

MUSI 624 - SEMINAR ON A SELECTED COMPOSER  
Short Title: SEM ON SELECT COMPOSER  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Advanced study of the music of a single composer. Topics may vary. Please consult with the department for additional information. Repeatable for Credit.

MUSI 625 - MOZART OPERAS  
Short Title: MOZART OPERAS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of three or four of Mozart's operas in-depth, with a focus on how music shapes drama, interpretation, characterization, and meaning.

MUSI 626 - THE CLASSICAL STYLE  
Short Title: THE CLASSICAL STYLE  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A study of the way in which Haydn, Mozart, and Beethoven create large musical forms that have purely musical meaning which does not derive from a text. We will consider various approaches to understanding musical meaning including rhetoric, structure, and style.

MUSI 627 - ROMANTIC SONGS AND PIANO PIECES  
Short Title: ROMANTIC SONGS & PIANO PIECES  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of songs and piano character pieces of Schumann, Chopin, Mendelssohn, and Schubert from analytical and historical perspectives.

MUSI 631 - MOCK AUDITION  
Short Title: MOCK AUDITION  
Department: Music  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Studio  
Credit Hours: 0  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 635 - ADVANCED ORCHESTRA  
Short Title: ADVANCED ORCHESTRA  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 636 - ADVANCED CHAMBER MUSIC  
Short Title: ADVANCED CHAMBER MUSIC  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. NOTE: ALL STUDENTS INTERESTED IN Registering for chamber music should register in section 1. Repeatable for Credit.

MUSI 637 - ADVANCED CONDUCTING FOR MAJORS  
Short Title: ADVANCED CONDUCTING FOR MAJORS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Repeatable for Credit.

MUSI 640 - RICE CHORALE - ADVANCED  
Short Title: RICE CHORALE - ADVANCED  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: On occasion this course may require weekend rehearsals and performances. Consult the Instructor regarding possible conflicts. Repeatable for Credit.
MUSI 483 or MUSI 683 is required. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 642 - ACCOMPANYING
Short Title: ACCOMPANYING
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Accompanying a single student recital, including the preview, dress rehearsal, performance, their lessons with the soloist's teacher, and practice times mutually agreeable to soloist and accompanist. OR accompanying private lessons in studios as assigned for a total of four hours per week. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Repeatable for Credit.

MUSI 645 - ORGAN LITERATURE BEFORE 1750
Short Title: ORGAN LITERATURE BEFORE 1750
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A historical study of organ literature coordinated with a study of the development of the organ as a musical instrument. Students will study and research organ music before 1750, developing familiarity with the period and national styles, an understanding of characteristic instruments, as well as practices of registration and performance. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 646 - ORGAN LITERATURE SINCE 1750
Short Title: ORGAN LITERATURE SINCE 1750
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): MUSI 483 (may be taken concurrently) or MUSI 683 (may be taken concurrently)
Description: Students will develop an understanding of form, interpretation and characteristic national styles through study and research of representative works composed after 1750. Trends in organ construction in France, Germany, England and North America during the 19th through 21st centuries will be discussed in relation to the compositions these instruments inspired. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 647 - MASTER'S THESIS
Short Title: MASTER'S THESIS
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Composition majors are required to attend 3 hours of orchestra rehearsal per week to satisfy the course requirement. Repeatable for Credit.

MUSI 649 - GRADUATE INDEPENDENT STUDY
Short Title: GRAD INDEPENDENT STUDY
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 651 - FLUTE FOR MAJORS-ADVANCED
Short Title: FLUTE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 653 - OBOE FOR MAJORS-ADVANCED
Short Title: OBOE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 655 - CLARINET FOR MAJORS-ADVANCED
Short Title: CLARINET FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 656 - BASSOON FOR MAJORS-ADVANCED
Short Title: BASSOON FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced instruction for Music Majors in bassoon. Repeatable for Credit.
MUSI 661 - HORN FOR MAJORS-ADVANCED
Short Title: HORN FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 663 - TRUMPET FOR MAJORS-ADVANCED
Short Title: TRUMPET FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 665 - TROMBONE FOR MAJORS-ADVANCED
Short Title: TROMBONE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 667 - TUBA FOR MAJORS-ADVANCED
Short Title: TUBA FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 671 - PERCUSSION FOR MAJORS-ADVANCED
Short Title: PERCUSSION FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 673 - VOICE FOR MAJORS-ADVANCED
Short Title: VOICE FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Music
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

MUSI 681 - PIANO FOR MAJORS-ADVANCED
Short Title: PIANO FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 682 - ACCOMPANYING/VOCAL COACHING SEMINAR
Short Title: ACCOMP/VOCAL COACHING SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Intensive studies of both song art and solo opera repertoire that is limited to the individual singers who will be involved with each pianist. All facets related to preforming and coaching repertoire with upper level undergraduate and graduate level singers will be explored. Instructor Permission Required. Repeatable for Credit.

MUSI 683 - ORGAN FOR MAJORS-ADVANCED
Short Title: ORGAN FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 687 - HARP FOR MAJORS-ADVANCED
Short Title: HARP FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
MUSI 689 - PIANO FOR CHAMBER MUSIC AND ACCOMPANYING MAJORS, ADVANCED/GRADUATE
Short Title: PIANO CHAMBER MUSIC & ACCOMP MAJ
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 690 - INDIVIDUAL INSTRUMENT COACHING FOR STRING QUARTET MAJORS
Short Title: IND INST COACH-STR QTET MAJ
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced individual instrumental coaching for students in the M.Mus. string quartet program. Repeatable for Credit.

MUSI 691 - VIOLIN FOR MAJORS-ADVANCED
Short Title: VIOLIN FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 693 - VIOLA FOR MAJORS-ADVANCED
Short Title: VIOLA FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 695 - VIOLONCELLO FOR MAJORS-ADVANCED
Short Title: VIOLONCELLO FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 697 - DOUBLE BASS FOR MAJORS-ADVANCED
Short Title: DOUBLE BASS FOR MAJORS-ADV
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 698 - ADVANCED STRING QUARTETS
Short Title: ADVANCED STRING QUARTETS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Private lessons for graduate students enrolled in the M.Mus. string quartet program. Repeatable for Credit.

MUSI 699 - ADVANCED STRING QUARTETS
Short Title: ADVANCED STRING QUARTETS
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 700 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

MUSI 705 - APPRENTICESHIP - ARTISTIC OUTREACH
Short Title: APPRENTICESHIP ARTISTIC OUTRCH
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Corequisite: MUSI 698
Description: Repeatable for Credit.

MUSI 707 - DOCTORAL INDEPENDENT STUDY, COMPOSITION
Short Title: DOCTORAL IND. STUDY, COMPOSITION
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Independent project at the doctoral level. Instructor Permission Required.

MUSI 711 - ANALYTICAL APPROACHES
Short Title: ANALYTICAL APPROACHES
Department: Music
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In depth exploration of tonal and post-tonal analytical procedures. Required of all doctoral students. Recommended prerequisite(s): MUSI 512 or equivalent.
MUSI 712 - SEMINAR IN ADVANCED ANALYSIS  
Short Title: SEMINAR IN ADVANCED ANALYSIS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MUSI 711  
Description: This class will build on the concept and materials presented in MUSI 711. Students will do in-depth analyses of significant pieces from several style periods. Instructor Permission Required.

MUSI 713 - SPECIAL TOPICS IN ADVANCED ANALYSIS  
Short Title: SPECIAL TOPICS: ADV. ANALYSIS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Special topics in Advanced Analysis will be presented by a resident scholar, reflecting current trends in music theory and analysis, and discussing his or her research in these areas. Instructor Permission Required. Repeatable for Credit.

MUSI 716 - MUSIC OF THE MIDDLE AGES  
Short Title: MUSIC OF THE MIDDLE AGES  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A study of the major musical styles and composers of western art music before 1400 and their historical, cultural, and sociological contexts.

MUSI 717 - RENAISSANCE MUSIC  
Short Title: RENAISSANCE MUSIC  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A study of the major musical styles and composers of Western art and music between 1400 and 1600 and their historical, cultural, and sociological contexts.

MUSI 721 - MUSIC OF SCHOENBERG  
Short Title: MUSIC OF SCHOENBERG  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of the music of Arnold Schoenberg in the context of the major musical centers and artistic movements that colored his works: Vienna, Berlin, romanticism, expressionism and the New Objectivity.

MUSI 722 - MUSIC OF STRAVINSKY  
Short Title: MUSIC OF STRAVINSKY  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of Igor Stravinsky’s major ballets.

MUSI 723 - AESTHETICS OF MUSIC  
Short Title: AESTHETICS OF MUSIC  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: An introduction to music aesthetics, focusing on contemporary theories and writings.

MUSI 725 - ORGAN LITERATURE SEMINAR  
Short Title: ORGAN LITERATURE SEMINAR  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is devoted to intensive study of an area of organ literature, design, or performance practice. Emphasis will be placed upon in-depth study or the works of a selected composer or genre. Concurrent enrollment in MUSI 483 or MUSI 683 is required.

MUSI 733 - DOCTORAL SEMINAR I: CAREER SKILLS  
Short Title: DOC. SEMINAR I: CAREER SKILLS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Practical training in digital recording, editing, and producing and preparation for academic jobs. Required of, and limited to, doctoral music majors.

MUSI 735 - DOCTORAL SEMINAR II: REPERTORY  
Short Title: DOCTORAL SEM II: REPERTORY  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MUSI 733  
Description: In-depth study of chamber music and concert repertory. Required of, and limited to, all doctoral music students.
MUSI 736 - SOLO REPERTORY FOR DOCTORAL STUDENTS  
Short Title: SOLO REP FOR DOC. STUDENTS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Studio  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MUSI 733  
Description: One semester required of all doctoral students in performance areas. Additional semesters may be taken at the discretion of the major teacher. Repeatable for Credit.

MUSI 738 - DOCTORAL INDIVIDUAL PROJECT  
Short Title: DOCTORAL INDIVIDUAL PROJECT  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A substantial project in an area of the student's interest. Working with a faculty member, each doctoral music student will propose, carry out and then give a public report on the project. Proposals must be approved by the Graduate Studies Committee.

MUSI 739 - PEDAGOGY FOR DOCTORAL STUDENTS  
Short Title: PEDAGOGY FOR DOCTORAL STUDENTS  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): MUSI 733  
Description: The study of methods and materials specific to each student's major, focusing on the teaching of private studio lessons and instrumental or vocal classes for college-level students. Includes practical training. Each student will work with their major teacher or a faculty member designated by their department.

MUSI 741 - MASTER'S RECITAL II  
Short Title: MASTER'S RECITAL II  
Department: Music  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Studio  
Credit Hours: 0  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required.

MUSI 742 - STRING QUARTET RECITAL  
Short Title: STRING QUARTET RECITAL  
Department: Music  
Grade Mode: Satisfactory/Recital  
Course Type: Studio  
Credit Hours: 0  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Each recital will include a format chosen by the quartet and natural to them in which they relate to the general public in a meaningful, non-technical way (i.e., pre-concert question and answer session, etc.). These are not lecture-recitals in the traditional, academic sense: their aim is to give the quartet guidance and experience in how to impart substantive information that help non-musicians deepen their concert-going experience. On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Repeatable for Credit.

MUSI 747 - SURVEY-ORCHESTRAL REPERTOIRE  
Short Title: SURVEY-ORCHESTRAL REPERTOIRE  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A survey of the techniques of orchestral playing with emphasis on preparation of orchestral excerpts for professional auditions.

MUSI 749 - VOCAL PHYSIOLOGY & FUNCTION FOR DOCTORAL STUDENTS  
Short Title: VOCAL PHYSIOLOGY & FUNCTION  
Department: Music  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Introduction to anatomy, physiology & function of the singing voice.

MUSI 750 - DOCTORAL DOCUMENT  
Short Title: DOCTORAL DOCUMENT  
Department: Music  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Supervised research and writing of doctoral document. Repeatable for Credit.

MUSI 751 - DOCTORAL SOLO RECITAL  
Short Title: DOCTORAL RECITAL-SOLO  
Department: Music  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Studio  
Credit Hours: 0  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: On occasion this course may require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Repeatable for Credit.
MUSI 752 - DOCTORAL CHAMBER MUSIC RECITAL
Short Title: DOCTORAL RECITAL-CHAMBER
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doctoral Chamber music recitals will on occasion require weekend rehearsals and performances. Consult the instructor regarding possible conflicts. Department Permission Required. Department Permission Required.

MUSI 753 - DOCTORAL CONCERTO RECITAL
Short Title: DOCTORAL RECITAL-CONCERTO
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Doctoral students will perform a concerto as the soloist with an orchestra. This may require weekend rehearsals and performances. A preview is not required for the concerto recital. Department Permission Required.

MUSI 754 - DOCTORAL LECTURE-RECITAL
Short Title: DOCTORAL RECITAL-LECTURE
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The lecture-recital is a combination of performance and lecture on a topic approved by the Graduate Studies Committee. The lecture portion, which is approximately 50% of the program, should reflect significant research and analysis, including a discussion of performance practice where applicable. Department Permission Required.

MUSI 760 - INDIVIDUAL AND COMMITTEE INSTRUCTION FOR ARTIST DIPLOMA
Short Title: INDIV & COMMITTEE INSTR FOR AD
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 4
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly lessons with principal teacher as well as periodically scheduled mentoring and coaching sessions with members of Diploma Committee. Will cover all areas of performance related to chosen field. Repeatable for Credit.

MUSI 761 - ARTIST DIPLOMA RECITAL
Short Title: ARTIST DIPLOMA RECITAL
Department: Music
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Studio
Credit Hours: 0
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Public performance exhibiting highest level of technical mastery and artistic interpretation. Department Permission Required. Repeatable for Credit.

MUSI 762 - ARTIST DIPLOMA SEMINAR
Short Title: ARTIST DIPLOMA SEMINAR
Department: Music
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Instruction of matters of musical style and historically informed performance practice. Performance within the class is expected. Survey performance practices ranging from the Baroque period through 21st century.

MUSI 763 - ARTIST DIPLOMA SPECIAL PROJECT
Short Title: ARTIST DIPLOMA SPECIAL PROJECT
Department: Music
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Application of both performance and career-building skills directly in the market place. Repeatable for Credit.

MUSI 764 - ARTIST DIPLOMA PERFORMANCE
Short Title: ARTIST DIPLOMA PERFORMANCE
Department: Music
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Participation in orchestra, chamber music, sinfonietta, opera or scenes programs as determined by individual track. Repeatable for Credit.

MUSI 800 - DISSERTATION
Short Title: DISSERTATION
Department: Music
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students are required to write an original composition of substantial dimensions. The composition must be publicly defended and submitted, following the university's regulations and procedures for candidacy, oral examination, and thesis. Repeatable for Credit.
Natural Sciences (NSCI)

NSCI 111 - CONCEPTS IN PHYSICS AND ASTRONOMY
Short Title: CONCEPT IN PHYSICS & ASTRONOMY
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is intended as an investigation of some of the major concepts in physics and astronomy that form the basis of our modern understanding of the universe. By focusing on scientific methodology and a few universal laws, the course will help students appreciate scientific discoveries and give them the conceptual understanding to form intelligent views of contemporary scientific issues. For non-science/engineering majors.

NSCI 120 - INTRODUCTION SCIENTIFIC RESEARCH CHALLENGES
Short Title: INTR SCIENTIFIC RES CHALLENGES
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students in NSCI 120 will solve client-based problems that require the discovery or application of scientific knowledge, specifically in the fields of biology and chemistry. Students will work in interdisciplinary teams and be involved in shaping their project and implementing the scientific method to find solutions. This course is limited to first-year students only. Mutually Exclusive: Cannot register for NSCI 120 if student has credit for BIOC 112.

NSCI 121 - SCHOLARLY APPROACHES TO GENERAL CHEMISTRY
Short Title: SCHOLARLY APPROACH TO GEN CHEM
Department: Natural Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Course Level: Undergraduate Lower-Level
Description: This course provides a small collaborative learning environment to reinforce best study practices and concepts covered in CHEM 121 and CHEM 122. Instructor Permission Required.

NSCI 199 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 0-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Independent Study in an area of science with emphasis on scientific procedures and methods. Instructor Permission Required.

NSCI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

NSCI 305 - NEW VENTURE COMMUNICATION FOR SCIENCE AND ENGINEERING
Short Title: NEW VENTURE COMMUN FOR SCI&ENG
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Teaches students in science or engineering the skills needed to discover, communicate, and promote products and services based on technological innovation or scientific research. Students learn to innovate a product or service with social or commercial application, write an early-stage business plan, and give a 10-minute financing presentation.

NSCI 320 - PUBLIC SCIENCE COMMUNICATION SEMINAR
Short Title: PUBLIC SCIENCE COMM SEMINAR
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOC 201 or CHEM 111 or CHEM 121 or CHEM 151 or PHYS 101 or PHYS 111 or PHYS 125
Description: Scientists are increasingly expected to communicate with the public. In this course, students learn from people who regularly communicate about science with general audiences in order to gain an appreciation for the various types of public science communication, its importance to society, and techniques used in effective public science communication. Graduate/Undergraduate Equivalency: NSCI 520. Mutually Exclusive: Cannot register for NSCI 320 if student has credit for NSCI 520. Repeatable for Credit.

NSCI 410 - MEDICAL LEADERSHIP RESEARCH
Short Title: MEDICAL LEADERSHIP RESEARCH
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will help in ongoing research in the health profession program with Dr. Gia Merlo. Additionally, students may conduct independent medical leadership/professionalism research upon approval. Instructor Permission Required. Repeatable for Credit.
NSCI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

NSCI 501 - PROFESSIONAL MASTER'S SEMINAR
Short Title: PROFESSIONAL MASTER'S SEMINAR
Department: Natural Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a MS in Applied Chemical Science, MS in Biosci & Health Policy, MS in Environmental Analysis, MS in Space Studies or MS in Subsurface Geoscience degrees.
Course Level: Graduate
Description: A weekly seminar which serves to provide exposure to local industry leaders from the areas of oil and gas exploration, nanotechnology, and environmental management; introduce career management and business relations tools; further develop written and oral communication skills; provide a forum for students to present internship project results. Repeatable for Credit.

NSCI 502 - SPACE STUDIES SEMINAR
Short Title: SPACE STUDIES SEMINAR
Department: Natural Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly space seminar held by space industry leaders and organized by faculty providing exposure on "real-world" subjects, such as general, commercial and scientific aspects of space; mission planning and design; astrodynamics/orbital mechanics; spacecraft navigation; Payload definition; Space environment; propulsion and maneuvering; human factors; risk management; export control regulations and others. Repeatable for Credit.

NSCI 505 - ENVIRONMENTAL LAB
Short Title: ENVIRONMENTAL LAB
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Laboratory module offered in conjunction with CAAM 353 that illustrates applications of numerical analysis in the solutions of common environmental science and engineering problems. Instructor Permission Required.

NSCI 506 - ENVIRONMENTAL CASE STUDIES
Short Title: ENVIRONMENTAL CASE STUDIES
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar bringing in outside speakers from the community to address environmental issues.

NSCI 510 - PROFESSIONAL MS INTERNSHIP
Short Title: PROFESSIONAL MS INTERNSHIP
Department: Natural Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 12
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a MS in Applied Chemical Science, MS in Biosci & Health Policy, MS in Environmental Analysis, MS in Space Studies or MS in Subsurface Geoscience degrees.
Course Level: Graduate
Description: Supervised internship or project associated with pursued degree. Exclusively for students in the Professional Master's Program in Natural Sciences. Repeatable for Credit.

NSCI 511 - SCIENCE POLICY, AND ETHICS
Short Title: SCIENCE POLICY, AND ETHICS
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the policy, ethics, politics, and legal issues that relate to science and technology - discovery and application. This course presents a framework for analyzing ethical issues in business and professional work. The course then explores the ways in which government policy and business practices can promote or inhibit advances in science and technology while influencing the ethical choices of the professionals involved. Case studies will be used. Instructor Permission Required.

NSCI 512 - PROFESSIONAL MASTER'S PROJECT
Short Title: PROFESSIONAL MASTER'S PROJECT
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a MS in Applied Chemical Science, MS in Biosci & Health Policy, MS in Environmental Analysis, MS in Space Studies or MS in Subsurface Geoscience degrees.
Course Level: Graduate
Description: Professional master students present the results of their internship or independent project. Recommended Prerequisite(s): NSCI 510.
NSCI 515 - FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT
Short Title: PROGRAM/PROJECT MANAGEMENT
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Today's complex socio-technical systems require planning, system thinking, tools and techniques to effectively manage. Recognizing this need, businesses and organizations have developed and fielded a myriad of mechanisms and tools to help them deliver complex systems and effectively manage portfolios of efforts to meet strategic needs. This course provides a fundamental understanding of the core principles for the tools and techniques. It includes exposure to the some of the software tools to give the student hands on experience with practical examples and apply critical thinking to select which techniques are appropriate in future undertakings which have the complexity to require them. The course also includes a review of the material required for students to pass the exam for PMP certification. The course consists of readings, lectures, case analyses and application of the tools and techniques to project ideas generated by the students.

NSCI 520 - PUBLIC SCIENCE COMMUNICATION SEMINAR
Short Title: PUBLIC SCIENCE COMM SEMINAR
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): BIOC 201 or CHEM 111 or CHEM 121 or CHEM 151 or PHYS 101 or PHYS 111 or PHYS 125
Description: Scientists are increasingly expected to communicate with the public. In this course, students learn from people who regularly communicate about science with general audiences in order to gain an appreciation for the various types of public science communication, its importance to society, and techniques used in effective public science communication. Graduate/Undergraduate Equivalency: NSCI 320. Mutually Exclusive: Cannot register for NSCI 520 if student has credit for NSCI 320. Repeatable for Credit.

NSCI 521 - WRITING AND PUBLISHING SCIENCE
Short Title: WRITING AND PUBLISHING SCIENCE
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: To prepare graduate students for writing and publishing independent research, this course examines the genre of the primary literature article; analyzes successful writing; explores ways of managing references and avoiding plagiarism; and addresses issues of authorship, submission, and peer review. Students will receive peer feedback on documents in preparation.

NSCI 530 - THE SHAPING OF HEALTH POLICY
Short Title: THE SHAPING OF HEALTH POLICY
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of how health-care policy decisions are made and implemented, using an interdisciplinary approach involving government, law, ethics, economics, and history. Includes case discussions of major policy problems by faculty experts in these disciplines and guest speakers who are leading national figures in the shaping of public policy. Mutually Exclusive: Cannot register for NSCI 530 if student has credit for POST 430/POST 530/SOSC 430.

NSCI 550 - APPLIED MATHEMATICS AND SCIENCE FOR TEACHERS
Short Title: APPLIED MATH FOR TEACHERS
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a professional development course to serve high school physics teachers. It will cover topics in kinematics and mechanics with student-centered inquiry based pedagogy. Teachers will develop laboratory and hands-on activates, learn about new developments in physics research, and share best practices. The course goal is to improve teachers' science content knowledge related to the Texas Essential Knowledge and to provide teachers with tools to engage their students in science. Instructor Permission Required.

NSCI 573 - TEACHING PHYSICS VIA INQUIRY I KINEMATICS
Short Title: TEACHING PHYSICS VIA INQUIRY I
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a professional development course to serve high school physics teachers. It will cover topics in kinematics and mechanics with student-centered inquiry based pedagogy. Teachers will develop laboratory and hands-on activates, learn about new developments in physics research, and share best practices. The course goal is to improve teachers' science content knowledge related to the Texas Essential Knowledge and to provide teachers with tools to engage their students in science. Instructor Permission Required.
NSCI 574 - TEACHING PHYSICS VIA INQUIRY II, ELECTRICITY AND MAGNETISM
Short Title: TEACHING PHYSICS - INQUIRY II
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a professional development course to serve high school physics teachers. It will cover topics in electromagnetism with student-centered inquiry based pedagogy. Teachers will develop laboratory and hands-on activities, learn about new developments in physics research, and share best practices. The course goal is to improve teachers’ science content knowledge related to the Texas Essential Knowledge and to provide teachers with tools to engage their students in science. Instructor Permission Required. Recommended Prerequisite(s): NSCI 573.

NSCI 580 - CONTEMPORARY TOPICS IN ELEMENTARY SCHOOL MATHEMATICS
Short Title: CONTEMP TOPICS IN ELEM MATH
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mathematics topics related to and transcending elementary school mathematics. Active, student-centered, inquiry-based learning experiences using manipulatives and the latest technologies in a collaborative setting. Contemporary readings related to mathematics education. Problem-solving and motivational strategies, assessment, differentiated instruction, and questioning techniques to meet the needs of all learners. Curriculum development using the RUSMP Learning Plan.

NSCI 585 - CONTEMPORARY TOPICS IN MIDDLE SCHOOL MATHEMATICS
Short Title: CONTEMP TOPICS IN MDL SCH MATH
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mathematics topics related to and transcending middle school mathematics. Active, student-centered, inquiry-based learning experiences using manipulatives and the latest technologies in a collaborative setting. Contemporary readings related to mathematics education. Problem-solving and motivational strategies, assessment, differentiated instruction, and questioning techniques to meet the needs of all learners. Curriculum development using the RUSMP Learning Plan.

NSCI 586 - CONTEMPORARY TOPICS IN K-12 SCIENCE AND MATHEMATICS
Short Title: CONT TOPICS IN K-12 SCI & MATH
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Contemporary topics in grades K-12 science and mathematics instruction and covers both content and pedagogy. Multiple sections are offered. Each section focuses on a specific areas of instruction at specified grades. All sections include field studies, inquiry, curriculum development and implementation of instructional strategies in the classroom. Students may enroll in different sections for repeated credit. Instructor Permission Required. Repeatable for Credit.

NSCI 590 - CONTEMPORARY TOPICS IN SENIOR HIGH SCHOOL MATHEMATICS
Short Title: CONTEMP TOPICS HIGH SCHL MATH
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Mathematics topics related to and transcending high school mathematics. Active, student-centered, inquiry-based learning experiences using manipulatives and the latest technologies in a collaborative setting. Contemporary readings related to mathematics education. Problem-solving and motivational strategies, assessment, differentiated instruction, and questioning techniques to meet the needs of all learners. Curriculum development using the RUSMP Learning Plan.

NSCI 592 - SEMINAR IN SCIENCE FOUNDATIONS
Short Title: SEMINAR IN SCIENCE FOUNDATIONS
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: SEMINAR IN SCIENCE FOUNDATIONS ***** Seminar with a team of university faculty and community-based scientists (in fields such as medicine, space, energy, and the environment) to increase understanding of scientific principles as they are applied in the scientific community of Houston and as they relate to secondary school science.
Navy Officer. Repeatable for Credit.

Description:
Course Level: Professional or Visiting Undergraduate level students.
Restrictions:
Course Type:
Grade Mode:
Department:
Short Title:
NAVA 100 - NAVAL SCIENCE LABORATORY
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Practical applications of leadership principles as a Junior Naval Officer. Repeatable for Credit.

NAVA 101 - NAVAL ORIENTATION
Short Title: NAVAL ORIENTATION
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to naval traditions and customs, seamanship, naval organization and missions, and the fundamental concepts of sea power.

NAVA 103 - SEA POWER AND MARITIME AFFAIRS
Short Title: SEA POWER
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Readings, discussions, and research on selected topics related to the history, importance, and impact of sea power on modern civilization.

NAVA 203 - LEADERSHIP AND MANAGEMENT I
Short Title: LEADERSHIP AND MANAGEMENT I
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the principles and concepts of management, organization, leadership, information systems, and decision making.

NAVA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Naval Science (NAVA)

NAVA 301 - NAVIGATION I
Short Title: NAVIGATION I
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Marine navigators and laws of vessel operations. Includes coastal piloting, navigational aids, nautical astronomy, satellite and inertial systems, and rules of the nautical road.

Navy Science (NAVA)

NAVA 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Natural Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
NAVA 302 - NAVAL OPERATIONS AND SEAMANSHIP
Short Title: NAVAL OPERATIONS & SEAMANSHIP
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An analysis of ship movements, formations, and fleet operations; includes Rules of the Road, maneuvering board, tactical publications and communications.

NAVA 303 - EVOLUTION OF WARFARE
Short Title: EVOLUTION OF WARFARE
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical survey of the evolution of the conduct of warfare. Strategy, tactics, weapons, organization, and military leaders/thinkers are studied. Course is taught in the NROTC Building.

NAVA 304 - NAVAL WEAPONS-NAVAL SHIP SYSTEMS II
Short Title: NAVAL WEAPONS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The theory and employment of weapons systems. The student explores the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. The physical aspects of radar and underwater sound are described in detail.

NAVA 402 - LEADERSHIP AND ETHICS
Short Title: LEADERSHIP AND ETHICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): NAVA 203
Description: Leadership principles, with particular emphasis on ethics, human resources management, military law and discipline, and administration. The Capstone course for NROTC seniors. Recommended prerequisite(s): Spring semester of senior year.

NAVA 403 - NAVAL ENGINEERING
Short Title: NAVAL ENGINEERING
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Ship propulsion systems, auxiliary systems, steering systems, electrical power distribution, ship design, ship stability and damage control measures.

NAVA 411 - FUNDAMENTALS OF MANEUVER WARFARE
Short Title: FUND OF MANEUVER WARFARE
Restrictions: Cannot register for NAVA 411 if student has credit for NAVA 410.
Course Level: Undergraduate Upper-Level
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mutually Exclusive: Cannot register for NAVA 411 if student has credit for NAVA 410.

NAVA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Restrictions: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Neuroscience (NEUR)
NEUR 111 - SCIENCE AND ART IN DIALOGUE: EXPERIMENT, IMAGINATION, AND THE INVENTION OF NEUROSCIENCE
Short Title: SCIENCE AND ART IN DIALOGUE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: We will take up the argument that "Proust was right about memory, Cezanne was uncannily accurate about the visual cortex, and Woolf pierced the mystery of consciousness," as we discuss aspects of the brain revealed by the texts, paintings, dishes and compositions of eight modern artists.
NEUR 238 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Lower-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

NEUR 304 - CELLULAR NEUROPHYSIOLOGY I & II  
Short Title: CELLULAR NEUROPHYSIOLOGY I & II  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PHYS 125 and (MATH 101 or MATH 105)  
Description: Properties of excitable nerve membranes and chemical synapses; theory of ions in solutions, ion conduction through membranes, ion transport, linear cable theory, nonlinear properties of neurons, + stochastic properties of single ion channels, synaptic transmission, the role of calcium and transmitter release, + postsynaptic mechanism. Taught at Baylor College of Medicine; check NEUR website. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 504. Mutually Exclusive: Cannot register for NEUR 304 if student has credit for NEUR 504. Repeatable for Credit.

NEUR 305 - OPTICAL IMAGING  
Short Title: OPTICAL IMAGING  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course includes a theoretical portion which will introduce the fundamentals of optical imaging of neural activity, present the devices that are employed, and review applications and discuss their results. In addition, in a practical part, students will design, set up, and perform simple in vitro experiments to gain practical experience with this exciting and powerful technology. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 505. Mutually Exclusive: Cannot register for NEUR 305 if student has credit for NEUR 505.  
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 306 - CONCEPTS OF LEARNING AND MEMORY  
Short Title: CONCEPT LEARNING & MEMORY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course is designed to introduce students to the field of learning and memory. This field has exploded in the last few years with the introduction of new techniques, new approaches, and new concepts. The course will introduce the student to classical and modern concepts of learning and memory across all levels at which learning and memory is studied, including behavioral, anatomical, cellular, molecular and genetic levels of analysis. The basic concepts of learning and memory will also be related to known diseases of learning and memory. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 506. Mutually Exclusive: Cannot register for NEUR 306 if student has credit for NEUR 506.  
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 308 - INTRODUCTION TO COGNITIVE NEUROSCIENCE  
Short Title: INTRO COGNITIVE NEUROSCIENCE  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 508. Mutually Exclusive: Cannot register for NEUR 308 if student has credit for NEUR 508.
NEUR 310 - INDEPENDENT RESEARCH FOR NEUROSCIENCE
UNDERGRADUATES
Short Title: IND RES FOR NEUR UNDERGRADS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Information on how to find a lab, apply to the course and what to expect can be found at www.neur310.rice.edu. This course gives credit for independent research in Rice Neuroscience faculty laboratories (or other Texas Medical Center laboratories.) Students spend at least 3 hours per week in the laboratory for each semester hour of credit. If taken for 3 or more hours, counts as one required 300+ level lab course within the neuroscience major. Can be repeated once for 3 hours or more to count towards an elective credit within the neuroscience major. Requires a proposal abstract, weekly reports, and a final project that summarizes your activities in the lab. Students wishing to perform their research in an off-campus lab must submit a completed application to the NEUR 310 instructor at least 2 weeks prior to the start of classes. Students are strongly advised to secure research advisors and register for the class well in advance of the start of classes. Repeatable for Credit. Suggested Pre-Reqs: CAAM 210 and BIOS 212; these are not required, but skills learned in these courses will help make you more valuable to labs when you apply. Instructor Permission Required. Repeatable for Credit.

NEUR 318 - INTRO TO NEUROSCIENCE METHODS
Short Title: INTRO TO NEUROSCIENCE METHODS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an introduction to the recording of signals from live neurons using microscopic and electrophysiologic methods. The course introduces the basics of instrumentation in the recording of real time biologic signals. The course is designed to run in parallel with a lab course. Course taught at Baylor College of Medicine. Graduate/Undergraduate Equivalency: NEUR 518. Mutually Exclusive: Cannot register for NEUR 318 if student has credit for NEUR 518.

NEUR 320 - GENETICS FOR NEUROSCIENCE
Short Title: GENETICS FOR NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course integrates genetics into neuroscience and is intended to teach neuroscience students how to tackle neurobiological problems using genetic strategies and tools. In the introduction, students will be exposed to the basic concepts in genetics. Strategies using model organisms from C.elegans to mice will be covered. Finally we will discuss genetic approaches in humans. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 523. Mutually Exclusive: Cannot register for NEUR 320 if student has credit for NEUR 523.

NEUR 319 - INTRODUCTION TO NEUROSCIENCE METHODS LAB
Short Title: NEUROSCIENCE METHODS LAB
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the laboratory course that is designed to run in parallel with the Introductory Neuroscience Methods lecture course. The Lab is designed to give students hands-on experience applying the ideas for real time recording of microscopic and neuropysiological signals. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 519. Mutually Exclusive: Cannot register for NEUR 319 if student has credit for NEUR 519.
NEUR 335 - CELLULAR NEUROPHYSIOLOGY  
Short Title: CELLULAR NEUROPHYSIOLOGY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course provides an upper level graduate treatment on the physiology and biophysics of nerve cell signaling. Topics to be covered include measurement and analysis of single events from ion channels to synaptic vesicle fusion, synaptic transmission and the relationship between calcium signaling and synaptic vesicle dynamics, short-term synaptic plasticity, and postsynaptic integration. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 535. Mutually Exclusive: Cannot register for NEUR 335 if student has credit for NEUR 535.

NEUR 350 - MOLECULAR NEUROBIOLOGY  
Short Title: MOLECULAR NEUROBIOLOGY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course covers the molecular, cellular, and biochemical events that underlie neuronal function. Emphasis is placed on the basic chemistry and biology of cells residing the nervous system. The course also covers the structure and function of receptors, channels and pumps necessary for neuronal function and the neurochemistry of specific transmitter systems. The unique demand of neurons as specialized secretory cells is also covered. This course is taught at UTHSC. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 550. Mutually Exclusive: Cannot register for NEUR 350 if student has credit for NEUR 550. Repeatable for Credit.

NEUR 362 - COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN  
Short Title: COGNITIVE NEUROSCIENCE  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group II  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 203  
Description: Survey of theory and research on how mental processes are carried out by the human brain, with an emphasis on relating measures of brain activity to cognitive functioning, methods surveyed included electro physiological recording techniques, functional imaging techniques and methods that involve lessoning or disrupting neural activity. Cross-list: PSYC 362.

NEUR 364 - COGNITIVE NEUROSCIENCE LAB  
Short Title: COGNITIVE NEUROSCIENCE LAB  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PSYC 362 (may be taken concurrently) or NEUR 362 (may be taken concurrently)  
Description: The objective is to equip the students of PSYC/NEUR 362 with the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensoriomotor and cognitive measures in a human model. The prereq may be taken the same semester as this class. Instructor Permission Required. Cross-list: PSYC 364. Graduate/Undergraduate Equivalency: NEUR 564. Mutually Exclusive: Cannot register for NEUR 364 if student has credit for NEUR 564.

NEUR 376 - NEUROBIOLOGY OF DISEASE  
Short Title: NEUROBIOLOGY OF DISEASE  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Covers some of the most important disorders of nervous system function. Exposes students to incidence, clinical manifestations, pathophysiology, current scientific models of causes/mechanisms of disorders of the adult brain: stroke, Parkinson’s disease, Alzheimer’s disease, seizure disorders, brian tumors, multiple sclerosis, amyotrophic lateral sclerosis, brain/spinal cord injury, addiction, depression, and schizophrenia. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 576. Mutually Exclusive: Cannot register for NEUR 376 if student has credit for NEUR 576.

NEUR 377 - NEUROANATOMY: FUNCTIONAL ORGANIZATION OF THE CENTRAL NERVOUS SYSTEM  
Short Title: FUNCTIONAL NEUROANATOMY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 2-3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. This course is offered for Rice psychology graduate undergraduate students. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 577. Mutually Exclusive: Cannot register for NEUR 377 if student has credit for NEUR 577.
NEUR 379 - NEUROBIOLOGY OF SENSATION AND MOVEMENT  
Short Title: NEUROBIO OF SENSATION/MOVEMENT  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Overview of basic systems neuroscience. The course covers sensory transduction, development, and motor programming. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 579. Mutually Exclusive: Cannot register for NEUR 370 if student has credit for NEUR 579.

NEUR 380 - FUNDAMENTAL NEUROSCIENCE SYSTEMS  
Short Title: NEUROSYSTEMS  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. The course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Cross-list: PSYC 380. Recommended Prerequisite(s): PSYC 101.

NEUR 381 - PHYSIOLOGY OF VISUAL SYSTEM  
Short Title: PHYSIOLOGY OF VISUAL SYSTEM  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Course provides an advanced level and comprehensive coverage of the physiology of the retina and visual cortex. Useful for graduate students and postdocs in neuroscience, physiology, biochemistry, cell biology, and molecular genetics who are interested in visual information processing and brain function. Offered even years only. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 580. Mutually Exclusive: Cannot register for NEUR 381 if student has credit for NEUR 580.

NEUR 382 - INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE  
Short Title: INTRO COMPUTATIONAL NEURSCI  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to methods and theories used to describe and understand neural information processing in the brain. Models covered will range from single neuron to networks for sensory, motor and learning tasks. Programming exercises will be done using Matlab. Cross-list: ELEC 382. Graduate/Undergraduate Equivalency: NEUR 582. Recommended Prerequisite(s): CAAM 210. Mutually Exclusive: Cannot register for NEUR 382 if student has credit for NEUR 582.

NEUR 383 - INTRODUCTION TO NEUROENGINEERING: MEASURING AND MANIPULATING NEURAL ACTIVITY  
Short Title: INTRO TO NEUROENGINEERING  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (PHYS 101 or PHYS 111 or PHYS 125 or PHYS 141) and (PHYS 102 or PHYS 112 or PHYS 126 or PHYS 142)  
Description: This course will serve as an introduction to quantitative modeling of neural activity and the methods used to stimulate and record brain activity. Cross-list: BIOE 380, ELEC 380.

NEUR 401 - UNDERGRADUATE HONORS RESEARCH  
Short Title: UNDERGRADUATE HONORS RESEARCH  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 5  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): NEUR 310 or NEUR 485  
Description: The Neuroscience Honors Research Program is a suite of courses offering our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Neuroscience. Students having performed NEUR 310 research in an off-campus laboratory in the Texas Medical Center will also be eligible to apply to perform honors research in that laboratory. The Honors Research Program courses function as a set and must all be taken in the same academic year. Registration for any of the courses requires a commitment to register for all three. Requires at least 15 hours of laboratory research per week, a proposal (revised from application), monthly reports, and a formal progress report (abstract, aims, progress toward aims, discussion of results, plans for the spring semester). Prerequisites: strong performance in NEUR 310 or NEUR 485. Research professor recommendation required. Application for admission required. Instructor Permission Required. Repeatable for Credit.
NEUR 402 - UNDERGRADUATE HONORS RESEARCH
Short Title: UNDERGRADUATE HONORS RESEARCH
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 5
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (NEUR 310 or NEUR 485) and NEUR 401
Corequisite: NEUR 412
Description: The Neuroscience Honors Research Program is a suite of courses offering our seniors and advanced juniors the opportunity to perform a two-semester, individual research project in a research laboratory in Neuroscience. Students having performed NEUR 310 research in an off-campus laboratory in the Texas Medical Center will also be eligible to apply to perform honors research in that laboratory. Registration for any of the courses requires a commitment to register for all three. Requires at least 15 hours of laboratory research per week, monthly reports, a thesis (substantial research paper) and a poster presentation at the Rice Undergraduate Research Symposium. Must register for corequisite: NEUR 412. Instructor Permission Required. Repeatable for Credit.

NEUR 411 - NEUROLINGUISTICS
Short Title: NEUROLINGUISTICS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of language and the brain. Includes localization of speech, language, and memory functions, hemispheric dominance, pathologies of speech and language associated with brain damage, and hypotheses of the representation and operation of linguistic information in the cortex. Cross-list: LING 411.

NEUR 412 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (NEUR 310 or NEUR 485) and NEUR 401
Corequisite: NEUR 402
Description: This companion seminar requires attendance at course meetings and a formal scientific presentation of research performed while enrolled in the Honors Research Program. Must register for corequisite: NEUR 402. Instructor Permission Required. Repeatable for Credit.

NEUR 415 - THEORETICAL NEUROSCIENCE: FROM CELLS TO LEARNING SYSTEMS
Short Title: THEORETICAL NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. This course is independent, but complementary to NEUR 416. Cross-list: CAAM 415, ELEC 488. Graduate/Undergraduate Equivalency: NEUR 615. Recommended Prerequisite(s): CAAM 210 or MATH 211 or CAAM 335 or MATH 355. Mutually Exclusive: Cannot register for NEUR 415 if student has credit for NEUR 615.

NEUR 416 - NEURAL COMPUTATION
Short Title: NEURAL COMPUTATION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How does the brain work? Understanding the brain requires sophisticated theories to make sense of the collective actions of billions of neurons and trillions of synapses. Word theories are not enough; we need mathematical theories. The goal of this course is to provide an introduction to the mathematical theories of learning and computation by neural systems. These theories use concepts from dynamical systems (attractors, oscillations, chaos) and concepts from statistics (information, uncertainty, inference) to relate the dynamics and functions of neural networks. We will apply these theories to sensory computation, learning and memory, and motor control. Students will learn to formalize and mathematically answer questions about neural computations, including “what does a network compute?”, “how does it compute?”, and “why does it compute that way?” Prerequisites: knowledge of calculus, linear algebra, and probability and statistics. Cross-list: CAAM 416, ELEC 489.

NEUR 450 - ELECTRICAL SIGNALING IN THE BRAIN
Short Title: ELECTRICAL SIGNALING IN BRAIN
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Electrical Signaling in the Brain covers the basics concepts of electrical signaling from the proteins involved, biophysical principles and computational methods required to understand measure and characterize electrical signaling in the brain. Instructor Permission Required. Repeatable for Credit.
NEUR 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

NEUR 501 - ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION
Short Title: ATTENTION AND PERCEPTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods, and the historical and philosophical context of contemporary neuroscience. Cross-list: PSYC 575. Mutually Exclusive: Cannot register for NEUR 501 if student has credit for NEUR 301.
Course URL: www.ruf.rice.edu/~neurosci/ (http://www.ruf.rice.edu/~neurosci/)

NEUR 502 - ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS
Short Title: HIGHER MENTAL FUNCTIONS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of neuropsychological and neuroimaging approaches to higher mental functions, including language, memory, executive functions, reasoning, and numerical processing. Cross-list: PSYC 576. Mutually Exclusive: Cannot register for NEUR 502 if student has credit for NEUR 302.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 504 - CELLULAR NEUROPHYSIOLOGY I & II
Short Title: CELLULAR NEUROPHYSIOLOGY I&II
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PHYS 125 and (MATH 101 or MATH 105)
Description: Properties of excitable nerve membranes and chemical synapses; theory of ions in solutions, ionic conduction through membranes, ion transport, linear cable theory, nonlinear properties of neurons, + stochastic properties of single ion channels, synaptic transmission, the role of calcium and transmitter release, + postsynaptic mechanism. Taught at Baylor College of Medicine; check NEUR website. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 304. Mutually Exclusive: Cannot register for NEUR 504 if student has credit for NEUR 304. Repeatable for Credit.

NEUR 505 - OPTICAL IMAGING
Short Title: OPTICAL IMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course includes a theoretical portion which will introduce the fundamentals of optical imaging of neural activity, present the devices that are employed, and review applications and discuss their results. In addition, in a practical part, students will design, set up, and perform simple in vitro experiments to gain practical experience with this exciting and powerful technology. Course taught at Baylor College of Medicine; check NEUR website. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 305. Mutually Exclusive: Cannot register for NEUR 505 if student has credit for NEUR 305.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 506 - CONCEPTS OF LEARNING AND MEMORY
Short Title: CONCEPT LEARNING&MEMORY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is designed to introduce graduate students to the field of learning and memory. This field has exploded in the last few years with the introduction of new techniques, new approaches, and new concepts. The course will introduce the student to classical and modern concepts of learning and memory across all levels at which learning and memory is studied, including behavioral, anatomical, cellular, molecular and genetic levels of analysis. The basic concepts of learning and memory will also be related to known diseases of learning and memory. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 306. Mutually Exclusive: Cannot register for NEUR 506 if student has credit for NEUR 306.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)
NEUR 508 - INTRODUCTION TO COGNITIVE NEUROSCIENCE
Short Title: INTRO COGNITIVE NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Cross-list: PSYC 574.
Graduate/Undergraduate Equivalency: NEUR 308. Mutually Exclusive: Cannot register for NEUR 508 if student has credit for NEUR 308.

NEUR 510 - NEUROPHARMACOLOGY
Short Title: NEUROPHARMACOLOGY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objectives of this course are to examine how pharmacological agents have been used to elucidate the function of neurotransmitter systems in the central nervous system. In addition, the mechanism of some clinically effective drugs are reviewed in terms of the structure and function of the brain. Instructor Permission Required. Repeatable for Credit.

NEUR 515 - NEURAL DEVELOPMENT
Short Title: NEURAL DEVELOPMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An advanced graduate course focusing on molecular genetic studies. Integrates molecular patterning of nervous system with developmental neuroscience using a cross-species approach, with an emphasis on the visual system. Topics include the biochemical and genetic basis for neural plasticity, neurotrophic factors in neural development, and the molecular mechanism of growth core guidance and synapse formation. Course taught at Baylor College of Medicine. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci

NEUR 516 - SENSORY SYSTEMS
Short Title: SENSORY SYSTEMS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A two-part course covering sensory transduction in audition, touch, and the chemical senses, and a detailed coverage of the visual system, including retinal structures and central pathways, photo transduction, receptive fields, and functional organization in the cortex. Course taught at Baylor College of Medicine. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci

NEUR 517 - MECHANISMS OF MEMORY
Short Title: MECHANISM OF MEMORY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Synthesizes our understanding of the mechanism of higher-order memory formation covering learning theory, cellular physiology and biochemistry and discussing memory disorders. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci

NEUR 518 - INTRODUCTION TO NEUROSCIENCE METHODS
Short Title: INTRO TO NEUROSCIENCE METHODS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an introduction to the recording of signals from live neurons using microscopic and electrophysiologic methods. The course introduces the basics of instrumentation in the recording of real time biologic signals. The course is designed to run in parallel with a lab course. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 318. Mutually Exclusive: Cannot register for NEUR 518 if student has credit for NEUR 318.
Course URL: www.ruf.rice.edu/~neurosci
NEUR 519 - INTRODUCTION TO NEUROSCIENCE METHODS LAB
Short Title: NEUROSCIENCE METHODS LAB
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is the laboratory course that is designed to run in parallel with the Introductory Neuroscience Methods lecture course. The Lab is designed to give students hands-on experience applying the ideas for real time recording of microscopic and neurophysiological signals. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 319. Mutually Exclusive: Cannot register for NEUR 519 if student has credit for NEUR 319.

NEUR 520 - TEN UNSOLVED QUESTIONS IN NEUROSCIENCE
Short Title: TEN UNSOLVED QUESTIONS IN NEUR
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Neuroscience has yet to establish its general principles. This course introduces the major topics including memory, sleep, consciousness, information in neural activity, emotions, plasticity, and intelligence. Each week’s lecture introduces a new problem, addressing why the question is important, its history, current thinking, and what we have learned. Course taught at Baylor College of Medicine. Instructor Permission Required.
Course URL: www.ruf.rice.edu/~neurosci (http://www.ruf.rice.edu/~neurosci/)

NEUR 521 - ANALYSES OF NEURONAL FUNCTION
Short Title: ANALYSES OF NEURONAL FUNCTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover all basic aspects of the intrinsic electrophysiological properties of neurons and of synaptic transmission. It will also introduce principles of synaptic integration and plasticity. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 321. Mutually Exclusive: Cannot register for NEUR 521 if student has credit for NEUR 321.

NEUR 522 - BRAIN CELL BIOLOGY AND DEVELOPMENT
Short Title: BRAIN CELL BIOL & DEVELOPMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and development of the nervous system is designed to introduce the graduate student to the basic structure and function of the nervous system, and describe its rough development. It is intended for first year graduate students without any specific advanced knowledge of neuroscience. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 322. Mutually Exclusive: Cannot register for NEUR 522 if student has credit for NEUR 322.

NEUR 523 - GENETICS FOR NEUROSCIENCE
Short Title: GENETICS FOR NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course integrates genetics into neuroscience and is intended to teach neuroscience students how to tackle neurobiological problems using genetic strategies and tools. In the introduction, students will be exposed to the basic concepts in genetics. Strategies using model organisms from C.elegans to mice will be covered. Finally we will discuss genetic approaches in humans. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 323. Mutually Exclusive: Cannot register for NEUR 523 if student has credit for NEUR 323.

NEUR 525 - NEUROSCIENCE AND LAW
Short Title: NEUROSCIENCE AND LAW
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course addresses how the modern understanding of brain function will intersect with the making of law, the punishment of criminals, and the development of new rehabilitation strategies. The readings will bring together a unique conjunction of neurobiology, legal scholarship, and policy making. The goals of the course will be to facilitate an understanding of the neurobiological underpinnings of behaviors that are subject to legal consequences for individuals and groups, and using this emerging base of scientific information to design modern, evidence-based policy.
NEUR 530 - THEORY, CONTENT, AND EXECUTION IN COGNITIVE NEUROSCIENCE  
Short Title: COGNITIVE NEUROSCIENCE THEORY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is designed to provide students with the skills necessary to become successful cognitive neuroscientists. Students will receive instruction in designing experiments and analyzing data, selecting research topics, relating theory to their work and how to say up to date on current research. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Repeatable for Credit.

NEUR 535 - CELLULAR NEUROPHYSIOLOGY  
Short Title: CELLULAR NEUROPHYSIOLOGY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides an upper level graduate treatment on the physiology and biophysics of nerve cell signaling. Topics to be covered include measurement and analysis of single events from ion channels to synaptic vesicle fusion, synaptic transmission and the relationship between calcium signaling and synaptic vesicle dynamics, short-term synaptic plasticity, and postsynaptic integration. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 335. Mutually Exclusive: Cannot register for NEUR 535 if student has credit for NEUR 335. Repeatable for Credit.

NEUR 540 - GRADUATE NEUROANATOMY  
Short Title: GRADUATE NEUROANATOMY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course covers a broad overview of the structure and function of the central nervous system. The general architecture of the nervous system and its function systems are present in a series of online exercise. MRIs of brain anatomy, as commonly presented in the scientific literature, will be presented using a computerized learning system. This course is taught at the University of Texas Health Sciences Center. Instructor Permission Required. Repeatable for Credit.

NEUR 550 - MOLECULAR NEUROBIOLOGY  
Short Title: MOLECULAR NEUROBIOLOGY  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course covers the molecular, cellular, and biochemical events that underlie neuronal function. Emphasis is placed on the basic chemistry and biology of cells residing the nervous system. The course also covers the structure and function of receptors, channels and pumps necessary for neuronal function and the neurochemistry of specific transmitter systems. The unique demand of neurons as specialized secretory cells is also covered. This course is taught at UTHSC. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 350. Mutually Exclusive: Cannot register for NEUR 550 if student has credit for NEUR 350. Repeatable for Credit.

NEUR 564 - COGNITIVE NEUROSCIENCE LAB  
Short Title: COGNITIVE NEUROSCIENCE LAB  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The objective is to equip the students of PSYC/NEUR 362 the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. Cross-list: PSYC 564. Graduate/Undergraduate Equivalency: NEUR 364. Mutually Exclusive: Cannot register for NEUR 564 if student has credit for NEUR 364.

NEUR 576 - NEUROBIOLOGY OF DISEASE  
Short Title: NEUROBIOLOGY OF DISEASE  
Department: Neurosciences  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Covers some of the most important disorders of nervous system function. Exposes students to incidence, clinical manifestations, pathophysiology, current scientific models of causes/mechanisms of disorders of the adult brain: stroke, Parkinson’s disease, Alzheimer’s disease, seizure disorders, brain tumors, multiple sclerosis, amyotrophic lateral sclerosis, brain/spinal cord injury, addiction, depression, and schizophrenia. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 376. Mutually Exclusive: Cannot register for NEUR 576 if student has credit for NEUR 376.
NEUR 577 - NEUROANATOMY: FUNCTIONAL ORGANIZATION OF THE CENTRAL NERVOUS SYSTEM
Short Title: FUNCTIONAL NEUROANATOMY
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 2-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of components of the nervous system with an emphasis on the central nervous system. This course is offered for Rice psychology graduate undergraduate students. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 377. Mutually Exclusive: Cannot register for NEUR 577 if student has credit for NEUR 377.

NEUR 578 - HIGHER BRAIN FUNCTION
Short Title: HIGHER BRAIN FUNCTION
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Aspects of systems’ neuroscience related to higher brain function: (1) role of limbic system in higher brain functions, (2) role of the extended amygdala and the mesolimbic system in reward and addiction, (3) discussion of human brain processes including decision making, goal directed learning and representation of self and others. Course taught at Baylor College of Medicine. Instructor Permission Required. Mutually Exclusive: Cannot register for NEUR 578 if student has credit for NEUR 378.

Course URL: [www.ruf.rice.edu/~neurosci](http://www.ruf.rice.edu/~neurosci)

NEUR 579 - NEUROBIOLOGY OF SENSATION AND MOVEMENT
Short Title: NEUROBIOLOGY OF SENSATION/MOVEMENT
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of basic systems neuroscience. The course covers sensory transductions, development, and motor programming. Course taught at Baylor College of Medicine. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 379. Mutually Exclusive: Cannot register for NEUR 579 if student has credit for NEUR 379.

NEUR 580 - PHYSIOLOGY OF VISUAL SYSTEM
Short Title: PHYSIOLOGY OF VISUAL SYSTEM
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course provides an advanced level and comprehensive coverage of the physiology of the retina and visual cortex. Useful for graduate students and postdocs in neuroscience, physiology, biochemistry, cell biology, and molecular genetics who are interested in visual information processing and brain function. Offered even years only. Instructor Permission Required. Graduate/Undergraduate Equivalency: NEUR 381. Mutually Exclusive: Cannot register for NEUR 580 if student has credit for NEUR 381.

NEUR 582 - INTRODUCTION TO COMPUTATIONAL NEUROSCIENCE
Short Title: INTRO COMPUTATIONAL NEURSCI
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to methods and theories used to describe and understand neural information processing in the brain. Models covered will range from single neuron to networks for sensory, motor and learning tasks. Programming exercises will be done using Matlab. Additional coursework required beyond the undergraduate course requirements. Graduate/Undergraduate Equivalency: NEUR 382. Mutually Exclusive: Cannot register for NEUR 582 if student has credit for ELEC 382/NEUR 382.

NEUR 584 - FUNDAMENTALS OF HUMAN NEUROIMAGING
Short Title: HUMAN NUROIMAGING
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of methods and results for human brain imaging. Describes the physical and physiological mechanisms of image formation. Provides examples from clinical and basic research, particularly in visual cortex. Emphasis on magnetic resonance imaging, but surveys other imaging modalities including PET, optical, and EEG/MEG source localization. Course taught at Baylor College of Medicine. Cross-list: ELEC 584. Mutually Exclusive: Cannot register for NEUR 584 if student has credit for NEUR 430.
NEUR 615 - THEORETICAL NEUROSCIENCE I: BIOPHYSICAL MODELING OF CELLS AND CIRCUITS
Short Title: THEORETICAL NEUROSCIENCE
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: We present the theoretical foundations of cellular and systems neuroscience from distinctly quantitative point of view. We develop the mathematical and computational tools as they are needed to model, analyze, visualize and interpret a broad range of experimental data. Additional course work required beyond the undergraduate course requirements. Cross-list: CAAM 615, ELEC 588. Graduate/Undergraduate Equivalency: NEUR 415. Mutually Exclusive: Cannot register for NEUR 615 if student has credit for NEUR 415.

NEUR 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Neurosciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Philosophy (PHIL)

PHIL 100 - INTRODUCTION TO PHILOSOPHY
Short Title: INTRODUCTION TO PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to philosophy through a variety of philosophical topics (such as: morality, determinism, knowledge, consciousness), figures (such as: Plato, Aristotle, Descartes, Nietzsche), or some combination of these. Encounter some of the hardest, deepest thoughts developed over the last 2500 years!

PHIL 125 - PHILOSOPHY THROUGH ARTWORKS
Short Title: PHILOSOPHY THROUGH ARTWORKS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to philosophically interesting artworks and, through them, the philosophical study of art. Artworks studied can include popular music, painting, sculpture, films, television, fiction, poetry, and more. Previously offered as PHIL 109. Mutually exclusive with PHIL 109, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 125 if student has credit for PHIL 109.

PHIL 130 - THE SCIENCES OF THE MIND
Short Title: THE SCIENCES OF THE MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the scientific investigation of the mind, with special attention to topics of particular philosophical interest. Topics are likely to include: representation and computation, perception, cognition, action, and the neural implementation of mental states and processes. Previously offered as PHIL 103. Mutually exclusive with PHIL 103, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 130 if student has credit for PHIL 103.

PHIL 160 - MORAL PROBLEMS
Short Title: MORAL PROBLEMS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to moral and political theorizing, ranging across levels of abstraction from the more concrete (such as: abortion, war, the duty to vote) to the more rarified (such as: justice, goodness, the origins of norms). Previously offered as PHIL 101. Mutually exclusive with PHIL 101, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 160 if student has credit for PHIL 101.
PHIL 166 - ETHICS IN PANDEMICS
Short Title: ETHICS IN PANDEMICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: In this course, we will grapple with a wide variety of questions raised by the coronavirus pandemic. What are our duties to others in a time of crisis? On what basis should scarce medical resources be deployed? What is the appropriate role for individuals, and for the government? How do we weigh the values of life and health against other values? And so on. Readings will include both works of professional philosophers and contemporary popular writings on the pandemic.

PHIL 210 - LOGIC
Short Title: LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the formal theory of reasoning, which will be used to assess the validity of arguments in natural languages. Study of general properties of logical implication and logical truth. Previously offered as PHIL 106. Mutually exclusive with PHIL 106, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 210 if student has credit for PHIL 106.

PHIL 220 - PHILOSOPHY OF RELIGION
Short Title: PHILOSOPHY OF RELIGION
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Examination of God’s existence, the problem of evil, the relation between faith and reason, the meaning of death, the relation between religion and morality, and tolerance/respect for differing religions. Previously offered as PHIL 311. Mutually exclusive with PHIL 311, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 220 if student has credit for PHIL 311.

PHIL 230 - HUMAN MINDS
Short Title: HUMAN MINDS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An investigation of how we should understand our own minds in the light of the recent discoveries (both exciting and alarming) generated by scientists. Topics are likely to include things such as: character, willpower, the influence of beliefs on perception, the relation of addiction to love, introspection, implicit bias, and more. Previously offered as PHIL 116. Mutually exclusive with PHIL 116, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 230 if student has credit for PHIL 116.

PHIL 231 - ANIMAL MINDS
Short Title: ANIMAL MINDS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine various philosophical questions raised by the science of animal cognition: What is it to have a mind? How can we learn about animal minds? Are animals conscious? Do they have beliefs or concepts? What does this tell us about the nature and value of animal minds? Previously offered as PHIL 359. Mutually Exclusive: Cannot register for PHIL 231 if student has credit for PHIL 359.

PHIL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
PHIL 265 - DEATH AND DYING: METAPHYSICS AND ETHICS
Short Title: DEATH AND DYING
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: How are we to respond to the fact of death? This course examines the moral, metaphysical and personal issues surrounding the death of persons. Readings from analytic philosophy and the bioethics literature. Previously offered as PHIL 339. Mutually exclusive with PHIL 339, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 265 if student has credit for PHIL 339.

PHIL 266 - MEDICAL ETHICS
Short Title: MEDICAL ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A philosophical examination of some of the fundamental issues in clinical ethics, including informed consent, competency, confidentiality, end of life decision making, the definition of death, allocating scarce medical resources, and the role of economic analysis in clinical decision making. Readings drawn from the clinical and philosophical literature. Effective May 15, 2019, this course does not carry D1 credit. Previously offered as PHIL 336. Mutually exclusive with PHIL 336, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 266 if student has credit for PHIL 336.

PHIL 267 - PHILOSOPHY OF SEX AND LOVE
Short Title: PHILOSOPHY OF SEX AND LOVE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will examine philosophical views of the nature and ethics of sex and love. The first half will focus on the historical development of the concept of love, from Plato to contemporary feminism. The second half will consider ethical debates over pornography, sex work, marriage, sexual consent, and more.

PHIL 275 - FEMINIST PHILOSOPHY
Short Title: FEMINIST PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Feminist philosophy both uses philosophical methods to investigate feminism, and critiques philosophy from a feminist perspective. This course introduces the student to feminist philosophy from historical and contemporary perspectives, investigating topics of both feminist and philosophical interest such as gender, sexuality, family, class, race, equality, justice, politics, science, and knowledge. Previously offered as PHIL 111. Mutually exclusive with PHIL 111, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 275 if student has credit for PHIL 111.

PHIL 281 - HISTORY OF PHILOSOPHY I
Short Title: HISTORY OF PHILOSOPHY I
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of the history of philosophy from the 17th- to the 20th century. Leading philosophers discussed are likely to include Descartes, Locke, Hume, Kant, Mill, and Nietzsche. Previously offered as PHIL 201. Mutually exclusive with PHIL 201, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 281 if student has credit for PHIL 201.

PHIL 283 - HISTORY OF PHILOSOPHY II
Short Title: HIST OF PHILOSOPHY II
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of the history of philosophy from the 17th- to the 20th century. Leading philosophers discussed are likely to include Descartes, Locke, Hume, Kant, Mill, and Nietzsche. Previously offered as PHIL 202. Mutually exclusive with PHIL 202, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 283 if student has credit for PHIL 202.
PHIL 285 - EXISTENTIALISM
Short Title: EXISTENTIALISM
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A survey of existentialist philosophy and literature, focused on the search for meaning. Selected readings from figures such as Kierkegaard, Kafka, Heidegger, Beauvoir, Sartre, Camus, and Fanon. Previously offered as PHIL 317. Mutually exclusive with PHIL 317, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 285 if student has credit for PHIL 317.

PHIL 289 - HISTORY OF ASIAN PHILOSOPHY
Short Title: HISTORY OF ASIAN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A first survey of the history of asian philosophy, with attention to philosophical developments born from major traditions. Different instructors will offer different emphases but prominent figures are likely to include Kongzi (Confucius), Laozi, and Zhuangzi from the Chinese tradition and selected representatives of the Theravada and Mahayana traditions in India. Topics are likely to include the nature of self, the nature of reality, our ability to know the nature of reality, and the personal moral demands and political imperatives we live with.

PHIL 318 - PHILOSOPHY OF LANGUAGE
Short Title: PHILOSOPHY OF LANGUAGE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Philosophical investigation of relations among language, thought, and reality with emphasis on what makes a string of symbols and sounds meaningful. Previously offered as PHIL 353, a number which has now been given to Philosophy of Biology (which was previously PHIL 310). Recommended Prerequisite(s): One course in philosophy or permission of instructor.

PHIL 320 - METAPHYSICS
Short Title: METAPHYSICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of metaphysical theories in the works of historical and contemporary thinkers. Topics may include: free will, the identity of persons over time, causation, possibility and necessity, design and chance, the nature of existence, the nature of time. Previously offered as PHIL 304. Mutually exclusive with PHIL 304, credit cannot be earned for both classes. Recommended Prerequisite(s): A previous course in philosophy. Mutually Exclusive: Cannot register for PHIL 320 if student has credit for PHIL 304.

PHIL 325 - PHILOSOPHY OF ART
Short Title: PHILOSOPHY OF ART
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduces students to the philosophical study of artistic creation and artworks. Readings can range across the history of philosophy up to the present day and are likely to touch on topics such as the nature of art, representation in art, artistic value, creativity, and the moral status of artistic works. Recommended Prerequisite(s): One previous course in Philosophy.

PHIL 310 - MATHEMATICAL LOGIC
Short Title: MATHEMATICAL LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: We study formal languages and methods for assessing correctness of arguments, including a brief look at modal and many-valued logics. We also consider their relations to natural languages and reflect on the techniques required to prove theorems about languages. A previous logic course is helpful, though the course is self-contained. Graduate/Undergraduate Equivalency: PHIL 505.
PHIL 330 - PHILOSOPHY OF MIND
Short Title: PHILOSOPHY OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Inquiry into the nature of mind. Questions include: how should we conceive of the relationship of mind and body? What is consciousness, and how might it be explained? How can mental states be causes? Can one’s mind and its contents lie outside one’s brain? Previously offered as PHIL 312. Mutually exclusive with PHIL 312, credit cannot be earned for both classes. Recommended Prerequisite(s): One course in philosophy. Mutually Exclusive: Cannot register for PHIL 330 if student has credit for PHIL 312.

PHIL 340 - PHENOMENOLOGY
Short Title: PHENOMENOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is devoted to selected historical and contemporary work in phenomenology, the approach to philosophy inaugurated by Edmund Husserl and developed further by thinkers such as Heidegger, Sartre, Merleau-Ponty, and Hannah Arendt. Readings will include classical and contemporary work in phenomenology on a specific philosophical topic such as meaning, truth, action, embodiment, ethics, art, and other minds. Repeatable for credit. Recommended Prerequisite(s): One previous course in Philosophy. Graduate/Undergraduate Equivalency: PHIL 540. Recommended Prerequisite(s): One previous course in Philosophy. Repeatable for Credit.

PHIL 345 - THEORY OF KNOWLEDGE
Short Title: THEORY OF KNOWLEDGE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the question: What is knowledge, and how is it possible that we have it? Topics include: analysis of knowledge, justification and evidence, skeptical challenges, and relativism. Previously offered as PHIL 303. Mutually exclusive with PHIL 303, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 345 if student has credit for PHIL 303.

PHIL 350 - PHILOSOPHY OF SCIENCE
Short Title: PHILOSOPHY OF SCIENCE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course treats topics of central importance to general philosophy of science. We ask what makes something a scientific explanation, what is required for observations to support (confirm) scientific theories, the nature of evidence, and how experiments relate to theories and models of the world. Topics covered include logical empiricism, the problem of induction, theory-laden observation, relativism, and the role of social values in science. Previously offered as PHIL 313. Mutually Exclusive: Cannot register for PHIL 350 if student has credit for PHIL 313. Repeatable for Credit.

PHIL 353 - PHILOSOPHY OF BIOLOGY
Short Title: PHILOSOPHY OF BIOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course examines philosophical issues that emerge in biological science, with emphasis on evolutionary theory, genetics and development, and systems biology. Recommended prerequisite(s): BIOS 201 and BIOS 202.

PHIL 354 - THE PHILOSOPHY OF MEDICINE
Short Title: THE PHILOSOPHY OF MEDICINE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is devoted to selected historical and contemporary work in the philosophy of medicine. We examine philosophical issues that emerge in the context of medicine, including the nature of causation, the role of evidence, the role of values, and the nature of explanatory accounts. Recommended prerequisite(s): BIOS 201 and BIOS 202.
PHIL 357 - INCOMPLETENESS, UNDECIDABILITY, AND COMPUTABILITY
Short Title: INCOMPL, UNDECIDED&COMPUTBLTY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Proofs of Gödel's Incompleteness Theorems for number theory in several forms and by various methods, as well as development of several definitions of computability for number-theoretic functions, which are then shown to be equivalent. Includes proof of the unsolvability of the Halting Problem and analysis of Church's thesis, as well as exploration of the extension of the concept of computability to real-valued functions. Frequent misunderstandings and misrepresentations of the theorems are analyzed.

PHIL 360 - ETHICS
Short Title: ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with fundamental questions of value and morality—questions such as: What sort of life is best? What kind of person is it best to be? What does morality require of us? It also deals with important second-order questions about these fundamental questions—for example: Can morality be justified? How can we know what's right or good? Is there moral truth? What is the relation between morality and self-interest? Readings are drawn from both classical and contemporary sources. Previously offered as PHIL 306. Mutually exclusive with PHIL 306, credit cannot be earned for both classes. Recommended Prerequisite(s): One previous course in Philosophy. Mutually Exclusive: Cannot register for PHIL 360 if student has credit for PHIL 326.

PHIL 361 - METAETHICS
Short Title: METAETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Metaethics studies higher-order questions about morality. Its questions include: What reasons do we have to do the right thing? What do claims about rightness and goodness mean? Can those claims be true or false? Are there objective moral truths, and if so, how can we know them? Previously offered as PHIL 338. Mutually exclusive with PHIL 338, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 361 if student has credit for PHIL 338.

PHIL 362 - HISTORY OF ETHICS
Short Title: HISTORY OF ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the major issues of ethical theory through the reading and discussion of such classical figures as Plato, Aristotle, the Stoics, the Epicureans, St. Augustine, St. Thomas, Maimonides, Bishop Butler, David Hume, Adam Smith, J.S. Mill, and I. Kant. Previously offered as PHIL 326. Mutually exclusive with PHIL 326, credit cannot be earned for both classes. Graduate/Undergraduate Equivalency: PHIL 562. Recommended Prerequisite(s): One previous course in Philosophy. Mutually Exclusive: Cannot register for PHIL 362 if student has credit for PHIL 326.

PHIL 363 - MORAL PSYCHOLOGY
Short Title: MORAL PSYCHOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of the role of intellect, emotion, and character as they contribute to the moral (and immoral) life, and as they pertain to rationality and moral responsibility. Previously offered as PHIL 331. Mutually exclusive with PHIL 331, credit cannot be earned for both classes. Graduate/Undergraduate Equivalency: PHIL 563. Mutually Exclusive: Cannot register for PHIL 363 if student has credit for PHIL 331.

PHIL 370 - SOCIAL AND POLITICAL PHILOSOPHY
Short Title: SOCIAL & POLITICAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines some philosophical problems raised by society and the state. Topics to be discussed include the sources of political authority, the justification of punishment, the significance of national boundaries, and the distribution of wealth. Previously offered as PHIL 307. Mutually exclusive with PHIL 307, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 370 if student has credit for PHIL 307.
PHIL 372 - HISTORY OF SOCIAL AND POLITICAL PHILOSOPHY
Short Title: HIST SOCIAL & POLITICAL PHILOS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of classic texts in the history of social and political philosophy, from Plato to Machiavelli to Mill. Previously offered as PHIL 327. Mutually exclusive with PHIL 327, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 372 if student has credit for PHIL 327.

PHIL 373 - PHILOSOPHY OF LAW
Short Title: PHILOSOPHY OF LAW
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of fundamental philosophical problems in criminal law, property law, contract law and the law of torts. Previously offered as PHIL 316. Mutually exclusive with PHIL 316, credit cannot be earned for both classes. Mutually Exclusive: Cannot register for PHIL 373 if student has credit for PHIL 316.

PHIL 371 - ANCIENT PHILOSOPHY
Short Title: ANCIENT PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Selected topics in ancient Greek and Roman philosophy, organized by figure, work, or subject matter. Previously offered as PHIL 301. Graduate/Undergraduate Equivalency: PHIL 581. Repeatable for Credit.

PHIL 383 - MODERN PHILOSOPHY
Short Title: MODERN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of themes or authors in 17th- and 18th- century philosophy. Topics vary from year to year. Normally offered every year. Previously offered as PHIL 302. Graduate/Undergraduate Equivalency: PHIL 583. Recommended Prerequisite(s): Majors should take PHIL 283 before PHIL 383. For non-majors one previous course in philosophy is recommended. Mutually Exclusive: Cannot register for PHIL 383 if student has credit for PHIL 302. Repeatable for Credit.

PHIL 386 - CONTINENTAL PHILOSOPHY
Short Title: CONTINENTAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of some central philosophical movements in 20th-century European philosophy, including phenomenology, hermeneutics, critical theory, deconstruction, and postmodernism. Repeatable for credit with consent of instructor. Previously offered as PHIL 308. Graduate/Undergraduate Equivalency: PHIL 586. Mutually Exclusive: Cannot register for PHIL 386 if student has credit for PHIL 308. Repeatable for Credit.

PHIL 390 - TOPICS IN PHILOSOPHY
Short Title: TOPICS IN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with department for additional information. Repeatable for credit with consent of the instructor. Instructor Permission Required. Graduate/Undergraduate Equivalency: PHIL 590. Repeatable for Credit.
PHIL 400 - UNDERGRADUATE RESEARCH SEMINAR  
Short Title: UG RESEARCH SEMINAR  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Emphasis is on the skills of critical reading, careful discussion, writing clear and well-argued essays, and making lucid and engaging oral presentations. The course is organized around a family of topics: students also, in consultation with the instructor, select issues for independent research, and produce a final essay and presentation. Previously offered as PHIL 407. Repeatable for Credit.

PHIL 410 - ADVANCED TOPICS IN LOGIC  
Short Title: ADV TOPICS IN LOGIC  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PHIL 305 or PHIL 505  
Description: Intensive examination of a topic in logic or the philosophy of logic. Previously offered as PHIL 355. Repeatable for Credit.

PHIL 430 - ADVANCED TOPICS IN PHILOSOPHY OF MIND  
Short Title: ADV TOPICS PHILOSOPHY OF MIND  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A focused examination of a selected topic in the philosophy of mind. Topics can include the nature of consciousness, mental representation, rationality, and the various interconnections between perception, emotion, thought and action. Previously offered as PHIL 341. Graduate/Undergraduate Equivalency. PHIL 630. Repeatable for Credit.

PHIL 431 - ADVANCED TOPICS IN THE SCIENCES OF THE MIND  
Short Title: ADV TOPICS IN SCI OF THE MIND  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Philosophical, psychological, and neuroscientific sources are integrated in an interdisciplinary study of a major topic. Topics can include consciousness, language comprehension, concepts, and the will. Previously offered as PHIL 352 and PHIL 358. Graduate/Undergraduate Equivalency. PHIL 631. Repeatable for Credit.

PHIL 430 - ADVANCED TOPICS IN THE PHILOSOPHY OF SCIENCE  
Short Title: ADV TOPICS IN PHIL SCIENCE  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Intensive examination of a topic in the philosophy of science. Topics can include scientific revolutions, levels of explanation, the nature of explanation, and topics of philosophical interest within particular sciences. Recommended Prerequisite(s): One course in Philosophy. Repeatable for Credit.

PHIL 460 - ADVANCED TOPICS IN ETHICS  
Short Title: ADV TOPICS IN ETHICS  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Intensive examination of a topic of contemporary or historical interest in ethics. Previously offered as PHIL 335, which is now split between this course and PHIL 470. Graduate/Undergraduate Equivalency. PHIL 560. Recommended Prerequisite(s): One course in Philosophy. Repeatable for Credit.

PHIL 470 - ADVANCED TOPICS IN SOCIAL AND POLITICAL PHILOSOPHY  
Short Title: ADV TOPICS SOC AND POLI PHIL  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Intensive examination of a topic of contemporary or historical interest in political philosophy. Previously offered as PHIL 335, which is now split between this course and PHIL 470. Graduate/Undergraduate Equivalency. PHIL 670. Recommended Prerequisite(s): One course in Philosophy. Repeatable for Credit.

PHIL 477 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: Philosophy  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
PHIL 490 - INDEPENDENT READING I
Short Title: INDEPENDENT READING I
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course for undergraduate students to pursue independent research projects under direction of a philosophy department faculty member. Previously offered as PHIL 401. Instructor Permission Required. Repeatable for Credit.

PHIL 491 - INDEPENDENT READING II
Short Title: INDEPENDENT READING II
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: See PHIL 490. This course previously offered as PHIL 402. Instructor Permission Required. Repeatable for Credit.

PHIL 498 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Philosophy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate philosophy majors who wish to write a senior thesis and become eligible for honors in the major. Students may enroll in PHIL 498 only with consent of a faculty advisor and the department, and only if they intend to enroll in PHIL 499 as well. Senior Thesis is a year-long research course. Previously offered as PHIL 411. Mutually exclusive with PHIL 411, credit cannot be earned for both classes. Instructor Permission Required.

PHIL 499 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research course for undergraduate philosophy majors who wish to write a senior thesis and become eligible for honors in the major. Students may enroll in PHIL 499 only with consent of a faculty advisor and the department, and only if they intend to enroll in PHIL 499 as well. Senior Thesis is a year-long research course. Previously offered as PHIL 411. Mutually exclusive with PHIL 411, credit cannot be earned for both classes. Instructor Permission Required.

PHIL 500 - PROSEMINAR IN PHILOSOPHY
Short Title: PROSEMINAR IN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The proseminar in philosophy will cover some key philosophical readings and simultaneously work with students to develop their philosophical writing and presentation skills. Repeatable for Credit.

PHIL 505 - MATHEMATICAL LOGIC
Short Title: MATHEMATICAL LOGIC
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A version of PHIL 305 for philosophy graduate students which includes further reading of material on philosophy of logic.
Graduate/Undergraduate Equivalency: PHIL 310. Mutually Exclusive: Cannot register for PHIL 505 if student has credit for PHIL 305.

PHIL 515 - SEMINAR IN PHILOSOPHY OF LANGUAGE
Short Title: SEM PHILOSOPHY LANGUAGE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A first graduate course in the philosophy of language, covering course issues in meaning, sense, and reference. Repeatable for Credit.

PHIL 520 - SEMINAR IN METAPHYSICS
Short Title: SEMINAR IN METAPHYSICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course topics can include the nature of objects, universals, change and continuity, and other topics. Repeatable for Credit.

PHIL 530 - SEMINAR PHILOSOPHY OF MIND
Short Title: SEMINAR PHILOSOPHY OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A graduate level survey of selected topics in the philosophy of mind. Likely to include at least some of: the nature of consciousness, causal relations between mind and world, and intentionality. Repeatable for credit. Repeatable for Credit.
PHIL 540 - PHENOMENOLOGY
Short Title: PHENOMENOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is devoted to selected historical and contemporary work in phenomenology, the approach to philosophy inaugurated by Edmund Husserl and developed further by thinkers such as Heidegger, Sartre, Merleau-Ponty, and Hannah Arendt. Readings will include classical and contemporary work in phenomenology on a specific philosophical topic such as meaning, truth, action, embodiment, ethics, art, and other minds. Repeatable for credit. Recommended Prerequisite(s) One previous course in Philosophy. Graduate/Undergraduate Equivalency: PHIL 340. Repeatable for Credit.

PHIL 545 - SEMINAR IN EPISTEMOLOGY
Short Title: SEMINAR IN EPISTEMOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the theory of knowledge, justification of belief, and similar. Repeatable for Credit.

PHIL 550 - SEMINAR IN PHILOSOPHY OF SCIENCE
Short Title: SEMINAR IN PHILOSOPHY OF SCIENCE
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focused consideration of either core issues in general philosophy of science (e.g. explanation, experiment, confirmation, realism vs. anti-realism, values in science) or special topics of current interest in the field. Repeatable for Credit.

PHIL 560 - SEMINAR IN ETHICS
Short Title: SEMINAR IN ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course content might include theories in normative ethics, the nature of virtue, metaethics, or similar topics. Graduate/Undergraduate Equivalency: PHIL 460. Repeatable for Credit.

PHIL 562 - HISTORY OF ETHICS
Short Title: HISTORY OF ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate version of PHIL 362. An introduction to the major issues of ethical theory through the reading and discussion of such classical figures as Plato, Aristotle, the Stoics, the Epicureans, St. Augustine, St. Thomas, Maimonides, Bishop Butler, David Hume, Adam Smith, J.S. Mill, and I. Kant. Special graduate student requirements include additional readings and the writing of a term research paper. Graduate/Undergraduate Equivalency: PHIL 362. Repeatable for Credit.

PHIL 563 - SEMINAR IN MORAL PSYCHOLOGY
Short Title: MORAL PSYCHOLOGY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A study of the philosophical issues raised by moral agency. Topics to be discussed may include reason and its relation to motivation and desire, character, responsibility, weakness of will, self-deception, and the nature of the self. Graduate/Undergraduate Equivalency: PHIL 363. Repeatable for Credit.

PHIL 566 - TOPICS IN MEDICAL ETHICS
Short Title: TOPICS IN MEDICAL ETHICS
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An examination of the theoretical foundations of bioethics emphasizing principalism, utilitarianism, Kantianism, contractarianism, medicalism, post-modernism, and casuistry. Repeatable for Credit.

PHIL 570 - SEMINAR IN SOCIAL AND POLITICAL PHILOSOPHY
Short Title: SEMINAR IN SOCIAL &POLITICAL PHILO
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course might cover topics such as the nature of justice, legitimacy and authority, or the organization of social systems. Repeatable for Credit.
PHIL 573 - SEMINAR IN PHILOSOPHY OF LAW
Short Title: SEMINAR IN PHILOSOPHY OF LAW
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The seminar will concentrate on one or more of such central topics in the philosophy of law as the normative foundations of contracts, criminal responsibility, theories of corrective justice, and the right to property ownership. Repeatable for Credit.

PHIL 581 - ANCIENT AND MEDIEVAL PHILOSOPHY
Short Title: ANCIENT & MEDIEVAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics in the history of philosophy from the 4th century B.C. through the 14th century. Graduate/Undergraduate Equivalency: PHIL 381. Repeatable for Credit.

PHIL 583 - SEMINAR IN MODERN PHILOSOPHY
Short Title: SEMINAR IN MODERN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate level examination of topics and figures of 17th and 18th century history of philosophy. Topics vary from year to year. Graduate/Undergraduate Equivalency: PHIL 383. Repeatable for Credit.

PHIL 586 - SEMINAR IN CONTINENTAL PHILOSOPHY
Short Title: SEM CONTINENTAL PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of selected topics and figures in 20th and 21st century European philosophy. Repeatable for credit with consent of the instructor. Graduate/Undergraduate Equivalency: PHIL 386. Repeatable for Credit.

PHIL 590 - TOPICS IN PHILOSOPHY
Short Title: TOPICS IN PHILOSOPHY
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics may vary. Please consult with the department for additional information. Graduate/Undergraduate Equivalency: PHIL 390. Repeatable for Credit.

PHIL 598 - ADVANCED INDEPENDENT READING
Short Title: ADVANCED INDEPENDENT READING
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Directed reading and research. Repeatable for Credit.

PHIL 599 - ADVANCED INDEPENDENT READING
Short Title: ADVANCED INDEPENDENT READING
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Directed reading and research. Repeatable for Credit.

PHIL 630 - TOPICS IN PHILOSOPHY OF MIND
Short Title: TOPICS IN PHILOSOPHY OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An in-depth look at different topics in contemporary philosophy of mind. Some sample topics: consciousness, mental representation, innateness, modularity, and the role of language in thought. Repeatable for credit with consent of the instructor. Graduate/Undergraduate Equivalency: PHIL 430. Repeatable for Credit.

PHIL 631 - ADVANCED TOPICS IN THE SCIENCES OF THE MIND
Short Title: ADV TOPICS IN SCIENCES OF MIND
Department: Philosophy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Philosophical, psychological, and neuroscientific sources are integrated in an interdisciplinary study of a major topic. Topics can include consciousness, language comprehension, concepts, and the will. Graduate/Undergraduate Equivalency: PHIL 431. Repeatable for Credit.

PHIL 652 - MASTERS THESIS RESEARCH
Short Title: MASTERS THESIS RESEARCH
Department: Philosophy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research course for graduate students preparing a Masters thesis. Repeatable for Credit.
PHIL 660 - ADVANCED TOPICS IN VALUE THEORY  
**Short Title:** ADV TOPICS IN VALUE THEORY  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Intensive examination of a topic of contemporary or historical interest in ethics or social and political philosophy. Repeatable for Credit.  

PHIL 670 - ADVANCED TOPICS IN SOCIAL AND POLITICAL PHILOSOPHY  
**Short Title:** ADV TOPICS SOC AND POLI PHIL  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Intensive examination of a topic of contemporary or historical interest in political philosophy. Graduate/Undergraduate Equivalency: PHIL 470. Repeatable for Credit.  

PHIL 677 - SPECIAL TOPICS  
**Short Title:** SPECIAL TOPICS  
**Department:** Philosophy  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory  
**Credit Hours:** 1-4  
**Restrictions:** Enrollment is limited to Graduate or Visiting Graduate level students.  
**Course Level:** Graduate  
**Description:** Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.  

PHIL 701 - READING AND RESEARCH FOR QUALIFYING EXAMINATION AND THESIS PROPOSAL  
**Short Title:** RESEARCH QUALIFYING & THESIS  
**Department:** Philosophy  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Reading course in preparation for the comprehensive examination and thesis proposal defense. Repeatable for Credit.  

PHIL 702 - READING AND RESEARCH FOR QUALIFYING EXAMINATION AND THESIS PROPOSAL  
**Short Title:** RESEARCH QUALIFYING & THESIS  
**Department:** Philosophy  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Reading course in preparation for the comprehensive examination and thesis proposal defense. Repeatable for Credit.  

PHIL 800 - RESEARCH AND THESIS  
**Short Title:** RESEARCH AND THESIS  
**Department:** Philosophy  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Philosophy. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Research and Thesis Repeatable for Credit.  

**Photography (FOTO)**  

FOTO 200 - PHOTOGRAPHY IN THE COMMUNITY  
**Short Title:** PHOTOGRAPHY IN THE COMMUNITY  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course offers students the opportunity to use photography as a means to interact with the community through public schools and other institutions. After receiving instruction in digital photography, students will go into the community to conceive and execute original projects.  

FOTO 202 - PHOTOGRAPHY IN THE COMMUNITY 2 - CULTURAL OUTREACH AND DOCUMENTATION  
**Short Title:** PHOTOGRAPHY IN THE COMMUNITY 2  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Intensive Learning Experience  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** This course offers students opportunities to use photography as a means to interact with communities far beyond the Rice campus, even to communities outside the country. After receiving instruction in digital photography, students will execute original projects intended to bring quality instruction in photography and/or provide important photo documentation to foreign communities. Instructor Permission Required. Repeatable for Credit.  

FOTO 205 - INTRODUCTION TO PHOTOGRAPHY  
**Short Title:** INTRODUCTION TO PHOTOGRAPHY  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Introduction to black and white photography through exploration of light-sensitive materials, film and digital cameras. Assignments include viewing analysis, discussion, and writing about pictures to improve visual awareness, technical skills, and understanding of meaning in photography's continuing history. Final roster to be determined by the instructor on the first day of class.
FOTO 206 - PHOTOGRAPHY II
Short Title: PHOTOGRAPHY II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continued exploration of the basic materials and processes of the photographic medium with an emphasis on digital processes. Includes viewing, analysis, and discussion of the medium's history and current trends. Space in studio class is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor.

FOTO 210 - BEGINNING DIGITAL PHOTOGRAPHY
Short Title: BEGINNING DIGITAL PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to digital photography through exploration of light, camera, and computer. Assignments include looking, taking, discussing, adjusting, printing and writing about photographs. The class is a balance of visual awareness, technical skills and meaning in the context of photography's continuing history. Cross-list: HART 209.

FOTO 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

FOTO 263 - EPISODES IN THE HISTORY OF PHOTOGRAPHY: FROM INVENTION TO THE PRESENT
Short Title: HISTORY OF PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This class examines the history of both artistic and non-artistic uses of photography from its origins in the nineteenth century, across the 20th century and into the present. In so doing we will pay close attention to a number of specific thematics, from the medium's conception in the late eighteenth century, through avant-garde and institutional debates in the twentieth and twenty-first centuries concerning photography's relationship to artistic and social issues, to questions of gender, race, class, and global politics. Cross-list: HART 263. Mutually Exclusive: Cannot register for FOTO 263 if student has credit for HART 363.

FOTO 295 - SPECIAL PROBLEMS IN PHOTOGRAPHY
Short Title: SPEC PROB PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of problems at the introductory level in creative art. Topics may vary. Please consult with department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

FOTO 310 - INTERMEDIATE DIGITAL PHOTOGRAPHY
Short Title: INTERMEDIATE DIGITAL PHOTO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FOTO 205 or FOTO 210
Description: A continuation of FOTO 210, which is a prerequisite for this course. The emphasis is on making photographs as distinct from taking them. The course explores the malleability of the digital medium through the use of digital tools in Adobe Photoshop, which is provided on the computers in the VADA Digital Lab in the Rice Media Center. Students must provide their own digital camera.
FOTO 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS
Short Title: CRITICAL STU OF MULTIMEDIA ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; "sculptural" studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: ARTS 332, FILM 332, THEA 332.

FOTO 366 - THE ROAD AS EXPERIENCE AND METAPHOR IN PHOTOGRAPHIC PRACTICE
Short Title: ROAD TRIP PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): FOTO 205 or FOTO 210
Description: A search for America and the self through the written and visual literature of moving through the American landscape. This course will search for motifs to emulate in small formats and short distances, as preamble to the culmination recorded in a self-designed book of each personal odyssey. Repeatable for Credit.

FOTO 383 - PHOTOGRAPHY BOOKMAKING
Short Title: PHOTOGRAPHY BOOKMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 205 or FOTO 205 or FOTO 210 or HART 209 or FOTO 310
Description: Intermediate problems in photography culminating in the production of an original book. Students will pursue a project involving either film-based or digital photography, edit, layout, and then produce their own book. Students will participate in scheduled critiques. Priority will be given to students who have taken two or more semesters of photography at Rice.

FOTO 385 - PHOTOGRAPHY SEMINAR
Short Title: PHOTOGRAPHY SEMINAR
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced problems in photography including, but not limited to, color and black and white film-based photography, view camera, and alternative processes. Students will be given advanced assignments tailored to the format and medium they wish to pursue will participate in scheduled critiques of the full class. Space in the class is limited. Registration does not guarantee a place in the course. Priority will be given to students who have taken two or more semesters of photography at Rice. The class roster will be formulated by the instructor on the first day of class. Repeatable for Credit.

FOTO 390 - VISUALIZING NATURE
Short Title: VISUALIZING NATURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An experimental course combining the scientific disciplines of the earth sciences with the artistic disciplines of creative photography to study the natural landscape and related ecosystems. The course will combine classroom lectures and laboratory demonstrations in geoscience with classes in the use of digital and film-based cameras and illustrated lectures on recognized achievements in landscape photography. Extensive field trips will be scheduled. Students will travel frequently, at times in pairs, other times in larger groups and as a full class, accompanied by one or both professors. The budget for the course includes funding both for travel and for photography expenses. Instructor Permission Required. Cross-list: EEPS 309.

FOTO 395 - SPECIAL PROBLEMS IN PHOTOGRAPHY
Short Title: SPEC PROB: PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Prerequisite: permission of instructor. Instructor Permission Required. Repeatable for Credit.
FOTO 410 - ADVANCED DIGITAL PHOTOGRAPHY
Short Title: ADVANCED DIGITAL PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A continuation of FOTO 310, this course offers advanced photo-art students a chance to develop a personal body of artwork supported by digital image processing. Student-driven projects will influence the choice of technical topics covered in class. For example, some techniques covered may include digital animation, digital painting, 3D compositing, or master printing. Students will be expected to critique their work and that of other artists shown on Rice campus and in Houston. Students entering the course should be proficient in the use of Adobe Photoshop. A semester-long project is due at the end of the class.

FOTO 454 - SPECIAL PROBLEMS - PHOTOGRAPHY
Short Title: SPECIAL PROBLEMS-PHOTOGRAPHY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

FOTO 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Physics (PHYS)

PHYS 100 - EXPLORING PHYSICS
Short Title: EXPLORING PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to concepts, methods, debates, and discoveries of physics, with a theme to be chosen from one of many fields of modern physics research. Designed for students interested in understanding science. This includes both science and non-science majors.

PHYS 101 - MECHANICS (WITH LAB)
Short Title: MECHANICS (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 103
Description: A calculus-based introduction to mechanics. Includes classes and lab exercises on kinematics, Newton's Laws, work and energy, conservation laws and rotational motion. Primarily for physical science and engineering students. May receive credit for only one of PHYS 101, 111, 125, AP Physics 1 (Phys 141) and AP Physics-C MECH. Students must register for PHYS 103.

PHYS 102 - ELECTRICITY & MAGNETISM (WITH LAB)
Short Title: ELECTRICITY&MAGNETISM W/LAB
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 104
Description: A calculus-based introduction to electricity and magnetism. Includes classes and lab exercises on electric and magnetic fields, Maxwell's equations in integral form, and AC and DC circuits. Primarily for physical science and engineering students. May receive credit for only one of PHYS 102, 112, 126, AP Physics 2 (PHYS 142) and AP Physics-C E&M. Students must also register for PHYS 104.

PHYS 103 - MECHANICS DISCUSSION
Short Title: MECHANICS DISCUSSION
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 101
Description: Small group discussion section to extend and reinforce concepts presented in PHYS 101. Students must also register for PHYS 101.

PHYS 104 - ELECTRICITY AND MAGNETISM DISCUSSION
Short Title: E & M DISCUSSION
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Corequisite: PHYS 102
Description: Small group discussion section to extend and reinforce concepts presented in PHYS 102. Students must also register for PHYS 102.
PHYS 116 - SEMINAR IN PHYSICS AND ASTRONOMY AT RICE AND BEYOND
Short Title: SEMINAR IN PHYS & ASTRO @ RICE
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This half-semester seminar course will meet in the first half of the Spring semester to introduce prospective and current science and engineering majors to the exciting research in physics and astronomy at Rice and beyond. The course will provide students with the context to think about how the facts presented in physics and astronomy textbooks are applied to real-world research. Undergraduate students in a small group will meet weekly with a graduate student to explore a published research article by a local lab, learning about what was done and why it was important. Toward the end of the course, the group will tour the lab that produced the featured article. All students are eligible to enroll in PHYS 116 regardless of the intended area of study.

PHYS 112 - HONORS ELECTRICITY & MAGNETISM (WITH LAB)
Short Title: HONORS E&M (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A more intensive treatment of topics covered in PHYS 102, intended for physical science and engineering students with strong high school backgrounds in physics and particularly calculus. May receive credit for only one of PHYS 102, 112, 125, AP Physics 2 (PHYS 142), and AP Physics-C MECH.

PHYS 111 - HONORS MECHANICS (WITH LAB)
Short Title: HONORS MECHANICS (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A more intensive treatment of topics covered in PHYS 101, intended for physical science and engineering students with strong high school backgrounds in physics and particularly calculus. May receive credit for only one of PHYS 101, 111, 125, AP Physics 1 (Phys 141) and AP Physics-C MECH.

PHYS 125 - GENERAL PHYSICS (WITH LAB)
Short Title: GENERAL PHYSICS (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A calculus-based survey of mechanics primarily intended for bioscience and premedical students. Includes classes and lab exercises on kinematics, Newton's Laws, work and energy, rotational motion, fluids, oscillations and waves. May receive credit for only one of PHYS 101, 111, 125, AP Physics 1 (Phys 141), and AP Physics-C, MECH.

PHYS 126 - GENERAL PHYSICS II (WITH LAB)
Short Title: GENERAL PHYSICS II (WITH LAB)
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PHYS 125 or PHYS 101 or PHYS 111 or PHYS 141
Description: A calculus-based survey of E&M and optics primarily intended for bioscience and premedical students. Includes classes and lab exercises on wave and ray optics, electric field and potential, magnetic fields and induction, and DC circuits. May receive credit for only one of PHYS 102, 112, 126, AP Physics 2 (PHYS 142), and AP Physics-C, E&M.

PHYS 141 - CONCEPTS IN PHYSICS I
Short Title: CONCEPTS IN PHYSICS I
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For AP or pre-matriculation transfer credit only. May receive credit for only one of PHYS 101, PHYS 111, PHYS 125, AP Physics 1, and AP Physics-C (Mech).

PHYS 142 - CONCEPTS IN PHYSICS II
Short Title: CONCEPTS IN PHYSICS II
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For AP or pre-matriculation transfer credit only. May receive credit for only one of PHYS 102, PHYS 112, PHYS 126, AP Physics 2, and AP Physics-C (E&M).
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 143</td>
<td>PHYSICS FOR CITIZENSHIP</td>
<td>PHYSICS FOR CITIZENSHIP</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Physics is critical to our understanding of nuclear weapons, radiation, electronics, energy and global warming. The most interesting and important topics in physics, with applications to current events will be presented. Topics covered may include energy and conservation, radioactivity, nuclear physics, the Theory of Relativity, lasers, explosions and quantum physics.</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>WAVES, LIGHT, AND HEAT</td>
<td>WAVES, LIGHT, AND HEAT</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course explores our scientific understanding of sound and music by studying the properties of sound and its production by a variety of musical instruments. Additional topics include an analysis of musical scales, the physiology of hearing, and the technology of sound reproduction. For non-science and non-engineering majors.</td>
</tr>
<tr>
<td>PHYS 202</td>
<td>MODERN PHYSICS</td>
<td>MODERN PHYSICS</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Mathematical descriptions of fundamental topics of classical physics: oscillations, mechanical waves, electromagnetic waves, physical optics and thermodynamics.</td>
</tr>
<tr>
<td>PHYS 204</td>
<td>THE PHYSICS OF MUSIC AND SOUND</td>
<td>THE PHYSICS OF MUSIC AND SOUND</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Classical mechanics and appropriate mathematical methods. Emphasis on problem solving.</td>
</tr>
<tr>
<td>PHYS 311</td>
<td>INTRODUCTION TO QUANTUM PHYSICS I</td>
<td>INTRO TO QUANTUM PHYSICS I</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Fundamentals of quantum mechanics and applications to atomic and molecular structure.</td>
</tr>
</tbody>
</table>
PHYS 312 - INTRODUCTION TO QUANTUM PHYSICS II  
Short Title: INTRO TO QUANTUM PHYSICS II  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Continuation of PHYS 311.

PHYS 331 - JUNIOR PHYSICS LAB I  
Short Title: JUNIOR PHYSICS LAB I  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Lab exercises in electronics, noise reduction, statistics and particle counting.

PHYS 332 - JUNIOR PHYSICS LAB II  
Short Title: JUNIOR PHYSICS LAB II  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Laboratory  
Credit Hours: 2  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Lab exercises illustrating topics in the upper-division physics curriculum.

PHYS 355 - INTRODUCTION TO BIOLOGICAL PHYSICS  
Short Title: INTRO TO BIOLOGICAL PHYSICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  

PHYS 411 - INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS  
Short Title: INTRO NUCLEAR&PARTIC PHYSICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): PHYS 311  
Description: Survey of history and current state of nuclear and particle physics. The emphasis is on experimental results and how they led to our current understanding of the strong and electroweak interactions. Some recent advances are discussed in detail. Graduate/Undergraduate Equivalency: PHYS 542. Mutually Exclusive: Cannot register for PHYS 411 if student has credit for PHYS 542.

PHYS 412 - SOLID STATE PHYSICS  
Short Title: SOLID STATE PHYSICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Prerequisite(s): (PHYS 311 and PHYS 425) or ELEC 361  
Description: Introduction to topics in solid state physics, including crystal structure, lattice vibrations, electronic band structure and transport.

PHYS 416 - COMPUTATIONAL PHYSICS  
Short Title: COMPUTATIONAL PHYSICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Use of computational techniques to solve selected physics problems. Examine benefits and pitfalls of doing physics by computation. Graduate/Undergraduate Equivalency: PHYS 517. Mutually Exclusive: Cannot register for PHYS 416 if student has credit for PHYS 517.

PHYS 425 - STATISTICAL & THERMAL PHYSICS  
Short Title: STATISTICAL & THERMAL PHYSICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Use of computational techniques to solve selected physics problems. Examine benefits and pitfalls of doing physics by computation. Graduate/Undergraduate Equivalency: PHYS 517. Mutually Exclusive: Cannot register for PHYS 416 if student has credit for PHYS 517.
PHYS 461 - INDEPENDENT RESEARCH
Short Title: INDEPENDENT RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mentored research under the supervision of a Physics and Astronomy faculty member. To register, students must provide a research plan approved by the faculty mentor. Instructor Permission Required. Repeatable for Credit.

PHYS 462 - INDEPENDENT RESEARCH
Short Title: INDEPENDENT RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mentored research under the supervision of a Physics and Astronomy faculty member. To register, students must provide a research plan approved by the faculty mentor. Instructor Permission Required. Repeatable for Credit.

PHYS 465 - REU RESEARCH IN PHYSICS AND ASTRONOMY
Short Title: REU RESEARCH IN PHYS & ASTR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.

PHYS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PHYS 480 - INTRODUCTION TO PLASMA PHYSICS
Short Title: INTRODUCTION TO PLASMA PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 302
Description: Fundamental processes in cosmic and laboratory plasmas. Basic plasma characteristics, charged particle motion, waves in plasmas, magnetohydrodynamics, kinetic theory. Graduate/Undergraduate Equivalency: PHYS 580. Mutually Exclusive: Cannot register for PHYS 480 if student has credit for PHYS 580.

PHYS 491 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 2
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 301 and PHYS 302 and PHYS 311
Description: Research projects conducted under supervision of departmentally approved faculty. Open to juniors and seniors majoring in physics and astronomy. May be repeated for credit. PHYS 493/494 must be taken concurrently with PHYS 491/492 when used in partial fulfillment of B.S. degree requirements. Repeatable for Credit.

PHYS 492 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 2
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 491
Description: Research projects conducted under supervision of departmentally approved faculty culminating in a thesis. Open to juniors and seniors majoring in physics and astronomy. May be repeated for credit. PHYS 493/494 must be taken concurrently with PHYS 491/492 when used in partial fulfillment of B.S. degree requirements. Repeatable for Credit.
PHYS 493 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 493
Description: Weekly seminar for juniors and seniors in which presentations on research topics and/or topics in the scientific literature will be given. Open to juniors and seniors majoring in physics and astronomy. Repeatable for Credit.

PHYS 494 - UNDERGRADUATE RESEARCH SEMINAR
Short Title: UNDERGRADUATE RESEARCH SEMINAR
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Astronomy, Astrophysics, Chemical Physics or Physics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PHYS 493
Description: Weekly seminar for juniors and seniors in which presentations on research topics and/or topics in the scientific literature will be given. Open to juniors and seniors majoring in physics and astronomy department. Repeatable for Credit.

PHYS 501 - PHYSICS OF HAM RADIO FOR TEACHERS
Short Title: PHYSICS OF HAM RADIO TEACHERS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamentals of electromagnetic waves and propagation, the ionosphere and space weather. Basic electronics, antenna design and safety, magnetism. Provides information necessary to pass the "Technician" level of ham radio license. Non-calculus mathematics. Other topics include: use of GPS, geocaching. Mutually Exclusive: Cannot register for PHYS 501 if student has credit for PHYS 401.

PHYS 510 - MAGNETOSPHERIC PHYSICS
Short Title: MAGNETOSPHERIC PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Plasma physics of the earth's magnetosphere, including interactions of the magnetosphere with the solar wind and the ionosphere. The emphasis is on large-scale phenomena, but small scale (kinetic) physics is discussed in cases where it affects the large-scale phenomena.

PHYS 515 - CLASSICAL DYNAMICS
Short Title: CLASSICAL DYNAMICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lagrangian and Hamiltonian mechanics.

PHYS 516 - MATHEMATICAL METHODS
Short Title: MATHEMATICAL METHODS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of analytical methods used by research physicists and astronomers. Includes complex variables, ordinary differential equations, infinite series, evaluation of integrals, integral transforms, normal-mode analysis, special functions, partial differential equations, eigenfunctions, Green's functions, and variational calculus.

PHYS 517 - COMPUTATIONAL PHYSICS
Short Title: COMPUTATIONAL PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Use of computational techniques to solve selected physics problems. Examine benefits and pitfalls of doing physics by computation. Requires completion of project using a low-level programming language. Graduate/Undergraduate Equivalency: PHYS 416. Mutually Exclusive: Cannot register for PHYS 517 if student has credit for PHYS 416.

PHYS 519 - PLASMA KINETIC THEORY
Short Title: PLASMA KINETIC THEORY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Plasma kinetic equations (Klimontovich, Liouville, BBGKY, Balescu-Lenard, Fokker-Planck, Vlasov), Vlasov theory of waves and instabilities, connections to fluid plasma models.
PHYS 521 - QUANTUM MECHANICS I  
Short Title: QUANTUM MECHANICS I  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Graduate level course on non-relativistic quantum mechanics. Topics include early quantum theory, one-dimensional systems, matrix formulation, quantum dynamics, symmetries and conservation laws, bound states, scattering, spin, and identical particles, perturbation theory.

PHYS 522 - QUANTUM MECHANICS II  
Short Title: QUANTUM MECHANICS II  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Continuation of PHYS 521.

PHYS 526 - STATISTICAL PHYSICS  
Short Title: STATISTICAL PHYSICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Selected topics in statistical mechanics, including phase transitions and transport phenomena.

PHYS 532 - CLASSICAL ELECTRODYNAMICS  
Short Title: CLASSICAL ELECTRODYNAMICS  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Maxwell's equations, wave propagation, special relativity and covariance formulation, charged-particle dynamics, and radiation.

PHYS 533 - NANOSTRUCTURE AND NANOTECHNOLOGY I  
Short Title: NANOSTRUCTURE/NANOTECHNOLOGY I  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Physics of structures and devices at the nanometer scale. After a review of solid state physics, topics include nanostructured materials, nanoelectronics, and nanomagnetism. Emphasis on relevance of nanophysics to current and future technologies.

PHYS 534 - NANOSTRUCTURE AND NANOTECHNOLOGY II  
Short Title: NANOSTRUCTURE&NANOTECHNOLOGY II  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Physics of structures and devices at the nanometer scale. Topics include nanomechanics, bionanotechnology, advanced sensors and photonics. Continuation of PHYS 533.

PHYS 535 - CRYSTALLOGRAPHY AND DIFFRACTION  
Short Title: CRYSTALLOGRAPHY & DIFFRACTION  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Study of crystals by diffraction techniques, focusing on x-ray, with an overview of electron and neutron diffraction as well as complementary techniques. Provides mathematical foundations and nomenclature for diffraction and related phenomena. Includes basics of crystallographic analysis and surface/point/group symmetry, experiment design (courses, geometry, detectors), and data analysis and interpretation. Required for undergraduate MSNE major. Meets with MSNE 435 (additional work for the graduate version). Cross-list: MSNE 535.

PHYS 537 - METHODS OF EXPERIMENTAL PHYSICS I  
Short Title: METHODS EXPERIMENTAL PHYSICS I  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A course to familiarize students with basic experimental techniques that are common in academic and industrial laboratories. Topics will include lab safety, mechanical design, LabVIEW(TM) programming, statistics, laboratory electronics, particle detection and vacuum technology. PHYS 537 and PHYS 538 may be taken independently of each other.

PHYS 538 - METHODS OF EXPERIMENTAL PHYSICS II  
Short Title: METH EXPERIMENTAL PHYSICS II  
Department: Physics and Astronomy  
Grade Mode: Standard Letter  
Course Type: Lecture/Laboratory  
Credit Hours: 4  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A course to familiarize students with basic experimental techniques that are common in academic and industrial laboratories. Topic will include computer interfacing and data acquisition, charged particle optics, light optics, thermal measurement and control, and cryogenics. PHYS 537 and PHYS 538 may be taken independently of each other.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 539</td>
<td>CHARACTERIZATION AND FABRICATION AT THE</td>
<td>CHARACTER&amp;FABRICATN NANOSCALE</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Introduction to study and creation of nanoscale structures, emphasizing relevant physical principles. Techniques covered include optical, X-ray, electron-based and scanned-probe characterization, as well as patterning, deposition and removal of material.</td>
</tr>
<tr>
<td>PHYS 541</td>
<td>RADIATIVE PROCESSES</td>
<td>RADIATIVE PROCESSES</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Radiation processes and their applications to astrophysical phenomena and space science. The course treats radiative transfer, radiation from moving charges, relativistic covariance and kinematics, bremsstrahlung, synchrotron radiation, Compton scattering, some plasma effects, and radiative transitions in atoms and molecules.</td>
</tr>
<tr>
<td>PHYS 542</td>
<td>INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS</td>
<td>INTRO NUCLEAR&amp;PARTIC PHYSICS</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>A continuation of PHYS 541.</td>
</tr>
<tr>
<td>PHYS 543</td>
<td>PHYSICS OF QUARKS AND LEPTONS</td>
<td>PHYSICS OF QUARKS AND LEPTONS</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Study of Einstein's theory of gravitation, including cosmological models.</td>
</tr>
<tr>
<td>PHYS 552</td>
<td>TOPICS IN BIOLOGICAL PHYSICS</td>
<td>TOPICS IN BIOLOGICAL PHYSICS</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Topics will be selected based on special or current research interests.</td>
</tr>
<tr>
<td>PHYS 556</td>
<td>GENERAL RELATIVITY</td>
<td>GENERAL RELATIVITY</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Study of history and current state of nuclear and particle physics with the emphasis on experimental results and how they led to our current understanding of the strong and electroweak interactions. Some recent advances are discussed in detail. Requires completion of a Monte Carlo simulation project. Graduate/Undergraduate Equivalency: PHYS 411. Mutually Exclusive: Cannot register for PHYS 542 if student has credit for PHYS 411.</td>
</tr>
<tr>
<td>PHYS 563</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS I</td>
<td>INTRO TO SOLID STATE PHYSICS I</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Fundamental concepts of crystalline solids, including crystal structure, band theory of electrons, and lattice vibration theory. Cross-list: ELEC 563.</td>
</tr>
<tr>
<td>PHYS 564</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS II</td>
<td>INTRO SOLID STATE PHYSICS II</td>
<td>Physics and Astronomy</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>Continuation of PHYS 563, including scattering of waves by crystals, transport theory, and magnetic phenomena. Cross-list: ELEC 564.</td>
</tr>
</tbody>
</table>
PHYS 566 - SURFACE PHYSICS
Short Title: SURFACE PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to surface- and low-dimensional physics covering experimental surface physics and ultra-high vacuum technology, crystal structure, chemical analysis, epitaxy, nanoscale electronic and magnetic structures and devices, elementary excitations, optical properties and nanoscale sensitive magnetic and non-magnetic spectroscopies.

PHYS 567 - QUANTUM MATERIALS
Short Title: QUANTUM MATERIALS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (PHYS 425 or PHYS 526) and (PHYS 311 or PHYS 521)
Description: This course uses real data on archetypal materials to illustrate the thermodynamic and transport properties of solids, and principles of materials synthesis. The goal is building a phenomenological understanding of topics including the origin of magnetism; interactions and long range order; phase transitions (magnetism; superconductivity); quantum oscillations and Landau levels.

PHYS 568 - QUANTUM PHASE TRANSITIONS
Short Title: QUANTUM PHASE TRANSITIONS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introductory course for graduate students. Topics include the concepts of classical and quantum phase transitions, mean field theory, renormalization group and quantum phase transitions in magnetic, fermionic, and bosonic systems.

PHYS 569 - ULTRAFAST OPTICAL PHENOMENA
Short Title: ULTRAFAST OPTICAL PHENOMENA
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers the generation, propagation, and measurement of short laser pulses, of duration less than one picosecond. Concepts include mode locking, the effects of dispersion, optical pulse amplification, and time-domain non-linear optical phenomena. Intended as an introduction to ultrafast phenomena for graduate students or advanced undergraduates; a basic understanding of electromagnetic waves and of quantum mechanics is assumed. Cross-list: ELEC 569.

PHYS 571 - MODERN ATOMIC PHYSICS
Short Title: MODERN ATOMIC PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an introductory course at the graduate level. Topics to be discussed include: atomic structure, principles of lasers, fundamental interactions of atoms with electro-magnetic radiation, including coherent effects, laser spectroscopy, quantum optics, and laser cooling and trapping of atoms, and Bose-Einstein condensation.

PHYS 572 - FUNDAMENTALS OF QUANTUM OPTICS
Short Title: FUNDAMENTALS OF QUANTUM OPTICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of quantization and statistical properties of light fields; interaction between atoms and light; non-classical states; basic laser theory; quantum effects of nonlinear optics; introduction to atom optics.

PHYS 580 - INTRODUCTION TO PLASMA PHYSICS
Short Title: INTRODUCTION TO PLASMA PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Fundamental processes in cosmic and laboratory plasmas. Basic plasma characteristics, charged particle motion, waves in plasmas, magnetohydrodynamics, kinetic theory. Includes a substantial computational project related to plasma physics. Graduate/Undergraduate Equivalency: PHYS 480. Mutually Exclusive: Cannot register for PHYS 580 if student has credit for PHYS 480.

PHYS 600 - ADVANCED TOPICS IN PHYSICS
Short Title: ADVANCED TOPICS IN PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Lecture/seminars which treat topics of departmental interest. Repeatable for Credit.
PHYS 601 - FRONTIERS IN CONDENSED MATTER PHYSICS
Short Title: FRONTIERS IN CONDENSED MATTER
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will serve as an introduction to current research topics in modern condensed matter physics. Lectures will be given by experts in condensed matter physics at Rice, Columbia University, and other international locations. Repeatable for Credit.

PHYS 605 - COMPUTATIONAL ELECTROMAGNETICS AND NANOFLUIDICS
Short Title: ELECTROMAGNETICS & NATURAL PHENOMENON
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers computational and numerical methods for calculating electromagnetic fields and propagation in complex geometries on the nano and microscale. Methods include the finite difference time domain method, boundary element methods, Greens functions methods, finite element methods, the discrete dipole approximation and relaxation methods. Cross-list: ELEC 605. Repeatable for Credit.

PHYS 610 - BIOLOGICAL AND MOLECULAR SIMULATION
Short Title: METHODS OF MOLECULAR SIMULATION
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): CHBE 611 or BIOC 589 or BIOS 589 or CHEM 520 or PHYS 526
Description: Modern simulation techniques for classical atomistic systems. Review of statistical mechanical systems. Monte Carlo and molecular dynamics simulation techniques. Extensions of the basic methods to various ensembles. Applications to simulations of large molecules such as proteins. Advanced techniques for simulation of complex systems, including constraint satisfaction, cluster moves, biased sampling, and random energy models. Cross-list: BIOE 610.

PHYS 622 - QUANTUM FIELD THEORY
Short Title: QUANTUM FIELD THEORY
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to relativistic quantum field theory. Topics include: quantization of scalar, spinor, and vector fields; Feynman diagrams; gauge theories, including QED and QCD; renormalization; and functional-integral methods.
PHYS 665 - TOPOLOGY IN MODERN QUANTUM PHYSICS AND FIELD THEORY
Short Title: TOPOLOGY IN QUANTUM PHYSICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PHYS 521
Description: Topology plays an increasingly important role in modern quantum physics, and its applications to a variety of topics range from the theory of liquid crystals to topological defects in quantum field theory. This course will introduce some key notions from topology, such as homotopy and homology, and differential geometry and discuss their applications in quantum physics, from the theory of vortices in superconductors, to monopoles in non-Abelian gauge theories, to instantons in Yang–Mills theory. The course also covers the concepts of topological insulators and superconductors that have become an important part of the vocabulary of modern condensed matter physics. The course may be useful for students pursuing research in condensed matter and AMO physics, as well as high-energy physicists interested in topological defects in quantum field theory.

PHYS 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PHYS 700 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised teaching for graduate students. Repeatable for Credit.

PHYS 710 - GRADUATE SEMINAR IN PHYSICS AND ASTRONOMY
Short Title: GRAD SEMINAR IN PHYS & ASTR
Department: Physics and Astronomy
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Participation in department colloquia and additional sessions on topics of interest to entering graduate students. Required of all Physics and Astronomy graduate students during their first Fall semester at Rice.

PHYS 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Physics and Astronomy
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis research under the supervision of department faculty. Repeatable for Credit.

Political Science (POLI)

POLI 102 - QUANTITATIVE ANALYSIS FOR SOCIAL SCIENCES: POLITICAL SCIENCE LAB
Short Title: POLI SCI STATISTICS LAB
Department: Political Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This lab companion course to SOSC 302: Quantitative Analysis for the Social Sciences involves political science-specific applications of statistical analysis. The lab focuses on the use of software to analyze data from research in political science. Students who enroll in this lab section must also enroll in SOSC 302 during the same semester.

POLI 110 - AP/OTH CREDIT IN AMERICAN GOVERNMENT
Short Title: AP/OTH CREDIT AMER GOVERNMENT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation.

POLI 111 - IB/OTH CREDIT INTERNATIONAL RELATIONS
Short Title: IB/OTH CREDIT INTERNATL REL
Department: Political Science
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as the International Baccalaureate exam for Global Politics. This credit counts toward the total credit hours required for graduation only. This course is for transfer credit only.
### POLI 112 - AP/OTH CREDIT IN COMPARATIVE GOVERNMENT
| Short Title: | AP/OTH CREDIT COMPAR GOVERNMNT |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Transfer |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. |

### POLI 209 - INTRODUCTION TO CONSTITUTIONALISM AND MODERN POLITICAL THOUGHT
| Short Title: | INTRO TO CONST & POLI THOUGHT |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture |
| Distribution Group: | Distribution Group II |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | This course will examine constitutionalism and authoritarianism, including Plato, Machiavelli, and Marx, and introduce students to classical and contemporary political theories. |

### POLI 210 - INTRODUCTION TO AMERICAN POLITICS
| Short Title: | INTRO TO AMERICAN POLITICS |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture |
| Distribution Group: | Distribution Group II |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | This course introduces students to major topics in the subfield of American Politics, including public opinion, group politics, political parties, elections, congressional-presidential-bureaucratic politics, and judicial politics. This course helps students navigate upper division courses in American Politics and understand American government and politics. |

### POLI 211 - INTRODUCTION TO INTERNATIONAL RELATIONS
| Short Title: | INTRO TO INTERNAT'L RELATIONS |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture |
| Distribution Group: | Distribution Group II |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | This course introduces students to major topics in the subfield of International Relations, including the causes of war, political dimensions of the international economy, international organizations, and interstate cooperation to address contemporary global challenges. This course helps students navigate upper division courses in International Relations and explore the international world. |

### POLI 212 - INTRODUCTION TO COMPARATIVE POLITICS
| Short Title: | INTRO TO COMPARATIVE POLITICS |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture |
| Distribution Group: | Distribution Group II |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | This course introduces students to major topics in the subfield of Comparative Politics, including emergence and survival of democracy, authoritarian government, democratic institutions, and mass and elite political behavior in countries around the world. This course helps students navigate upper division courses in Comparative Politics and explore the political world. |

### POLI 238 - SPECIAL TOPICS
| Short Title: | SPECIAL TOPICS |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture/Laboratory, Seminar, Lecture |
| Credit Hours: | 1-4 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit. |

### POLI 250 - SEX, MONEY, AND POWER AROUND THE WORLD
| Short Title: | SEX, MONEY, AND POWER |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | An interdisciplinary course exploring lives and well-being in the context of gendered international and domestic politics and economic processes. Emphasis on the implications of power relations at levels from the household to the global for women and men around the world (with particular attention to Asia). Cross-list: ASIA 251, SWGS 250. |

### POLI 260 - ADVOCATING FOR IDEAS TO CHANGE THE WORLD
| Short Title: | ADVOCATING FOR CHANGE |
| Department: | Political Science |
| Grade Mode: | Standard Letter |
| Course Type: | Lecture |
| Credit Hours: | 3 |
| Restrictions: | Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students. |
| Course Level: | Undergraduate Lower-Level |
| Description: | Advocating for change is an experiential learning course that teaches students how to engage in issue advocacy as a method of social change. Students work in teams with faculty mentors to develop and implement an advocacy plan for a particular cause or policy of interest. Cross-list: LEAD 260. |
POLI 301 - STATE POLITICS
Short Title: STATE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course comparatively examines state governments and political institutions in the U.S. states. We will also focus on how state political institutions and organizations influence the creation, adoption, and implementation of public policy.

POLI 305 - DIRECTED READING I
Short Title: DIRECTED READING I
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent reading under the supervision of a full-time member of the department. Instructor Permission Required.

POLI 306 - DIRECTED READING II
Short Title: DIRECTED READING II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent reading under the supervision of a full-time member of the department. Instructor Permission Required.

POLI 307 - POLITICAL SCIENCE INTERNSHIP
Short Title: POLITICAL SCIENCE INTERNSHIP
Department: Political Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides credit for a student doing an internship related to political science. Instructor Permission Required. Repeatable for Credit.

POLI 310 - THE BIOLOGY OF POLITICS
Short Title: THE BIOLOGY OF POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is an interdisciplinary survey of the role that human biology plays in our political behavior. The biology covered ranges from genes to neural structures to neuro-chemistry, while the political behavior covered ranges from levels of participation to political beliefs to left/right ideology.

POLI 315 - ELECTIONS AND VOTING BEHAVIOR
Short Title: ELECTIONS AND VOTING BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of voting behavior and elections. Includes consideration of both individual level behavior and aggregate level patterns of election results.

POLI 317 - THE CONGRESS
Short Title: THE CONGRESS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the role of Congress in the American political system. Attention is given to the historical development of Congress, the current status of the Congress, and the functions of Congress in the American political system.

POLI 318 - THE PRESIDENCY
Short Title: THE PRESIDENCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analysis of presidential powers and behavior in the context of legal, electoral, personal, and other forces that shape and limit the actions of the President.
| Course Code | Course Title                                      | Short Title                        | Department       | Grade Mode   | Course Type      | Restrictions                               | Credit Hours | Distribution Group | Course Level          | Description                                                                 | Grade Mode | Course Type | Restrictions                               | Credit Hours | Distribution Group | Course Level          | Description                                                                 | Grade Mode | Course Type | Restrictions                               | Credit Hours | Distribution Group | Course Level          | Description                                                                 |
|-------------|--------------------------------------------------|------------------------------------|------------------|--------------|----------------|------------------|-------------------------------------------|--------------|---------------------|------------------------|-----------------------------------------------------------------------------|------------|-------------|------------------|-------------------------------------------|--------------|-----------------|------------------|-----------------------------------------------------------------------------|------------|-------------|------------------|-------------------------------------------|--------------|-----------------|------------------|-----------------------------------------------------------------------------|
POLI 333 - LEGISLATURES AROUND THE WORLD
Short Title: LEGISLATURES AROUND THE WORLD
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine legislatures and parliaments in countries around the world, exploring their similarities and differences as well as the causes and consequences of these similarities and differences.

POLI 334 - AMERICAN POLITICAL PARTIES
Short Title: AMERICAN POLITICAL PARTIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of the American political party system both historically and contemporarily, with important emphasis on the nomination, campaign, and election functions of political parties. Party organization in government will also be explored.

POLI 335 - POLITICAL ENVIRONMENT OF BUSINESS
Short Title: POLITICAL ENVIRONMENT OF BUSINESS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the foundation of government involvement in public policy and the institutional process guiding executive, legislative, and bureaucratic officials. Includes theories of collective action and their application in the political world.

POLI 336 - POLITICS OF REGULATION
Short Title: POLITICS OF REGULATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus principally on government regulation of business and the political factors that shape its content.

POLI 337 - PUBLIC POLICY
Short Title: PUBLIC POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the role that public bureaucracy plays in national policy making. Includes an examination of sources of agency power, which are linked to different policy outcomes.

POLI 338 - POLICY ANALYSIS
Short Title: POLICY ANALYSIS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOCS 302 or STAT 310 or STAT 315 or DSCI 301 or ECON 307
Description: Familiarizes students with the analytical tools necessary for evaluating and analyzing public policies. Cross-list: SOCS 301. Mutually Exclusive: Cannot register for POLI 338 if student has credit for POST 338.

POLI 339 - GENDER AND POLITICS
Short Title: GENDER AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of central topics in gender and politics, including issues such as women's and men's representation in government, women as voters and candidates in political elections, gender and political participation in political parties and social movements, and gender and policy representation.

POLI 342 - POLITICS OF THE JUDICIARY
Short Title: POLITICS OF THE JUDICIARY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the role of courts and judges in American politics. Will illustrate major characteristics of judicial institutions in the U.S. and provide understanding of forces influencing judicial decisions. Will cover federal and state organization of trial and appellate courts, judicial selection methods, and the politics of judicial decision-making.
POLI 343 - MEDIA AND POLITICS
Short Title: MEDIA AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the role of media in politics. Attention is given to the media as a quasi-political institution. It elaborates the role the media plays in elections and the policy process.

POLI 348 - URBAN POLITICS LAB
Short Title: URBAN POLITICS LAB
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The lab course examines urban politics and policy by combining urban theory and methods with an intensive focus on one or more case studies. In addition to social, political and economic issues, the course focuses on history, culture, language, and architecture. The lab features a field research trip to one or more cities (e.g. Istanbul), typically during spring break. Instructor Permission Required. Repeatable for Credit.

POLI 349 - URBAN LAB ISTANBUL
Short Title: URBAN LAB ISTANBUL
Department: Political Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 355 (may be taken concurrently) or POLI 362 (may be taken concurrently) or POLI 464 (may be taken concurrently) or POLI 562 (may be taken concurrently)
Description: This course examines the dynamics of urban politics and policy in an emerging global city - Istanbul. The lab is project-based and allows students to engage in hands-on, policy-focused research under the guidance of the faculty instructor. Weekly sessions will include lectures, case studies, guest lecturers, site visits, and work on research projects. POLI 350 requires either POLI 332 as a pre-requisite, which can be taken concurrently. POLI 337 may serve as a Co-Requisite for this course. Department Permission Required.

POLI 350 - URBAN LAB HOUSTON
Short Title: URBAN LAB HOUSTON
Department: Political Science
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 332 (may be taken concurrently)
Description: This course will venture to explore the “rich and diverse particularity” of Muslim political life at a time when Islam has become virtually synonymous with violence and hostility toward modernity. The topics include Islamic principles of government, relationship between political and religious authority, Islamism, Islam and democracy, jihad, and shariah.

POLI 352 - THE POLITICS AND CULTURE OF MEXICO
Short Title: POLITICS & CULTURE OF MEXICO
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mexico entered the 21st Century as one of the most dynamic societies in Latin America. But Mexico’s fast-paced and chaotic transformation cannot be understood without a look at its past and its diverse cultural makeup. This course explores the weight of Mexico’s history and culture as it seeks to forge ahead economically, socially, and politically.
POLI 353 - EAST ASIAN DEMOCRACIES
Short Title: EAST ASIAN DEMOCRACIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the functioning of the political system in the three principal East Asian democracies: Japan, South Korea, and Taiwan. Particular focus is paid to each country’s democratic institutions, electoral politics, and political party system. Cross-list: ASIA 353.

POLI 354 - LATIN AMERICAN POLITICS
Short Title: LATIN AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the political process in contemporary Latin America, with emphasis on selected major countries.

POLI 355 - GOVERNMENT AND POLITICS OF THE MIDDLE EAST
Short Title: GOVERNMENT&POLITICS MID EAST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides an introduction to politics in the Middle East. Brief historical overview is combined with detailed description of political systems in the area. The region is then used to examine empirically, critique, and revise theories of comparative politics. Emphasis on whether the region would be considered unique or exceptional.

POLI 356 - REPRESENTATION AND POLICY MAKING
Short Title: REPRESENTATION & POLICY MAKING
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course seeks to understand the relationship between political institutions and the representation of social interests in the policy-making process across a variety of national contexts. The course focuses on the politics behind policy choices and how policy-makers are held accountable in democratic contexts. Case studies will draw upon examples in the United States, Latin America, Europe and Asia.

POLI 357 - DEMOCRACY AND DEMOCRATIZATION
Short Title: DEMOCRACY AND DEMOCRATIZATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the theory of democracy and the functioning of democratic institutions around the world. Themes covered in the course will include: What is democracy? How does democracy arise? Can institutions influence the survival and consolidation of democracy?

POLI 360 - WESTERN EUROPEAN DEMOCRACIES
Short Title: WESTERN EUROPEAN DEMOCRACIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of government and politics in Western European democracies, with primary emphasis on Great Britain, France, and Germany.

POLI 362 - COMPARATIVE URBAN POLITICS AND POLICY
Short Title: COMPARATIVE URBAN POL & PLCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers a broad overview of urban politics and policies in cities around the world. We will examine how national, regional and local forces shape the processes and outcomes governance within and across cities and metropolitan areas, paying particular attention to critical problems and policies that affect urban centers: growth, immigration, class conflict, public order, service management, education, housing, transportation, environmental protection, sustainability, land-use planning and spatial competition.

POLI 365 - BRITISH POLITICS
Short Title: BRITISH POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An examination of British politics and government, with emphasis on both the contemporary and historical setting. This course also emphasizes a comparison of the British political system with the American political system.
POLI 371 - CIVIL WARS
Short Title: CIVIL WARS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course seeks to examine the origins and dynamics of civil war, including civil war onset, duration, outcome, termination, why people join rebellions, the effectiveness of various forms of civil war management and resolution, and more. It aims to impart to students a solid understanding of theories and empirical evidence regarding the causes, conduct, and termination of civil wars in general.

POLI 372 - AMERICAN FOREIGN POLICY
Short Title: AMERICAN FOREIGN POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of internal and external aspects of foreign policy leadership, presidential initiative, congressional control, press, public opinion, and crisis management. Not a Managerial Studies elective.

POLI 373 - WAR AND POLITICS
Short Title: WAR AND POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of the theoretical basis of, and empirical evidence for, a number of explanations for interstate war. Includes contemporary theories dealing with dispute escalation, arms races, deterrence, crisis management, and low-intensity conflict.

POLI 374 - STRATEGIC INTERACTIONS IN INTERNATIONAL RELATIONS
Short Title: STRATEGIC INTERACT INTERN'L REL
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the uses of game theory in the study of international relations.

POLI 375 - INTERNATIONAL ORGANIZATION
Short Title: INTERNATIONAL ORGANIZATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the development and role of international organizations in world politics. Topics include the history and evolution of international organizations, the effects of international law on behavior, and the extent to which international cooperation has been effective at resolving global problems.

POLI 376 - INTERNATIONAL HUMAN RIGHTS
Short Title: INTERNATIONAL HUMAN RIGHTS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores patterns of and explanations for human rights violations over time, as well as international and domestic solutions to protect human rights.

POLI 377 - CHINESE POLITICS IN COMPARATIVE PERSPECTIVE
Short Title: CHINESE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the range of theories and empirical research methodologies from comparative political science, political-economy, and Asian studies commonly applied to understanding Chinese politics: political participation, political organizations, collective action and popular protest, political culture, and political institutional change. This course will be a seminar requiring weekly presentations, extensive readings at the graduate level in social science, and an original research paper. There is no prerequisite for this course, but participants are assumed to already possess extensive knowledge of Chinese history, culture, and society. Cross-list: ASIA 377. Mutually Exclusive: Cannot register for POLI 377 if student has credit for ASIA 489/POLI 489.
POLI 378 - POLITICS OF AMERICAN NATIONAL SECURITY
Short Title: POLITICS OF AMER NATL SECURITY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The primary focus on this course is the use of military force in pursuit of the national security of the US. A wide variety of topics are covered including the people in the military, weapons of mass destruction, and various types of conflict that have involved (or might involve) the United States.

POLI 395 - APPLIED RESEARCH METHODS IN POLITICAL SCIENCE
Short Title: APPLIED RESEARCH METHODS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The primary focus on this course is the use of military force in pursuit of the national security of the US. A wide variety of topics are covered including the people in the military, weapons of mass destruction, and various types of conflict that have involved (or might involve) the United States.

POLI 380 - POLITICAL BEHAVIOR
Short Title: POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines basic concepts in political behavior including political socialization, models of voting behavior, public opinion, and political participation.

POLI 381 - GOVERNMENT, POLITICS AND SOCIETY IN TEXAS: FROM 1835 TO THE PRESENT
Short Title: GOVT & POLITICS IN TEXAS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course examines Texas government, politics and society from the formation of the Texas Republic to the present. In addition to historical overviews, students will consult primary sources and utilize data from the Texas Legislative History Project to better understand key events, trends and dynamics in the Lone Star State.

POLI 395 - APPLIED RESEARCH METHODS IN POLITICAL SCIENCE
Short Title: APPLIED RESEARCH METHODS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOSC 302
Description: This course uses a lecture/lab combination to introduce students to research design, applied research methods, and statistical software in political science. Students will learn key skills and tools to conduct research in political science and have an opportunity to apply those in an individual or group project.

POLI 401 - STATE POLITICS RESEARCH SEMINAR
Short Title: STATE POLITICS RESEARCH SEM
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: A research seminar in state politics and policy with an emphasis on state institutions.

POLI 405 - THESIS I
Short Title: THESIS I
Department: Political Science
Grade Mode: Independent Study
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the first course in the Political Science Honors Program. Students will conduct independent research and prepare a formal research proposal for their planned thesis by the end of the semester. Students must complete both POLI 405 and 406 to get Honors in Political Science. Instructor Permission Required.

POLI 406 - SENIOR THESIS
Short Title: THESIS II
Department: Political Science
Grade Mode: Independent Study
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is the second course in the Political Science Honors Program. Students will conduct independent research and write a thesis paper by the end of the semester. Students must complete both POLI 405 and 406 to get Honors in Political Science. Instructor Permission Required.

POLI 416 - SURVEY RESEARCH IN AMERICAN POLITICS
Short Title: SURVEY RSRCH AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The major objectives of this course are to introduce students to the skills and resources needed to design and conduct a survey. The principle substantive focus of the course will be public opinion surveys on topics of politics, public policy and individual political behavior.
POLI 418 - MODERN AMERICAN PRESIDENCY
Short Title: MODERN AMERICAN PRESIDENCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The course examines the modern presidency since World War II with a focus on the extent to which the Trump presidency has influenced the office and been influenced by it. It specifically studies the ways in which a single president can change the office and the government. The examination considers the expansion of presidential power especially during war and its relation to the Constitution. It assesses the public presidency through television, the internet and social media. It investigates the organization of the White House and the nature of presidential decision-making. The central question is how much of a difference do individual presidents make to the office they hold.

POLI 419 - POLITICAL PARTIES AND INTEREST GROUPS IN AMERICAN POLITICS
Short Title: PARTIES AND INTEREST GROUPS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The goal of this seminar is to provide the student with knowledge of the formation, organization, activity, and impact of political parties and interest groups in the United States. Special attention will be given to changes in the operation of these two types of organizations over the last 20 years.

POLI 420 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION
Short Title: ELECTION SYSTEMS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This multidisciplinary course will consider how elections are conducted to enhance participation, to accurately measure the will of the electorate, and to be sufficiently rigorous to convince all parties that the results are legitimate. This course will consider the design and evaluation of election technologies, ranging from voter registration through the polling booth and vote tabulation. This course will consider three questions: how do individual voters interact with the voting technology, how are voting technologies engineered to be accurate and secure, and how do the social aspects of voting fulfill democratic goals for elections? A central requirement for this course will be group research projects, many operating in our community, built around the November election. Cross-list: COMP 435, PSYC 420.
This course provides students an opportunity to conduct original research on wide range of public policy questions. Students will be provided specific research questions to investigate over the course of the semester for which they will design and complete an original program of research.
POLI 441 - GOVERNING THE ENVIRONMENTAL COMMONS
Short Title: GOVERNING ENVIRONMENTAL COMMONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Common Property Resources (CPRs), such as fisheries, aquifers, and the Internet, appear in many guises and pose a fundamental problem for governing. Exploration of theoretical underpinnings for CPRs, their growing literature, and the political and economic institutions mediating CPR dilemmas. Included is an original research project in conjunction with the instructor. Cross-list: ENST 441.

POLI 445 - SEMINAR IN JUDICIAL PROCESS AND BEHAVIOR
Short Title: SEM JUDICIAL PROCESS & BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Thinking about law school? This seminar explores social scientific literature in judicial process and behavior and examines selected controversies in the study of judicial processes. Learning is based on active participation in seminars covering assigned readings and a research project on a related topic selected by the student.

POLI 450 - ELECTIONS IN THE AMERICAS
Short Title: ELECTIONS IN THE AMERICAS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The course examines the electoral process in Latin America. Students will follow, discuss, and analyze campaigns and elections in a selected group of countries while developing an expertise in the general functioning of the respective countries' political systems.

POLI 457 - CONDITIONS OF DEMOCRACY
Short Title: CONDITIONS OF DEMOCRACY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course starts with definitions and theories/preconditions of democracy and then looks at specific cases of democratic transition throughout the world, democratic consolidation, reaction, and the prospects for the future.

POLI 459 - SEX, GENDER, AND POLITICAL REPRESENTATION IN LATIN AMERICA
Short Title: GENDER & REP IN LATIN AMERICA
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Latin American countries have elected surprisingly large numbers of women to presidencies, cabinets, and legislatures in recent years. This seminar explores how this happened in a region long known for its culture of cachismo and weak democracy and what the consequences of gender diversity are for politics.

POLI 461 - WOMEN AND POLITICAL LEADERSHIP
Short Title: WOMEN AND LEADERSHIP
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: A research seminar focusing on women as political leaders worldwide. Topics include: leadership as a gendered concept; conditions that promote women’s inclusion in/exclusion from leadership posts; whether, when, and why women leaders behave differently than men; and citizens’ reactions to men and women in leadership roles.

POLI 462 - COMPARATIVE PUBLIC POLICY
Short Title: COMPARATIVE PUBLIC POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Seminar examining the process and substance of public policy across nations, with emphasis on social policy in industrialized democracies.

POLI 465 - MAKING AND BREAKING GOVERNMENTS: THE POLITICS OF COALITION IN EUROPE
Short Title: MAKING & BREAKING GOVERNMENTS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Seminar examining the politics of coalition formation, coalition governance, and coalition breakup in the European multi-party democracies in which coalition governments are the norm.
POLI 466 - POLITICAL PARTIES AND VOTING BEHAVIOR IN WESTERN DEMOCRACIES
Short Title: PARTIES & VOTING BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Seminar on the determinants of party systems, the structure and functions of parties, and theories of voting behavior in Western democracies.

POLI 468 - THE GLOBAL SPREAD OF POLICY AND IDEAS
Short Title: GLOBAL SPREAD POLICY & IDEAS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course explores the spatial nature of politics. It examines how policies, ideas and behaviors spread globally among political actors. Topics covered include: government and parties’ policy diffusion. The contagion of civil war and terrorism, the spread of protests and social movements, and the dynamics of economic globalization.

POLI 469 - CIVIL WAR AND TERRORISM
Short Title: CIVIL WAR AND TERRORISM
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course explores the spatial nature of politics. It examines how policies, ideas and behaviors spread globally among political actors. Topics covered include: government and parties’ policy diffusion. The contagion of civil war and terrorism, the spread of protests and social movements, and the dynamics of economic globalization.

POLI 470 - INTERNATIONAL RELATIONS
Short Title: INTERNATIONAL RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Topic varies from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 472 - AMERICAN FOREIGN POLICY
Short Title: AMERICAN FOREIGN POLICY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: The content of American foreign policy, its sources, and the process of policy formulation.

POLI 473 - THE CRAFT OF INTELLIGENCE ANALYSIS: PREDICTION AND CONNECTING THE DOTS
Short Title: THE CRAFT OF INTELLIGENCE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course will introduce students to the problems faced by intelligence analysts. Students will study historical examples of intelligence analysis. Placed in teams, they will monitor streams of actual events and provide assessments of these events.

POLI 474 - INTERNATIONAL ORGANIZATIONS: THEORIES AND PRACTICE
Short Title: INTERNATIONAL ORGANIZATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This course has two goals: First to introduce students to the current theoretical debates in the field of international organizations and to assess the value and limitations of these theories; second, to understand the working of important world organizations, including (but not limited to) the UN, the WTO, and IMF. The course assumes some basic knowledge of IR theory and previous debates about the origin and impact of international organizations on world politics. It is designed for students at an advanced stage in the study of political science and International Relations.
POLI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

POLI 478 - US - CHINA: CONFLICT AND COOPERATION
Short Title: US-CHINA: CONFLICT & COOPRTN
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: This is a research seminar for advanced undergraduate students to read and discuss international relations theories in the context of US-China relations. Students are expected to read cutting edge IR research, follow current events, think critically of the applicability of the existing IR theories on the issues surrounding the bilateral relationship.

POLI 480 - SEMINAR IN POLITICAL BEHAVIOR
Short Title: SEM IN POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Undergraduate research seminar covering the field of political behavior with special emphasis on the application of social and cognitive psychology to the study of mass political behavior. Topics include political socialization, models of voting behavior, and political participation.

POLI 481 - UNDERSTANDING WAR AND PEACE
Short Title: UNDERSTANDING WAR AND PEACE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Understanding War and Peace: Why do countries resort to the use of military force, and how can such conflicts be resolved? This course will introduce students to current research on the causes and consequences of international conflict. In addition to reading and discussing current scholarship, students will have the opportunity to engage in their own research.

POLI 490 - POLITICS AND THE ARTS
Short Title: POLITICS AND THE ARTS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): POLI 395
Description: Undergraduate research seminar covering the field of political behavior with special emphasis on the application of social and cognitive psychology to the study of mass political behavior. Topics include political socialization, models of voting behavior, and political participation.

POLI 500 - SOCIAL SCIENTIFIC THINKING I
Short Title: SOCIAL SCIENTIFIC THINKING I
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to the practice of social science research including empirical description, theoretical development, and hypothesis generation and testing. It includes projects on the design and implementation of surveys, controlled experiments, archival data collection, fieldwork, case studies, and qualitative analysis.
POLI 501 - SOCIAL SCIENTIFIC THINKING II
Short Title: SOCIAL SCIENTIFIC THINKING II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 500
Description: This course is a continuation of POLI 500. Students will plan and execute an original research project and write a paper reporting the results.

POLI 502 - INTRODUCTION TO STATISTICS
Short Title: INTRODUCTION TO STATISTICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course aims at providing students with a working knowledge of statistics in political science. It involves the study of descriptive and inferential statistics, as well as hands-on experience with computer statistical packages.

POLI 503 - TOPICS IN METHODS AND DATA ANALYSIS
Short Title: TOPICS METHODS&DATA ANALYSIS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applications of least squares and general linear mode. Cross-list: STAT 503.

POLI 504 - INTRODUCTION TO MAXIMUM LIKELIHOOD ESTIMATION
Short Title: INTRO MAX LIKELIHOOD EST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of applications of maximum likelihood estimation.

POLI 505 - ADVANCED MAXIMUM LIKELIHOOD ESTIMATION
Short Title: ADV MAXIMUM LIKELIHOOD EST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 504
Description: Special topics in political methodology. Instructor Permission Required. Repeatable for Credit.

POLI 506 - ADVANCED TOPICS IN POLITICAL METHODOLOGY I
Short Title: ADV TOPICS POL METHODS I
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 505
Description: This course provides an analytic and quantitative framework to design and implement causal analysis, especially in observational studies. It focuses on understanding the logic, mathematical foundations and implications of causal reasoning using diverse frameworks, and covers tools for its implementation such as randomization, weighting, difference-in-difference, matching, and others.

POLI 507 - ADVANCED TOPICS IN POLITICAL METHODOLOGY II
Short Title: ADV TOPICS POL METHODS II
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): POLI 505
Description: This course explains how machine learning methods can be used to facilitate discovery, measurement, and predictions of variables relevant to the social sciences. It introduces and illustrates the implementation of several methods and tools such as Bayesian models, classifiers, latent dimension discovery methods, text and image analysis, and others.

POLI 511 - MEASUREMENT AND RESEARCH DESIGN
Short Title: MEASUREMENT & RESEARCH DESIGN
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of advanced topics in research design and measurement theory.

POLI 512 - EXPERIMENTAL DESIGN AND SOCIAL BEHAVIOR
Short Title: EXPRMTL DSGN & SOCIAL BHVR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar develops tools for the design and conduct of experiments in the social sciences. At the conclusion of the course each student will have developed and implemented an experiment testing some aspect of human social behavior.
POLI 513 - SURVEY RESEARCH
Short Title: SURVEY RESEARCH
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The major objectives of this course are to introduce graduate students to the skills and resources needed to design and conduct a survey.

POLI 520 - APPROACHES TO COMPARATIVE GOVERNMENT
Short Title: APPROACHES TO COMPARATIVE GOVT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Core graduate course analyzing basic approaches to the study of comparative government.

POLI 527 - INSTITUTIONAL ANALYSIS
Short Title: INSTITUTIONAL ANALYSIS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Theories of institutional analysis and design.

POLI 528 - AMERICAN POLITICAL INSTITUTIONS
Short Title: AMERICAN POLITICAL INSTITUTIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course examines the theoretical and empirical study of institutions in political science. Its specific focus is on the study of American politics, with attention to the Congress, presidency, courts, and the media as institutions.

POLI 530 - APPROACHES TO AMERICAN GOVERNMENT
Short Title: APPROACHES TO AMERICAN GOV'T
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Core graduate course. Includes an analysis of basic approaches to the study of American politics.

POLI 531 - STATE POLITICS
Short Title: STATE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines similarities and differences in the organization of state politics. Major issues include state legislative organization, state elite behavior, and policy implementation.

POLI 532 - COMPARATIVE LEGISLATURES
Short Title: COMPARATIVE LEGISLATURES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Provides the student with the basic concepts and theories necessary to understand the functions and organization of legislatures/assemblies in democratic societies. This course takes a broad-based perspective, including research that focuses on national parliaments and U. S. state legislatures.

POLI 533 - ADVANCED TOPICS IN POLITICAL BEHAVIOR
Short Title: ADVANCED TOPICS IN POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar in the subfield of political behavior. Content varies from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 534 - INTEREST GROUPS AND POLITICAL PARTIES
Short Title: INTEREST GROUPS AND POLITICAL PARTIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar in the subfields of interest groups and political behavior.

POLI 535 - RACE, ETHNICITY, AND AMERICAN POLITICS
Short Title: RACE, ETHNICITY, AND AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar that examines the role of race and ethnicity in American politics. This course provides an examination of the behavioral and electoral implications of racial and ethnic diversity.
POLI 536 - WOMEN AND REPRESENTATION
Short Title: WOMEN AND REPRESENTATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the causes and consequences of women's underrepresentation in politics in countries around the world. It considers common theoretical frameworks for the study of women's representation and the empirical bases of what we know about gender and political representation.

POLI 537 - PUBLIC POLICY AND BUREAUCRACY
Short Title: PUBLIC POLICY AND BUREAUCRACY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the administration and implementation of public policies across federal, state, and substate governments.

POLI 538 - POLITICAL ECONOMY OF POLICY CHANGE
Short Title: POL ECONOMY OF POLICY CHANGE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore policy and political change primarily, but not exclusively, in the United States. Using a political economy approach, we will explore different models of change and identify the actors, institutions, and conditions that facilitate stability in change in state, local and national policymaking.

POLI 539 - POLITICAL PSYCHOLOGY
Short Title: POLITICAL PSYCHOLOGY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Broad survey of the theoretical and methodological approaches used in political psychology. Topics include political information processing, knowledge, attitudes, political trust, emotions, and personality.

POLI 540 - INTERNATIONAL RELATIONS
Short Title: INTERNATIONAL RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Core graduate course. Includes an analysis of basic approaches to the study of international relations.

POLI 541 - INTERNATIONAL COOPERATION
Short Title: INTERNATIONAL COOPERATION
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar on theories and evidence of international cooperation. Discussion of the difficulties in establishing cooperation under anarchy and the conditions under which international cooperation is most likely to occur.

POLI 542 - SUBNATIONAL POLITICS
Short Title: SUBNATIONAL POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the role of subnational political institutions in the development and implementation of policy. It compares the myriad of subnational institutions. Mutually Exclusive: Cannot register for POLI 542 if student has credit for POLI 442.

POLI 544 - PRACTICUM IN LEGISLATIVE RESEARCH
Short Title: LEGISLATIVE RESEARCH
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will teach graduate students how to design and conduct original empirical research on US, state, or world legislatures. Students will conduct original quantitative research and produce a publishable research paper. Instructor Permission Required.

POLI 562 - RESEARCH SEMINAR ON COMPARATIVE URBAN POLITICS AND POLICY
Short Title: SEM COMP URBAN POL & PLCY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course offers a broad overview of urban politics and policies in cities around the world. We will examine how national, regional and local forces shape the processes and outcomes governance within and across cities and metropolitan areas, paying particular attention to critical problems and politics that affect urban centers: growth, immigration, class conflict, public order, service management, education, housing transportation, environmental protection, sustainability, land-use planning and spatial competition. Mutually Exclusive: Cannot register for POLI 562 if student has credit for POLI 464.
POLI 563 - COALITION POLITICS AND PARLIAMENTARY GOVERNMENT
Short Title: COALITION POLI & PRLMTY GOVT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the extensive scholarship on coalition politics in parliamentary democracies. Topics include coalition formation, the allocation of government ministries, coalition termination, coalition policymaking, and the interaction between coalition governance, party competition, and mass voting behavior.

POLI 564 - POLITICAL ECONOMY OF DEVELOPMENT
Short Title: POLI ECONOMY OF DEVELOPMENT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A central priority developing nations face today concerns establishing economic growth; how best to achieve strong economic performance has both an economic and political dimension. This course seeks a rudimentary understanding of economic growth, concentrating on its political determinants.

POLI 565 - POLITICAL PROTEST
Short Title: POLITICAL PROTEST
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course looks at various theories of collective action and social movements. It will examine theoretical debates about why individuals and groups occasionally redress their grievances through protest and more often endure hardships passively. It will evaluate the relative merit of these theories in explaining cases of protest and passivity worldwide.

POLI 566 - POLITICAL PARTIES
Short Title: POLITICAL PARTIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar that examines the theoretical and empirical literature on party development, organization, and change.

POLI 567 - COMPARATIVE POLITICAL BEHAVIOR
Short Title: COMPARATIVE POLITICAL BEHAVIOR
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course we will explore the nature and sources of cross-national differences in mass political behavior. Mutually Exclusive: Cannot register for POLI 567 if student has credit for POLI 358.

POLI 568 - COMPARATIVE POLITICAL INSTITUTIONS
Short Title: COMP POLITICAL INSTITUTIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the design of political institutions in democracies, and their effect on elections, governance, and representation. Explores topics such as the presidential-parliamentary debate, electoral laws and party systems, political parties, electoral institutions and the election of women and minorities, institutional engineering, and U.S. experiences with alternative electoral systems.

POLI 569 - REPRESENTATION IN CONTEMPORARY DEMOCRACIES
Short Title: REP. CONTEMPORARY DEMOCRACIES
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this course, we explore the conceptual meanings of democracy and representation, and then examine the theoretical and empirical linkages between citizen preferences, electoral systems, executive and legislative institutions, policymaking and advance industrial democracies. The aim of the course is to understand how citizen preferences ultimately get translated into policy outcomes and how political institutions shape this relationship.

POLI 570 - SEMINAR IN INTERNATIONAL CONFLICT
Short Title: SEM IN INTERNATIONAL CONFLICT
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar in international conflict. Emphasis on formal theories and quantitative analysis of the causes of war.
POLI 571 - CIVIL WAR AND TERRORISM
Short Title: CIVIL WAR AND TERRORISM
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on causes, consequences and dynamics of civil wars. Will analyze why they break out, how sustained, how ended, thinking conceptually, theoretically, empirically about conflict dynamics and processes. Explores transnational dynamics, terrorism, roles of groups, organizations, insurgency-counterinsurgency dynamics and how these affect the evolution of civil conflicts. More work will be required of the Graduate level. Mutually Exclusive: Cannot register for POLI 571 if student has credit for POLI 469.

POLI 572 - FOREIGN POLICY DECISION MAKING
Short Title: FOREIGN POLICY DECISION MAKING
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of foreign policy, its sources, and the process of policy formulation.

POLI 574 - COLLECTIVE SOCIAL CHOICE
Short Title: COLLECTIVE SOCIAL CHOICE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to a growing body of literature on how and why individual preferences dominate those of others. Includes the relationship between decision-making structures and the nature of decisional outcomes.

POLI 575 - GAME THEORY
Short Title: GAME THEORY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examination of current developments in game theory with application to political science.

POLI 576 - INTERNATIONAL POLITICAL ECONOMY
Short Title: INTERNAT'L POLITICAL ECONOMY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar surveying some of the primary theoretical perspectives and analytical approaches for studying international political economy. Includes a survey of contemporary literature, with special emphasis on theory and research, as well as instructions in how to critically evaluate research and set up a research project.

POLI 577 - DOMESTIC POLITICS AND INTERNATIONAL RELATIONS
Short Title: DOMESTIC POLITICS & INT'L RELA
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate research seminar on the influence of domestic politics on international relations. The course will explore when, why, and how the political structures and conditions within countries affect foreign policy and international relations.

POLI 580 - SEMINAR IN AMERICAN POLITICS
Short Title: SEM IN AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics vary from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 581 - SEMINAR IN COMPARATIVE POLITICS
Short Title: SEMINAR IN COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics vary from year to year. Instructor Permission Required. Repeatable for Credit.

POLI 591 - DIRECTED READING-METHODOLOGY
Short Title: DIRECTED READING-METHODOLOGY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.
POLI 592 - DIRECTED READING METHODOLOGY
Short Title: DIRECTED READING METHODOLOGY
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of Methodology for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 593 - DIRECTED READING-AMERICAN POLITICS
Short Title: DIRECTED READING-AMER POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

POLI 594 - DIRECTED READING-AMERICAN POLITICS
Short Title: DIR READING AMERICAN POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of American Politics for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 595 - DIRECTED READING-INTERNATIONAL RELATIONS
Short Title: DIR READ-INTERNAT'L RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

POLI 596 - DIRECTED READING-INTERNATIONAL RELATIONS
Short Title: DIR READ-INTERNT'L RELATIONS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of International Relations for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 597 - DIRECTED READING-COMPARATIVE POLITICS
Short Title: DIR READ-COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Repeatable for Credit.

POLI 598 - DIRECTED READING-COMPARATIVE POLITICS
Short Title: DIR READING-COMPARATIVE POLITICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individualized study on a specific topic in the field of Comparative Politics for Ph.D. students. Instructor Permission Required. Repeatable for Credit.

POLI 599 - TEACHING POLITICAL SCIENCE
Short Title: TEACHING POLITICAL SCIENCE
Department: Political Science
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course prepares graduate students to design and teach classes at the college level. Repeatable for Credit.

POLI 600 - MA RESEARCH AND THESIS
Short Title: MA RESEARCH AND THESIS
Department: Political Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Research and thesis for resident students. Repeatable for Credit.

POLI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Political Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

POLI 800 - PH.D. RESEARCH AND THESIS
Short Title: PH.D. RESEARCH AND THESIS
Department: Political Science
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students enrolled in this course are engaged in Ph.D. level research. Repeatable for Credit.
Politics, Law, Social Thought (PLST)

PLST 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PLST 301 - MODERN POLITICAL THOUGHT: MACHIAVELLI TO RAWLS
Short Title: MODERN POLITICAL THOUGHT
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to political theory and political philosophy from the Renaissance to the present: Machiavelli, Hobbes, Pufendorf, Montesquieu, Kant, Hegel, Constant, Mill Marx, Nietzsche, Weber, Habermas, and Rawls. Topics include human rights, political power, citizenship, democracy, the modern state. Required core course for minor in Politics, Law, and Social Thought.

PLST 302 - CONTEMPORARY POLITICAL THEORY
Short Title: CONTEMPORARY POLITICAL THEORY
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to contemporary political theory. Topics include freedom, democracy, empire, citizenship, human rights, radical democracy, protest and civil disobedience, multiculturalism, cosmopolitanism, postcolonial political thought, transnational and global governance.

PLST 303 - HOW DEMOCRACY FAILS
Short Title: HOW DEMOCRACY FAILS
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course examines the conditions under which democracies and republics can fail. Draws on political theory, constitutional debates, and historical examples. Topics include: constitutional crises, states of emergency, popular sovereignty, populism, nationalism, revolution, political violence, civil disobedience, post-democracy, illiberal democracy, and neoliberalism.

PLST 305 - INTRODUCTION TO LAW
Short Title: INTRODUCTION TO LAW
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course introduces students to the U.S. legal system and provides them with a preview of the first year of law school, including the basic principles of Tort, Contract, Criminal, and Criminal Procedure Law. Additionally, the class will teach students how to conduct appellate argument and to write briefs. Mutually Exclusive: Cannot register for PLST 305 if student has credit for COLL 201.

PLST 315 - AUTHORITARIAN CONSTITUTIONALISM AND DEMOCRATIC DICTATORSHIPS SINCE 1848
Short Title: AUTHORITARIAN CONSTITUTIONS
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This communication intensive course examines the notion of the "authoritarian constitutionalism" of states that are authoritarian in practice despite having constitutions that assert principles of liberal democracy. The course will examine the concept both analytically and historically. In the second phase of the class, students will divide into groups to analyze specific examples of authoritarian constitutionalism from the past two centuries, based on primary and secondary sources, which will be presented in visual, oral, and written form.

PLST 316 - DEMOCRACY AND POLITICAL THEORY IN ANCIENT GREECE
Short Title: DEMOCRACY & POLITICAL THEORY
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Greeks created political society and studied political society in order to understand and improve it. One particular form of political society, democracy, reached its pinnacle in Athens. We shall attempt to understand how ancient Greeks thought about politics from the rudimentary beginnings in Homer to the complex, incisive arguments of Aristotle. Cross-list: CLAS 316.
PLST 330 - RACE AND THE LAW: HOW LAWS AND INSTITUTIONS HAVE PERPETUATED RACISM AND SUPPORTED PROGRESS
Short Title: RACE AND THE LAW
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is intended to introduce students to legal frameworks of analysis and sources of law pertaining to issues of racial equality. We will focus on questions such as: How has law been used to perpetuate inequality? How has law made it more difficult to achieve reforms to advance equality? How have law and legal institutions helped advance racial equality and justice? Some of the areas of focus include land use policy and segregation, criminal justice, education, environmental disparities and voting. Readings will include both secondary sources (books, scholarly pieces and popular media) and legal materials (primarily Supreme Court decisions).

PLST 401 - LEGAL PRACTICUM
Short Title: LEGAL PRACTICUM
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on the public and private practice sectors of the legal profession through a work experience coupled with classroom instruction at Rice. The goal is to expose undergraduates to the field of law through structured on-site experiences, relevant coursework, and professional development opportunities. Students must have completed at least 9 credit hours in a humanities or social sciences discipline for course eligibility. Instructor Permission Required. Mutually Exclusive: Cannot register for PLST 401 if student has credit for HUMA 401/SOSC 405.

PLST 402 - JUDICIAL PRACTICUM
Short Title: JUDICIAL PRACTICUM
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will participate in a semester-long practicum with a sitting judge (federal, or Texas appellate) in Houston. This program is designed to give select Rice undergraduates a broad and practical introduction to what lawyers do in court and how judges and the law clerks who work with them think about the questions they are asked to resolve. Students must have completed at least 9 credit hours in a humanities or social sciences discipline for course eligibility. Instructor Permission Required. Mutually Exclusive: Cannot register for PLST 402 if student has credit for HUMA 401/SOSC 406.

PLST 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Politics Law Social Thought
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Portuguese (PORT)
PORT 106 - ACCELERATED FIRST YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL FIRST YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Alternate first-year Portuguese for students who have a good command of Spanish. This is an intensive course covering the equivalents of PORT 141 and 142. Students will be prepared for PORT 206 upon completion of the course. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 106 if student has credit for PORT 142/PORT 222.

PORT 141 - FIRST YEAR PORTUGUESE I
Short Title: FIRST YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Portuguese (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 141 if student has credit for PORT 222.
PORT 141 - FIRST YEAR PORTUGUESE II
Short Title: FIRST YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of PORT 141. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for PORT 142 if student has credit for PORT 106/PORT 262.

PORT 206 - ACCELERATED SECOND YEAR PORTUGUESE FOR SPANISH SPEAKERS
Short Title: ACCEL SECOND YEAR PORTUGUESE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 106
Description: Alternate second year Portuguese for students who have a very good command of Spanish. This intensive course covers the equivalent of PORT 263 and PORT 264. It will focus on the development of interactional competence in Portuguese to communicate satisfactorily with Portuguese speakers. Mutually Exclusive: Cannot register for PORT 206 if student has credit for PORT 263/PORT 264.

PORT 222 - AP/OTH CREDIT IN PORTUGUESE LANGUAGE
Short Title: AP/OTH CREDIT PORT LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 141 or PORT 106. Mutually Exclusive: Cannot register for PORT 222 if student has credit for PORT 106/PORT 141.

PORT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PORT 263 - SECOND YEAR PORTUGUESE I
Short Title: SECOND YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 142
Description: Continuation of PORT 142. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 263 if student has credit for PORT 201/PORT 206.

PORT 264 - SECOND YEAR PORTUGUESE II
Short Title: SECOND YEAR PORTUGUESE II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PORT 263
Description: Continuation of PORT 263. Development of interactional competence in Portuguese (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Portuguese. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for PORT 264 if student has credit for PORT 202/PORT 206.

PORT 301 - THIRD YEAR PORTUGUESE I
Short Title: THIRD YEAR PORTUGUESE I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 206 or PORT 264
Description: Continuation of PORT 206 or 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.
PORT 302 - BRASIL: CULTURA E SOCIEDADE
Short Title: BRASIL: CULTURE AND SOCIETY
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PORT 301
Description: The purpose of this course is to develop speaking, reading, and writing skills via the analysis of Brazilian literary and cultural texts. Through a multidisciplinary approach, students will be introduced to cultural analysis using a broad range of sources such as literature, film, and other audio-visual materials.

PORT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Psychology (PSYC)

PSYC 101 - INTRODUCTION TO PSYCHOLOGY
Short Title: INTRODUCTION TO PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of topics, problems, and approaches in contemporary psychology. Includes the biological basis of behavior, sensation, perception, attention, learning and memory, thinking, language, abnormal behavior and therapies, personality, and individual differences. Required for psychology majors.

PSYC 102 - QUANTITATIVE ANALYSIS FOR SOCIAL SCIENCES: PSYCHOLOGY LAB
Short Title: PSYCHOLOGY STATISTICS LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This lab companion course to SOSC 302: Quantitative Analysis for the Social Sciences involves psychology-specific applications of statistical analysis. The lab focuses on the use of software to analyze data from research in psychological sciences. Students who enroll in this lab section must also enroll in SOSC 302 during the same semester.

PSYC 202 - INTRODUCTION TO SOCIAL PSYCHOLOGY
Short Title: INTRO TO SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 101
Description: Overview of topics in social psychology. Includes conformity and social influence, attitude formation and change, aggression, altruism, relationships, liking and loving, and prejudice and stereotyping, as well as applications to other disciplines (e.g. law, marketing, the workplace, etc.). Required for psychology majors.

PSYC 203 - INTRODUCTION TO COGNITIVE PSYCHOLOGY
Short Title: INTRO TO COGNITIVE PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to topics in cognitive psychology, including perception, attention, language, memory, and decision making. Required for psychology majors.

PSYC 231 - INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY
Short Title: INDUS & ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): PSYC 101
Description: An overview of the principles, techniques, and theories of psychology applied in the industrial setting.

PSYC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
PSYC 260 - UNDERGRADUATE PROFESSIONAL ISSUES IN PSYCHOLOGY
Short Title: UNDERGRAD PROF ISSUES IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This seminar will provide students interested in psychology with an opportunity to explore psychology as a major and a career. Through guest lecturers, group discussions, and class projects, students will learn about diverse fields and potential career paths in psychology. Instructor Permission Required.

PSYC 308 - MEMORY
Short Title: MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Critical review of traditional and contemporary approaches to the study of remembering and forgetting. Graduate/Undergraduate Equivalency: PSYC 524.

PSYC 309 - PSYCHOLOGY OF LANGUAGE
Short Title: PSYCHOLOGY OF LANGUAGE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Study of human and other animal communication. Includes the structure of human language, word meaning and semantic memory, psychological studies of syntax, bilingualism, language and thought, and language errors and disorders. Cross-list: LING 309.

PSYC 310 - PSYCHOLOGY OF AGING
Short Title: PSYCHOLOGY OF AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: This course focuses on the psychology of aging through a biological, cognitive, and socio-emotional framework. Topics to be covered include how mental capacities change over time, especially memory processing, differences between normal and pathological aging, neurobiological changes with age, dementias such as Alzheimer’s disease, and individual differences in aging. There will be an emphasis on discussion of recent literature and developing research ideas in the field of psychology of aging.

PSYC 315 - INTRODUCTION TO SEMANTICS
Short Title: INTRODUCTION TO SEMANTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to basic approaches to the study of meaning in linguistics and related fields. Includes the cognitive representation of meaning, lexical categorization, conceptual structures, metaphor/metonymy, meaning change, pragmatic inference, and the relation of language and mind. Cross-list: LING 315. Recommended Prerequisite(s): LING 200 or ANTH 200.

PSYC 321 - DEVELOPMENTAL PSYCHOLOGY
Short Title: DEVELOPMENTAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of behavioral changes with age in both human and nonhuman species. Recommended Prerequisite(s): PSYC 202 and PSYC 203.
PSYC 325 - LANGUAGE ACQUISITION
Short Title: LANGUAGE ACQUISITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: The aim of this course is to explore language development closely through a variety of theories and research findings. Students will become familiar with different theories concerning language development, and develop an understanding of relevant issues, theoretical positions and relevant methodologies in language development using critical thinking skills. Cross-list: LING 325.

PSYC 329 - PSYCHOLOGICAL TESTING
Short Title: PSYCHOLOGICAL TESTING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: Offers a detailed examination of psychological test development and analysis. Topics include an exploration of different forms of psychological tests (e.g. intelligence, attitudes, personality, clinical), reliability and validity of tests, and practical issues in testing such as test bias (e.g. gender differences).

PSYC 330 - PERSONALITY THEORY AND RESEARCH
Short Title: PERSONALITY THEORY & RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 340
Description: Examination of those aspects of personality emphasized by major theorists past and present.

PSYC 331 - PSYCHOLOGY OF GENDER
Short Title: PSYCHOLOGY OF GENDER
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of research and theory on gender in psychology. Cross-list: SWGS 331.

PSYC 332 - ABNORMAL BEHAVIOR
Short Title: ABNORMAL BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202 or PSYC 203
Description: Study of the diagnosis and treatment of mental disorders.

PSYC 333 - MULTICULTURAL PSYCHOLOGY
Short Title: MULTICULTURAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: This seminar examines psychological research and theories that address important issues in the lives of diverse individuals. Readings, discussions, and films will be used to explore the acculturation process; stereotyping, prejudice, discrimination and racism; racial/ethnic identity development; and multicultural competence. Students are required to participate in a service learning project. Recommended Prerequisite(s): PSYC 202 and PSYC 321.

PSYC 339 - STATISTICAL METHODS-PSYCHOLOGY
Short Title: STATISTICAL METHODS-PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 or PSYC 203
Description: Introduction to quantitative and computer methods applicable to the analysis of experimental and correlational data. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).

PSYC 340 - RESEARCH METHODS - PSYCHOLOGY
Short Title: RESEARCH METHODS - PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 339 or SOSC 302)
Description: A continuation of PSYC 339/SOSC 302, with emphasis on individual student experiments and the writing of research reports. Required for psychology majors. Psychology and Cognitive Science Majors only or Permission of Instructor(s).
PSYC 342 - COMPUTER APPLICATIONS IN PSYCHOLOGY
Short Title: COMPUTER APPLICATIONS IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 504. Mutually Exclusive: Cannot register for PSYC 342 if student has credit for PSYC 504.

PSYC 345 - HEALTH PSYCHOLOGY
Short Title: HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203
Description: Contemporary theory and research in health psychology, including topics such as health behaviors, stress and coping, pain and its management, heart disease, psychoneuroimmunology, chronic illness, and dying. Recommended Prerequisite(s): PSYC 332 and PSYC 340.

PSYC 346 - STRESS AND HEALTH ACROSS THE LIFESPAN
Short Title: STRESS/HEALTH ACROSS LIFESPAN
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203
Description: This is an introductory course on psychobiological processes in animals and humans as they pertain to the development of stress responses and disease. In this course, we will review models of stress as well as the physiological processes implicated in bodily diseases. We will also review behavioral, psychological and pharmacological variables involved in stress processes. Recommended Prerequisite(s): PSYC 345

PSYC 351 - PSYCHOLOGY OF PERCEPTION
Short Title: PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency: PSYC 521.

PSYC 353 - PSYCHOLOGY OF EMOTION AND MOTIVATION
Short Title: PSYC OF EMOTION & MOTIVATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202
Description: Study of motives and emotions as causes of human behavior; includes biological motives, aggression, emotions and emotional expression, and individual differences in motivation. Recommended Prerequisite(s): PSYC 203.

PSYC 354 - INTRODUCTION TO SOCIAL AND AFFECTIVE NEUROSCIENCE
Short Title: INTRO TO SOC/AFFECTIVE NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Overview of social and affective neuroscience research, including examination of the neurobiological mechanisms supporting social cognition; inter-personal processes; emotion and motivation; and emotion regulation. These topics will be examined in both healthy and affectively-disordered populations, with links made to the fields of health psychology and clinical neuroscience.
PSYC 362 - COGNITIVE NEUROSCIENCE: EXPLORING THE LIVING BRAIN
Short Title: COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Survey of theory and research on how mental processes are carried out by the human brain, with an emphasis on relating measures of brain activity to cognitive functioning, methods surveyed included electro physiological recording techniques, functional imaging techniques and methods that involve lessoning or disrupting neural activity. Cross-list: NEUR 362.

PSYC 364 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 362 (may be taken concurrently) or NEUR 362 (may be taken concurrently)
Description: The objective is to equip the students of PSYC/NEUR 362 with the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. The prerequisite may be taken the same semester as this class. Instructor Permission Required. Cross-list: NEUR 364. Graduate/Undergraduate Equivalency: PSYC 564. Mutually Exclusive: Cannot register for PSYC 364 if student has credit for PSYC 564.

PSYC 366 - METHODS IN SOCIAL COGNITIVE AND AFFECTIVE NEUROSCIENCE
Short Title: METHODS IN SOC COG AFF NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PSYC 202 or PSYC 203) and (PSYC 354 (may be taken concurrently) or PSYC 362 (may be taken concurrently))
Description: This course will give students hands-on training in the research methods of social cognitive and affective neuroscience. Students will learn about the theoretical underpinnings of these allied fields; acquire, preprocess, and analyze human functional neuroimaging data (i.e. using fMRI); and interpret and write-up results. PSYC 354 or PSYC 362 may be taken concurrently.

PSYC 370 - INTRODUCTION TO HUMAN FACTORS AND ERGONOMICS
Short Title: INTRO TO HUMAN FACTORS & ERGO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Application of principles of psychology and human performance to the design of modern systems.

PSYC 375 - NEUROPSYCHOLOGY OF LANGUAGE AND MEMORY
Short Title: NEUROPSYCH OF LANGUAGE/MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203 and (PSYC 309 or LING 309 or LING 200 or ANTH 200) and (PSYC 362 or NEUR 362 or NEUR 380 or NEUR 380 or BIOE 380 or PSYC 380 or BIOL 380)
Description: An introduction to the neural basis of language and memory, covering patient-based and neuroimaging approaches. Topics include the neural basis of speech perception, language comprehension, language production, short-term memory, working memory, semantic and episodic memory, and domain-specific memory (e.g., verbal, spatial, and emotional memory).

PSYC 380 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will provide a broad overview of the brain’s neural systems that subserve perception, learning, and behavior. The course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Cross-list: NEUR 380. Graduate/Undergraduate Equivalency: PSYC 584. Recommended Prerequisite(s): PSYC 101. Mutually Exclusive: Cannot register for PSYC 380 if student has credit for PSYC 584.
A central requirement for this course will be group research projects, how do the social aspects of voting fulfill democratic goals for elections? Questions: how do individual voters interact with the voting technology, polling booth and vote tabulation. This course will consider three of election technologies, ranging from voter registration through the results are legitimate. This course will consider the design and evaluation conducted to enhance participation, to accurately measure the will of the people. This multidisciplinary course will consider how elections are built around the November election. Many operating in our community, justifying the November election.

PSYC 420 - ELECTION SYSTEMS, TECHNOLOGIES, AND ADMINISTRATION
Short Title: ELECTION SYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 609. Recommended Prequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 409 if student has credit for PSYC 609.

PSYC 411 - HISTORY OF PSYCHOLOGY
Short Title: HISTORY OF PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 202 and PSYC 203
Description: Survey of evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 511. Mutually Exclusive: Cannot register for PSYC 411 if student has credit for PSYC 511.

PSYC 421 - ADVANCED I/O PSYCHOLOGY
Short Title: ADVANCED I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An emphasis on reading original published research. Topics covered include personnel selection, training, motivation, job attitudes, and groups. Instructor Permission Required. Mutually Exclusive: Cannot register for PSYC 431 if student has credit for PSYC 530.

PSYC 422 - BRAIN AND BEHAVIOR
Short Title: BRAIN AND BEHAVIOR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203 and PSYC 362
Description: An in-depth examination of the neural basis of higher mental functions in humans, including perception, attention, memory, motor skill, and language. Claims and controversies in cognitive neuroscience will be discussed. Recommended Prerequisite(s): PSYC 339 and PSYC 340.

PSYC 435 - POLLUTION AND PSYCHOLOGICAL DEVELOPMENT
Short Title: POLLUTION & PSYCHOLOGICAL DEV
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course, we will consider research on the effects of various pollutants and toxic substances on the cognitive, social, and emotional development of children. Expert guest speakers will contribute to the course as well. Recommended Prerequisite(s): PSYC 339 and PSYC 340.
PSYC 436 - ADVANCED ORGANIZATIONAL PSYCHOLOGY
Short Title: ADVANCED ORGANIZATIONAL PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 636. Mutually Exclusive: Cannot register for PSYC 436 if student has credit for PSYC 636.

PSYC 438 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 551. Recommended Prerequisite(s): PSYC 339 and PSYC 340 and should be majoring in Psychology or Business. Mutually Exclusive: Cannot register for PSYC 438 if student has credit for PSYC 551.

PSYC 439 - ADVANCED STATISTICAL METHODS FOR PSYCHOLOGY UNDERGRADUATES
Short Title: ADV STATISTICAL METHODS-PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302
Description: This course is intended as a second course in statistics for psychology and the social sciences. It builds on PSYC 339/SOSC 302. Advanced factorial ANOVA designs, mixed between- and within-subject designs, and multiple regression will be covered. This course is primarily for advanced psychology undergraduates contemplating enrollment in graduate school.

PSYC 440 - RESEARCH SEMINAR: INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY
Short Title: RESEARCH IN I/O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 231
Description: An examination of selected topics in industrial/organizational psychology, focusing on published and ongoing research by contemporary scholars. Topics will vary. Instructor Permission Required.

PSYC 441 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and PSYC 203
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 441 if student has credit for PSYC 341/PSYC 541.

PSYC 445 - ADVANCED SEMINAR IN HEALTH PSYCHOLOGY
Short Title: ADV SEM IN HEALTH PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 339 or SOSC 302 and (PSYC 339 or SOSC 302)
Description: Consideration of research on psychological factors and health, with special consideration to the role of health beliefs in people's practice and nonpractice of health, illness, and sick-role behaviors. Topics will vary. Repeatable for credit with Permission of Department.
PSYC 455 - ADVANCED SEMINAR IN CLINICAL PSYCHOLOGY
Short Title: ADV SEM IN CLINICAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 552. Mutually Exclusive: Cannot register for PSYC 455 if student has credit for PSYC 552.

PSYC 462 - NON-TRADITIONAL INTERFACES
Short Title: NON-TRADITIONAL INTERFACES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency: PSYC 562. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 462 if student has credit for PSYC 562.

PSYC 461 - REASONING, DECISION MAKING, PROBLEM SOLVING
Short Title: DECISION MAKING/PROB SOLVING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 202 or PSYC 203)
Description: Topics will vary. Repeatable for credit with Permission of Department.

PSYC 463 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency: PSYC 663. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 463 if student has credit for PSYC 663.

PSYC 464 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency: PSYC 664. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 464 if student has credit for PSYC 664.

PSYC 465 - OLFATORY PERCEPTION
Short Title: OLFATORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 565. Mutually Exclusive: Cannot register for PSYC 465 if student has credit for PSYC 565.
PSYC 470 - ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 370
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency: PSYC 540. Mutually Exclusive: Cannot register for PSYC 470 if student has credit for PSYC 540.

PSYC 475 - STEREOTYPING AND PREJUDICE
Short Title: STEREOTYPING AND PREJUDICE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 202
Description: Consideration of modern research on stereotypes of, prejudice against, and discrimination toward racial, gender, and stigmatized groups. Recommended Prerequisite(s): PSYC 203 and 340.

PSYC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

PSYC 480 - ADVANCED TOPICS
Short Title: ADVANCED TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 101 and (PSYC 202 (may be taken concurrently) or PSYC 203)
Description: Topics will vary. Please see individual instructor for prerequisite requirements. Repeatable for different topics. Repeatable for Credit.

PSYC 485 - UNDERGRADUATE SUPERVISED RESEARCH
Short Title: UG SUPERVISED RESEARCH
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised empirical research. Research paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339, PSYC 340. Repeatable for Credit.

PSYC 487 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): PSYC 203
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain's three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Instructor Permission Required. Graduate/Undergraduate Equivalency: PSYC 587. Mutually Exclusive: Cannot register for PSYC 487 if student has credit for PSYC 587.

PSYC 488 - SUPERVISED READING
Short Title: SUPERVISED READING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Cognitive Sciences or Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Supervised reading of books and empirical papers on a topic of mutual interest to students and faculty. Term paper required. Sponsorship by faculty member required. Instructor Permission Required. Recommended Prerequisite(s): PSYC 339 and PSYC 340. Repeatable for Credit.
PSYC 495 - SUMMER INTERNSHIP
Short Title: SUMMER INTERNSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Provides enrollment for various department summer internships. Instructor Permission Required. Repeatable for Credit.

PSYC 499 - HONORS THESIS
Short Title: HONORS THESIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (PSYC 339 or SOSC 302) and PSYC 340
Description: Sponsorship by faculty member required. Students must apply for the Honors Program. Instructor Permission Required. Repeatable for Credit.

PSYC 502 - ADVANCED PSYCHOLOGICAL STATISTICS I
Short Title: ADVANCED PSYC STATISTICS I
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to inferential statistics, with emphasis on analysis of variance. Students who do not meet registration requirements as Graduate and Psychology or MHCIHF (Master in Human-Computer Interaction and Human Factors) Majors must receive instructor permission to register. Cross-list: STAT 509.

PSYC 503 - ADVANCED PSYCHOLOGICAL STATISTICS II
Short Title: ADVANCED PSYC STATISTICS II
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 502 or STAT 509
Description: A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Cross-list: STAT 510.

PSYC 504 - COMPUTER APPLICATIONS IN PSYCHOLOGY
Short Title: COMPUTER APPLICATIONS IN PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The use of computers in psychological research and in usability engineering. The emphasis will be on dynamic HTML and JavaScript. Topics will include designing and running web-based psychology experiments and the use of web-based video. Graduate/Undergraduate Equivalency: PSYC 342. Mutually Exclusive: Cannot register for PSYC 504 if student has credit for PSYC 342.

PSYC 507 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level treatment of a wide range of laboratory and field research methodologies.

PSYC 511 - HISTORY AND SYSTEMS OF PSYCHOLOGY
Short Title: HISTORY & SYSTEMS OF PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of the evolution of psychological theory from the Greeks to the present. Includes development of scientific approaches to the study of human thought and behavior. Graduate/Undergraduate Equivalency: PSYC 411. Mutually Exclusive: Cannot register for PSYC 511 if student has credit for PSYC 411.

PSYC 520 - FOUNDATIONS OF COGNITIVE PSYCHOLOGY
Short Title: FOUNDATIONS OF COGNITIVE PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to the basic topics in cognitive psychology, including perception, memory, psycholinguistics, concept formation, problem solving, and decision making.
PSYC 521 - PSYCHOLOGY OF PERCEPTION
Short Title: PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introductory survey of sensation and perception, both human and animal. Covers all sensory systems but focuses on vision and audition. Includes the philosophy of perception; measurement and methods; neuroanatomy of visual and auditory systems; computational models of vision, motion, depth, and color; illusions and perceptual organization; and perceptual development. Graduate/Undergraduate Equivalency: PSYC 351.

PSYC 522 - INFORMATION PROCESSING AND ATTENTION
Short Title: INFO PROCESSING & ATTENTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An exploration of topics in attention, including information overload, selective attention, response conflict, and automatic/unconscious and controlled/conscious processes. The neural mechanisms underlying these processes will also be discussed.

PSYC 524 - MEMORY
Short Title: MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of issues and research in remembering and forgetting. Graduate/Undergraduate Equivalency: PSYC 308.

PSYC 525 - PSYCHOLINGUISTICS
Short Title: PSYCHOLINGUISTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the psychology of language. Includes the study of speech production, reading, syntax, meaning, bilingualism, language and thought, and language errors and disorders.

PSYC 527 - REASONING, DECISION MAKING, PROBLEM SOLVING
Short Title: DECISION MAKING/PROB SOLVING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The study of higher mental processes. Includes problem solving, judgment, decision making, and reasoning. Graduate/Undergraduate Equivalency: PSYC 461. Mutually Exclusive: Cannot register for PSYC 527 if student has credit for PSYC 461.

PSYC 529 - COGNITIVE RESEARCH SEMINAR
Short Title: COGNITIVE RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent research about mental phenomena. Repeatable for Credit.

PSYC 530 - FOUNDATIONS OF I-O PSYCHOLOGY
Short Title: FOUNDATIONS OF I-O PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate-level introduction to the study of human behavior in the work setting. Mutually Exclusive: Cannot register for PSYC 530 if student has credit for PSYC 431.

PSYC 531 - HF/HCI RESEARCH SEMINAR
Short Title: HF/HCI RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on various human factors and human-computer interaction topics. Repeatable for Credit.

PSYC 532 - HEALTH RESEARCH SEMINAR
Short Title: HEALTH RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on current and recent health and emotion-related research. Repeatable for Credit.

PSYC 533 - I-O PSYCHOLOGY RESEARCH SEMINAR
Short Title: I-O PSYCHOLOGY RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A weekly student-staff seminar on various industrial-organizational psychology topics. Repeatable for Credit.
PSYC 535 - HUMAN FACTORS/ERGONOMICS
Short Title: HUMAN FACTORS/ERGONOMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Broad overview of the science and profession of human factors/ergonomics. Emphasis is on discussion of literature and presentations of recommendations to applied problems.

PSYC 540 - FOUNDATIONS OF ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency. PSYC 470. Mutually Exclusive: Cannot register for PSYC 540 if student has credit for PSYC 470.

PSYC 541 - HUMAN-COMPUTER INTERACTION
Short Title: HUMAN-COMPUTER INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the design and evaluation of interactive computing systems for human use and the major phenomena surrounding them. Mutually Exclusive: Cannot register for PSYC 541 if student has credit for PSYC 341/PSYC 441.

PSYC 543 - COMPUTATIONAL MODELING OF COGNITIVE PROCESSES
Short Title: COMP MODELING OF COG PROCESSES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A survey of computational approaches to modeling cognitive processes. The emphasis will be on recent production system models, but other approaches will also be covered. The course will involve evaluation of existing models and hands-on experience in modeling. Graduate/Undergraduate Equivalency. PSYC 430. Mutually Exclusive: Cannot register for PSYC 543 if student has credit for PSYC 430.

PSYC 544 - FOUNDATIONS OF ENGINEERING PSYCHOLOGY
Short Title: ENGINEERING PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is an advanced human factors course aimed at students who have taken a basic course in human factors or human-computer interaction and are looking for greater depth. Graduate/Undergraduate Equivalency. PSYC 470. Mutually Exclusive: Cannot register for PSYC 540 if student has credit for PSYC 470.

PSYC 548 - INTERVENTIONS
Short Title: INTERVENTIONS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will prepare students to conduct high-impact research across the translational continuum in the social, psychobiological, and behavioral sciences. In this course, students will gain a thorough grounding in the conduct of Randomized Controlled Trials (RCTs) and develop competence in the planning, design, and execution of clinical trials involving behavioral interventions. After taking this course, students will be able to plan and conduct longitudinal observational studies and clinical trials that have the potential to change practice guidelines, health care policies, and third-party coverage for health-related outcomes. The first two weeks of the course will cover causal inference in experimental and observational studies and address various implications of counterfactual thinking. The remainder of the course will provide training in planning, designing, and conducting translational research with a focus on randomized controlled trials of health-related behavioral interventions. Each student will develop and write a research grant proposal that will serve as the course “Final.” Recommended Prerequisite(s): This course has no specific course prerequisites. It is designed to be most useful to students with knowledge of basic (i.e., undergraduate level statistics and research methods) that are pertinent to the social, behavioral, and biomedical sciences.
Course URL: canvas.rice.edu/courses/33575 (http://canvas.rice.edu/courses/33575/)
PSYC 549 - PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Short Title: PSYCHOPATHOLOGY, DEVELOPMENT, & AGING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will take a developmental approach to understand psychopathology and aging. We will seek to evaluate the factors contributing to psychopathology that emerge across the lifespan. We will adopt a biopsychosocial model to address the roots of normal and abnormal adult development, & aging. This course will begin with an overview of the field; we will then work toward a sophisticated understanding anxiety disorders, aging & cognitive disorders, mood disorders, factitious and dissociative disorders, and personality disorders. Although we will cover nosological models of psychopathology, we will primarily focus on etiology.

PSYC 550 - FOUNDATIONS OF SOCIAL PSYCHOLOGY
Short Title: FOUNDATIONS OF SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of theories of social psychology with an emphasis on current empirical research.

PSYC 551 - GROUP DYNAMICS
Short Title: GROUP DYNAMICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: This course examines current psychological theory and literature concerning intra- and inter-group phenomena within organizational contexts. This course will cover topics such as the unique methodological challenges of studying group-level phenomena; individual-, group-, and organizational-level inputs; group processes; and the assessment of group-level outcomes. Graduate/Undergraduate Equivalency: PSYC 438. Mutually Exclusive: Cannot register for PSYC 551 if student has credit for PSYC 438.

PSYC 552 - EMOTION REGULATION
Short Title: EMOTION REGULATION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of contemporary psychology research on emotion regulation, including conceptual foundations, neurobiological bases, individual differences, involvement in psychopathology, and links to translational research approaches relevant to health psychology. Graduate/Undergraduate Equivalency: PSYC 452. Mutually Exclusive: Cannot register for PSYC 552 if student has credit for PSYC 452.

PSYC 553 - COGNITIVE PSYCHOLOGY INTERNSHIP
Short Title: COGNITIVE PSYCHOLOGY INTERNSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in cognitive psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 554 - COGNITIVE NEUROSCIENCE LAB
Short Title: COGNITIVE NEUROSCIENCE LAB
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The objective is to equip the students of PSYC/NEUR 362 with the tools on how to apply cognitive neuroscience techniques to health or clinical topics and to investigate sensorimotor and cognitive measures in a human model. Cross-list: NEUR 564. Graduate/Undergraduate Equivalency: PSYC 364. Mutually Exclusive: Cannot register for PSYC 564 if student has credit for PSYC 364.

PSYC 555 - HUMAN OLFACITION
Short Title: HUMAN OLFACITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of theories and research related to olfaction. Special topics include olfactory memory, the effect of emotion and cognition on olfaction, olfaction as a channel of communication, sensory integration, and ERP and fMRI studies on olfaction and its relationship with other sensory systems. Graduate/Undergraduate Equivalency: PSYC 465. Mutually Exclusive: Cannot register for PSYC 555 if student has credit for PSYC 465.
PSYC 571 - FIRST-YEAR PROJECT  
**Short Title:** FIRST-YEAR PROJECT  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research project undertaken in the first year of the graduate program. Repeatable for Credit.

PSYC 572 - SECOND-YEAR PROJECT  
**Short Title:** SECOND-YEAR PROJECT  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research project undertaken during the second year of the graduate program. Repeatable for Credit.

PSYC 573 - NON-THESIS GRADUATE RESEARCH  
**Short Title:** NON-THESIS GRADUATE RESEARCH  
**Department:** Psychological Sciences  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Individual research project prior to achieving candidacy. Repeatable for Credit.

PSYC 574 - INTRODUCTION TO COGNITIVE NEUROSCIENCE  
**Short Title:** INTRO COGNITIVE NEUROSCIENCE  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** An introductory graduate-level overview of cognitive neuroscience. The course will cover basics in history, neuroanatomy, methods of cognitive neuroscience, sensation and perception, control of action, learning and memory, emotion, language, attention, drugs and cognition, impulsivity, cognitive control, social cognition, and neurobiology of disease. This course is usually taught at the Texas Medical Center. Instructor Permission Required. Cross-list: NEUR 508.

PSYC 575 - ADVANCED COGNITIVE NEUROSCIENCE: ATTENTION AND PERCEPTION  
**Short Title:** ATTENTION AND PERCEPTION  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Overview of neuropsychological and cognitive neuroscience approaches to higher mental functions including sensation and perception, attention, motor control, and neuroplasticity. Other topics include basic neuroanatomy, experimental and clinical investigative methods, and the historical and philosophical context of contemporary neuroscience. Cross-list: NEUR 501.  
**Course URL:** [http://www.ruf.rice.edu/~neurosci](http://www.ruf.rice.edu/~neurosci)

PSYC 576 - ADVANCED COGNITIVE NEUROSCIENCE: HIGHER MENTAL FUNCTIONS  
**Short Title:** HIGHER MENTAL FUNCTIONS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Overview of neuropsychological and neuroimaging approaches to higher mental functions, including language, memory, executive functions, reasoning, and numerical processing. Cross-list: NEUR 502.  
**Course URL:** [http://www.ruf.rice.edu/~neurosci](http://www.ruf.rice.edu/~neurosci)

PSYC 577 - INTRODUCTION TO FUNCTIONAL NEUROANATOMY  
**Short Title:** FUNCTIONAL NEUROANATOMY  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 2-3  
**Restrictions:** Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Anatomy and function of components of the nervous system with an emphasis on the central nervous system. Usually taught at the Texas Medical Center. Instructor Permission Required.

PSYC 578 - COGNITIVE NEUROPSYCHOLOGY: THEORIES AND METHODS  
**Short Title:** COGNEURO: THEORIES AND METHODS  
**Department:** Psychological Sciences  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course explores different approaches in the field of Cognitive Neuropsychology. Topics include single-case studies, case series, voxel-lesion symptom mapping and computational neuropsychology. We will discuss how to do research with each of these techniques, how to draw inferences from neuropsychological data and critiques of the methodology.
PSYC 580 - DEVELOPMENTAL COGNITIVE NEUROSCIENCE
Short Title: DEVELOPMENTAL COG NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar focusing on the neural/biological bases of both normal and abnormal human development through a survey of recent research in developmental cognitive neuroscience. Topics include perceptual, motive, cognitive, and language development as well as experimental research methods for studying the developing brain.

PSYC 581 - VISION SCIENCE
Short Title: VISION SCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced graduate seminar in the psychology of vision, covering the neural, psychophysical, and phenomenological approaches to visual perception.

PSYC 582 - EARLY SENSORY, PERCEPTUAL AND ATTENTIONAL DEVELOPMENT
Short Title: EARLY SENSORY PERCEPTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This is a survey course for graduate students interested in the development of sensory systems, perception, and attention. There will be original empirical and theoretical readings from the literature on the development of these functions primarily during infancy. Neurobiological underpinnings for these functions will be debated and discussed.

PSYC 583 - THEORY, CONTENT, AND EXECUTION IN COGNITIVE NEUROSCIENCE
Short Title: COGNEURO THEORY/CONTENT/EXECUT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The particular combination of issues in cognitive neuroscience in any one course will vary depending on the background and needs of the students registered for that course and the nature of the important articles in journals covering these areas. Instructor Permission Required. Repeatable for Credit.

PSYC 584 - FUNDAMENTAL NEUROSCIENCE SYSTEMS
Short Title: NEUROSYSTEMS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a broad overview of the brain's neural systems that subserve perception, learning, and behavior. This course will be highly integrative with thematic content including functional organization of the nervous system, neural encoding and decoding, sensory systems, motor systems, and high-level concept processing. Graduate/Undergraduate Equivalency: PSYC 380. Mutually Exclusive: Cannot register for PSYC 584 if student has credit for PSYC 380.

PSYC 585 - FUNCTIONAL MAGNETIC RESONANCE IMAGING LABORATORY
Short Title: FMRI LABORATORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Laboratory course that provides comprehensive introduction to the practical aspects of planning conducting and analyzing Blood Oxygen Dependent Functional Magnetic Resonance Imaging (BOLD fMRI) data. BOLD fMRI is a methodology that allows non-invasive measurements of the neural processing underlying human perception/cognition. Course taught at Baylor College of Medicine for Advanced fMRI.

PSYC 586 - SOCIAL AND AFFECTIVE NEUROSCIENCE
Short Title: SOCIAL AND AFFECTIVE NEURO
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of the field of social and affective neuroscience, including conceptual foundations and methodology. Review and discussion of contemporary research on the neurobiological supporting social cognition and emotion in both healthy and affectively-disordered populations.
PSYC 587 - FUNCTIONAL HUMAN NEUROANATOMY
Short Title: FUNCTIONAL NEUROANATOMY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Anatomy and function of major structures and circuits of the human central nervous system in health and disease. Gross structure and function of the human brain, spinal cord, and cranial nerves are emphasized. Students will gain both an appreciation of the brain's three-dimensional architecture and a thorough understanding of the functions of major brain systems. Additionally, there is a focus on how sensory signals are processed from a succession of lower centers on up through successive cortical regions. Materials include human brain samples as well as images of human brain sections, 3-D models and animations, as well as CT, PET and MRI images. Graduate/Undergraduate Equivalency: PSYC 487. Mutually Exclusive: Cannot register for PSYC 587 if student has credit for PSYC 487.

PSYC 590 - ADVANCED TOPICS IN NEUROSCIENCE
Short Title: ADVANCED TOPICS - NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 595 - HUMAN-COMPUTER INTERACTION AND HUMAN FACTORS PROFESSIONAL MASTER'S INTERNSHIP
Short Title: HCI&HF PROF MASTERS INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 503
Description: Supervised internship in Human-Computer Interaction and Human Factors Professional Master's Program. Instructor Permission Required.

PSYC 600 - HCI & HF PROFESSIONAL MASTER'S CAPSTONE PROJECT
Short Title: HCI&HF PROF MASTER'S CAPSTONE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 503
Description: This course allows students to integrate all of the knowledge they have gained in their HCI/HF professional master's coursework in the form of a capstone project in the area of human-computer interaction and human factors. The capstone may be either research focused or application focused. Department Permission Required.

PSYC 601 - MULTIVARIATE STATISTICS
Short Title: MULTIVARIATE STATISTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of a wide range of concepts and skills for conducting data analysis on multivariate data sets encountered in psychology. Issues involve preparing the data set, selecting and conducting the appropriate analysis, interpreting the output from statistical programs, and presenting complex analyses and results in a clear manner.

PSYC 602 - PSYCHOMETRICS
Short Title: PSYCHOMETRICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Test theory, including reliability, validity, item response theory, and generalizability theory. In addition, the course offers hands-on experience with analysis software and discussion of practical issues such as test bias, item writing, and scale construction.

PSYC 609 - METHODS IN HUMAN-COMPUTER INTERACTION
Short Title: METHODS HUMAN-COMP INTERACTION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to methods for developing and testing user interfaces to computer systems. The focus is on web-based applications. Graduate/Undergraduate Equivalency: PSYC 409. Mutually Exclusive: Cannot register for PSYC 609 if student has credit for PSYC 409.

PSYC 620 - ADVANCED TOPICS IN COGNITIVE PSYCHOLOGY
Short Title: ADV TOPICS - COGNITIVE PSYC
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 621 - TOPICS IN MEMORY
Short Title: TOPICS IN MEMORY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.
PSYC 622 - TOPICS IN PSYCHOLINGUISTICS
Short Title: TOPICS IN PSYCHOLINGUISTICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In-depth, consideration of specialized topics in the psychology of language. Topics vary from year to year. Repeatable for Credit.

PSYC 624 - SOCIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR
Short Title: SOCIAL/ORG PSYC RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in social/organizational psychology. Repeatable for Credit.

PSYC 625 - COGNITIVE NEUROSCIENCE RESEARCH SEMINAR
Short Title: COGNNEURO RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in cognitive neuroscience. Instructor Permission Required. Repeatable for Credit.

PSYC 626 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION RESEARCH SEMINAR
Short Title: HF/HCI RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in human factors/human-computer interaction. Instructor Permission Required. Repeatable for Credit.

PSYC 627 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY RESEARCH SEMINAR
Short Title: I/O PSYC RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in industrial/organizational psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 628 - MEMORY RESEARCH SEMINAR
Short Title: MEMORY RESEARCH SEMINAR
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in human memory. Repeatable for Credit.

PSYC 629 - PSYCHOLINGUISTICS RESEARCH SEMINAR
Short Title: PSYC 629 - PSYCHOLINGUISTICS RESEARCH SEM
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 1
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Weekly seminar to discuss recent research in psycholinguistics. Repeatable for Credit.

PSYC 630 - ADVANCED TOPICS IN I/O
Short Title: ADVANCED TOPICS IN I/O
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Topics will vary. Repeatable for different topics. Repeatable for Credit.

PSYC 631 - FOUNDATIONS OF INDIVIDUAL DIFFERENCES
Short Title: INDIVIDUAL DIFFERENCES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applied psychologists attempt to build theoretical and empirical models that effectively explain how variation in individual differences (e.g., cognitive ability, personality, motivation, interests) relates to variation in practically relevant outcomes (e.g., training effectiveness, job performance, response to clinical treatment). This course covers major theoretical and methodological approaches to this end.

PSYC 632 - LEADERSHIP
Short Title: LEADERSHIP
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examination of the major psychological approaches to the study of leadership. Emphasis is on theory and practice in formal organizations.
PSYC 634 - PERSONNEL PSYCHOLOGY
Short Title: PERSONNEL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Examination of the theory, research, and applications in personnel selection, including job analysis, job performance, evaluation of performance, validation of selection methods, and training.

PSYC 635 - MULTILEVEL MODELING IN PSYCHOLOGICAL RESEARCH
Short Title: MULTILEVEL MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Psychological data often have a nested structure (e.g., students within classrooms, time points within individuals). Multilevel modeling of such data yields results that are more appropriate and interpretable than traditional statistical methods. Students will gain both practical and conceptional knowledge of this popular methodology.

PSYC 636 - ORGANIZATIONAL PSYCHOLOGY
Short Title: ORGANIZATIONAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 530
Description: Contemporary theory and research in organizational psychology, including topics such as motivation, leadership, job satisfaction, occupational stress, social cognition in work organizations, and group processes. Graduate/Undergraduate Equivalency: PSYC 436. Mutually Exclusive: Cannot register for PSYC 636 if student has credit for PSYC 436.

PSYC 637 - META-ANALYSIS IN PSYCHOLOGICAL RESEARCH
Short Title: META-ANALYSIS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Meta-analysis is a popular tool for statistically aggregating effects across related psychological studies. Course topics traverse a wide range of issues, including developing and using a coding sheet, fixed- vs. random-effects models, analysis moderator effects, correcting for statistical artifacts, dealing with dependent outcomes and outliers, and detecting publication bias.

PSYC 638 - STRUCTURAL EQUATION MODELING
Short Title: STRUCTURAL EQUATION MODELING
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Structural equation modeling attempts to provide improved estimates of construct-level relationships. It also allows for complex hypothesis testing (e.g., mediation between groups, longitudinal) to find an appropriate balance between model parsimony and model fit. This course introduces students to basic concepts and applications of this popular research method.

PSYC 639 - INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY INTERNSHIP
Short Title: I/O PSYCHOLOGY INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in organizational and/or personnel psychology. Instructor Permission Required. Repeatable for Credit.

PSYC 640 - TOPICS IN HUMAN-COMPUTER INTERACTION
Short Title: TOPICS IN HCI
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 641 - SPECIAL TOPICS IN HUMAN-COMPUTER INTERACTION
Short Title: SPECIAL TOPICS IN HCI
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-6
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics will vary. Repeatable for Credit.

PSYC 649 - HUMAN FACTORS/HUMAN-COMPUTER INTERACTION INTERNSHIP
Short Title: HF/HCI PSYC INTERNSHIP
Department: Psychological Sciences
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised internship in engineering psychology. Instructor Permission Required. Repeatable for Credit.
PSYC 651 - TOPICS IN SOCIAL PSYCHOLOGY
Short Title: TOPICS IN SOCIAL PSYCHOLOGY
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics on professional matters. Includes grant writing, licensing, and ethics in psychology.

PSYC 660 - PROFESSIONAL ISSUES
Short Title: PROFESSIONAL ISSUES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Discussion of selected topics on professional matters. Includes grant writing, licensing, and ethics in psychology.

PSYC 662 - NON-TRADITIONAL INTERFACES
Short Title: NON-TRADITIONAL INTERFACES
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of human computer interfaces that are not necessarily graphical in nature. The course covers haptic, gesture, locomotion, auditory, voice olfactory, taste interfaces. Impoverished GUIs (small screen) are investigated, as are interactive voice response systems and complex interfaces that are multi-model. Graduate/Undergraduate Equivalency. PSYC 462. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 662 if student has credit for PSYC 462.

PSYC 663 - MEDICAL HUMAN FACTORS
Short Title: MEDICAL HUMAN FACTORS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced coverage of the human factors that are specific to medical systems. Topics include medical decision making and diagnosis errors, surgical human factors, medical robots, surgical simulators, and general medical equipment design. Macro-ergonomics of hospital systems, electronic medical records and computerized physician order entry systems are also covered. Graduate/Undergraduate Equivalency. PSYC 463. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 663 if student has credit for PSYC 463.

PSYC 664 - USABILITY ASSESSMENT
Short Title: USABILITY ASSESSMENT
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers all of the aspects of specifying, planning, executing, and reporting usability assessments on products, services and systems. Formative and summative assessments are covered, as are "discount" usability methods. This course is project based, with students performing usability assessments as part of an engineering team that is developing products for deployment. Graduate/Undergraduate Equivalency. PSYC 464. Recommended Prerequisite(s): PSYC 370. Mutually Exclusive: Cannot register for PSYC 664 if student has credit for PSYC 464.

PSYC 665 - SEMINAR IN GENES AND COGNITION
Short Title: SEMINAR IN GENES AND COGNITION
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will consist of reading and discussing papers on molecular genetic studies of various cognitive functions broadly construed. This will include studies of genes and attention, genes and working memory, and genes and executive function. Will also include readings on genes and disordered cognition (e.g., ADHD, Alzheimer's).

PSYC 667 - METHODS IN COGNITIVE NEUROSCIENCE
Short Title: METHODS COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues in functional neuroimaging and provides hands-on experience with experimental design, data acquisition, and analysis. Examines hemodynamic (PET, fMRI), electrophysiologic (EEG, MEG), and other (e.g. neural stimulation, event-related optical) methods of measuring functional activation in the human brain related to cognitive operations. This course is usually offered at the University of Texas Medical School.

PSYC 671 - METHODS IN COGNITIVE NEUROSCIENCE
Short Title: METHODS COGNITIVE NEUROSCIENCE
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores issues in functional neuroimaging and provides hands-on experience with experimental design, data acquisition, and analysis. Examines hemodynamic (PET, fMRI), electrophysiologic (EEG, MEG), and other (e.g. neural stimulation, event-related optical) methods of measuring functional activation in the human brain related to cognitive operations. This course is usually offered at the University of Texas Medical School.

PSYC 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Psychological Sciences
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Rice Center for Engineering Leadership (RCEL)

RCEL 100 - SELF-AWARENESS AND THE ENGINEERING LEADER
Short Title: SELF-AWARENESS & THE ENGINEER
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The purpose of this course is to prepare students to become future leaders. Engineering leadership is an emerging innovation in both education and practice and our course will prepare students to being their development journey toward this goal. Mutually Exclusive: Cannot register for RCEL 100 if student has credit for ENGI 140/ENGI 218.

RCEL 200 - PERSONAL DEVELOPMENT FOR THE ENGINEERING LEADER
Short Title: PERSONAL DEVELOPMENT ENG LEADR
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RCEL 100
Description: The purpose of this course is to prepare students to become future leaders. Engineering leadership is an emerging innovation in both education and practice and our course will prepare students to being their development journey toward this end. This is the second half of the initial RCEL leadership course. Mutually Exclusive: Cannot register for RCEL 200 if student has credit for ENGI 140/ENGI 218.

RCEL 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
RCEL 241 - INTERNSHIP PRACTICUM FOR ENGINEERING LEADERSHIP
Short Title: INTERNSHIP PRACTICUM FOR ENGI
Department: Center Engineering Leadership
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 0-1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: RCEL 241 is an applied practicum and internship course that provides guided career and professional development for engineering students in a real-world industrial, academic, research, or other professional context. It prepares students to assimilate quickly and to exceed employer expectations during their internships. This course offers variable credit (0 or 1 credit). If you choose to take the course for 1 credit, you must indicate your intent with the instructor upon registration. Mutually Exclusive: Cannot register for RCEL 241 if student has credit for ENGI 219/ENGI 315. Repeatable for Credit.

RCEL 300 - DEVELOPMENT OF HIGH PERFORMING ENGINEERING TEAMS
Short Title: DEVELOPMENT OF HIGH PERFORMING
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RCEL 200
Description: The purpose of this course is to prepare students for engineering leadership and followership roles in engineering contexts. This course is required for our school's certificate engineering leadership and includes a focus on practical skills and how these skills can be learned, developed, and applied in team situations. Mutually Exclusive: Cannot register for RCEL 300 if student has credit for ENGI 219/ENGI 315.

RCEL 410 - ENGINEERING LAUNCH PAD-RESEARCH
Short Title: ENG LAUNCH PAD-RESEARCH
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RCEL 100
Description: RCEL 410 is one of four RCEL courses intended to jump-start the next steps for aspiring engineering leaders. The other courses deal with industry, Alternative Pathways, and Entrepreneurship, while RCEL 410 is focused on developing an understanding of leadership principles applicable in a research environment. Students will gain insights into managing ethical dilemmas, developing communication strategies, creating a vision and goals, and project management in either an undergraduate or graduate student level engineering discipline. Research in academia, government labs, and industry will be compared and contrasted.

RCEL 420 - ENGINEERING LAUNCH PAD-INDUSTRY
Short Title: ENGINEERING LAUNCH PAD-INDUST
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RCEL 300
Description: The purpose of this course is to prepare students for engineering leadership and followership roles in an industry context. This course is required for our school's certificate in engineering leadership and includes a focus on the practical skills needed to thrive in an industry environment.

RCEL 430 - ENGINEERING LAUNCH PAD-PATHWAY
Short Title: ENGINEERING LAUNCH PAD-PATHWAY
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RCEL 300
Description: Engineering students explore alternative professional paths, including policy, law, medicine, industry consulting, and other viable career options beyond industry and research. Students will identify a focus career track and complete a series of assignments designed to increase familiarity and competency in that discipline. Graduate/Undergraduate Equivalency: RCEL 530.
RCEL 436 - INTRODUCTION TO PATENTS AND INTELLECTUAL PROPERTY FOR FUTURE ENGINEERING LEADERS
Short Title: INTRO TO PATENTS & INTELL PROP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: RCEL 436 introduces undergraduate students to the fundamentals of intellectual property. Through class discussion, assignments, and guest speakers, the course provides a foundation for recognizing, evaluating, and leveraging IP opportunities and limitations in both research and industry, and thus equips students for the many encounters with IP that are likely to occur in their careers. Graduate/Undergraduate Equivalency: RCEL 536.

RCEL 440 - ENGINEERING LAUNCH PAD-ENTREPRENEURSHIP
Short Title: ENGINEERING LAUNCH PAD-ENTREPR
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on identifying the value proposition a potential venture has for a specific customer segment, and who those customers are and why. Students will be forced to “get out of the building” and interview potential customers to help refine their assumptions based on data. The goal is to help the teams create a scalable and repeatable business model for their venture.

RCEL 450 - ENGINEERING PROJECT MANAGEMENT AND LEADERSHIP ACTION LEARNING
Short Title: PROJECT MANAGEMENT AND LEADERS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: RCEL 450 combines project management and a practicum experience allowing students to practice leadership skills in an applied context utilizing a project. During the semester, each student will serve in a primary leadership capacity for a project. In addition to facilitating the project management of the project, each student will participate in an individualized action learning based model of leadership. Mutually Exclusive: Cannot register for RCEL 450 if student has credit for ENGI 317.

RCEL 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

RCEL 501 - ENGINEERING MANAGEMENT & LEADERSHIP THEORY AND APPLICATION
Short Title: ENGINEERING MGMT & LEADERSHIP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Technology-based innovation is the grand driver of economic progress, which hinges on strong technical leadership guiding engineering teams in mid-to-large corporate organizations and startup to small companies. By surveying and learning about the different type of EML approaches, this course outlines a framework for engineering professionals to progress from engineering manager to engineering executive (e.g., Vice President of Engineering, Chief Technology Officer). Practical methods from the engineering management literature that addresses technology-based innovation issues that have engineering management implications will be introduced. Seminal technology management principles, such as disruptive innovation, leaderless technology development, and digital platform strategy, found in companies ranging in size from start-up to large, will be examined.

RCEL 502 - ENGINEERING PROJECT MANAGEMENT
Short Title: ENGINEERING PROJECT MANAGEMENT
Department: Center Engineering Leadership
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Engineering Project Management is targeted for young professionals with 0 to 5 years experience. Content will provide instruction on the tools, techniques, and leadership characteristics required to successfully execute a project. The course will address the phases of project execution—initiating, planning, executing, monitoring and controlling, and closing. The course is designed to use a combination of video presentations, case studies, and project related exercises.
RCEL 503 - ENGINEERING PRODUCT MANAGEMENT IN INDUSTRY 4.0
Short Title: ENGINEERING PRODUCT MANAGEMENT
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The fourth and latest industrial revolution, Industry 4.0, is comprised of intelligent automated machines and devices being developed by unconstrained manufacturing technologies (e.g., 3D printing), which can give them unprecedented sensing and communication capabilities. The internet of things (machines and sensors and the ‘big data’ they output) is creating new avenues for the remote collection of data from these new products. Engineering leaders will have a unique opportunity to guide engineering teams to create products that can leverage and evolve based on data from the supply chain to customer usage.

RCEL 504 - ETHICAL-TECHNICAL LEADERSHIP
Short Title: ETHICAL-TECHNICAL LEADERSHIP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Technology-based companies are powered by teams of engineers who create products and services that create value and competitive advantages for organizations that can turn into profits. However, the matrixes of technical and user related decision paths that engineering leaders make to guide the team are not always constrained by ethics in a formal way. This course will help students understand the impact of ethics on engineering and technology in order to apply ethics concepts to decision making on issues that emerge in the workplace during one’s career.

RCEL 505 - ENGINEERING ECONOMICS FOR LEADERS
Short Title: LEADING ENGINEERING ECONOMICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will explore economic analysis of capital expenditure decisions, financial mathematics, microeconomics, and decision-making under risk and uncertainty. Topics covered in this course include time value of money, analysis of alternatives using net present value and internal rate of return, depreciation, taxes, and inflation. Computational approaches, such as probabilistic design in engineering designs, which connect randomly varying design parameters to economic impact, will sometimes be considered based on course composition. Engineering ethics case studies that involve engineering economics will be explored as well. Mutually Exclusive: Cannot register for RCEL 505 if student has credit for CEVE 322/CEVE 528/ENGI 303/ENGI 528.

RCEL 506 - APPLIED STATISTICS AND DATA SCIENCE FOR ENGINEERING LEADERS
Short Title: STATS & DATA FOR ENGINEERS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Modern engineering leaders face myriad projects and problems that involve the generation, collection, analysis, visualization and interpretation of data, much of which is now known as big data (upwards of millions of observations) and/or high-dimensional (upwards of millions of variables). In turn, engineering leaders must be able to leverage the abundance of data to generate new knowledge and be proficient in data-driven decision making. This course will provide a foundation in statistics and data science with a view toward preparing engineering leaders to engage and direct teams in data based solutions to engineering problems.

RCEL 507 - MASTER'S IN ENGINEERING MANAGEMENT AND LEADERSHIP CAPSTONE
Short Title: MEML CAPSTONE
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course represents the capstone of the MEML program. It is a project-based and discussion-based course where students develop economically-sustainable, technological solutions to society’s most complex grand challenges using the methods and competencies taught in the MEML program. Students are expected to devise Industry 4.0 relevant solutions, with mechanisms for continuous learning and improving the solution from end-user data, while bounding all approaches with a demonstrable ethical-technical framework.

RCEL 508 - ENGINEERING LAUNCH PAD-NON-ENGINEERING PATHWAYS
Short Title: ENGINEERING LAUNCH PAD-PATHWAY
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Engineering students explore alternative professional paths, including policy, law, medicine, industry consulting, and other viable career options beyond industry and research. Students will identify a focus career track and complete a series of assignments designed to increase familiarity and competency in that discipline. Graduate/Undergraduate Equivalency: RCEL 430.
RCEL 536 - INTRODUCTION TO PATENTS AND INTELLECTUAL PROPERTY FOR FUTURE ENGINEERING LEADERS
Short Title: INTRO TO PATENTS & INTELL PROP
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: RCEL 536 introduces graduate (non-law) students to the fundamentals of intellectual property. Through class discussion, assignments, and guest speakers, the course provides a foundation for recognizing, evaluating, and leveraging IP opportunities and limitations in both research and industry, and thus equips students for the many encounters with IP that are likely to occur in their careers. Graduate/Undergraduate Equivalency: RCEL 436.

RCEL 610 - ETHICS FOR ENGINEERS
Short Title: ETHICS FOR ENGINEERS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Course Level: Graduate
Description: Engineers can encounter a variety of ethical issues and dilemmas in fulfilling their professional responsibilities. Ethical problems can be considered somewhat analogous to engineering design problems: both involve significant complexities, high degrees of uncertainty, a number of boundary conditions and constraints, conformance with criteria, identification and evaluation of alternatives responses, and deciding on the best solution or action. This course will prepare engineering students to understand the ethical issues related to their profession, analyze the various options and alternative course of actions, and implement the solutions to their ethical problems.

RCEL 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Center Engineering Leadership
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Lecture/Laboratory, Seminar, Research, Independent Study
Credit Hours: 1-4
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Religion (RELI)

RELI 101 - INTRODUCTION TO THE STUDY OF RELIGION
Short Title: WHAT IS RELIGION?
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Comparative and interdisciplinary analysis of key elements (including scripture, religious experience, ideas of the divine, religious art and practices) of two Western and two non-Western religions, of the scholarly study of religion, and of the role of religion in the contemporary world.

RELI 104 - INTRODUCTION TO JEWISH MYSTICISM
Short Title: INTRO TO JEWISH MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Surveys the historical development and central themes of Jewish mysticism. From the bible to ancient mysticism to medieval Kabbalah to modern expressions, we will critically reflect the ideas such as divine presence in the world, the cultivation of insight and magical powers, contemplative and restorative practices, and charismatic authority. Cross-list: MDEM 103.

RELI 105 - INTRODUCTION TO MEDIEVAL CHRISTIAN THOUGHT
Short Title: MEDIEVAL CHRISTIAN THOUGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of major medieval Christian thinkers. Primary focus on high and late middle ages (12th-15th century), with some attention to spiritual and apocalyptic writings and dissenting thought in this period. Cross-list: MDEM 105.
REL 108 - INTRODUCTION TO JUDAISM
Short Title: INTRODUCTION TO JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of post-biblical Judaism as reflected in the literature of the classical rabbinic tradition, mysticism, medieval biblical commentary, legal codes and philosophy, and modern movements such as Hasidism, denominational Judaism, Zionism, and feminist Judaism. Jewish material culture such as synagogue architecture, illuminated manuscripts and ritual artifacts will be included. Students will not receive credit for both RELI 108 and RELI 209. Mutually Exclusive: Cannot register for RELI 108 if student has credit for RELI 209.

REL 109 - RELIGION AND LAW
Short Title: RELIGION AND LAW
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Law and religion: origins, differentiation, relation to legitimacy and stability of basic institutions. Law school, professional life, quest for a fitting career in the search for meaning and authentic selfhood. Required: willingness to share the personal roots of your interest in law and your take on the Big Picture.

REL 111 - INTRODUCTION TO AFRICAN RELIGIONS
Short Title: INTRO AFRICAN RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the structures of African religions through readings. Topics include community, cosmology, ritual, ethical values, magic, witchcraft, spirit possession, contribution to nationalism, social change, religion and art, and transplantation of African Religions in the Americas.

REL 112 - COMPARING CHRISTIANITIES
Short Title: COMPARING CHRISTIANITIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course maps the pluralistic nature of early Christianity from its grassroots beginnings in a commune in Jerusalem to Rome and the conversion of Emperor Constantine, Different Christian movements include the Apostolic Christians, Ebionites, Marcionites, Thomasiens, Montanists, Monarchians, Modalists, Arians, and a variety of Gnostic Christians will be studied comparatively as well as historically.

REL 113 - INTRODUCTION TO CHRISTIANITY IN AFRICA
Short Title: INTRO TO CHRISTIANITY AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the historical development of African Christianity from the early church to the present. Course will include studying the African church during the Patriotic era, the Colonial period, Prophetic Movements, nationalism, racial tensions, the role of women, and the emergence of a distinct theological voice.

REL 116 - MYSTICISM THROUGHOUT THE AGES
Short Title: MYSTICISM THROUGHOUT THE AGES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course examines the historical development of mysticism in Western thought, placing the Christian experiential traditions in comparison with Jewish developments. Through mystical texts, we will explore key concepts, such as visions of God and spiritual journeys, as developed during late antiquity, the middle-ages, and into the early modern period. Cross-list: MDEM 116.

REL 122 - THE BIBLE AND ITS INTERPRETERS
Short Title: THE BIBLE AND ITS INTERPRETERS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
RELI 123 - INTRODUCTION TO WORLD CHRISTIANITY
Short Title: INTRO TO WORLD CHRISTIANITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to introduce students to world Christianity from historical and thematic perspectives. Readings and lectures for the course will draw from interdisciplinary research and scholarship to situate world Christianity as a dynamic spiritual, intellectual, cultural, and communal tradition. This course will introduce students to Christianity in the Americas, Europe, Asia, Africa, and the Pacific using historical analysis to probe the history of the Christian movement, its global distribution, its sacred texts and practices, social engagement, and roles it has a place in a changing world. Interdisciplinary texts will be used to probe selected topics including but not limited to proselytization, leadership, the dynamic competitive relations between mainline churches, emerging Christian communities, and the social and political dimensions of world Christianity.

RELI 124 - RELIGION AND THE ART OF HAPPINESS
Short Title: RELIGION & ART OF HAPPINESS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Students at Rice University consistently self-report as "happiest" by rankings like the Princeton Review. Course analyzes what we mean when we talk about "happiness" in the study of religion, assessing the role of community, habits, meaning, and positive thinking in religious and psychological texts, as well as lived experience.

RELI 125 - INTRODUCTION TO BIBLICAL HEBREW I
Short Title: INTRO TO BIBLICAL HEBREW I
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Cross-list: HEBR 125. Graduate/Undergraduate Equivalency: RELI 507. Mutually Exclusive: Cannot register for RELI 125 if student has credit for RELI 507.

RELI 126 - INTRODUCTION TO BIBLICAL HEBREW II
Short Title: INTRO TO BIBLICAL HEBREW II
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continuation of RELI 125. We will finish the grammar in the second half of this semester and then read selections from the Hebrew Bible. Cross-list: HEBR 126. Graduate/Undergraduate Equivalency: RELI 511. Mutually Exclusive: Cannot register for RELI 126 if student has credit for RELI 511.

RELI 127 - INTERMEDIATE BIBLICAL HEBREW III
Short Title: INTERM BIBLICAL HEBREW III
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RELI 125 and RELI 126
Description: Readings in the Hebrew Bible as well as in some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 512. Mutually Exclusive: Cannot register for RELI 127 if student has credit for RELI 512.

RELI 157 - RELIGION AND HIP HOP CULTURE IN AMERICA
Short Title: RELIGION AND HIP HOP
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Hip Hop culture has changed how life is discussed and conducted. However, one of the under-explored dimensions of Hip Hop culture involves its religious sensibilities. Using lectures, discussions, films, and video presentations, this course explores Hip Hop culture's religious dimensions through its musical language-rap music. Mutually Exclusive: Cannot register for RELI 157 if student has credit for RELI 311.
RELI 158 - LIBERATION THEOLOGIES
Short Title: LIBERATION THEOLOGIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course seeks to acquaint students with examples of liberation theology, as they relate to the following issues: racism, sexism, classism, and environmental destruction. Attention is given to the context, construction, form, and aims of Latin American liberation theology, Black theology, Feminist theology, and Theology in the Intersections. Mutually Exclusive: Cannot register for RELI 158 if student has credit for RELI 548.

RELI 191 - STAR WARS AND RELIGION
Short Title: STAR WARS AND RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The Star Wars films contain one of the richest fictional universes of our time. In this course, we use the theories and methods of Religious Studies (e.g., comparison, psychology, the paranormal, religion and technology) to analyze the Star Wars universe as a modern mythology. Student can expect to gain a working knowledge of tools utilized in the humanities as well as a novel understanding of Star Wars films and fandom.

RELI 213 - THE PROPHET JEREMIAH: THE BIBLICAL BOOK AND ITS RECEPTION IN JUDAISM AND CHRISTIANITY
Short Title: THE PROPHET JEREMIAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A seminar on the book of Jeremiah and its reception. Topics to be explored: ancient Near Eastern prophecy and Israel's cultures of revelation; the composition, production, and transmission of a biblical book; the life of the prophet; the transformation of Jeremiah's message in later, post-biblical texts attributed to him.

RELI 216 - RELIGION AND BLACK LIVES MATTER
Short Title: RELIGION & BLACK LIVES MATTER
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course explores the intersections of religion, politics, and social justice during the period of history marked by the emergence and activities of the Black Lives Matter Movement.

RELI 217 - SHI'ISM: ASSASSINS AND AYATULLAH
Short Title: SHI'ISM: ASSASSINS & AYATULLAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Ranging from the violent disputes at the beginnings of Islam to the mysterious and misunderstood Assassins, Shi'i ism is more than about Iran and Iraq. Ayatollahs rule, Alawis in Syria fight ISIS, Isalamis in London are at the cutting edge of Muslim modernity—Shi'i ism is much more than you would expect.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Distribution Group</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
<th>Course Type</th>
<th>Grade Mode</th>
<th>Department</th>
<th>Short Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 219 - THE SUPERNATURAL AND RELIGION</td>
<td>THE SUPERNATURAL AND RELIGION</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course will treat the history of the supernatural from the biblical materials on the miraculous &quot;sign,&quot; through the birth of the &quot;supernatural&quot; in medieval Christianity and the canonization of saints, to the mediating categories of the &quot;preternatural&quot; and the modern &quot;paranormal.&quot; Comparative categories and materials in other cultural and religious complexes will also be treated. Mutually Exclusive: Cannot register for RELI 219 if student has credit for RELI 519.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>Standard Letter</td>
<td>RELI 500.</td>
</tr>
<tr>
<td>RELI 221 - THE LIFE OF THE PROPHET MUHAMMAD</td>
<td>LIFE OF PROPHET MUHAMMAD</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur'an, Ibn Hisham, and Haykal. Cross-list: ASIA 221.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>RELI 232</td>
<td>RELI 233</td>
</tr>
<tr>
<td>RELI 223 - QUR'AN AND COMMENTARY</td>
<td>QUR'AN AND COMMENTARY</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course will examine the life of the Prophet Muhammad, focusing on its significance for Muslims and for non-Muslims. Readings in The Qur'an, Ibn Hisham, and Haykal. Cross-list: ASIA 221.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>RELI 232</td>
<td>RELI 233</td>
</tr>
<tr>
<td>RELI 230 - ASIAN RELIGIONS IN AMERICA</td>
<td>ASIAN RELIGIONS IN AMERICA</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>Distribution Group</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>A survey course on Hinduism, Buddhism, Taoism, and Jainism in America, from the colonial period to the present, with a special focus on American metaphysical religion, the counterculture, the New Age, and the history of Western colonialism, transcultural encounter, translation and immigration. Cross-list: ASIA 230.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>RELI 232</td>
<td>RELI 233</td>
</tr>
<tr>
<td>RELI 231 - AMERICAN METAPHYSICAL RELIGION</td>
<td>AMERICAN METAPHYSICAL RELIGION</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Beginning with a historical survey of the American metaphysical tradition, this course turns to a close study of the Esalen Institute in Big Sur, California, as a unique window into some of the different ways the tradition has appropriated Asian religions, psychological models of the unconscious, and contemporary scientific paradigms. Cross-list: ASIA 231. Graduate/Undergraduate Equivalency: RELI 505. Mutually Exclusive: Cannot register for RELI 231 if student has credit for RELI 505.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>RELI 232</td>
<td>RELI 233</td>
</tr>
<tr>
<td>RELI 232 - RELIGIONS FROM INDIA</td>
<td>RELIGIONS FROM INDIA</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>This course will survey the religions of India, namely Hinduism, Buddhism, Jainism, Christianity, Islam, and Sikhism. Emphasis will be placed on the study of scriptures of these traditions and their continuing global relevance, particularly in American history and culture. Cross-list: ASIA 232. Graduate/Undergraduate Equivalency: RELI 500. Mutually Exclusive: Cannot register for RELI 232 if student has credit for RELI 500.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>RELI 232</td>
<td>RELI 233</td>
</tr>
<tr>
<td>RELI 233 - INTRODUCTION TO TIBETAN LANGUAGE, LITERATURE AND CULTURE</td>
<td>INTRO TO TIBETAN LANG &amp; LIT</td>
<td>Religion</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>Distribution Group</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Lower-Level</td>
<td>Introducing the Tibetan alphabet and basics of grammar through reading section of a classic Tibetan text. In addition, readings in English in Indian and Tibetan Buddhist materials, also on the art, history, geography and /or modern era in those areas. Final includes a paper drawn from readings and class discussion. Cross-list: TIBT 233. Graduate/Undergraduate Equivalency: RELI 502. Mutually Exclusive: Cannot register for RELI 233 if student has credit for RELI 502.</td>
<td>Lecture</td>
<td>Standard Letter</td>
<td>RELI 232</td>
<td>RELI 233</td>
</tr>
</tbody>
</table>
Major Black denominations. This course in religious expression and activism within the Black community. This course focuses on understanding religious practices and teachings within Black Christian churches. The course level is Professional or Visiting Undergraduate level. There are no restrictions for enrollment. The credit hours are 3. The course type is Lecture. Distribution Group is Distribution Group I. Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.

Description: Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. Cross-list: TIBT 234. Graduate/Undergraduate Equivalency: RELI 564. Mutually Exclusive: Cannot register for RELI 234 if student has credit for RELI 564. Repeatable for Credit.

Course Level: Undergraduate Lower-Level
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Course Level: Undergraduate Lower-Level
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A critical reading in English of the Book of Genesis with close attention to the narrative artistry and theological dimensions of the text. Compares pre-modern modes of interpretation and modern historical criticism.

Course Level: Undergraduate Lower-Level
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: For much of the Middle Ages, literacy was a luxury that ordinary people could not afford. How could peasants participate in Christian traditions? Course surveys devotional practices engaged by the laity, including penance, pilgrimage, plays, charms and spells, as well as traditions of lay interaction with dead saints and ghosts. Cross-list: MDEM 271.

Course Level: Undergraduate Lower-Level
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Multidisciplinary exploration of Christian religious experience, belief, and social reality with examples from Africa, the Americas, Asia, and Europe during the last two thousand years. Themes include search for lasting marks of identity amid change and diversity as well as the issue of Christianity's relation to processes of modernization and secularization. No prior background in religious studies required.

Course Level: Undergraduate Lower-Level
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunel, and Nutley. Graduate/Undergraduate Equivalency: RELI 514. Mutually Exclusive: Cannot register for RELI 294 if student has credit for RELI 514.
RELI 300 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate/Undergraduate Equivalency: RELI 504. Mutually Exclusive: Cannot register for RELI 300 if student has credit for RELI 504.

RELI 301 - NIETZSCHE AND RELIGIOUS THOUGHT
Short Title: NIETZSCHE & RELIGIOUS THOUGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Nietzsche's thought and background: his impact on religious thinkers and cultural critics; his influence on understanding of God, faith, values, society; his connection with Schopenhauer, Wagner, Tillich, Mann, Barth, Buber, Freud, Jung, D.H. Lawrence, Heidegger, antibourgeois cultural criticism, environmentalism, feminism, and postmodernism. Graduate/Undergraduate Equivalency: RELI 515. Mutually Exclusive: Cannot register for RELI 301 if student has credit for RELI 515.

RELI 302 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE
Short Title: PEOPLE OF THE BOOK
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible Topic: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 526. Mutually Exclusive: Cannot register for RELI 302 if student has credit for RELI 526.

RELI 303 - JESUS AND THE GOSPELS
Short Title: JESUS AND THE GOSPELS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the various portraits of Jesus in the New Testament and extra-canonical gospels (including the gospels of Thomas Philip, Mary and Judas) in order to reconstruct each gospel's Christological interpretation of Jesus as well as the "historical" Jesus himself.

RELI 304 - JESUS AND THE GOSPELS
Short Title: JESUS AND THE GOSPELS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the various portraits of Jesus in the New Testament and extra-canonical gospels (including the gospels of Thomas Philip, Mary and Judas) in order to reconstruct each gospel's Christological interpretation of Jesus as well as the "historical" Jesus himself.

RELI 307 - BASIC COPTIC 1
Short Title: BASIC COPTIC 1
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A first semester introduction to Coptic grammar and vocabulary. Graduate/Undergraduate Equivalency: RELI 591. Mutually Exclusive: Cannot register for RELI 307 if student has credit for RELI 591. Repeatable for Credit.

RELI 308 - BASIC COPTIC 2
Short Title: BASIC COPTIC 2
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 307
Description: Second semester introduction to Coptic grammar and vocabulary, with selected readings from the Coptic New Testament, Nag Hammadi, and monastic literature. Prerequisite: Introduction to Coptic Language I. Graduate/Undergraduate Equivalency: RELI 592. Mutually Exclusive: Cannot register for RELI 308 if student has credit for RELI 592.

RELI 309 - BASIC COPTIC 3
Short Title: BASIC COPTIC 3
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Varied readings in original language to include the New Testament, Nag Hammadi, and monastic literature. Prerequisite: Coptic 1 and 2. Graduate/Undergraduate Equivalency: RELI 593. Mutually Exclusive: Cannot register for RELI 309 if student has credit for RELI 593. Repeatable for Credit.
SWGS 315. as colonial administrators, Western feminists, and states, as well as the Islamic world over time, the challenges faced from such diverse quarters from East, Europe, and North America; analyze constructions of gender in the major themes which surface in their writings and public work. Graduate/Undergraduate Equivalency: RELI 546. Mutually Exclusive: Cannot register for RELI 311 if student has credit for RELI 157.

REL 312 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Although many figures played a prominent role during the Civil Rights Movement, Martin L. King, Jr. and Malcolm X made unique contributions. Their work sparked important conversation concerning the methods, goals, and consequences of struggle toward liberation. This course examines their religiosity, theological sensibilities, and the major themes which surface in their writings and public work. Graduate/Undergraduate Equivalency: RELI 546. Mutually Exclusive: Cannot register for RELI 311 if student has credit for RELI 157.

REL 311 - RELIGION AND HIP HOP CULTURE IN AMERICA
Short Title: RELIGION AND HIP HOP
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Hip Hop culture has changed how life is discussed and conducted. However, one of the under-explored dimensions of Hip Hop culture involves its religious sensibilities. Using lectures, discussions, films, and video presentations, this course explores Hip Hop culture's religious dimensions through its musical language-rap music. RELI 311 requires additional work above the RELI 157 counterpart, including a term paper, etc. Mutually Exclusive: Cannot register for RELI 311 if student has credit for RELI 157.

REL 318 - THE BIBLE: A BRIEF INTELLECTUAL HISTORY
Short Title: BIOGRAPHY OF THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate/Undergraduate Equivalency: RELI 518. Mutually Exclusive: Cannot register for RELI 318 if student has credit for RELI 518.

REL 322 - INTRODUCTION TO BUDDHISM
Short Title: INTRODUCTION TO BUDDHISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhist ideas, art, and meditation. Exploration of the Buddhism in India, China, and Japan and their impact in the USA today. Readings include Buddhists classics and contemporary responses from mediators and scientists. Cross-list: ASIA 322. Graduate/Undergraduate Equivalency: RELI 572. Mutually Exclusive: Cannot register for RELI 322 if student has credit for RELI 572.

REL 328 - RELIGION AND GLOBAL POVERTY
Short Title: RELIGION & GLOBAL POVERTY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced study of religion and poverty in global context. Course materials will address religious, ethical anthropological theories of development, analyze specific themes economic and social development, examine the role of Faith Based Organizations and do specific case studies. Students will be graded on short reflections papers and a final term paper. Graduate/Undergraduate Equivalency: RELI 528. Mutually Exclusive: Cannot register for RELI 328 if student has credit for RELI 528.
RELI 329 - THE BIBLE AS LIVED EXPERIENCE
Short Title: THE BIBLE AS LIVED EXPERIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Even in today's seemingly secular landscape, the Bible is a strong artistic, social, and political influence. We will explore ways in which the Bible is brought to life in contemporary culture by analyzing biblical references in music, film, art, and contemporary religious practice. We will show how American culture shapes understandings of the Bible and vice versa. Mutually Exclusive: Cannot register for RELI 329 if student has credit for RELI 529.

RELI 332 - ADVANCED TIBETAN LANGUAGE & CULTURE
Short Title: ADV TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 132 or TIBT 132
Description: This class builds on RELI 232 and 234, now including more challenging material in Tibetan, and continuing the trajectory of gaining familiarity with Buddhist philosophical systems as these touch on epistemology, ontology, and contemplative practice. Cross-list: TIBT 332. Graduate/Undergraduate Equivalency: RELI 532. Mutually Exclusive: Cannot register for RELI 332 if student has credit for RELI 532. Repeatable for Credit.

RELI 333 - KNOWING BODY/GLOWING MIND: BUDDHIST ARTS OF CONTEMPLATION AND ANALYSIS
Short Title: KNOWING BODY/GLOWING MIND
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Buddhism is a performing art engaging both mind and body. Our course investigates Buddhist and other literature, epistemology and rituals with an eye to how they speak to contemplative practice. Contemplative practice itself, in class and out, supplements our exploration of the interplay between traditional Asian and contemporary Western perspectives. Graduate/Undergraduate Equivalency: RELI 573. Recommended prerequisite(s): One course in Buddhism. Mutually Exclusive: Cannot register for RELI 333 if student has credit for RELI 573. Repeatable for Credit.

RELI 334 - PSYCHOLOGY OF RELIGION
Short Title: PSYCHOLOGY OF RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An overview of the basic approaches in the psychological understanding of religious belief and practice. Topics to be addressed in religious systems East and West include: sex, religious experience, ritual, myth, saintliness, guilt, God and meditation.

RELI 335 - MEDICINE AND THE MUSEUM: CLINICAL AESTHETICS AND THE MUSEUM OF FINE ARTS, HOUSTON
Short Title: MEDICINE AND THE MUSEUM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Through weekly visits to the Museum of Fine Arts, Houston, this class develops key skills and engages relevant themes relating to medicine and caregiving, including observation and description, embodiment and motion, eros and suffering, vulnerable populations, grief and loss, human mortality and spiritual transcendence.

RELI 336 - RELIGION & THE SOCIAL SCIENCES
Short Title: RELIGION & THE SOCIAL SCIENCES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed to introduce the student to classic and contemporary texts in the social scientific study of religion. Topics include: mysticism, the social construction of gender, the guru-disciple relationship, secularization, healing traditions East and West, cross-cultural debates. Mutually Exclusive: Cannot register for RELI 336 if student has credit for RELI 260/RELI 609.

RELI 337 - SHAMANS, SAINTS, & SAGES
Short Title: SHAMANS, SAINTS, & SAGES
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Familiarize the student with diverse texts (secular and religious, East and West) found in mystical literature. Emphasis will be placed on psychological and comparative methods. Mutually Exclusive: Cannot register for RELI 337 if student has credit for RELI 262.
RELI 338 - THE CHURCH OF AFRICA
Short Title: THE CHURCH OF AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A reading course designed to examine Christianity in Africa. Course materials and readings will address the development of the church from the Patristic era to the present, paying attention to theological developments, missionization, colonialism, nationalism, prophetic movements, race relations, the role of women, and social issues. Graduate/Undergraduate Equivalency: RELI 540. Mutually Exclusive: Cannot register for RELI 338 if student has credit for RELI 540.

RELI 339 - APOCALYPSE THEN AND NOW
Short Title: APOCALYPSE THEN AND NOW
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A close reading of some early Jewish and Christian apocalypses, a discussion of the apocalyptic worldview, and an examination of America’s fascination with the Apocalypse in media and science. Graduate/Undergraduate Equivalency: RELI 510. Mutually Exclusive: Cannot register for RELI 339 if student has credit for RELI 510.

RELI 340 - THEOLOGY IN AFRICA
Short Title: THEOLOGY IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introductory readings on theological thinking in Africa. Course will address methodological issues as well as constructive theological work on enculturation, social and economic justice, gender, health, and liberation. Read 5 major texts, write a major review, lead class discussions, discuss texts used, and write 20 page research paper. Graduate/Undergraduate Equivalency: RELI 539. Mutually Exclusive: Cannot register for RELI 340 if student has credit for RELI 539.

RELI 341 - AMERICAN JUDAISM: RELIGION AND THOUGHT
Short Title: AMERICAN JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Graduate/Undergraduate Equivalency: RELI 542. Mutually Exclusive: Cannot register for RELI 341 if student has credit for RELI 542.

RELI 342 - NEW RELIGIOUS MOVEMENTS IN AFRICA
Short Title: NEW RELIG MOVEMENTS IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Discusses new religious movements and the religious, sociological, and political factors leading to their rise, also missionary and colonial reactions to them. Examines their relationship to indigenous religions, political praxis, and their focus on this-worldly salvation in the wake of political and economic marginality. Cross-list: ANTH 343.

RELI 343 - SEMINAR ON LOVE
Short Title: SEMINAR ON LOVE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the themes of love, sex, and spirit from the classical era through the postmodern age. We will examine literary, philosophical, and artistic expressions in painting, sculpture, cinema, novels, poetry, psychoanalysis, religion, and culture. Cross-list: HART 347.
RELI 344 - SEMINAR ON THE END OF LIFE
Short Title: END OF LIFE SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines themes associated with death and dying from the historical through the contemporary periods. The class will adopt a highly interdisciplinary approach that combines the critical perspectives of biomedicine, religious studies, art history, philosophy, anthropology, bioethics, and cultural studies as we consider life at the end of life.

RELI 348 - CHRISTIANITY AND ISLAM IN AFRICA
Short Title: CHRISTIANITY & ISLAM IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus upon the history and conflict of Christianity and Islam in Africa, with emphasis placed upon indigenous African developments, cultural and artistic themes, and conversion narratives as well as exploring the co-existence and conflict of the two major faiths of the continent. Mutually Exclusive: Cannot register for RELI 348 if student has credit for RELI 536.

RELI 350 - DEMONS, MENTAL ILLNESS AND MEDICINE
Short Title: DEMONS/MENTAL ILLNESS/MEDICINE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Treats complex connections between religious beliefs/practices and formulation of human psychology in western tradition, through a historical reckoning with demonology. Consider the way demons are represented -- from semi-corporeal beings to marks of mental illness -- by looking at texts from the ancient world to modern psychiatry. Cross-list: MDEM 350. Mutually Exclusive: Cannot register for RELI 350 if student has credit for RELI 605.

RELI 356 - MAJOR ISSUES IN CONTEMPORARY ISLAM
Short Title: MAJOR ISSUES CONTEMPORARY ISLAM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will focus on the major issues confronting contemporary Islam including Islamic unity, the place of the Qur’an and traditions, human rights, Islamic feminism, da’wa, education, science and Islam, globalization and medical ethics.

RELI 357 - WHAT’S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines two questions: How is religion defined within the study of black religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Graduate/Undergraduate Equivalency: RELI 547. Mutually Exclusive: Cannot register for RELI 357 if student has credit for RELI 547.

RELI 359 - RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION
Short Title: RELIGIOUS TOLERANCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores context and consequences of the concept of religious tolerance in the crucible of globalization politics. Background in settlement of Reformation-era religious wars; American attitudes; impetus for tolerance policies and their implementation, 1945 to present (including governmentality and surveillance); results for historically Christian populations, esp. in US and Europe. Graduate/Undergraduate Equivalency: RELI 580. Mutually Exclusive: Cannot register for RELI 359 if student has credit for RELI 580.
RELI 361 - THE HUMANITIES OF CARE & END OF LIFE
Short Title: THE HUMANITIES OF CARE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Pairing the perspectives of medicine, bioethics, and the medical humanities with thematic case studies in art, literature, cinema, and visual culture, the class examines the humanities of care and the end of life.

RELI 362 - RELIGION AND SCIENCE
Short Title: RELIGION AND SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar analyzes interdisciplinary efforts by scholars of religion to engage scientific research in the cognitive and neuro-sciences. We assess the possibilities for collaboration, as well as conflict, between humanistic and scientific disciplines, asking how the tools of interpretation and empiricism might enrich our understanding of religious phenomena. Graduate/Undergraduate Equivalency: RELI 563. Mutually Exclusive: Cannot register for RELI 362 if student has credit for RELI 563.

RELI 363 - JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT
Short Title: JEWISH PHILOSOPHY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the main figures and themes in Jewish philosophy. Topics to be discussed include reason vs faith and prophetic revelation, Israel's chosenness vs human universalism; creation vs eternity; divine providence and necessity vs free will; evil, justice, and divine omnipotence; prayer, contemplation, and divine and human perfection. Graduate/Undergraduate Equivalency: RELI 567. Mutually Exclusive: Cannot register for RELI 363 if student has credit for RELI 567.

RELI 365 - PAUL AND THE NEW TESTAMENT
Short Title: PAUL & THE NEW TESTAMENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the growth of Christianity from its origins as a Jewish group to a religion in the mid-second century that distinguished itself from Judaism. Includes discussion of Acts, Paul's letters, Johannine corpus, Gospel of Thomas, Pastorals, Catholic letters, Hebrews, and Revelation.

RELI 367 - REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART
Short Title: REPRESENTING THE DEVIL
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course focuses on representations of the Devil, demons, and ambiguous spirits in Christian sources from the early medieval to early modern period. Students examine theological as well as ritual sources (blessings and exorcisms), and popular, narrative, dramatic, and artistic representations of evil. Graduate/Undergraduate Equivalency: RELI 557. Mutually Exclusive: Cannot register for RELI 367 if student has credit for RELI 557.

RELI 368 - RISE OF THE NONES: HUMANISMS AND HUMANITIES
Short Title: RISE OF THE NONES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will look at the rise of the "nones," that is, individuals who affiliate with no religious tradition, through both a history of secular thought in the West and a close reading of key texts and figures. Atheism, humanism, secularism and the "spiritual but not religious" will all be treated as key categories. Graduate/Undergraduate Equivalency: RELI 568. Mutually Exclusive: Cannot register for RELI 368 if student has credit for RELI 568. Repeatable for Credit.
REL 369 - READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT
Short Title: READING RICHARD WRIGHT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Richard Wright's fiction and nonfiction are important resources for understanding the nature of radicalized life in the United States. This course explores his writings for what they tell us about the role of religion in the development of identity and life meaning, and we will juxtapose the role of religion with Wright's commentary on the nature and significance of atheism for countering injustice. Graduate/Undergraduate Equivalency: RELI 606. Mutually Exclusive: Cannot register for RELI 369 if student has credit for RELI 606.

REL 371 - CHRISTIANITY IN THE GLOBAL SOUTH
Short Title: CHRISTIANITY IN GLOBAL SOUTH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings on Christianity in the Global South analyzing historical developments, mission and colonial encounters, growth and expansion; diversity of expression, the development of local initiated Churches, Pentecostalism, and public role of the Church. Graduate/Undergraduate Equivalency: RELI 561. Mutually Exclusive: Cannot register for RELI 371 if student has credit for RELI 561.

REL 375 - EPIPHANIES: SEEING IN A NEW LIGHT AND RECOGNIZING THE RADIANCE
Short Title: EPIPHANIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Epiphanies are events or objects that can note a striking appearance or manifestation, just as an epiphanic experience contains a significant moment of revelation. This course examines expressions of epiphanies in modernist art, literature, film, sacred experience, and in the mundane details of life itself. Cross-list: HART 328.

REL 378 - MIND AND ART, FILM AND LITERATURE IN BUDDHISM
Short Title: BUDDHIST ART AND LITERATURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is mind? What is self? What can a human being become? Drawing on a wealth of Buddhist-related art, film, and literature, this course introduces you to Tibetan and other Buddhist approaches to these crucial questions. Graduate/Undergraduate Equivalency: RELI 578. Mutually Exclusive: Cannot register for RELI 378 if student has credit for RELI 578.

REL 381 - THE MESSIAH
Short Title: THE MESSIAH
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the historical origins of Messianism. The Hebrew Bible, the Dead Sea Scrolls, and other ancient texts reflect a surprising diversity of Messianic expectations in early Judaism. These form the background of early Christian depictions of Jesus of Nazareth.

REL 382 - LOST JUDAISMS: THE APOCRYPHAL WRITINGS
Short Title: LOST JUDAISMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After the Hebrew Bible/Old Testament canon was closed, Jews and Christians continued to compose texts and attributed them to the biblical figures of the past. Seminar offers a close reading of some of these apocryphal/pseudepigraphic little known texts. Graduate/Undergraduate Equivalency: RELI 509. Mutually Exclusive: Cannot register for RELI 382 if student has credit for RELI 509.

REL 383 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the Dead Sea Scrolls as a window into the Second Temple period. A close reading of the scrolls will lead to a discussion of the theological and historical issues of the time, a period pivotal for the formation of Rabbinic Judaism and Early Christianity. Graduate/Undergraduate Equivalency: RELI 553. Mutually Exclusive: Cannot register for RELI 383 if student has credit for RELI 553.
RELIS 587 - Mutually Exclusive: Cannot register for RELI 387 if student has credit for as an academic area. Graduate/Undergraduate Equivalency: RELI 587.

methodological approaches emerging as Esotericism is constructed from Agrippa to Madame Blavatsky and consider the historical and the idea of “Western Esotericism.” We will look at primary writings in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 612. Mutually Exclusive: Cannot register for RELI 388 if student has credit for RELI 608.

RELIS 385 - GOD, TIME AND HISTORY
Short Title: GOD, TIME AND HISTORY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How is the passage of time given meaning, and what role— if any—is assigned to divinity in shaping the direction of events? Course explores various forms of recording and interpreting events, drawing from ancient Mesopotamia, Israel, and the Greco-Roman world—the cultures in which modern ideas of history began. Cross-list: HIST 381. Mutually Exclusive: Cannot register for RELI 385 if student has credit for RELI 585.

RELIS 387 - WESTERN ESOTERICISM: METHOD AND THEORY
Short Title: WESTERN ESOTERICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the relation between esoteric texts and the idea of “Western Esotericism.” We will look at primary writings from Agrippa to Madame Blavatsky and consider the historical and methodological approaches emerging as Esotericism is constructed as an academic area. Graduate/Undergraduate Equivalency: RELI 587. Mutually Exclusive: Cannot register for RELI 387 if student has credit for RELI 587.

RELIS 388 - THE PSALMS
Short Title: THE PSALMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar on biblical poetry. The Psalms have constituted a book of study, devotion, and prayer for Jews and Christians for two millennia. This course explores the psalms’ poetic force, liturgical setting in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 612. Mutually Exclusive: Cannot register for RELI 388 if student has credit for RELI 612.

RELIS 389 - PILGRIMAGE AND CRUSADE
Short Title: PILGRIMAGE AND CRUSADE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focus on the pilgrimage to Jerusalem and Mecca by Jews, Christians, and Muslims within the context of the crusade period. Also covers the historical religious events of the crusades (approximately 1000-1300) from both a Muslim and a Christian perspective. Mutually Exclusive: Cannot register for RELI 390 if student has credit for RELI 588.

RELIS 390 - SEARCH FOR GOD IN THE POSTMODERN WORLD
Short Title: SEARCH FOR GOD
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore forms of theistic religious experience, concentrating on the Western Christian tradition; past and present cultural and philosophical challenges to traditional religious belief; the possibility of Christian faith and the struggle for justice and meaning. Mutually Exclusive: Cannot register for RELI 389 if student has credit for RELI 280.

RELIS 391 - THE REFORMATION & ITS RESULTS
Short Title: THE REFORMATION & ITS RESULTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Theology and church-state issues from 16th-century Reformation to 17th-century; medieval background; Luther and Calvin, the Catholic Reformation; religious wars; Protestant orthodoxy; Pietist spirituality; Puritanism; and calls for toleration. Cross-list: MDEM 391. Mutually Exclusive: Cannot register for RELI 391 if student has credit for RELI 286.

RELIS 392 - JERUSALEM: HOLY CITY IN TIME AND IMAGINATION
Short Title: JERUSALEM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3.4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course on Jerusalem’s past and present, its religious meanings in Judaism, Christianity, and Islam, and its role in the modern conflict in the Middle East. Instructor Permission Required.
RELI 393 - MUTANTS AND MYSTICS: RACE, SEXUALITY, AND THE FUTURE OF THE HUMANITIES
Short Title: MUTANTS AND MYSTICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a course about the deep historical and conceptual connections between the histories of science fiction, the paranormal, and social transformation around race, gender, sexuality, and the human. We will see that such events tend to erupt in the “gaps” or “fractures” of society and within both personal and historical traumatic contexts in order to both deconstruct the reigning social formations, epistemologies, and ontologies—usually of an objectivizing, colonizing, and scientific nature—but also supply the numinous foundations for the imagining of new humanities, or what queer theorist Ramzi Fawaz calls our emerging “mutanity.” Graduate/Undergraduate Equivalency: RELI 589. Mutually Exclusive: Cannot register for RELI 393 if student has credit for RELI 589.

RELI 395 - LOSING YOUR RELIGION IN FILM & FICTION & MUSIC
Short Title: LOSING YOUR RELIGION IN FILM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Doubt, sex, despair, obsession, ecstasy in directors, writers, musicians wanting spiritual reboot, 1890-2015: such as Allen Ginsberg, Oscar Wilde, D.H. Lawrence, T.S. Eliot, H.P. Lovecraft, John Updike, and Ingmar Bergman. Graduate/Undergraduate Equivalency: RELI 503. Mutually Exclusive: Cannot register for RELI 395 if student has credit for RELI 503.

RELI 396 - PENTECOSTALISM
Short Title: PENTECOSTALISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Pentecostalism in a global context focusing historical developments, expansion in Europe, North America, Africa, Latin America and Asia. Graduate/Undergraduate Equivalency: RELI 595. Mutually Exclusive: Cannot register for RELI 396 if student has credit for RELI 595.

RELI 399 - CONTEMPLATIVE PRACTICE
Short Title: CONTEMPLATIVE PRACTICE
Department: Religion
Grade Mode: Standard Letter
Course Type: Activity Course
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Literary and artistic creativity, religious experience, and textual interpretation often draw on focused states of consciousness made possible by contemplative practices. The practice will provide historical information about such practices and offer opportunities to participate in techniques ranging from meditation and observing breath to freeform writing and T’ai Chi. Graduate/Undergraduate Equivalency: RELI 597. Mutually Exclusive: Cannot register for RELI 399 if student has credit for RELI 597. Repeatable for Credit.

RELI 400 - SENIOR THESIS
Short Title: SENIOR THESIS
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Consisting of the writing of a thesis of considerable length, depth, and research, this course will function as the capstone course on writing in the discipline. Required of all majors.

RELI 401 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 402 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiple sections of this course are offered. Repeatable for Credit.
RELI 403 - SENIOR THESIS I
Short Title: SENIOR THESIS I
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: For the duration of their senior year, qualified students can elect to write a senior thesis. To complete the thesis, the student elects RELI 403 "Senior Thesis I" in Fall semester and RELI 404 "Senior Thesis II" in Spring semester and works with a Religion faculty supervisor for the year. Instructor Permission Required.

RELI 404 - SENIOR THESIS II
Short Title: SENIOR THESIS II
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 403
Description: For the duration of their senior year, qualified students can elect to write a senior thesis. To complete the thesis, the student elects RELI 403 "Senior Thesis I" in Fall semester and RELI 404 "Senior Thesis II" in Spring semester and works with a Religion faculty supervisor for the year. Instructor Permission Required.

RELI 406 - CHRISTIANITY AND LATE ANTIQUITY
Short Title: CHRISTIANITY & LATE ANTIQUITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 506. Mutually Exclusive: Cannot register for RELI 406 if student has credit for RELI 506.

RELI 407 - ARCHIVES OF THE IMPOSSIBLE
Short Title: ARCHIVES OF THE IMPOSSIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: After reading Prof. Kripal's Authors of the Impossible as a basic theoretical structure for the semester, this advanced archival research seminar will involve students engaging original historical documents contained in Rice University's archive on Paranormal Currents in American Culture toward the writing of a graduate or undergraduate thesis. Graduate/Undergraduate Equivalency: RELI 607. Mutually Exclusive: Cannot register for RELI 407 if student has credit for RELI 607.

RELI 410 - CONCEPTS IN THE STUDY OF RELIGION
Short Title: CONCEPTS IN RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces useful concepts and key methodological problems in the discipline of religious studies. It aims to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in honors or MA theses in the Religion department. Graduate students must take a final exam and write an additional three to four thousand words. Graduate/Undergraduate Equivalency: RELI 610.

RELI 415 - SECRET RELIGION
Short Title: SECRET RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. Graduate/Undergraduate Equivalency: RELI 615. Mutually Exclusive: Cannot register for RELI 415 if student has credit for RELI 615.
RELI 416 - NEW TESTAMENT / CHRISTIAN ORIGINS
Short Title: NEW TESTAMENT/CHRISTIAN ORIG
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How did Christianity emerge as a new religious movement in the Roman Empire? Covers the history and literature of the first generations of Christians, focusing on Post-Temple developments, issues of authority and leadership, rise of regional forms of Christianity, and formation of distinct Christian identities. Graduate/Undergraduate Equivalency: RELI 616. Mutually Exclusive: Cannot register for RELI 416 if student has credit for RELI 616.

RELI 417 - GNOSTIC AMERICA
Short Title: GNOSTIC AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers the rise of Gnostic spirituality in American religion and culture, from the Colonial period to the present. Explores the alpha conduits (Boehme, Blavatsky, Jung, academia). Examines the roles of revelatory experience, artifact migration, historical criticism, secularization, hybridity, heresy, and popularization. Case studies vary depending on students' research goals. 5000-word research paper. Graduate/Undergraduate Equivalency: RELI 517. Mutually Exclusive: Cannot register for RELI 417 if student has credit for RELI 517.

RELI 419 - MYSTERY RELIGIONS
Short Title: MYSTERY RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Covers literature, practices, and archaeology of esoteric cults within the context of religion in Roman Empire (Demeter, the Great Gods, Cybele, Persephone, Dionysus, Isis, Mithras, Hermes, Quimran, Christianity, Gnostic groups). Case studies vary depending on students' research goals, including comparison with Renaissance and modern esoteric initiatory groups. 5000-word research paper; GRAD equivalent: 7500-word paper. Graduate/Undergraduate Equivalency: RELI 619. Mutually Exclusive: Cannot register for RELI 419 if student has credit for RELI 619.

RELI 420 - ART OF INTERPRETING THE BIBLE
Short Title: ART OF INTERPRETING THE BIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores issues of history, historiography, and hermeneutics within the context of Biblical Studies. While traditional forms of Biblical criticism are covered, the bulk of the course focuses on intertextuality, reception history, sociological methods, feminist views, and cognitive approaches. Graduate students (7500 word paper, seminar leadership, and oral presentation); Undergraduate students (5000 word paper and oral presentation). Graduate/Undergraduate Equivalency: RELI 620.

RELI 421 - FOUCAULT & THE HERMENEUTICS OF SELF
Short Title: FOUCAULT & THE SELF
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Best known for analyzing domination and power, Michel Foucault shifts his attention to ethics and “technologies of the self” in 1976. In this advanced seminar, we study and critique Foucault's turn to western antiquity through his lectures and volumes of foregrounding resistance to power through religion, politics and ethics. Graduate/Undergraduate Equivalency: RELI 569. Mutually Exclusive: Cannot register for RELI 421 if student has credit for RELI 569.

RELI 423 - AFRICAN MYTHS AND RITUALS
Short Title: AFRICAN MYTHS AND RITUALS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explore and analyze specific myths and rituals which provide legitimation for community ceremonies and that serve as a basis for the negotiation of power and ideology for members within that community. Readings from classic theorists: Durkheim, Levi-Strauss, Edmond Leach, Gennap and Turner, and contemporary theorists: Werbner, Heusch, Comaroff, and Ray. Cross-list: ANTH 423. Graduate/Undergraduate Equivalency: RELI 537. Mutually Exclusive: Cannot register for RELI 423 if student has credit for RELI 537.
RELI 424 - RELIGION AND POLITICS IN AFRICA
Short Title: RELIGION & POLITICS IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. Graduate/Undergraduate Equivalency: RELI 534. Mutually Exclusive: Cannot register for RELI 424 if student has credit for RELI 534. Repeatable for Credit.

RELI 426 - RELIGION AND LITERATURE IN AFRICA
Short Title: RELI AND LITERATURE IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Analysis of the religious imagination and gender issues in postcolonial literature in Africa focusing on Islam, Christianity, indigenous religions and African Initiated Churches. Religious and gender issues addressed include identity crises, power, clash of cultures, modernity, cosmology, community, and socio-religious conflicts in a postcolonial world. Mutually Exclusive: Cannot register for RELI 426 if student has credit for RELI 538.

RELI 427 - HISTORY AND METHODS: NINETEENTH CENTURY
Short Title: HISTORY AND METHODS: 19TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1800-1900. Graduate/Undergraduate Equivalency: RELI 527. Mutually Exclusive: Cannot register for RELI 427 if student has credit for RELI 527.

RELI 428 - HISTORY AND METHODS: TWENTIETH CENTURY
Short Title: HISTORY AND METHODS: 20TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1900-present. Graduate/Undergraduate Equivalency: RELI 559. Mutually Exclusive: Cannot register for RELI 428 if student has credit for RELI 559.

RELI 430 - RELIGION, PSYCHOLOGY & CULTURE
Short Title: RELIGION, PSYCHOLOGY & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the historical development of the psychology of religion and its conversation with theology, comparative studies, gender studies, sociology, and anthropology. Topics include: mysticism, eroticism, conversion, feminism, psychobiography. Examples drawn from a variety of religious traditions. Readings include: Freud, Jung, Tillich, Erikson, Kristeva, Kakar. Graduate/Undergraduate Equivalency: RELI 584. Mutually Exclusive: Cannot register for RELI 430 if student has credit for RELI 584.

RELI 431 - RELIGION AND COGNITIVE SCIENCE
Short Title: RELIGION AND COGNITIVE SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Interdisciplinary approach founded on biological, cross-cultural, evolutionary, neurological and cognitive studies of religion. Explores extreme religious experiences, ritualized behaviors, shamanism and religious therapy, religious community, universality of religion, and transmission of religious ideas and practices. 5000 word research paper. Graduate/Undergraduate Equivalency: RELI 531. Mutually Exclusive: Cannot register for RELI 431 if student has credit for RELI 531.
RELI 433 - TIBETAN LANGUAGE AND CULTURE
Short Title: TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Readings in Tibetan texts – debates, philosophical treatises of various kinds, meditation texts for contemplative practice – accompanied by supportive readings in English and discussion of the thematic issues raised by the material, with an emphasis on cultural awareness. Repeatable for Credit.

RELI 440 - ISLAM'S MYSTICAL AND ESOTERIC TRADITION
Short Title: ISLAM'S MYSTICAL TRADITION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ascetic and Sufi aspects of Islam from the middle Islamic period until the present day. Readings from al-Ghazali, Ibn al-Arabi, Sa'di, Hafiz and Rumi. Graduate/Undergraduate Equivalency: RELI 522. Mutually Exclusive: Cannot register for RELI 440 if student has credit for RELI 522.

RELI 441 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Cross-list: ASIA 441. Graduate/Undergraduate Equivalency: RELI 525. Mutually Exclusive: Cannot register for RELI 441 if student has credit for RELI 525.

RELI 442 - CLASSICAL AND CONTEMPORARY ARABIC TEXTS
Short Title: ARABIC TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study and read classical Arabic texts with the goal of learning the material as well as the syntax and grammar of Arabic. Graduate/Undergraduate Equivalency: RELI 541. Repeatable for Credit.

RELI 444 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
Short Title: VISIONS & VISIONARY PRACTICES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Cross-list: MDEM 444. Graduate/Undergraduate Equivalency: RELI 644. Mutually Exclusive: Cannot register for RELI 444 if student has credit for RELI 644.

RELI 449 - EARLY CHRISTIAN CONTROVERSIES
Short Title: EARLY CHRISTIAN CONTROVERSIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Seminar examines controversies and debates among the early Christians as catholic Christianity emerged from a diversity of Christian movements. Literature reviewed will vary. Students will select to focus on one controversy and write a research paper (undergraduates, 5000 words; graduate students, 7500 words). Oral discussion and presentations will be required. Graduate/Undergraduate Equivalency: RELI 549. Mutually Exclusive: Cannot register for RELI 449 if student has credit for RELI 549. Repeatable for Credit.

RELI 458 - MYSTICISM: THEORIES AND METHODS
Short Title: MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Cross-list: MDEM 444. Graduate/Undergraduate Equivalency: RELI 644. Mutually Exclusive: Cannot register for RELI 444 if student has credit for RELI 644.

RELI 458 - MYSTICISM: THEORIES AND METHODS
Short Title: MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A history of the development of the modern category of "mysticism" from the seventeenth century to today, with side studies of cognate terms like "spirituality," "metaphysical religion," and the "paranormal," as these forms of extreme religious experience are by social-scientific and humanistic methods. RELI 558. Additional readings and writing. Graduate/Undergraduate Equivalency: RELI 558. Mutually Exclusive: Cannot register for RELI 458 if student has credit for RELI 558.
RELI 476 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONIZATION TO GLOBALIZATION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Indo-Tibetan analyses of the mind and its functions, especially differing views on the role of reasoning and the nature of the "ultimate" in major philosophical schools of Tibet and India. Graduate/Undergraduate Equivalency: RELI 570. Repeatable for Credit.

RELI 472 - KABBALAH SEMINAR
Short Title: KABBALAH SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar will delve into literature known as "kabbalah." through close readings of first-hand accounts of thinkers and mystics known as "kabbalists," will explore themes like secrecy and mystery, the nature of the divine, and religious ecstasy. Graduate/Undergraduate Equivalency: RELI 582. Mutually Exclusive: Cannot register for RELI 472 if student has credit for RELI 582.

RELI 476 - FROM DECOLONIZATION TO GLOBALIZATION
Short Title: FROM DECOLONIZATION TO GLOBALIZATION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Cross-list: FREN 324, POLI 324. Graduate/Undergraduate Equivalency: RELI 604. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for RELI 476 if student has credit for RELI 604.

RELI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Mutually Exclusive: Cannot register for RELI 477 if student has credit for RELI 353. Repeatable for Credit.

RELI 481 - GNOSTICISM SEMINAR
Short Title: GNOSTICISM SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In depth examination of one (or more) Gnostic texts within its literary, social, historical, and religious landscapes. Graduate/Undergraduate Equivalency: RELI 581. Mutually Exclusive: Cannot register for RELI 481 if student has credit for RELI 581.

RELI 488 - THE HISTORY OF RELIGIONS SCHOOLS
Short Title: HISTORY OF RELIGIONS SCHOOLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An historical survey of the History of Religions School that emerged in the 1960s and 70s at the University of Chicago and came to play such an important role in the comparative study of religion. Graduate/Undergraduate Equivalency: RELI 588. Mutually Exclusive: Cannot register for RELI 488 if student has credit for RELI 588.

RELI 490 - AFRICAN AMERICAN LITERATURE & RELIGION
Short Title: AF/AM LITERATURE & RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An exploration of American literature in order to explore the various ways in which African Americans have understood and articulated the nature and meaning of African American religious experience and practice. Graduate/Undergraduate Equivalency: RELI 590. Mutually Exclusive: Cannot register for RELI 490 if student has credit for RELI 590.
RELI 500 - RELIGIONS FROM INDIA
Short Title: RELIGIONS FROM INDIA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Write an exegetical paper on a Hebrew text of your choice. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 125. Mutually Exclusive: Cannot register for RELI 507 if student has credit for RELI 395.

RELI 504 - RELIGIONS IN AMERICA
Short Title: RELIGIONS IN AMERICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines the religions and religious practices of America from colonial encounter with native peoples to the contemporary period with a special focus on the morphing natures and historical complexities of American Christianities, religious pluralism and secularism. Graduate students will be required to read a standard and well-known two-volume, 1,200-page collection of primary historical sources. They will also write a research paper (25-30 pages) that is approximately twice as long as the undergraduate paper. Graduate/Undergraduate Equivalency: RELI 300. Mutually Exclusive: Cannot register for RELI 504 if student has credit for RELI 300.

RELI 505 - AMERICAN METAPHYSICAL RELIGION
Short Title: AMERICAN METAPHYSICAL RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 406. Mutually Exclusive: Cannot register for RELI 505 if student has credit for RELI 406.

RELI 506 - CHRISTIANITY & LATE ANTIQUITY
Short Title: CHRISTIANITY & LATE ANTIQUITY
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This advanced seminar treats the formation of Christianity as an institutional power in relation to the Roman Empire. Starting with the Edict of Milan in 313 CE, which put an end to persecution of Christians, and closing with the Council of Chalcedon in 451 CE, which established normative Christian doctrine, we will move through this development in seven roughly chronological units. Graduate/Undergraduate Equivalency: RELI 406. Mutually Exclusive: Cannot register for RELI 505 if student has credit for RELI 406.

RELI 507 - INTRODUCTION TO BIBLICAL HEBREW I
Short Title: INTRO TO BIBLICAL HEBREW I
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An introduction to Biblical Hebrew with emphasis on grammar and vocabulary. Write an exegetical paper on a Hebrew text of your choice. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 125. Mutually Exclusive: Cannot register for RELI 507 if student has credit for RELI 125.

RELI 509 - LOST JUDAISMS: THE APOCRYPHAL WRITINGS
Short Title: LOST JUDAISMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After the Hebrew Bible/Old Testament canon was closed, Jews and Christians continued to compose texts and attributed them to the biblical figures of the past. Seminar offers a close reading of some of these apocryphal/pseudepigraphic little known texts. Students in RELI 509 will additionally conduct a research project. Graduate/Undergraduate Equivalency: RELI 382. Mutually Exclusive: Cannot register for RELI 509 if student has credit for RELI 382.
REL 510 - APOCALYPSE THEN AND NOW  
Short Title: APOCALYPSE THEN AND NOW  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: A close reading of some early Jewish and Christian apocalypses, a discussion of the apocalyptic worldview, and an examination of America's fascination with the Apocalypse in media and science. Graduate/Undergraduate Equivalency: RELI 339. Mutually Exclusive: Cannot register for RELI 510 if student has credit for RELI 339.

REL 511 - INTRODUCTION TO BIBLICAL HEBREW II  
Short Title: INTRO TO BIBLICAL HEBREW II  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Continuation of RELI 507. We will finish the grammar in the second half of this semester and then read selections from the Hebrew bible. Write an exegetical paper on a Hebrew text of your choice. Graduate/Undergraduate Equivalency: RELI 126. Mutually Exclusive: Cannot register for RELI 511 if student has credit for RELI 126.

REL 512 - INTERMEDIATE BIBLICAL HEBREW III  
Short Title: INTERM BIBLICAL HEBREW III  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): RELI 125 and RELI 126  
Description: Readings in the Hebrew Bible as well as some unvocalized texts from the Dead Sea Scrolls. Review of grammar and vocabulary. Write an exegetical paper on a Hebrew text. UG/GR Equivalent: RELI 127. Instructor Permission Required. Graduate/Undergraduate Equivalency: RELI 127. Mutually Exclusive: Cannot register for RELI 512 if student has credit for RELI 127.

REL 514 - RELIGION IN FICTION AND FILM  
Short Title: RELIGION IN FICTION AND FILM  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The sacred in interreligious, international, and interdisciplinary encounter, approached via social sciences, theology, theories of literature and mythology. Authors and directors can include Waugh, Mishima, Mann, Proust, Hesse, Percy, Gardner, Updike, Gibson, Sterling, Coupland, Ray, Resnais, Fellini, Bergman, Anderson, Bunnel, and Nutley. Term paper twice as long as undergraduate requirement. Graduate/Undergraduate Equivalency: RELI 294. Mutually Exclusive: Cannot register for RELI 514 if student has credit for RELI 294.

REL 515 - NIETZSCHE AND RELIGIOUS THOUGHT  
Short Title: NIETZSCHE & RELIGIOUS THOUGHT  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Graduate/Undergraduate Equivalency: RELI 301. Mutually Exclusive: Cannot register for RELI 515 if student has credit for RELI 301.

REL 517 - GNOSTIC AMERICA  
Short Title: GNOSTIC AMERICA  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Covers the rise of Gnostic spirituality in American religion and culture, from the Colonial period to the present. Explores the roles of revelatory experience, artifact migration, historical criticism, secularization, hybridity, heresy, and popularization. Case studies vary depending on students' research goals. 7500-word research paper. Graduate/Undergraduate Equivalency: RELI 417. Mutually Exclusive: Cannot register for RELI 517 if student has credit for RELI 417.

REL 518 - THE BIBLE: A BRIEF INTELLECTUAL HISTORY  
Short Title: BIOGRAPHY OF THE BIBLE  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: An investigation of how the perception of the Bible changed from antiquity to the 21st century. The course is structured chronologically. A close reading of the works of major thinkers from each period, together with specific examples of biblical exegesis. Graduate students will have one extra reading assignment per week and complete a 14-15 page paper. Graduate/Undergraduate Equivalency: RELI 318. Mutually Exclusive: Cannot register for RELI 518 if student has credit for RELI 318.

REL 521 - ADVANCED STUDY OF ISLAM  
Short Title: ADVANCED STUDY OF ISLAM  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: The purpose of this course will be to give graduate students a working knowledge of Islam historically and religiously.
RELI 522 - ISLAM'S MYSTICAL AND ESOTERIC TRADITION
Short Title: ISLAM'S MYSTICAL TRADITION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: RELI 440. Mutually Exclusive: Cannot register for RELI 522 if student has credit for RELI 440.

RELI 523 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 524 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Religion
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Multiple sections of this course are offered. Repeatable for Credit.

RELI 525 - MAGIC AND POPULAR RELIGION
Short Title: MAGIC & POPULAR RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the popular religion in the Middle East from Late Antiquity until the 19th century, focusing on healing practices, astrology, protection, amulets, seasoned/life-cycle rituals, and other popular beliefs common to Islam, Judaism and Christianity. Graduate/Undergraduate Equivalency: RELI 441. Mutually Exclusive: Cannot register for RELI 525 if student has credit for RELI 441.

RELI 526 - PEOPLE OF THE BOOK: JUDAISM AND SCRIPTURE
Short Title: PEOPLE OF THE BOOK
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines Judaism as a "People of the Book," recognizing Judaism's dominant religious preoccupation for millennia to be the reading, study and performance of Jewish scripture, particularly the Torah or the first 5 books of the Hebrew Bible Topics: book culture, act of reading, canonization, revelation, and rabbinic, philosophical, mystical interpretations. All readings are in English. Graduate/Undergraduate Equivalency: RELI 302. Mutually Exclusive: Cannot register for RELI 526 if student has credit for RELI 302.

RELI 527 - HISTORY AND METHODS: 19TH CENTURY
Short Title: HISTORY AND METHODS: 19TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1800-1900. Graduate course will require reading of more books and a longer paper to write. Graduate/Undergraduate Equivalency: RELI 427. Mutually Exclusive: Cannot register for RELI 527 if student has credit for RELI 427.

RELI 528 - RELIGION AND GLOBAL POVERTY
Short Title: RELIGION & GLOBAL POVERTY
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Advanced study of religion and poverty in global context. Course materials will address religious, ethical anthropological theories of development, analyze specific themes economic and social development, examine the role of Faith Based Organizations and do specific case studies. Students will be graded on short reflections papers and a final term paper. Graduate students taking the course will be assigned 4 additional texts, do a major review of one of the texts, and do two class presentations on one of the texts. Graduate/Undergraduate Equivalency: RELI 328. Mutually Exclusive: Cannot register for RELI 528 if student has credit for RELI 328.

RELI 530 - PEDAGOGY PRACTICUM
Short Title: PEDAGOGY PRACTICUM
Department: Religion
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 2
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: As an integral part of the department's apprenticeship program, this is a semester-long practicum through which a graduate student apprentices with a faculty member teaching an undergraduate course in order to be trained in all aspects of course design, lecturing, advising, and grading. Required of all graduate students. Repeatable for Credit.
RELI 531 - RELIGION AND COGNITIVE SCIENCE
Short Title: RELIGION AND COGNITIVE SCIENCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Interdisciplinary approach founded on biological, cross-cultural, evolutionary, neurological and cognitive studies of religion. Explores extreme religious experiences, ritualized behaviors, shamanism and religious therapy, religious community, universality of religion, and transmission of religious ideas and practices. GR: seminar leadership, 7500 word research paper. Graduate/Undergraduate Equivalency: RELI 423. Mutually Exclusive: Cannot register for RELI 531 if student has credit for RELI 431.

RELI 532 - ADVANCED TIBETAN LANGUAGE AND CULTURE
Short Title: ADV TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): RELI 131
Description: This class builds on RELI 500 and 564, now including more challenging material in Tibetan, and continuing the trajectory of gaining familiarity with Buddhist philosophical systems as these touch on epistemology, ontology, and contemplative practice. Graduate/Undergraduate Equivalency: RELI 332. Recommended Prerequisite(s): Basic reading ability in Tibetan. Mutually Exclusive: Cannot register for RELI 532 if student has credit for RELI 132/RELI 332. Repeatable for Credit.

RELI 534 - RELIGION AND POLITICS IN AFRICA
Short Title: RELIGION & POLITICS IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course explores interdisciplinary perspectives on religion and politics in Africa focusing on indigenous religious, Christianity, and Islam. Readings will reflect theoretical perspectives, historical developments, regional angels, and contemporary issues such as sharia, gender, and reconciliation as political options. RELI 534 requires additional reading, review a book on the subject, and write a 25 page research paper. Graduate/Undergraduate Equivalency: RELI 442. Mutually Exclusive: Cannot register for RELI 534 if student has credit for RELI 424.

RELI 537 - AFRICAN MYTHS AND RITUALS
Short Title: AFRICAN MYTHS AND RITUALS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: RELI 423. Mutually Exclusive: Cannot register for RELI 537 if student has credit for RELI 423.

RELI 539 - THEOLOGY IN AFRICA
Short Title: THEOLOGY IN AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introductory readings on theological thinking in Africa. Course will address methodological issues as well as constructive theological work on enculturation, social and economic justice, gender, health, and liberation. RELI 539: read 5 major texts, write a major review, lead class discussions, discuss texts used, and write 20 page research paper. Graduate/Undergraduate Equivalency: RELI 340. Mutually Exclusive: Cannot register for RELI 539 if student has credit for RELI 340.

RELI 540 - THE CHURCH OF AFRICA
Short Title: THE CHURCH OF AFRICA
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study and read classical Arabic texts with the goal of learning the material as well as the syntax and grammar of Arabic. Graduate students will have an additional assignment of a paper (15-20 pgs) analyzing their text. Graduate/Undergraduate Equivalency: RELI 442. Repeatable for Credit.

RELI 541 - CLASSICAL AND CONTEMPORARY ARABIC TEXTS
Short Title: ARABIC TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study and read classical Arabic texts with the goal of learning the material as well as the syntax and grammar of Arabic. Graduate students will have an additional assignment of a paper (15-20 pgs) analyzing their text. Graduate/Undergraduate Equivalency: RELI 442. Repeatable for Credit.

RELI 542 - AMERICAN JUDAISM: RELIGION AND THOUGHT
Short Title: AMERICAN JUDAISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine the distinct character of Jewish religion and thought as it has taken shape in America, including its incorporation within secret societies and the occult. Topics to be examined are American Jewish denominationalism, interfaith relations, pluralism and individualism, and developments in American Jewish spirituality. Grad students will write a 25-30pp research paper. Graduate/Undergraduate Equivalency: RELI 341. Mutually Exclusive: Cannot register for RELI 542 if student has credit for RELI 341.
RELI 553 - THE DEAD SEA SCROLLS
Short Title: THE DEAD SEA SCROLLS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: RELI 383. Mutually Exclusive: Cannot register for RELI 553 if student has credit for RELI 383.

RELI 546 - THE RELIGIOUS THOUGHT OF MARTIN L. KING, JR. AND MALCOLM X
Short Title: MLK AND MALCOLM X
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate/Undergraduate Equivalency: RELI 312. Mutually Exclusive: Cannot register for RELI 546 if student has credit for RELI 312.

RELI 549 - EARLY CHRISTIAN CONTROVERSIES
Short Title: EARLY CHRISTIAN CONTROVERSIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar examines controversies and debates among the early Christians as catholic Christianity emerged from a diversity of Christian movements. Literature reviewed will vary. Students will select to focus on one controversy and write a research paper (undergraduates, 5000 words; graduate students, 7500 words). Oral discussion and presentations will be required. Graduate/Undergraduate Equivalency: RELI 449. Mutually Exclusive: Cannot register for RELI 549 if student has credit for RELI 449. Repeatable for Credit.

RELI 555 - HISTORICAL ANTHROPOLOGIES OF RELIGION
Short Title: HISTORICAL ANTHROPOLOGIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the study of the religious past through conjunctions of anthropology and history. Readings will include books and selections by Max Weber, Marshall Sahlins, Victor Turner, Jacques Le Goff, Aron Gurevich, and others. Cross-list: ANTH 550.

RELI 557 - WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 547: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 547 if student has credit for RELI 357.

RELI 547 - WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 547: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 547 if student has credit for RELI 357.

RELI 547 - WHAT'S RELIGIOUS ABOUT BLACK RELIGION?
Short Title: IS BLACK RELIGION RELIGIOUS?
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines two questions: How is religion defined within the study of lack religion? What constitutes the nature and meaning of blackness within black religion? These questions provide opportunity to explore how scholars explain what it has meant to be black and religious within the United States. Additional requirements for RELI 547: Write 5 reflection papers; lead at least two class discussions; complete a 30-page research paper; and complete additional readings. Graduate/Undergraduate Equivalency: RELI 357. Mutually Exclusive: Cannot register for RELI 547 if student has credit for RELI 357.

ART

RELI 555 - HISTORICAL ANTHROPOLOGIES OF RELIGION
Short Title: HISTORICAL ANTHROPOLOGIES
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will address the study of the religious past through conjunctions of anthropology and history. Readings will include books and selections by Max Weber, Marshall Sahlins, Victor Turner, Jacques Le Goff, Aron Gurevich, and others. Cross-list: ANTH 550.

RELI 557 - REPRESENTING THE DEVIL IN CHRISTIAN THEOLOGY AND ART
Short Title: REPRESENTING THE DEVIL
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course focuses on representations of the Devil, demons and ambiguous spirits in Christian theological, ritual, and narrative sources from the early medieval to early modern period. Graduate work includes added reading (30-50 pp weekly above undergraduate requirements), article length essay (8 to 10 thousand words) and two presentations. Graduate/Undergraduate Equivalency: RELI 367. Mutually Exclusive: Cannot register for RELI 557 if student has credit for RELI 367.

RELI 558 - MYSTICISM: THEORIES AND METHODS
Short Title: MYSTICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A history of the development of the modern category of "mysticism" from the seventeenth century to today, with side studies of cognate terms like "spirituality," "metaphysical religion," and the "mysticism" from the seventeenth century to today, with side studies of "paranormal," as these forms of extreme religious experience are by social-scientific and humanistic methods. RELI 558: Additional readings and writing. Graduate/Undergraduate Equivalency: RELI 458. Mutually Exclusive: Cannot register for RELI 558 if student has credit for RELI 458.

RELI 559 - HISTORY AND METHODS: TWENTIETH CENTURY
Short Title: HISTORY AND METHODS: 20TH CENT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Focused discussion of the history and methods of the study of religion via close readings of classical texts and narratives of the field from 1900-present. Graduate course will require reading of more books and a longer paper to write. Graduate/Undergraduate Equivalency: RELI 428. Mutually Exclusive: Cannot register for RELI 559 if student has credit for RELI 428.
RELI 560 - ADVANCED READINGS IN TIBETAN TEXTS  
Short Title: READING TIBETAN TEXTS  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is to accommodate Grad students' requests to read more widely in Tibetan texts and genres. Our focus is reading and disciplined discussion of the texts. Repeatable for Credit.

RELI 561 - CHRISTIANITY IN THE GLOBAL SOUTH  
Short Title: CHRISTIANITY IN GLOBAL SOUTH  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Readings on Christianity in the Global South analyzing historical developments, mission and colonial encounters, growth and expansion; diversity of expression, the development of local initiated Churches, Pentecostalism, and public role of the Church. Graduate students will lead class on a church in a country of their choice. Each graduate student will prepare and lead a seminar on one aspect of the region or country. Graduate/Undergraduate Equivalency: RELI 371. Mutually Exclusive: Cannot register for RELI 561 if student has credit for RELI 371.

RELI 562 - RELIGION AND SCIENCE  
Short Title: RELIGION AND SCIENCE  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This advanced seminar analyzes interdisciplinary efforts by scholars of religion to engage scientific research in the cognitive and neuro- sciences. We assess the possibilities for collaboration, as well as conflict, between humanistic and scientific disciplines, asking how the tools of interpretation and empiricism might enrich our understanding of religious phenomena. Graduate students will lecture one course session and will engage additional secondary literature throughout the semester. Graduate/Undergraduate Equivalency: RELI 362. Mutually Exclusive: Cannot register for RELI 563 if student has credit for RELI 362.

RELI 564 - INTERMEDIATE TIBETAN LANGUAGE, LITERATURE AND CULTURE  
Short Title: INT. TIBETAN LANG LIT & CULTUR  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. RELI 564: Write a paper approximately one-third longer and complete a more substantial oral presentation. Graduate/Undergraduate Equivalency: RELI 234. Mutually Exclusive: Cannot register for RELI 564 if student has credit for RELI 234. Repeatable for Credit.

RELI 567 - JEWISH PHILOSOPHY: GREAT THINKERS AND THEMES IN JEWISH THOUGHT  
Short Title: JEWISH PHILOSOPHY  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: An introduction to the main figures and themes in Jewish philosophy. Topics to be discussed include reason vs faith and prophetic revelation; Israel’s chosenness vs human universalism; creation vs eternity; divine providence and necessity vs free will; evil, justice, and divine omnipotence; prayer, contemplation, and divine and human perfection. Graduate students are required to write a research paper (25-30 pp.) and to prepare and lead at least one class. Graduate/Undergraduate Equivalency: RELI 363. Mutually Exclusive: Cannot register for RELI 567 if student has credit for RELI 363.

RELI 568 - RISE OF THE NONES: HUMANISMS AND HUMANITIES  
Short Title: RISE OF THE NONES  
Department: Religion  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course will look at the rise of the “nones,” that is, individuals who affiliate with no religious tradition, through both a history of secular thought in the West and a close reading of key texts and figures. Atheism, humanism, secularism and the “spiritual but not religious” will all be treated as key categories. RELI 568 will require additional readings, 3 additional papers plus a longer research paper, leading discussions and teaching. Graduate/Undergraduate Equivalency: RELI 368. Mutually Exclusive: Cannot register for RELI 568 if student has credit for RELI 368. Repeatable for Credit.
RELI 569 - FOUCAULT & THE HERMENEUTICS OF SELF
Short Title: FOUCAULT & THE SELF
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Best known for analyzing domination and power, Michel Foucault shifts his attention to ethics and "technologies of the self" in 1976. In this advanced seminar, we study and critique Foucault's turn to western antiquity through his lectures and volumes of foregrounding resistance to power through religion, politics and ethics. Graduate/Undergraduate Equivalency: RELI 421. Mutually Exclusive: Cannot register for RELI 569 if student has credit for RELI 421.

RELI 570 - BUDDHIST WISDOM TEXTS
Short Title: BUDDHIST WISDOM TEXTS
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Indo-Tibetan analyses of the mind and its functions, especially differing views on the role of reasoning and the nature of the "ultimate" in major philosophical schools of Tibet and India. RELI 570: More difficult readings and two longer papers required. Graduate/Undergraduate Equivalency: RELI 470. Repeatable for Credit.

RELI 572 - INTRODUCTION TO BUDDHISM: ARTS FOR LIFE
Short Title: INTRODUCTION TO BUDDHISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Buddhism is a performing art engaging both mind and body. Our course investigates Buddhism and other literature, epistemology and rituals with an eye to how they speak to contemplative practice. Contemplative practice itself, in class and out, supplements our exploration of the interplay between traditional Asian and contemporary Western perspectives. Graduate/Undergraduate Equivalency: RELI 332. Recommended prerequisite(s): One course in Buddhism. Mutually Exclusive: Cannot register for RELI 573 if student has credit for RELI 333. Repeatable for Credit.

RELI 578 - MIND AND ART, FILM AND LITERATURE IN BUDDHISM
Short Title: BUDDHIST ART AND LITERATURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores context and consequences of the concept of religious tolerance in the crucible of globalization politics. Background in settlement of Reformation-era religious wars; American attitudes; impetus for tolerance policies and their implementation, 1945 to present (including governmentality and surveillance); results for historically Christian populations, esp. in US and Europe. Graduate/Undergraduate Equivalency: RELI 378. Mutually Exclusive: Cannot register for RELI 578 if student has credit for RELI 378.

RELI 580 - RELIGIOUS TOLERANCE IN THE CRUCIBLE OF GLOBALIZATION
Short Title: RELIGIOUS TOLERANCE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores context and consequences of the concept of religious tolerance in the crucible of globalization politics. Background in settlement of Reformation-era religious wars; American attitudes; impetus for tolerance policies and their implementation, 1945 to present (including governmentality and surveillance); results for historically Christian populations, esp. in US and Europe. Graduate/Undergraduate Equivalency: RELI 359. Mutually Exclusive: Cannot register for RELI 580 if student has credit for RELI 359.

RELI 581 - Gnosticism Seminar
Short Title: GNOSTICISM SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In depth examination of one (or more) Gnostic texts within its literary, social, historical, and religious landscapes. RELI 581 requires preparation and delivery of public presentations. Graduate/Undergraduate Equivalency: RELI 481. Mutually Exclusive: Cannot register for RELI 581 if student has credit for RELI 481.

RELI 582 - KABBALAH SEMINAR
Short Title: KABBALAH SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar will delve into literature known as "kabbalah." through close readings of first-hand accounts of thinkers and mystics known as "kabbalists," will explore themes like secrecy and mystery, the nature of the divine, and religious ecstasy. RELI 562 requirements: Additionally write a lengthy research paper and lead a session. Graduate/Undergraduate Equivalency: RELI 472. Mutually Exclusive: Cannot register for RELI 582 if student has credit for RELI 472.
RELI 584 - RELIGION, PSYCHOLOGY, AND CULTURE
Short Title: RELIGION, PSYCHOLOGY & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the interaction between religion and psychology, focusing on the role of religious experience in shaping personal and social behavior. Graduate/Undergraduate Equivalency: RELI 484. Mutually Exclusive: Cannot register for RELI 584 if student has credit for RELI 484.

RELI 585 - PSYCHOLOGICAL APPROACHES TO RELIGION
Short Title: PSYCHOLOGICAL APPROACHES TO RELIGION
Department: Psychology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the psychological dimensions of religious experience, focusing on cognitive, emotional, and behavioral responses to religious stimuli. Graduate/Undergraduate Equivalency: RELI 485. Mutually Exclusive: Cannot register for RELI 585 if student has credit for RELI 485.

RELI 586 - RELIGION AND CULTURE
Short Title: RELIGION AND CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the historical and cultural contexts in which religious ideas and practices have developed. Graduate/Undergraduate Equivalency: RELI 486. Mutually Exclusive: Cannot register for RELI 586 if student has credit for RELI 486.

RELI 587 - WESTERN ESOTERICISM: METHOD AND THEORY
Short Title: WESTERN ESOTERICISM
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the methodological approaches emerging as Esotericism is constructed as an academic area. Extra readings and writing a longer essay is required in RELI 587. Graduate/Undergraduate Equivalency: RELI 387. Mutually Exclusive: Cannot register for RELI 587 if student has credit for RELI 387.

RELI 588 - THE HISTORY OF RELIGIONS SCHOOL
Short Title: HISTORY OF RELIGIONS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An historical survey of the History of Religions School that emerged in the 1960s and 70s at the University of Chicago and came to play such an important role in the comparative study of religion. Graduate Students will have twice the reading and will require a longer paper. Graduate/Undergraduate Equivalency: RELI 488. Mutually Exclusive: Cannot register for RELI 588 if student has credit for RELI 488.

RELI 589 - MUTANTS AND MYSTICS: RACE, SEXUALITY, AND THE FUTURE OF THE HUMANITIES
Short Title: MUTANTS AND MYSTICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores the intersection of race, sexuality, and religion in contemporary society. We will see that such events tend to erupt in the “gaps” or “fractures” of society and within both personal and historical dramatic contexts in order to both deconstruct the reigning social formations, epistemologies, and ontologies—usually of an objectivizing, colonizing, and scientistic nature—but also supply the numinous foundations for the imagining of new humanities, or what queer theorist Ramzi Fawaz calls our emerging “mutanity.” Graduate/Undergraduate Equivalency: RELI 393. Mutually Exclusive: Cannot register for RELI 589 if student has credit for RELI 393.

RELI 590 - AFRICAN AMERICAN LITERATURE AND RELIGION
Short Title: AF/AM LITERATURE & RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this seminar students will read and analyze African American literature in order to explore the various ways in which African Americans have understood and articulated the nature and meaning of African American religious experience and practice. Graduate/Undergraduate Equivalency: RELI 490. Mutually Exclusive: Cannot register for RELI 590 if student has credit for RELI 490.

RELI 591 - BASIC COPTIC 1
Short Title: BASIC COPTIC 1
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): RELI 307
Description: A first semester introduction to Coptic grammar and vocabulary. Select a Coptic text, read in its original language, and prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 307. Mutually Exclusive: Cannot register for RELI 591 if student has credit for RELI 307.

RELI 592 - BASIC COPTIC 2
Short Title: BASIC COPTIC 2
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): RELI 307
Description: Second semester introduction to Coptic grammar and vocabulary, with selected readings from the Coptic New Testament, Nag Hammadi, and monastic literature. Pre-requisite: Introduction to Coptic Language I RELI 592. Select a Coptic text, read in its original language, and prepare a commentary or a exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 308. Mutually Exclusive: Cannot register for RELI 592 if student has credit for RELI 308.

RELI 593 - BASIC COPTIC 3
Short Title: BASIC COPTIC 3
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Varied readings in original language to include the New Testament, Nag Hammadi, and monastic literature. Pre-requisite: Coptic 1 and 2. RELI 593: Students will select a Coptic text, and in addition to reading it in its original language, prepare a commentary or an exegesis on that text (5,000 words). Graduate/Undergraduate Equivalency: RELI 309. Mutually Exclusive: Cannot register for RELI 593 if student has credit for RELI 309. Repeatable for Credit.
**RELI 595 - PENTECOSTALISM**  
**Short Title:** PENTECOSTALISM  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Graduate study and analysis of introduction to Pentecostalism in a global context focusing historical developments, expansion in Europe, North America, Africa, Latin America and Asia. Graduate students will read 4 additional texts one from East, Central, West, and Southern Africa. Graduate students will write weekly reflections on the reading to the braded satisfactory or unsatisfactory. They will do two presentations during the semester. Each student will write a research paper that will be at least 25 double spaced pages. Graduate/Undergraduate Equivalency: RELI 396. Mutually Exclusive: Cannot register for RELI 595 if student has credit for RELI 396.  

**RELI 596 - THE LEGAL FRAMEWORK OF RELIGIOUS TOLERANCE**  
**Short Title:** LEGAL FRMWK RELI TOLERANCE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The American Constitution embodies a complex experiment in religious tolerance, including the promise of "free exercise of religion" and the prohibition of laws "respecting an establishment of religion". In this class we will primarily seek a critical understanding of our tolerance-rich legal invocations of religious freedom and address fundamental issues such as how can we distinguish "religious" actions and commitments from other morally important beliefs and activities. RELI 596: Write additional paper and more readings. Mutually Exclusive: Cannot register for RELI 596 if student has credit for RELI 320.  

**RELI 597 - CONTEMPLATIVE PRACTICE**  
**Short Title:** CONTEMPLATIVE PRACTICE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Activity Course  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Literary and artistic creativity, religious experience, and textual interpretation often draw on focused states of consciousness made possible by contemplative practices. The practice will provide historical information about such practices and offer opportunities to participate in techniques ranging from meditation and observing breath to freeform writing and T’ai Chi. Graduate students would be expected to write a longer paper and/or to include a segment on contemplative practice in connection with whatever course they are taking. In either case this will involve readings and issues beyond what the undergraduates are responsible for, and which will be developed with each graduate student on an individual basis. Graduate/Undergraduate Equivalency: RELI 399. Mutually Exclusive: Cannot register for RELI 597 if student has credit for RELI 399. Repeatable for Credit.

**RELI 600 - GEM RESEARCH FORUM**  
**Short Title:** GEM RESEARCH FORUM  
**Department:** Religion  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The GEM Research Forum meets regularly throughout the academic year to share and engage the ongoing research of the GEM faculty and students. The annual capstone experience of the Forum features an invited speaker. Evaluation is based on student participation, research and presentations. Repeatable for Credit.  

**RELI 604 - FROM DECOLONIZATION TO GLOBALIZATION**  
**Short Title:** FROM DECOLONI TO GLOBALIZATION  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Taught in English. Novels, and films, from North and West Africa, and the immigrant population in France, from 1960 to 2010. Emphasis on the tensions between narratives of political emancipation, modernity, secularism, and religious fundamentalism and mysticism. Extra reading for graduate students in theories of colonialism, postcolonialism, globalization. Graduate/Undergraduate Equivalency: RELI 476. Recommended Prerequisite(s): Any 200 level course or above in English or French, or HUMA 101 or HUMA 102, or a FWIS course. Mutually Exclusive: Cannot register for RELI 604 if student has credit for FREN 324/POLI 324/RELI 476.  

**RELI 606 - READING WRIGHT: THEISM AND ATHEISM IN THE WRITINGS OF RICHARD WRIGHT**  
**Short Title:** READING RICHARD WRIGHT  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Richard Wright’s fiction and nonfiction are important resources for understanding the nature of radicalized life in the United States. This course explores his writings for what they tell us about the role of religion in the development of identity and life meaning, and how we juxtapose the role of religion with Wright’s commentary on the nature and significance of atheism for countering injustice. RELI 606 requires additional reflection papers, longer research paper and class presentations. Graduate/Undergraduate Equivalency: RELI 369. Mutually Exclusive: Cannot register for RELI 606 if student has credit for RELI 369.
RELI 607 - ARCHIVES OF THE IMPOSSIBLE
Short Title: ARCHIVES OF THE IMPOSSIBLE
Department: Religion
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: After reading Prof. Kripal's Authors of the Impossible as a basic theoretical structure for the semester, this advanced archival research seminar will involve students engaging original historical documents contained in Rice University's archive on Paranormal Currents in American Culture toward the writing of a graduate or undergraduate thesis. Graduate students will be responsible for a much more extensive engagement with Whitley Strieber's corpus. They will be required to read examples of Stieber's nonfiction (particularly COMMUNION and THE AFTERLIFE REVOLUTION) and fiction, including WOLFEN, THE GRAYS, and THE HYBRIDS. Each of these books bears directly or indirectly on the content of the Anne and Whitley Strieber Collection. Graduate/ Undergraduate Equivalency: RELI 407. Mutually Exclusive: Cannot register for RELI 607 if student has credit for RELI 407.

RELI 610 - CONCEPTS IN THE STUDY OF RELIGION
Short Title: CONCEPTS IN RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course serves as an advanced introduction to useful concepts and key methodological problems in the discipline of religious studies. The primary aim of the course is to provide a theoretical toolkit for graduate students at the Masters level and advanced undergraduates, especially those contemplating or engaged in an honors or MA thesis in the department of Religion. Graduate work includes extended writing assignments and exam. Graduate/Undergraduate Equivalency: RELI 410. Mutually Exclusive: Cannot register for RELI 610 if student has credit for RELI 405.

RELI 612 - THE PSALMS
Short Title: THE PSALMS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar on biblical poetry. The Psalms have constituted a book of study, devotion, and prayer for Jews and Christians for two millennia. This course explores the psalms' poetic force, liturgical setting in ancient Israel, theology, and enduring significance today. Counts for the Minor in Jewish Studies. RELI 612: Additional readings and longer paper. Graduate/Undergraduate Equivalency: RELI 388. Mutually Exclusive: Cannot register for RELI 612 if student has credit for RELI 388.

RELI 614 - THE RICE/LEIPZIG SEMINAR ON EARLY JUDAISM AND CHRISTIAN ORIGINS
Short Title: THE RICE/LEIPZIG SEMINAR
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate seminar on Early Judaism and Christian Origins taught jointly by Dr. Matthias Henze (Rice) and Dr. Jens Herzer (University of Leipzig, Germany). Participation is by invitation only. Instructor Permission Required.

RELI 615 - SECRET RELIGION
Short Title: SECRET RELIGION
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Examines religious currents that operate in the margins of traditional religion: the gnostic, esoteric and mystical. Covers how these categories were theorized. Explores how they continue to identify contemporary religious currents that are considered transgressive and are rejected by conventional religious authorities. Class is grounded in antiquity and historical method. RELI 615: Write 7,500-10,000 word research paper. Graduate/Undergraduate Equivalency: RELI 415. Mutually Exclusive: Cannot register for RELI 615 if student has credit for RELI 415.

RELI 616 - NEW TESTAMENT/CHRISTIAN ORIGINS
Short Title: NEW TESTAMENT/CHRISTIAN ORIG
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How did Christianity emerge as a new religious movement in the Roman Empire? Covers the history and literature of the first generations of Christians, focusing on Post-Temple developments, issues of authority and leadership, rise of regional forms of Christianity, and formation of distinct Christian identities. Graduate requirements: additional writings and presentations. Graduate/Undergraduate Equivalency: RELI 416. Mutually Exclusive: Cannot register for RELI 616 if student has credit for RELI 416.
### RELI 619 - MYSTERY RELIGIONS
**Short Title:** MYSTERY RELIGIONS  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Covers literature, practices, and archaeology of esoteric cults within the context of religion in Roman Empire (Demeter, the Great Gods, Cybele, Persephone, Dionysus, Isis, Mithras, Hermes, Quanam, Christianity, Gnostic groups). Case studies vary depending on students’ research goals, including comparison with Renaissance and modern esoteric initiatory groups. 7500-word research paper; UG equivalent 5000-word research paper. Graduate/Undergraduate Equivalency: RELI 419. Mutually Exclusive: Cannot register for RELI 619 if student has credit for RELI 419/RELI 491.

### RELI 620 - ART OF INTERPRETING THE BIBLE
**Short Title:** ART OF INTERPRETING THE BIBLE  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Explores issues of history, historiography, and hermeneutics within the context of Biblical Studies. While traditional forms of Biblical criticism are covered, the bulk of the course focuses on intertextuality, reception history, sociological methods, feminist views, and cognitive approaches. Graduate students (7500 word paper, seminar leadership, and oral presentation); Undergraduate students (5000 word paper and oral presentation). Graduate/Undergraduate Equivalency: RELI 420.

### RELI 644 - VISIONS AND VISIONARY PRACTICES: MEDIEVAL TO MODERN
**Short Title:** VISIONS & VISIONARY PRACTICES  
**Department:** Religion  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course examines accounts of visions, comparing medieval and modern visionary techniques and processes and relating visionary writings to cultural and personal contexts. Includes some Christian theology along with other theoretical frameworks, but emphasis on praxis. Graduate work includes 10 additional readings (200 pp), double the pages to be written, 30 more minutes presentation time. Graduate/Undergraduate Equivalency: RELI 444. Mutually Exclusive: Cannot register for RELI 644 if student has credit for RELI 444.

### RELI 700 - RESEARCH FOR COMPREHENSIVE EXAMS
**Short Title:** RESEARCH FOR COMP EXAMS  
**Department:** Religion  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-12  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Repeatable for Credit.

### RELI 710 - CHRISTIAN ORIGINS READING AND RESEARCH GROUP
**Short Title:** XIAN ORIGINS READ/RESEARCH GRP  
**Department:** Religion  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Advanced research and reading group for graduate students studying Christian Origins. Topics vary. Instructor Permission Required. Repeatable for Credit.

### RELI 800 - RESEARCH FOR DISSERTATION
**Short Title:** RESEARCH FOR DISSERTATION  
**Department:** Religion  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** (no change to be made to course catalog description) Repeatable for Credit.

### RELI 801 - RESEARCH FOR M.A. THESIS
**Short Title:** RESEARCH FOR MA THESIS  
**Department:** Religion  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 3-9  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Students work independently researching and writing their thesis. Repeatable for Credit.

### Russian (RUSS)

#### RUSS 141 - FIRST YEAR RUSSIAN I
**Short Title:** FIRST YEAR RUSSIAN I  
**Department:** Cntr Lang & Intercultural Comm  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Lower-Level  
**Description:** Development of interactional competence in Russian (sociolinguistic and sociocultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. No prior knowledge of this language is necessary. Placement Test is required. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for RUSS 141 if student has credit for RUSS 222.
RUSS 142 - FIRST YEAR RUSSIAN II
Short Title: FIRST YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RUSS 141
Description: Continuation of RUSS 141. Development of interactional competence in Russian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for RUSS 142 if student has credit for RUSS 262.

RUSS 222 - AP/OTH CREDIT IN RUSSIAN LANGUAGE
Short Title: AP/OTH CREDIT RUSSIAN LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for RUSS 222 if student has credit for RUSS 141. Mutually Exclusive: Cannot register for RUSS 222 if student has credit for RUSS 141.

RUSS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

RUSS 263 - SECOND YEAR RUSSIAN I
Short Title: SECOND YEAR RUSSIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RUSS 142
Description: Continuation of RUSS 142. Development of interactional competence in Russian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for RUSS 263 if student has credit for RUSS 201.

RUSS 264 - SECOND YEAR RUSSIAN II
Short Title: SECOND YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): RUSS 263
Description: Continuation of RUSS 263. Development of interactional competence in Russian (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Russian. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Mutually Exclusive: Cannot register for RUSS 264 if student has credit for RUSS 202.

RUSS 301 - THIRD YEAR RUSSIAN I
Short Title: THIRD YEAR RUSSIAN I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RUSS 264
Description: Continuation of RUSS 264. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.
RUSS 302 - THIRD YEAR RUSSIAN II
Short Title: THIRD YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RUSS 301
Description: Continuation of RUSS 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

RUSS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SOPE 501 - INTRODUCTION TO PUBLIC POLICY
Short Title: INTRODUCTION TO PUBLIC POLICY
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation methods of program evaluation. The associated lab provides concrete examples for the students to gain practical experience in applying these methods. The methods presented will include: Randomized Controlled Trials, Instrumental Variables, Difference in Difference, Propensity Score Matching, and Regression Discontinuity Design. At the end of this course, students should be able to use these methods to conduct impact evaluations of social programs and do a critical assessment of evaluations performed by others.

Social Policy Evaluation (SOPE)

RUSS 302 - THIRD YEAR RUSSIAN II
Short Title: THIRD YEAR RUSSIAN II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RUSS 301
Description: Continuation of RUSS 301. Emphasis on developing reading and writing ability as more authentic materials and socio-cultural topics are introduced.

RUSS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SOPE 501 - INTRODUCTION TO PUBLIC POLICY
Short Title: INTRODUCTION TO PUBLIC POLICY
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation methods of program evaluation. The associated lab provides concrete examples for the students to gain practical experience in applying these methods. The methods presented will include: Randomized Controlled Trials, Instrumental Variables, Difference in Difference, Propensity Score Matching, and Regression Discontinuity Design. At the end of this course, students should be able to use these methods to conduct impact evaluations of social programs and do a critical assessment of evaluations performed by others.

SOPE 502 - APPLICATIONS OF PROGRAM EVALUATION – CRIMINAL JUSTICE
Short Title: APPS IN PROG EVAL-CRIM JUSTIC
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation literature in the area of criminal justice. There are reform projects underway at every stage of the American criminal justice system. Understanding the impact of these reforms is crucial for the future of criminal justice in the United States. We will study policies and interventions at various stages of criminal justice, from policing to reintegration.

SOPE 503 - QUANTITATIVE METHODS FOR PROGRAM EVALUATION
Short Title: QUANT METHODS FOR PROG EVAL
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 5
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course provides an in-depth introduction to the methods of program evaluation. The associated lab provides concrete examples for the students to gain practical experience in applying these methods. The methods presented will include: Randomized Controlled Trials, Instrumental Variables, Difference in Difference, Propensity Score Matching, and Regression Discontinuity Design. At the end of this course, students should be able to use these methods to conduct impact evaluations of social programs and do a critical assessment of evaluations performed by others.

SOPE 504 - APPLICATIONS OF PROGRAM EVALUATION – LABOR MARKETS
Short Title: APPS IN PROG EVAL-LABOR
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation literature in the area of labor markets. Students will critically read existing evaluations of labor market policies and evaluate for various types of validity and for generalization, draw on methodological best practices and apply empirical tools to their own evaluations of labor market policies, identify and access important datasets commonly used in influential employment-related research, and discuss with policy professionals the salience, outcomes, workings, and broader context of a variety of public programs designed to improve labor markets.

2021-2022 General Announcements PDF Generated 09/22/21
SOPE 505 - MICROECONOMICS FOR POLICY EVALUATION
Short Title: MICROECONOMICS FOR POLICY EVAL
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course will introduce students to economic principles and tools relevant for policy analysis. The course covers topics such as household decision-making, the economics of information, risk and uncertainty, markets and market structure, externalities and other types of market failure, behavioral economics, game theory, and welfare economics. Students will see how the application of economic theory to policy questions informs and guides social policy analysis.

SOPE 506 - APPLICATIONS OF PROGRAM EVALUATION – HEALTH
Short Title: APPS IN PROG EVAL: HEALTH
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: Public health and healthcare service delivery play a crucial role in shaping population health and in influencing health systems at the federal, state, regional, and local levels. The ability to systematically and critically assess the health program evaluation literature is requisite for understanding how to identify and implement effective, evidence-based legislation, policies, and reforms. This course will provide a framework for analyzing the evidence base for public health programs and interventions, and will help students understand how such programs and interventions can impact health policy and affect the health of populations and individuals.

SOPE 508 - APPLICATIONS OF PROGRAM EVALUATION – EARLY CHILDHOOD AND YOUTH DEVELOPMENT
Short Title: APPS IN PROG EVAL: CHILD DEV
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This course introduces students to the program evaluation literature in the area of early childhood education. In recent years, significant investments have been made in increasing and improving early learning opportunities for children. The course will provide students with an understanding of the evidence on the extent to which early childhood education program offerings have long term impacts on later success. It will examine the policy contexts of early childhood education and discuss the importance of using evidence in driving decision making at all policy levels, from school districts to the U.S. Department of Education. It will also examine the role of family in children’s educational experiences.

SOPE 510 - RESEARCH-PRACTICE PARTNERSHIPS
Short Title: RESEARCH-PRACTICE PARTNERSHIPS
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a foundational understanding of research-practice partnerships (RPPs) in education, an emerging way for education researchers and practitioners to work together on pressing problems of practice. Topics include launching an RPP, theories of action, supporting research use, communications, sustainability, and measuring RPP effectiveness. Cross-list: SOCI 521.

SOPE 512 - POLICY EVALUATION CODING AND SOFTWARE LAB
Short Title: CODING AND SOFTWARE LAB
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: This lab course introduces students to relevant programming languages and enhances their knowledge of statistical software packages.

SOPE 513 - SOCIAL POLICY EVALUATION PRACTICUM I
Short Title: MSPE EVALUATION PRACTICUM I
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: The practicum project asks students to integrate and synthesize many components of the curriculum by undertaking a major social policy evaluation project of value to an external client from the Texas Policy Lab, HERC or other university research center. During the project, students engage in the entire process of solving a real-world evaluation project. Students will produce IRB documents, write a literature review, clean data and propose an analysis.

SOPE 514 - SOCIAL POLICY EVALUATION PRACTICUM II
Short Title: MSPE PRACTICUM II
Department: Social Policy Evaluation
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students. Enrollment limited to students in a Master of Social Policy Eval degree.
Course Level: Graduate
Description: A continuation of SOPE 513, the student will perform their proposed analysis and write a final report. The report must address both the strengths and weaknesses of the analysis and clearly state the conclusions that can be drawn.
Social Sciences (SOSC)

SOSC 221 - PROFESSIONAL EXCELLENCE FOR SOCIAL SCIENCES MAJORS
Short Title: PROF EXCELLENCE FOR SS MAJORS
Department: Social Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Guided professional internship course for social sciences majors. Instructor Permission Required.

SOSC 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

SOSC 250 - THINKING DIFFERENTLY: NEW APPROACHES TO IDEAS, PEOPLE, SOLUTIONS AND PROBLEMS
Short Title: THINKING DIFFERENTLY
Department: Social Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: This class meets select Wednesdays from 4-5 PM followed by small group discussion. The class explores changes in the economy and information technology that give rise to questions about the future of ideas, work and careers, identity and relationships, and solutions and problems. Repeatable for Credit.
Course URL: freestylerice.org (http://freestylerice.org)

SOSC 300 - BAKER INSTITUTE INTRODUCTION TO PUBLIC POLICY
Short Title: INTRODUCTION TO PUBLIC POLICY
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Taught by Baker Institute Fellow, this course is designed to introduce students to the field of public policy as well as to important policy issues. Topic areas include the Middle East, China, Mexico, energy security, environmental challenges, globalization, health policy, tax policy, and Texas and Houston politics.

SOSC 301 - POLICY ANALYSIS
Short Title: POLICY ANALYSIS
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOSC 302 or STAT 310 or STAT 315 or DSCI 301 or ECON 307
Description: Familiarizes students with the analytical tools necessary for evaluating and analyzing public policies. Cross-list: POLI 338. Mutually Exclusive: Cannot register for SOSC 301 if student has credit for POST 338.

SOSC 302 - QUANTITATIVE ANALYSIS FOR THE SOCIAL SCIENCES
Short Title: SOCIAL SCIENCES STATISTICS
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to quantitative methods and analysis that emphasizes the practical use of statistics to address research questions in the social sciences. Includes univariate, bivariate, and multivariate analysis in correlational and experimental designs. Students must also enroll in one of three separate lab sections: political science (POLI 102), psychology (PSYC 102), or sociology (SOCI 102).

SOSC 303 - QUALITATIVE METHODS IN THE SOCIAL SCIENCES
Short Title: QUALITATIVE METHODS
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course presents a series of questions surrounding qualitative methods and ethnographic research in the social sciences, centering on three essential research components: design, data collect, and analysis. Students will engage with qualitative methods of inquiry through a hands-on approach to collecting and analyzing data. Repeatable for Credit.
SOC 322 - GATEWAY STUDY OF LEADERSHIP I
Short Title: GATEWAY STUDY OF LEADERSHIP I
Department: Social Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The Gateway Study of Leadership is a student-led research cohort based in the School of Social Sciences that focuses on leadership and power dynamics within academia as well as common themes in the professional development of faculty members. Students enrolled in the program will perform qualitative research through conducting and transcribing interviews with faculty members. Students will also develop their own leadership skills by attending breakfasts and lunches with prominent leaders in the Rice community and participating in retreats and workshops. Instructor Permission Required. Repeatable for Credit.

SOC 323 - GATEWAY STUDY OF LEADERSHIP II
Short Title: GATEWAY OF LEADERSHIP II
Department: Social Sciences Division
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of the Gateway of Leadership from the fall semester. Students will continue to develop their own leadership skills by attending breakfasts and lunches with prominent leaders in the Rice community. After having conducted and transcribed interviews in the fall, students will code these interviews for common themes. Compiled research will be published as the "Turning Points" booklet series by the School of Social Sciences. Students will further produce a research paper and a poster to be presented the rice Undergraduate Research Symposium. Instructor Permission Required. Repeatable for Credit.

SOC 330 - HEALTH CARE REFORM IN THE 50 STATES
Short Title: HEALTH CARE REFORM IN U.S.
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examination of those states that have undertaken comprehensive health system reform, have carried out more limited revisions, or have failed to even begin the process, assessing successes and failures. Includes general theories of state-federal relationships and the role of the federal government in state health reform.

SOC 405 - LAW PRACTICUM
Short Title: LAW PRACTICUM
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will participate in a semester-long "practicum" with a sitting judge (federal, or Texas appellate) in Houston. This program is designed to give select Rice undergraduates a broad and practical introduction to what lawyers do in court and how judges and the law clerks who work with them think about the questions they are asked to resolve. Instructor Permission Required. Mutually Exclusive: Cannot register for SOC 405 if student has credit for PLST 401. Repeatable for Credit.

SOC 406 - JUDICIAL PRACTICUM
Short Title: JUDICIAL PRACTICUM
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will participate in a semester-long "practicum" with a sitting judge (federal, or Texas appellate) in Houston. This program is designed to give select Rice undergraduates a broad and practical introduction to what lawyers do in court and how judges and the law clerks who work with them think about the questions they are asked to resolve. Instructor Permission Required. Mutually Exclusive: Cannot register for SOC 406 if student has credit for PLST 402.

SOC 423 - FALL MEDICAL RESEARCH INTERNSHIP
Short Title: FALL MEDICAL RESEARCH INTERN
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Internship with a faculty member at Baylor College of Medicine (BCM) centering on a medical research topic involving the Social Sciences. Student-interns will spend up to 10 hours/week at BCM and will be required to submit a written report, evaluations and an example of research products (research posters, abstracts, paper drafts, manuscripts, etc.) both to their supervisor and the Office of the Dean of Social Sciences. Enrollment is limited to Rice undergraduate students who have declared a major within the School of Social Sciences and have been approved for participation in the internship partnership between Rice and BCM. Written approval of the research supervisor and the Dean of Undergraduates must be received by the Office of the Dean of Social Sciences at least 2 weeks prior to the start of classes. Instructor Permission Required.
SOSC 424 - SPRING MEDICAL RESEARCH INTERNSHIP
Short Title: SPRING MEDICAL RESEARCH INTERN
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Internship with a faculty member at Baylor College of Medicine (BCM) centering on a medical research topic involving the Social Sciences. Student-interns will spend up to 10 hours/week at BCM and will be required to submit a written report, evaluations and an example of research products (research posters, abstracts, paper drafts, manuscripts, etc.) both to their supervisor and the Office of the Dean of Social Sciences. Enrollment is limited to Rice undergraduate students who have declared a major within the School of Social Sciences and have been approved for participation in the internship partnership between Rice and BCM. Written approval of the research supervisor and the Dean of Undergraduates must be received by the Office of the Dean of Social Sciences at least 2 weeks prior to the start of classes. Department Permission Required.

SOSC 444 - CONSULTING PRACTICUM
Short Title: CONSULTING PRACTICUM
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in the Consulting Practicum learn the elements of problem solving in the business environment. Project teams interact with businesses or non-profit organizations seeking creative solutions to challenges they face. The course offers experiential learning on all project phases from investigation and analysis through presentation of recommendations designed to meet real-world needs. Department Permission Required. Repeatable for Credit.

SOSC 445 - FINANCE AND BANKING PRACTICUM
Short Title: FINANCE PRACTICUM
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to give interested students first-hand knowledge of the banking and financial services industry and its role in the global economy. Topics include business analysis, credit analysis, risk management, investment banking, commercial real estate and private equity and venture capital. Additionally students will explore the tools and techniques used by the financial industry such as Excel, Bloomberg, MATLAB, and SQL. The course comprises both classroom meetings and a 10-hour per week on-site experience, including opportunities to shadow key stakeholders. Instructor Permission Required. Repeatable for Credit.

SOSC 464 - SOCIAL ENTREPRENEURSHIP
Short Title: SOCIAL ENTREPRENEURSHIP
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to contemporary concepts, debates, and contexts necessary for analyzing and engaging in the sphere of social entrepreneurship. The course has four distinct parts: social context; organizational forms and collaborations; private sector roles; and measurement and impacts. Various aspects of social entrepreneurship, such as base of the pyramid/microenterprises, private-public partnerships, private-governmental partnerships, voluntary social codes, corporate social responsibility, and ethical consumerism will be covered. From this foundation, students will undertake a social entrepreneurship project about a contemporary social problem in Houston: food insecurity and food deserts. Cross-list: BUSI 464, GLHT 464.

SOSC 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Social Sciences Division
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Sociology (SOCI)

SOCI 101 - INTRODUCTION TO SOCIOLOGY
Short Title: INTRODUCTION TO SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the principal concepts, theories and methods of sociology. Required (normally) for sociology majors and minors. Enrollment in section 003 of this course is reserved for new matriculants only.
SOCI 231 - SOCIAL PROBLEMS
Short Title: SOCIAL PROBLEMS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course will confront “social problems” in everyday life by focusing on contemporary issues, situations, behaviors, and ideas in national and international contexts. The course will focus primarily on case studies in contemporary issues including racism, religion, politics, classism, sexism, and heterosexism. Mutually Exclusive: Cannot register for SOCI 231 if student has credit for SOCI 338.

SOCI 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Laboratory, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact Department for current semester’s topic(s). Repeatable for Credit.

SOCI 299 - EXPERIENTIAL EDUCATION IN SOCIOLOGY
Short Title: EXPERIENTIAL EDUCATION IN SOCI
Department: Sociology
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides one hour of university credit for faculty-directed and approved internship. Students must obtain approval from a member of the department’s undergraduate committee and must submit a letter from the internship provider indicating completion and satisfactory performance. Department Permission Required. Repeatable for Credit.

SOCI 301 - SOCIAL INEQUALITY
Short Title: SOCIAL INEQUALITY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates the causes and consequences of social inequality in the U.S., focusing on inequality by class, race, and gender. We will discuss different measures of inequality, the extent of inequality, as well as classical and modern theories for why it has been increasing since the 1970s. In addition, we will discuss how much inequality is justifiable and which redistributive programs work.

SOCI 302 - THE SOCIOLOGICAL IMAGINATION
Short Title: THE SOCIOLOGICAL IMAGINATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students in this course will examine the research questions sociologist ask, the methods they use, and how they draw evidence-based conclusions by reading and critically evaluating some of the most critically acclaimed books in the field. Mutually Exclusive: Cannot register for SOCI 302 if student has credit for SOCI 201.

SOCI 304 - ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE
Short Title: ENVIRON ISSUES: RICE IN FUTURE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students use the campus as a laboratory for learning about sustainability through group projects to reduce Rice’s environmental impact or resolve environmental issues. Cross-list: ENST 302.

SOCI 306 - SOCIOLOGY OF GENDER
Short Title: SOCIOLOGY OF GENDER
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Relationship between gender and social role. Development of the contemporary sexual division of labor and process of socialization with reference to family, education, media, and occupations. Cross-list: SWGS 324.
SOCI 308 - HOUSTON: THE SOCIOLOGY OF A CITY
Short Title: HOUSTON: SOCIOLOGY OF A CITY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Houston as an exemplar of contemporary urban change. The "golden buckle of the sunbelt"; recovery from the oil boom collapse of the 1980s into a restructuring economy and a demographic revolution; the changing politics of education, quality-of-life issues, and interethnic relations, as they interact to shape the urban future. Guest lectures, field trips.

SOCI 309 - RACE AND ETHNIC RELATIONS
Short Title: RACE & ETHNIC RELATIONS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical and contemporary issues and theories of race and ethnic relations in the United States. The key groups covered will be European Americans, African Americans, Native Americans, Asian Americans, and Mexican Americans. Group patterns of assimilation and conflict inform a basic tenet that race and ethnicity are organizing features of society.

SOCI 310 - URBAN SOCIOLOGY
Short Title: URBAN SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of urban development, form, and heterogeneity; and the conditions of life associated with living in cities. Examines the rise of cities, their growth and purposes in the U.S. and internationally. Examines behavioral adaptations required by city life, and considers urban subcultures.

SOCI 313 - DEMOGRAPHY
Short Title: DEMOGRAPHY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the study of the dynamics of population change. Includes demographic data sources, components of population change, mortality patterns, family planning, the measurement of migration flows, and population-economic models. Graduate/Undergraduate Equivalency: SOCI 513. Mutually Exclusive: Cannot register for SOCI 313 if student has credit for SOCI 513.

SOCI 314 - SCIENCE AT RISK? OUT OF THE LAB AND INTO PUBLIC SPHERE
Short Title: SCIENCE AT RISK
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What happens when science enters the public sphere and when the public sphere enters science? Through the lens of sociology (alongside other disciplines) we will examine some of the most controversial issues facing science today, including biotechnology, science and religion, US knowledge of science, the need to increase the race and gender diversity of the science workforce and corporate funding of science. This course is welcome to students from all majors. It has no prerequisites.

SOCI 316 - ENVIRONMENTAL FILM
Short Title: ENVIRONMENTAL FILM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the ways film represents the environment and environmental issues (food, water, energy, waste, environmental justice, sustainability), and both expresses and shapes environmental values. We will view and analyze a variety of genres, as well as reading supplementary material.
SOCI 319 - SOCIOLOGY OF WORK AND OCCUPATIONS
Short Title: WORK AND OCCUPATIONS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Work is a central part of our lives. We will examine how work is structured in occupations and industries and how it changes over time. We will focus on understanding the lives of workers: work and inequalities between men and women, racial/ethnic inequalities, and relations between work and family.

SOCI 320 - SOCIAL MOVEMENTS
Short Title: SOCIAL MOVEMENTS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore some of the main themes and theories in the study of social movements. Using sociological concepts, we examine a variety of movements in the United States and beyond and explore the ways in which social movements are studied, discussed, and understood in sociological literature.

SOCI 321 - CRIMINOLOGY
Short Title: CRIMINOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of criminal behavior. Includes social construction of crime, elementary forms of crime, empirical patterns of crime, and theories of crime. Field work required.

SOCI 325 - SOCIOLOGY OF LAW
Short Title: SOCIOLOGY OF LAW
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore law and legality utilizing a sociological perspective. We place law within its social and political context, and examine how law influences everyday life. We explore sociological theories of law, empirical studies of law, legal institutions, and how social characteristics influence legal outcomes. Fieldwork required.

SOCI 327 - SUPERVISED RESEARCH I
Short Title: SUPERVISED RESEARCH I
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers the opportunity to work with a faculty member on that faculty member's existing research project. The course involves intensive pedagogy and mentoring including a pedagogical plan developed in conjunction with the sponsoring faculty member. Instructor Permission Required.

SOCI 328 - SUPERVISED RESEARCH II
Short Title: SUPERVISED RESEARCH II
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course offers the opportunity to work with a faculty member on that faculty member's existing research project. The course involves intensive pedagogy and mentoring including a pedagogical plan developed in conjunction with the sponsoring faculty member. Please contact the Department for a description of the section you are registering for. Instructor Permission Required.

SOCI 329 - MULTIRACIAL AMERICA
Short Title: MULTIRACIAL AMERICA
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Multiracial America examines the phenomenon of race mixing (e.g. interracial interaction, multiracial identity) from a sociological perspective. The course covers the legal, political, and cultural contexts of interracial interaction and how these impact current understanding of what it means to be "mixed race." Recommended Prerequisite(s): SOCI 101

SOCI 333 - SOCIOLOGY OF RELIGION
Short Title: SOCIOLOGY OF RELIGION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of religious beliefs, symbols, actions, organizations, roles, and various interrelationships between religion and society. Includes new religious movements, secularization, and fundamentalism. Field work required.
SOCI 334 - SOCIOLOGY OF THE FAMILY
Short Title: SOCIOLOGY OF THE FAMILY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will teach students the important influences and consequences of American family life. We will consider issues such as sex and sexualities, marriage and cohabitation, divorce, family structure, same-sex marriage, domestic violence, and household labor. We will also examine the role of social institutions and social inequality in shaping family norms and constraints on family behaviors. Cross-list: SWGS 325.

SOCI 340 - SOCIOLOGY OF IMMIGRATION
Short Title: SOCIOLOGY OF IMMIGRATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Sociology of Immigration traces the migration process from initiation through its long-term consequences using theories of initiation (e.g. economic and sociological models) and adaptation (e.g. segmented assimilation, new assimilation theory). It also explores the effects of immigration policies.

SOCI 341 - QUALITATIVE RESEARCH METHODS
Short Title: QUALITATIVE RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines qualitative methodological approaches for conducting social science research. Particularly, students will examine how qualitative methods allow social scientists to analyze the symbolic, religious, gendered, socio-economic, policies and historical forces and contexts that underlie and motivate beliefs, ideologies, practices and social change. Graduate/Undergraduate Equivalency: SOCI 541. Mutually Exclusive: Cannot register for SOCI 341 if student has credit for SOCI 541.

SOCI 342 - SOCIOLOGY OF GLOBALIZATION
Short Title: SOCIOLOGY OF GLOBALIZATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores how the process of global integration transforms human life with specific emphasis on: the global economy and economic development; transnational political organizations; culture an identity; the effect of globalization on social stratification, including gender/race/ethnic inequalities; transnational migration; environmental change; and transnational social movements.

SOCI 343 - RACE, SOCIETY AND POPULATION CHANGE
Short Title: RACE, SOCIETY & POPULATION CHG
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The U.S. population is more diverse than ever before - how did that happen? This course looks at how race and ethnicity patterns demographic processes. This course explores demographic techniques and collection of racial data. Topics include: Roots of racial diversity, collecting racial data, immigration and population growth, and population policies. Graduate/Undergraduate Equivalency: SOCI 543. Mutually Exclusive: Cannot register for SOCI 343 if student has credit for SOCI 543.

SOCI 344 - SOCIOLOGY OF MENTAL HEALTH
Short Title: SOCIOLOGY OF MENTAL HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates the meaning and significance of mental health, with heavy emphasis on the social construction of mental illness; positive psychology and psychological well-being; psychiatric epidemiology; stigma and labeling; and culture and social control. Social determinants of mental health are also discussed.
SOCI 345 - MEDICAL SOCIOLOGY
Short Title: MEDICAL SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the relationship between social factors and health, illness, and mortality, with a heavy emphasis on experiences of illness, the doctor-patient relationship, and the socialization of medical students and new doctors. Social determinants of health, cultural determinants of health, and the ethics surrounding conception, birth, and death will also be discussed.

SOCI 348 - ORGANIZATIONAL SOCIOLOGY
Short Title: ORGANIZATIONAL SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: From congregations to corporations to colleges, organizations surround us. While the prominence of organizations in our daily lives is an indicator of their success, we know that organizations can be impersonal, unresponsive and even corrupt. This course will visit social scientists' best attempts to figure out what makes organizations tick.

SOCI 349 - CRIME, LAW & JUSTICE IN POPULAR CULTURE
Short Title: CRIME LAW JUSTICE IN POP CULT
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will critically explore cultural imaginaries of deviance, crime, law and justice. How are these portrayed (historically and contemporarily) in popular culture, including television, film, social media outlets, newspapers and magazines, novels, and ‘art.’ Well also interrogate has these images and portrayals interact with perceptions, personhood (identity), and policy.

SOCI 350 - URBAN TRANSPORTATION
Short Title: URBAN TRANSPORTATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Moving people and goods within cities is the stuff of legendary challenge and the life blood of urban areas. In this course we study the transportation systems used in European and US cities, examine advantages and disadvantages of different systems, and consider whether major transformations in urban transportation are on the horizon.

SOCI 358 - CRIME, PUNISHMENT AND SOCIETY
Short Title: CRIME, PUNISHMENT AND SOCIETY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A multi-faceted exploration of crime. We explore how crime is socially defined, perceived and portrayed. Next we analyze empirical patterns and theories of crime. Lastly, we examine societal responses, focusing on policing and punishment. Material will encompass both classical/foundational and contemporary scholarship, and a mix of empirical and theoretical work.

SOCI 363 - AFRICAN AMERICAN-JEWISH RELATIONS: RACE, RELIGION, POLITICS, AND POPULAR CULTURE
Short Title: AFRICAN AMER-JEWISH RELATIONS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines African American-Jewish relations in the United States from colonial times to the present day. Through readings, music, images, and films, we will explore constructions of racial identity, arenas of religious and cultural interaction, and the politics and politics that have shaped African American-Jewish relations in urban neighborhoods.
SOCI 364 - MUSLIMS IN AMERICAN SOCIETY  
**Short Title:** MUSLIMS IN AMERICAN SOCIETY  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course unearths the history of Muslims in America from the 15th century to present-day. Students will have the opportunity to explore the experiences of African, Middle Eastern, European, South Asian, Hispanic, and black/white Muslims. In studying these communities, students will question what it means to be Muslim in America.

SOCI 365 - POLITICS OF REPRESENTATION: HOW WE UNDERSTAND "WAR" AND "THE RACIAL OTHER"  
**Short Title:** POLITICS OF REPRESENTATION  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Does media show how things really are? This class explores the politics of representation, particularly in times of social mayhem, revolution, and war. Although we will focus primarily on cultural and political representations of the Israeli-Palestinian conflict, this class will also put this dispute in comparison with other global events. Cross-list: ANTH 365.

SOCI 366 - HOUSING AND SCHOOLS: THE SOCIAL LOCATIONS OF INEQUALITY  
**Short Title:** HOUSING AND SCHOOLS  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A persistent link between families' residential location and children's school enrollment in the U.S. plays a significant role in the perpetuation of social inequality. This course examines the factors that shape housing and school opportunities for families, and the policies and interventions attempting to change these opportunities.

SOCI 367 - ENVIRONMENTAL SOCIOLOGY  
**Short Title:** ENVIRONMENTAL SOCIOLOGY  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group II  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course focuses on the foundations of environmental sociology and takes a social and historical approach to examine how humans affect the environment and the environment affects humans. Topics include: agricultural sustainability, resource extraction and climate changes; environmental racism/sexism; globalization and development; population, and consumption, and environmental movements. Cross-list: ENST 367.

SOCI 368 - SOCIOLOGY OF DISASTER  
**Short Title:** SOCIOLOGY OF DISASTER  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course will cover social dimensions of disasters stemming from natural and human hazards. Emphasis will focus on social, economic and political forces that put people unequally at risk as well as how vulnerable social groups experience and adjust to these risks and associated hazards.

SOCI 369 - SOCIAL PSYCHOLOGY OF PREJUDICE  
**Short Title:** SOCIAL PSYCHOLOGY OF PREJUDICE  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course investigates the meaning, durability and significance of prejudice based upon social psychological literature addressing intergroup and interpersonal conflict and its resolution. Problems of relations between racial groups in contemporary society are also discussed.

SOCI 370 - ART AND ACTIVISM: CRITICAL STUDY OF HOPE IN TIMES OF CRISIS  
**Short Title:** ART AND ACTIVISM  
**Department:** Sociology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course explores art and social change in times of mass displacement, racial oppression, and war. It surveys the efforts involved in achieving justice and the possible implications of remaining historically mute and hopeless. The class will host contemporary activists and artists concerned with radical visions of hope in Houston. Cross-list: ANTH 376.
SOCI 377 - HEALTH DISPARITIES IN THE UNITED STATES
Short Title: HEALTH DISPARITIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will explore patterns and explanations surrounding health disparities in the United States based on key status characteristics (socioeconomic status, race/ethnic identity, nativity, gender, and sexual orientation). We will draw on interdisciplinary scholarship covering diverse fields (e.g., medical sociology, social demography, public health, public policy) and methodologies.

SOCI 380 - SOCIAL THEORY
Short Title: SOCIAL THEORY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course engages and analyzes the foundational texts of social theory from its classical roots to its contemporary branches. Students will explore theoretical approaches that inform current sociological research and during the course will examine social phenomena of particular interest to them from the perspective of two major theorists.

SOCI 381 - RESEARCH METHODS
Short Title: RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the methods sociologists use to study human societies and their members. Hypothesis formulation and research design; qualitative studies through observation and interviews; historical and comparative approaches; sample surveys and the statistical analysis of quantitative data, political and ethical issues in social research.

SOCI 382 - SOCIAL STATISTICS
Short Title: SOCIAL STATISTICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Emphasizes the practical uses of statistics to answer the types of questions sociologists ask. We learn sample description, sampling and probability, sampling theory, and how to make inferences from samples to populations. We study and apply common univariate, bivariate, and multivariate statistics. Because most statistical analysis is done with the aid of computers, we also learn how to use a common statistical package.

SOCI 389 - RACE, GENDER, CLASS IN FILM
Short Title: RACE, GENDER, CLASS IN FILM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores how race, gender, and class-based differences are presented in the body of American film. We will explore these images as raw materials to understand sociological concepts of identity, bias, and stratification as well as the cultural narratives, or frames, that guide how the public defines these concepts.

SOCI 396 - LAW AND RESISTANCE IN THE EVERYDAY
Short Title: LAW AND RESISTANCE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore how people interact with the law in their everyday lives – in the U.S. and elsewhere. Examples will include how individuals experience and respond to policing, examining the effects of immigration and border security policies, and tracing how people and groups mobilize to challenge laws perceived as unjust. Cross-list: ANTH 396.
SOCI 401 - RELIGION SEMINAR  
Short Title: RELIGION SEMINAR  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: A course that explores the theories, tools, concepts, and major debates that are central to the sociology of religion. Specific attention is devoted to religious practices, communities, and identities as well as how the sociology of religion relates to other sub-fields within the broader discipline. Instructor Permission Required. Graduate/Undergraduate Equivalency: SOCI 501. Mutually Exclusive: Cannot register for SOCI 401 if student has credit for SOCI 501.

SOCI 402 - RACE AND FAMILY SEMINAR  
Short Title: RACE AND FAMILY SEMINAR  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: What features of family life are marked by race? This course examines the question and gauges whether differences are a matter of culture or do they reflect issues of structure (or access to opportunities) and what are the implications for race/ethnic inequality? Topics include racial socialization and ethnic identity. Instructor Permission Required. Graduate/Undergraduate Equivalency: SOCI 502. Mutually Exclusive: Cannot register for SOCI 402 if student has credit for SOCI 502.

SOCI 403 - INDEPENDENT STUDY  
Short Title: INDEPENDENT STUDY  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Directed reading and written papers on subjects not regularly offered; advanced study of subjects on which courses are offered. Instructor Permission Required. Repeatable for Credit.

SOCI 404 - INDEPENDENT STUDY  
Short Title: INDEPENDENT STUDY  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Directed readings and essay writing on special subjects. Includes advanced study in subjects from other courses, if desired. Instructor Permission Required. Repeatable for Credit.

SOCI 405 - ETHNOGRAPHIC RESEARCH  
Short Title: ETHNOGRAPHIC RESEARCH  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Research  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Beginning with the theoretical frameworks for ethnographic and other qualitative research methods, the course will cover ethics, entry, observation, field notes, interviewing, data analysis, and writing reports. It will offer a hands-on approach combining lectures, research through lectures, readings, and fieldwork. Field projects can be conducted in group, classroom, campus, or community settings. Graduate/Undergraduate Equivalency: SOCI 505. Mutually Exclusive: Cannot register for SOCI 405 if student has credit for SOCI 505.

SOCI 406 - BASIC DEMOGRAPHIC TECHNIQUES  
Short Title: BASIC DEMOGRAPHIC TECHNIQUES  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: The course provides a survey of basic demographic methods for assessing population change, fertility, mortality, and (im)migration and characteristics such as age, gender, race/ethnicity, household/family composition, marital status, economic, employment, and educational. Emphasis placed on the use of the methods in a variety of demographic and other settings. Mutually Exclusive: Cannot register for SOCI 406 if student has credit for SOCI 506.

SOCI 407 - GENDER SEMINAR  
Short Title: GENDER SEMINAR  
Department: Sociology  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: An overview of the construction and reproduction of gender as a social category. Course will compare various conceptualizations of gender and discuss structural-, interactional-, and individual-level processes that reproduce gender inequality. Will also explore interactions of gender with other axes of social difference, such as sexuality, race/ethnicity and social class. Instructor Permission Required. Graduate/Undergraduate Equivalency: SOCI 607. Mutually Exclusive: Cannot register for SOCI 407 if student has credit for SOCI 607.
SOCI 408 - ETHNOGRAPHIC RESEARCH II
Short Title: ETHNOGRAPHIC RESEARCH II
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SOCI 405
Description: Continuation of theoretical frameworks for ethnographic and other qualitative research methods including ethics, entry, observation, field notes, interviewing, data analysis and writing reports. Field projects can be conducted in group, classroom, campus or community settings. Instructor Permission Required.

SOCI 409 - SOCIAL STRATIFICATION
Short Title: SOCIAL STRATIFICATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how scarce resources unequally distributed among individuals, groups, and societies. Social stratification is a key concept in sociology that examines income and wealth inequality, occupational and class hierarchies, inequality of educational opportunity, poverty, and the consequences of inequality. Examples will drawn from US and international cases. Graduate/Undergraduate Equivalency: SOCI 509. Mutually Exclusive: Cannot register for SOCI 409 if student has credit for SOCI 509.

SOCI 412 - PERSPECTIVES ON RELIGIOUS TOLERANCE IN AN INTOLERANT AGE
Short Title: UG SEMINAR RELIGIOUS TOLERANCE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How do we understand religious pluralism in the midst of religious traditions that seem inherently at odds? Is religion more likely to bring peace or conflict? Through readings form the humanities and the social sciences and short lectures, this weekly undergraduate seminar will address these issues and more. Graduate/Undergraduate Equivalency: SOCI 512. Mutually Exclusive: Cannot register for SOCI 412 if student has credit for SOCI 512.

SOCI 415 - THE ENVIRONMENTAL MOVEMENT
Short Title: THE ENVIRONMENTAL MOVEMENT
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Examines the environmental movement in the U.S. and globally. After a historical overview, we will use a social movement perspective to examine mobilization, organizations and tactics, ideologies and identities, as well as exploring aspects of contemporary environmentalism (e.g. green building and slow food, wildlife management/biodiversity, sustainable development, environmental justice). Cross-list: ENST 415.

SOCI 416 - SOCIAL MOVEMENTS SEMINAR
Short Title: SOCIAL MOVEMENTS SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores advanced topics in sociology of social movements. Drawing on cases in the US and beyond, we discuss theories and empirical studies of social movements. Students will work on a research project and they will present and write a final paper based on their research. Graduate/Undergraduate Equivalency: SOCI 516.

SOCI 421 - RESEARCH-PRACTICE PARTNERSHIPS
Short Title: RESEARCH-PRACTICE PARTNERSHIPS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides a foundational understanding of research-practice partnerships (RPPs) in education, an emerging way for education researchers and practitioners to work together on pressing problems of practice. Topics include launching an RPP, theories of action, supporting research use, communications, sustainability, and measuring RPP effectiveness. Mutually Exclusive: Cannot register for SOCI 421 if student has credit for SOCI 521.
SOCI 422 - SOCIAL AUTOPSIES: HOW SOCIETY KILLS US
Short Title: SOCIAL AUTOPSIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the production, distribution, and consumption of food as a medium to understand the relations between large social processes and the practices of everyday life. Topics include: food policy; commodification of food; food security and hunger; food, health and the body; cultural food practices; and alternative food systems. Graduate/Undergraduate Equivalency: SOCI 523. Mutually Exclusive: Cannot register for SOCI 423 if student has credit for SOCI 523.

SOCI 423 - SOCIOLOGY OF FOOD
Short Title: SOCIOLOGY OF FOOD
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the production, distribution, and consumption of food as a medium to understand the relations between large social processes and the practices of everyday life. Topics include: food policy; commodification of food; food security and hunger; food, health and the body; cultural food practices; and alternative food systems. Graduate/Undergraduate Equivalency: SOCI 523. Mutually Exclusive: Cannot register for SOCI 423 if student has credit for SOCI 523.

SOCI 424 - RACE AND ETHNICITY SEMINAR
Short Title: RACE AND ETHNICITY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Overview of the sociological study of race and ethnic relations; identifying the major contributions made to the sociological study of race and the ethnicity; and the major areas in need of new thinking and research. Focus on theoretical formulations, historical understandings, and causes and consequences of race and technical relations globally Graduate/Undergraduate Equivalency: SOCI 524. Mutually Exclusive: Cannot register for SOCI 424 if student has credit for SOCI 524.

SOCI 425 - POPULATION HEALTH SEMINAR
Short Title: POPULATION HEALTH SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course is a graduate level overview of population health, including the social determinates of morbidity and mortality, fertility and birth outcomes, health disparities, and contextual determinants of health. Course will cover major theoretical perspectives in the field, including fundamental cause theory, life course theory, and theories of stress and resilience. Graduate/Undergraduate Equivalency: SOCI 525. Mutually Exclusive: Cannot register for SOCI 425 if student has credit for SOCI 525.

SOCI 426 - CONTEMPORARY THEORY
Short Title: CONTEMPORARY THEORY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course builds foundational understanding of the diverse theoretical traditions of the last half-century that underlie much of the work currently being undertaken in sociology. Theories include: symbolic interactionism, critical theory, structuralism, power and social control, neo-institutionalism, feminist theory, and cultural theory. Evaluation based on papers, memos and seminar participation. Graduate/Undergraduate Equivalency: SOCI 526. Mutually Exclusive: Cannot register for SOCI 426 if student has credit for SOCI 526.

SOCI 436 - RESEARCH SEMINAR: THE HOUSTON AREA SURVEY
Short Title: HOUSTON AREA SURVEY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Continuation of the series of annual surveys on how Houston residents are reacting to the ongoing economic and demographic changes. Includes sampling procedures, questionnaire construction, interviewing, data analysis, and the logic and skills of survey research. Culminates in a research report that develops empirical hypotheses and tests their validity with the survey findings. Graduate/Undergraduate Equivalency: SOCI 536. Recommended Prerequisite(s): SOCI 381 & SOCI 382. Mutually Exclusive: Cannot register for SOCI 436 if student has credit for SOCI 536.
SOCI 459 - RELIGION AND PUBLIC LIFE
Short Title: RELIGION AND PUBLIC LIFE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will use the tools of social science to understand how religion shows up on in public life, both in the US and around the globe. Topics include: epistemology and methodology of public religion; how religion shapes views on politics, gender, families, science, race, immigration, education, the workplace; the challenges of religious diversity and crossing sociopolitical divides. Graduate/Undergraduate Equivalency. SOCI 559. Mutually Exclusive: Cannot register for SOCI 459 if student has credit for SOCI 559.

SOCI 460 - SPATIAL ANALYSIS IN THE SOCIAL SCIENCES
Short Title: SPATIAL ANALYSIS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the core concepts and tools for analyzing spatial data. Students will gain hands-on experience creating spatial data (including georeferencing, geocoding, and merging data sources), producing and interpreting maps, and describing and analyzing spatial patterns and relationships. Drawing on examples in housing, health, education, public policy, and urban studies, students will learn how to apply spatial concepts and methods to study the geographic distribution of social phenomena, the spatial organization of communities, and the relationship between society and the environment. Graduate/Undergraduate Equivalency: SOCI 560. Recommended Prerequisite(s): The course uses R software for spatial data management and analysis. Students should have introductory-level knowledge of R and basic statistics prior to taking the course. Students can make use of online resources (e.g., https://www.datacamp.com/) to gain experience prior to the start of the course. Mutually Exclusive: Cannot register for SOCI 460 if student has credit for SOCI 560.
SOCI 465 - GENDER AND HEALTH
Short Title: GENDER AND HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the relationship between gender and health (longevity, physical illness and functioning, mental health, and health behavior). Specific topics include masculinity, disease expression, medical research, health care use, stress and social relationships, and intersectionality (race/ethnicity and sexuality) as they relate shaping health outcomes among men and women. Cross-list: SWGS 465.
Graduate/Undergraduate Equivalency: SOCI 665. Mutually Exclusive: Cannot register for SOCI 465 if student has credit for SOCI 665.

SOCI 469 - COMMUNITY BRIDGES TRAINING
Short Title: COMMUNITY BRIDGES TRAINING
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is the precursor for the spring course, SOCI 470, Inequality and Urban Life. Only students accepted into the Community Bridges Program may enroll in this course, where we do preparatory readings, trainings and workshops for the spring community internships. Instructor Permission Required.

SOCI 470 - INEQUALITY AND URBAN LIFE
Short Title: INEQUALITY AND URBAN LIFE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course combines classroom study with seven hours of fieldwork per week, working on projects with a local organization. We study how urban areas generate wealth and poverty, the experience of inequality, and issues of community development. Enrollment is by permission only. Instructor Permission Required.

SOCI 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Internship/Pacticum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SOCI 483 - DATA ANALYSIS
Short Title: DATA ANALYSIS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This graduate course introduces students to multivariate regression methods. It assumes previous coursework in elementary statistics and the use of STATA. We will cover regression analysis for continuous dependent variables and move in to intermediate and some advance analysis for categorical dependent variables, commonly referred to as generalized linear models.

SOCI 485 - IDENTITIES IN A DIVERSE WORLD
Short Title: RACIAL IDENTITIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How have shifts in ethnic and race diversity affected the way we answer the question, "who am I?" "Identities in a Diverse World" is a seminar dedicated to answering this core question by exploring the new frontiers of understanding race and ethnicity. Topics include: Racial Passing, Transracial adoption, Whiteness, and Immigration. Graduate/Undergraduate Equivalency: SOCI 585. Mutually Exclusive: Cannot register for SOCI 485 if student has credit for SOCI 585.

SOCI 492 - DIRECTED HONORS RESEARCH
Short Title: DIRECTED HONORS RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Sociological research under faculty supervision. Includes outline for planned research, followed by second-semester research and the writing of an honors thesis. Open only to students in sociology honors program. Instructor Permission Required.

SOCI 493 - DIRECTED HONORS RESEARCH
Short Title: DIRECTED HONORS RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Sociological research under faculty supervision. Includes first-quarter review of relevant literature and the preparation of an outline for planned research, followed by second-semester research and the writing of an honors thesis. Open only to students in sociology honors program. Instructor Permission Required.
SOCI 500 - SUMMER RESEARCH
Short Title: SUMMER RESEARCH
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sociological research for graduate students in sociology. Repeatable for Credit.

SOCI 501 - GRADUATE RELIGION SEMINAR
Short Title: GRADUATE RELIGION SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A graduate level course that explores the theories, tools, concepts, and major debates that are central to the sociology of religion. Specific attention is devoted to religions practices, communities, and identities as well as how the sociology of religion relates to other sub-fields with the broader discipline. Graduate/Undergraduate Equivalency: SOCI 401. Mutually Exclusive: Cannot register for SOCI 501 if student has credit for SOCI 401.

SOCI 502 - RACE AND FAMILY SEMINAR
Short Title: RACE AND FAMILY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: What features of family life are marked by race? This course examines the question and gauges whether differences are a matter of culture or do they reflect issues of structure (or access to opportunities) and what are the implications for race/ethnic inequality? Topics include racial socialization and ethnic identity. Graduate/Undergraduate Equivalency: SOCI 402. Mutually Exclusive: Cannot register for SOCI 502 if student has credit for SOCI 402.

SOCI 503 - TEACHING SOCIOLOGY
Short Title: TEACHING SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will examine different approaches to teaching sociology at the university level, including core curriculum, a syllabus, and different forms of presenting material and evaluating students at the undergraduate and graduate levels. Sociology department faculty will discuss their particular approaches to teaching sociology.

SOCI 505 - ETHNOGRAPHIC RESEARCH
Short Title: ETHNOGRAPHIC RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Beginning with the theoretical frameworks for ethnographic and other qualitative research methods, the course will cover ethics, entry, observation, field notes, interviewing, data analysis, and writing reports. It will offer a hands-on approach combining lectures, research through lectures, readings, and fieldwork. Field projects can be conducted in group, classroom, campus, or community settings. Graduate/Undergraduate Equivalency: SOCI 405. Mutually Exclusive: Cannot register for SOCI 505 if student has credit for SOCI 405.

SOCI 506 - BASIC DEMOGRAPHIC TECHNIQUES
Short Title: BASIC DEMOGRAPHIC TECHNIQUES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The course provides a survey of basic demographic methods for assessing population change, fertility, mortality, and (im)migration and characteristics such with age, gender, race/ethnicity, household/family composition, marital status, economic, employment, and educational. Emphasis placed on the use of the methods in a variety of demographic and other settings. Mutually Exclusive: Cannot register for SOCI 506 if student has credit for SOCI 406.

SOCI 509 - SOCIAL STRATIFICATION
Short Title: SOCIAL STRATIFICATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines how scarce resources unequally distributed among individuals, groups, and societies. Social stratification is a key concept in sociology that examines income and wealth inequality, occupational and class hierarchies, inequality of educational opportunity, poverty, and the consequences of inequality. Examples will be drawn from US and international cases. Graduate/Undergraduate Equivalency: SOCI 409. Mutually Exclusive: Cannot register for SOCI 509 if student has credit for SOCI 409.

SOCI 510 - RELIGION AND SOCIETY
Short Title: RELIGION AND SOCIETY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar focuses on the ways in which religion is impacted by society, how society is shaped by religion, and the functions, uses, and meanings of religion in the modern world. We rely on the sociological perspective for understanding religion. Field work required.
SOCI 511 - COMMUNITY AND URBAN SOCIOLOGY
Short Title: COMMUNITY & URBAN SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of urban development, form, and heterogeneity; and the conditions of life associated with living in cities, their growth and purposes globally and locally.

SOCI 512 - PERSPECTIVES ON RELIGIOUS TOLERANCE IN AN INTOLERANT AGE
Short Title: GR SEMINAR RELIGIOUS TOLERANCE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How do we understand religious pluralism in the midst of religious traditions that seem inherently at odds? Is religion more likely to bring peace or conflict? Through readings form the humanities and the social sciences and short lectures, this weekly undergraduate seminar will address these issues and more. Graduate/Undergraduate Equivalency: SOCI 412. Mutually Exclusive: Cannot register for SOCI 512 if student has credit for SOCI 412.

SOCI 513 - DEMOGRAPHY
Short Title: DEMOGRAPHY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Study of the dynamics of population change. Includes demographic data sources, components of population change, mortality patterns, family planning, the measurement of migration flows, and population-economic models. Graduate/Undergraduate Equivalency: SOCI 313. Mutually Exclusive: Cannot register for SOCI 513 if student has credit for SOCI 313.

SOCI 516 - SOCIAL MOVEMENTS SEMINAR
Short Title: SOCIAL MOVEMENTS SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores advanced topics in sociology of social movements. Drawing on cases in the US and beyond, we discuss theories and empirical studies of social movements. Students will work on a research project and they will present and write a final paper based on their research. Graduate/Undergraduate Equivalency: SOCI 416.

SOCI 521 - RESEARCH-PRACTICE PARTNERSHIPS
Short Title: RESEARCH-PRACTICE PARTNERSHIPS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides a foundational understanding of research-practice partnerships (RPPs) in education, an emerging way for education researchers and practitioners to work together on pressing problems of practice. Topics include launching an RPP, theories of action, supporting research use, communications, sustainability, and measuring RPP effectiveness. Cross-list: SOPE 510. Mutually Exclusive: Cannot register for SOCI 521 if student has credit for SOCI 421.

SOCI 522 - SOCIAL AUTOPSIES
Short Title: SOCIAL AUTOPSIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores mortality, and how long we live, as a social process. Though we often reflect on the biological, physiological, and genetic conditions that play parts in the length of our lives, we will explore evidence suggesting that social conditions shape mortality prospects for all of us. Graduate/Undergraduate Equivalency: SOCI 422. Mutually Exclusive: Cannot register for SOCI 522 if student has credit for SOCI 422.

SOCI 523 - SOCIOLOGY OF FOOD
Short Title: SOCIOLOGY OF FOOD
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines the production, distribution, and consumption of food as a medium to understand the relations between large social processes and the practices of everyday life. Topics include: food policy; commodification of food; food security and hunger; food, health and the body; cultural food practices; and alternative food systems. Graduate/Undergraduate Equivalency: SOCI 423. Mutually Exclusive: Cannot register for SOCI 523 if student has credit for SOCI 423.
SOCI 524 - RACE AND ETHNICITY SEMINAR
Short Title: RACE AND ETHNICITY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Overview of the sociological study of race and ethnic relations; identifying the major contributions made to the sociological study of race and the ethnicity; and the major areas in need of new thinking and research. Focus on theoretical formulations, historical understandings, and causes and consequences of race and technical relations globally Graduate/Undergraduate Equivalency: SOCI 424. Mutually Exclusive: Cannot register for SOCI 524 if student has credit for SOCI 424.

SOCI 525 - POPULATION HEALTH SEMINAR
Short Title: POPULATION HEALTH SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Course is a graduate level overview of population health, including the social determinates of morbidity and mortality, fertility and birth outcomes, health disparities, and contextual determinants of health. Course will cover major theoretical perspectives in the field, including fundamental cause theory, life course theory, and theories of stress and resilience. Graduate/Undergraduate Equivalency: SOCI 425. Mutually Exclusive: Cannot register for SOCI 525 if student has credit for SOCI 425.

SOCI 526 - CONTEMPORARY THEORY
Short Title: CONTEMPORARY THEORY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course builds foundational understanding of the diverse theoretical traditions of the last half-century that underlie much of the work currently being undertaken in sociology. Theories include: symbolic interactionism, critical theory, structuralism, power and social control, neo-institutionalism, feminist theory, and cultural theory. Evaluation based on papers, memos and seminar participation. Graduate/Undergraduate Equivalency: SOCI 426. Mutually Exclusive: Cannot register for SOCI 526 if student has credit for SOCI 426.

SOCI 528 - GIS FOR SOCIAL SCIENCE RESEARCH
Short Title: GIS FOR SOCIAL SCIENCE RES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will focus on integrating spatial concepts into social science research using GIS software. Topics include: data acquisition, structure and management; principles of exploratory data analysis and cartographic visualization; and exploratory spatial data analysis (spatial auto correlation).

SOCI 534 - BLACK SOCIOLOGICAL THOUGHT
Short Title: BLACK SOCIOLOGICAL THOUGHT
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a graduate level seminar on black sociological thought. It will familiarize enrolled students with classic and contemporary work addressing the meaning and consequence of racism with particular emphasis on the black experience in the United States.

SOCI 536 - RESEARCH SEMINAR: THE HOUSTON AREA SURVEY
Short Title: HOUSTON AREA SURVEY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Continuation of the series of annual surveys on how Houston residents are reacting to the ongoing economic and demographic changes. Includes sampling procedures, questionnaire construction, interviewing, data analysis, and the logic and skills of survey research. Culminates in a research report that develops empirical hypotheses and tests their validity with the survey findings. Graduate/Undergraduate Equivalency: SOCI 436. Mutually Exclusive: Cannot register for SOCI 536 if student has credit for SOCI 436.

SOCI 537 - SOCIOLOGY OF EDUCATION
Short Title: SOCIOLOGY OF EDUCATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Analyzing educational inequality in the U.S. using concepts of educational equality and inequality and analysis of the factors that shape schooling outcomes. Addressing the role of students, families, neighborhoods, schools, school organizations and teachers. Special topics: education of immigrants, school segregation, accountability, higher education and the future of educational inequality. Graduate/Undergraduate Equivalency: SOCI 437. Mutually Exclusive: Cannot register for SOCI 537 if student has credit for SOCI 337/SOCI 437.

SOCI 538 - FAMILY SEMINAR
Short Title: FAMILY SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will cover the history of the family and key theoretical and empirical debates about family formation, stability, and dissolution. Ultimately, we will seek to answer the question: is the American family in decline? Graduate/Undergraduate Equivalency: SOCI 438. Mutually Exclusive: Cannot register for SOCI 538 if student has credit for SOCI 438.
SOCI 540 - USING R FOR INTRODUCTORY STATISTICS
Short Title: USING R FOR STATISTICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This graduate level course will provide graduate students opportunities to learn R. They will also learn introductory statistical concepts deployed and techniques used typically by social scientists, broadly defined.

SOCI 541 - QUALITATIVE RESEARCH METHODS
Short Title: QUALITATIVE RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course examines qualitative methodological approaches for conducting social science research. Particularly, students will examine how qualitative methods allow social scientists to analyze the symbolic, religious, gendered, socio-economic, policies and historical forces and contexts that underlie and motivate beliefs, ideologies, practices and social change. Graduate/Undergraduate Equivalency: SOCI 341. Mutually Exclusive: Cannot register for SOCI 541 if student has credit for SOCI 341.

SOCI 543 - RACE, SOCIETY AND POPULATION CHANGE
Short Title: RACE, SOCIETY & POPULATION CHG
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The U.S. population is more diverse than ever before - how did that happen? This course looks at how race and ethnicity patterns demographic processes. This course explores demographic techniques and collection of racial data. Topics include: Roots of racial diversity, collecting racial data, immigration and population growth, and population policies. Graduate/Undergraduate Equivalency: SOCI 343. Mutually Exclusive: Cannot register for SOCI 543 if student has credit for SOCI 343.

SOCI 544 - RACE AND RACISM
Short Title: RACE AND RACISM
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course is a graduate level survey seminar on race and racism. It will familiarize enrolled students with diverse literature addressing the interpersonal and intergroup meaning and consequence of race and racism with particular emphasis on the United States.

SOCI 551 - IMMIGRATION IN A GLOBAL AGE
Short Title: IMMIGRATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course compare 20th century immigration to the US (and other countries) with more recent migratory flows. Topics will be related to the transnational identities of immigrants, ethnic discrimination, and the impact of immigrants on civic and religious institutions. A central part of the course is a semester-long research project. Graduate/Undergraduate Equivalency: SOCI 451. Mutually Exclusive: Cannot register for SOCI 551 if student has credit for SOCI 451.

SOCI 553 - RACE, MIGRATION, AND HEALTH SEMINAR
Short Title: RACE, MIGRATION, AND HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: In this class we will examine the relationship between racial identity, nativity, and health status. Through readings and class discussion we will examine how racial identity and generational status shape health-related resources, stressors, behaviors, and supports. We will also consider how these factors relate to health care access and use. Graduate/Undergraduate Equivalency: SOCI 453. Mutually Exclusive: Cannot register for SOCI 553 if student has credit for SOCI 453.

SOCI 555 - RELIGION AND PUBLIC LIFE
Short Title: RELIGION AND PUBLIC LIFE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will use the tools of social science to understand how religion shows up in public life, both in the US and around the globe. Topics include: epistemology and methodology of public religion; how religion shapes views on politics, gender, families, science, race, immigration, education, the workplace; the challenges of religious diversity and crossing sociopolitical divides. Graduate/Undergraduate Equivalency: SOCI 459. Mutually Exclusive: Cannot register for SOCI 559 if student has credit for SOCI 459.
SOCI 560 - SPATIAL ANALYSIS IN THE SOCIAL SCIENCES
Short Title: SPATIAL ANALYSIS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to the core concepts and tools for analyzing spatial data. Students will gain hands-on experience creating spatial data (including georeferencing, geocoding, and merging data sources), producing and interpreting maps, and describing and analyzing spatial patterns and relationships. Drawing on examples in housing, health, education, public policy, and urban studies, students will learn how to apply spatial concepts and methods to study the geographic distribution of social phenomena, the spatial organization of communities, and the relationship between society and the environment. Graduate/Undergraduate Equivalency: SOCI 460. Recommended Prerequisite(s): The course uses R software for spatial data management and analysis. Students should have introductory-level knowledge of R and basic statistics prior to taking the course. Students can make use of online resources (e.g., https://www.datacamp.com/) to gain experience prior to the start of the course. Mutually Exclusive: Cannot register for SOCI 560 if student has credit for SOCI 460.

SOCI 580 - CLASSICAL THEORY
Short Title: CLASSICAL THEORY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course engages and analyzes the foundational texts of social theory from its classical roots to its contemporary branches. Students will explore theoretical approaches that inform current sociological research and during the course will examine social phenomena of particular interest to them from the perspective of two major theorists.

SOCI 581 - QUANTITATIVE RESEARCH METHODS
Short Title: QUANTITATIVE RESEARCH METHODS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Designed as a graduate level overview of quantitative research methods, with a focus on survey construction and design. The class moves through the stops of the research design process, and discusses mixed-methods and meta-analysis research. Class also includes a strong focus on writing, critique, peer review, and the publishing process.

SOCI 582 - QUANTITATIVE DATA ANALYSIS I
Short Title: QUANTITATIVE DATA ANALYSIS I
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to multiple regression methods - a set of models that relate an outcome (also referred to as response or dependent) variable to a set of explanatory or independent variables. Students should have a previous coursework on descriptive statistics, bivariate regression, as well as familiarity with Stata. Instructor Permission Required.

SOCI 583 - QUANTITATIVE DATA ANALYSIS II
Short Title: QUANTITATIVE DATA ANALYSIS II
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to multiple regression. Techniques for visualizing data will be discussed throughout. Familiarity with the statistical package Stata is assumed. Instructor Permission Required.

SOCI 584 - QUANTITATIVE ANALYSIS III
Short Title: QUANTITATIVE ANALYSIS III
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture/Laboratory
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): SOCI 582 and SOCI 583
Description: The course will give an overview of several advanced statistical techniques commonly used in Sociology.

SOCI 585 - IDENTITIES IN A DIVERSE WORLD
Short Title: RACIAL IDENTITIES
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How have shifts in ethnic and race diversity affected the way we answer the question, "who am I?" "Identities in a Diverse World" is a seminar dedicated to answering this core question by exploring the new frontiers of understanding race and ethnicity. Topics include: Racial Passing, Transracial adoption, Whiteness, and Immigration. Graduate/Undergraduate Equivalency: SOCI 485. Mutually Exclusive: Cannot register for SOCI 585 if student has credit for SOCI 485.
SOCI 586 - MULTILEVEL MODELING
Short Title: MULTILEVEL MODELING
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): SOCI 582 and SOCI 583
Description: This course is an introduction to multilevel modeling methods for data with complex clustering. The major topics include two-level models for continuous, categorical, and count outcomes, three-level models, multilevel models of change and models for imperfectly nested data. Instructor Permission Required.

SOCI 587 - LONGITUDINAL DATA ANALYSIS
Short Title: LONGITUDINAL DATA ANALYSIS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Prerequisite(s): SOCI 582 and SOCI 583
Description: This course introduces students to the nature of longitudinal data and illustrate the applicability of techniques for the analysis using such data. The subject matter consists of regression models for data collected on the same subjects over time, as well as methods of analyzing event histories.

SOCI 596 - STATISTICAL PROGRAMMING
Short Title: STATISTICAL PROGRAMMING
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will provide a thorough introduction to the statistical software package Stata. The emphasis will be on important skills for quantitative research that are not typically covered in statistics classes. Topics will include: data management, creating graphs, presentation of results, workflow, and documenting one's work.

SOCI 600 - GRADUATE INDEPENDENT STUDY
Short Title: GRADUATE INDEPENDENT STUDY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The student will go beyond the basic graduate level theory course, doing advanced readings in theories, related to a substantive area in which the student concentrates.

SOCI 601 - CLASSICAL THEORY II
Short Title: CLASSICAL THEORY II
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The student will do advanced work in an area of statistical interest with a faculty member who specializes in the techniques.

SOCI 602 - QUANTITATIVE METHODS
Short Title: QUANTITATIVE METHODS
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: The student will do advanced work in an area of statistical interest with a faculty member who specializes in the techniques.
SOCI 603 - DIRECTED READING IN URBAN SOCIOLOGY
Short Title: URBAN SOCIOLOGY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This reading course covers foundational readings in the area of urban sociology.

SOCI 604 - MAXIMUM LIKELIHOOD ESTIMATION FOR GENERALIZED LINEAR MODELS
Short Title: GENERALIZED LINEAR MODELS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Explores useful statistical models beyond standard linear regression. Topics covered are logit and probit models for both binary and ordinal dependent variables, even count models, models for heteroskedastic regressions, and more. Maximum likelihood unifies these models by providing a single, coherent approach to estimation and about how data are generated.

SOCI 605 - NON-THESIS GRADUATE RESEARCH
Short Title: NON-THESIS GRADUATE RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Individual research not for thesis credit. Repeatable for Credit.

SOCI 606 - THESIS RESEARCH
Short Title: THESIS RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Thesis Research Repeatable for Credit.

SOCI 607 - GENDER SEMINAR
Short Title: GENDER SEMINAR
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: An overview of the construction and reproduction of gender as a social category. Course will compare various conceptualizations of gender and discuss structural-, interactional-, and individual-level processes that reproduce gender inequality. Will also explore interactions of gender with other axes of social difference, such as sexuality, race/ethnicity and social class. Graduate/Undergraduate Equivalency: SOCI 407. Mutually Exclusive: Cannot register for SOCI 607 if student has credit for SOCI 407/SOCI 504.

SOCI 608 - GRADUATE RESEARCH DESIGN
Short Title: GRADUATE RESEARCH DESIGN
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This required graduate seminar in sociological research design focuses on the logic of inquiry within the discipline, including practices of advanced empirical and theoretical contribution. Topics will span state-of-the-art analyses and their exemplars. Department Permission Required.

SOCI 609 - GRADUATE INDEPENDENT STUDY
Short Title: GRADUATE INDEPENDENT STUDY
Department: Sociology
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-9
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Sociological independent study under faculty supervision. Only open to graduate students. Repeatable for Credit.

SOCI 610 - PROFESSIONALIZATION WORKSHOP
Short Title: PROFESSIONALIZATION WORKSHOP
Department: Sociology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This professionalization workshop is designed to introduce graduate students to professionalization topics such as: giving a conference presentation, writing a fellowship or grant proposal, and the reviewing process of journals. Repeatable for Credit.
SOCI 611 - CRAFTING A DISSERTATION
Short Title: CRAFTING A DISSERTATION
Department: Sociology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course will enable students to receive instructor and peer feedback on dissertation proposals and dissertation chapters. Students must have successfully completed at least one comp exam by August 31st to be eligible.

SOCI 620 - QUANTITATIVE METHODS FOR CAUSAL INFERENCE
Short Title: CAUSAL INFERENCE
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): SOCI 582 and SOCI 583
Description: This course will introduce sociology graduate students to causal inference and common threats to causal identification. We will cover a variety of quantitative methods intended to strengthen causal identification, including fixed effects, propensity score matching, and instrumental variables, among others. Department Permission Required.

SOCI 665 - GENDER AND HEALTH
Short Title: GENDER AND HEALTH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This seminar explores the relationship between gender and health (longevity, physical illness and functioning, mental health, and health behavior). Specific topics include masculinity, disease expression, medical research, health care use, stress and social relationships, and intersectionality (race/ethnicity and sexuality) as they relate shaping health outcomes among men and women. There are additional requirements for Graduate students. Graduate/Undergraduate Equivalency: SOCI 465. Mutually Exclusive: Cannot register for SOCI 665 if student has credit for SOCI 465.

SOCI 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sociology
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SOCI 700 - DISSERTATION RESEARCH
Short Title: DISSERTATION RESEARCH
Department: Sociology
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Sociology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Dissertation research credit. Repeatable for Credit.

Spanish & Portuguese (SPPO)

SPPO 158 - INTRODUCTION TO LATIN AMERICAN STUDIES
Short Title: INTRO LATIN AMERICAN STUDIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Formerly SPAN 158. This course immerses students into Caribbean and Latin American studies by introducing them to the history, society, politics, and culture of the region, through a cross-disciplinary and a multi-national approach. Taught in English. Open to all students. Cross-list: LASR 158.

SPPO 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SPPO 328 - GAZING AT DISASTER: VISUAL CULTURE AND CATASTROPHE IN LATIN AMERICA
Short Title: GAZING AT DISASTER
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the visual representation of Natural Disasters in the Caribbean and Latin America. Going beyond an enquiry on the role of climate change and environmental transformations in the region's history and culture, we explore the potential and limitations of visual discourse to communicate catastrophe. Taught in Spanish.
SPPO 330 - HISPANIC WRITING SEMINAR  
Short Title: HISPANIC WRITING SEMINAR  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: In this writing intensive seminar, students will learn the skills to think and write critically in Spanish about literary and cultural production from the global Hispanic world. Taught in Spanish.

SPPO 331 - BRASIL ATUAL  
Short Title: BRASIL ATUAL  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Course examines topics in contemporary Brazil as presented in media, literature, film, and music. Works address persistent race, class, and gender inequalities, national identity, urban life, and environmental issues, among other topics. Further development of speaking, writing and vocabulary enrichment emphasized through discussions and interactive activities. Taught in Portuguese. Mutually Exclusive: Cannot register for SPPO 331 if student has credit for PORT 331.

SPPO 332 - APPROACHES TO HISPANIC LITERATURES  
Short Title: APPROACHES HISPANIC LITERATURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Introduction to Hispanic Literature where students will become familiar with the methodology of literary analysis to approach different genres and develop original and critical interpretation of texts. Course will give a wide and solid literary and analytical context for more advanced courses in Spanish and Latin American literature. Taught in Spanish. Distribution 1 credit effective Fall 2021.

SPPO 333 - CURRENT HEALTHCARE ISSUES IN LATINX COMMUNITIES  
Short Title: LATINX HEALTHCARE ISSUES  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Seminar  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Examines social, cultural, ethical, and humanitarian issues as related to healthcare and Latinx communities in the United States. The course will make use of current multimodal media to guide students in close reading, interpretation, and critical thinking and response. When appropriate, the historical context for current issues will also be considered. Taught in Spanish. Recommended Prerequisite(s): SPAN 322.

SPPO 340 - INTRODUCTION TO SPANISH LINGUISTICS  
Short Title: INTRO TO SPANISH LINGUISTICS  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Formerly SPAN 350. Course will analyze the essence of language against the essence of dialects to determine (i) the logical and linguistic rationale behind judgments about language, (ii) social and political factors that lead to various decisions, and (iii) the role of popular beliefs on traditional views of proper language use. Taught in Spanish.

SPPO 341 - DIALECTS IN CONTACT: SEARCHING FOR THE "INTERNATIONAL" FORM OF SPANISH  
Short Title: DIALECTS IN CONTACT  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Distribution Group: Distribution Group I  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Explores key issues in Latin American culture. Important aspects of the contemporary situation in Latin America are also studied, including phenomena such as globalization, the rise of mega-cities, migration, authoritarianism, the impact of colonization and the rise of national states. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 341 if student has credit for SPAN 345.

SPPO 344 - MAPPING LATIN AMERICAN CULTURE  
Short Title: MAPPING LATIN AMER CULTURE  
Department: Modrn & Classicl Lit & Culture  
Grade Mode: Standard Letter  
Course Type: Lecture  
Credit Hours: 3  
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
Course Level: Undergraduate Upper-Level  
Description: Explores key issues in Latin American culture. Important aspects of the contemporary situation in Latin America are also studied, including phenomena such as globalization, the rise of mega-cities, migration, authoritarianism, the impact of colonization and the rise of national states. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 344 if student has credit for SPAN 345.
SPPO 345 - ART IN LATIN AMERICAN LITERATURE
Short Title: LATIN AMERICAN LITERATURE ART
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores important moments in the history of Latin American European and North American Art by reading literary works that dramatize the transformations of several key artistic movements. 19th century landscape painting, Post-impressionism, Surrealism, Muralism, and 1960s experimental art will be studied through the novels and poems of important Latin American authors. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 345 if student has credit for SPAN 343.

SPPO 347 - INTRODUCTION TO MEDIEVAL AND EARLY MODERN SPANISH LITERATURE AND CULTURE
Short Title: MEDIEVAL&EARLY SPAN LIT&CULTUR
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course traces the literary history of Spain from the Medieval period to the 1700’s. Students will analyze a wide range of masterpieces in poetry, prose, and drama that have marked the ideological and cultural development of the Iberian Peninsula. Taught in Spanish.

SPPO 348 - INTRODUCTION TO MODERN SPANISH LITERATURE AND CULTURE, 18TH-21ST CENTURY
Short Title: INTRO MODERN SPAN LIT&CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course is a panoramic introduction to literary, ideological, cultural, and artistic trends from the Enlightenment to the present. Study will include a wide array of exceptional works, (novels, plays, essays, short stories and poems) from authors who have left milestones in modern Spanish literature. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 348 if student has credit for SPAN 334.

SPPO 350 - BRAZILIAN LITERATURE AND CULTURE
Short Title: BRAZILIAN LITERATURE & CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course focuses on critical readings of key texts of the 20th century. Materials drawn from Brazilian literature in translation as well as other cultural productions such as film and art. Some of the topics will include questions of national identity, social-racial relations, gender representations, and urban life. Taught in English. Mutually Exclusive: Cannot register for SPPO 350 if student has credit for SPAN 346.

SPPO 351 - LITERATURES FROM THE SOUTHERN CONE
Short Title: LIT FROM THE SOUTHERN CONE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to the literature of the region known as “Cono Sur.” Often considered the national literature of Argentina and Uruguay, the “gaucho literature” encompasses a wide variety of texts, from traditional ballads to novels, plays and poetry. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 351 if student has credit for SPAN 384.

SPPO 353 - CARIBBEAN LITERATURE
Short Title: CARIBBEAN LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will introduce you to major writers and theories of Caribbean literature, by focusing on the representation of places, peoples, and practices. Close attention will be paid to historical and cultural contexts, while conducting an in-depth analysis of literary texts from different genres. Taught in Spanish. Topics vary. Mutually Exclusive: Cannot register for SPPO 353 if student has credit for SPAN 391.
SPPO 354 - CHICANO/A LITERATURE
Short Title: CHICANO/A LITERATURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: ENGL 371, SWGS 354. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SPPO 356 - RACE, GENDER, CLASS, & ENVIRONMENT IN CENTRAL AMERICAN CULTURES
Short Title: UNDERSTANDING CENTRAL AMERICA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class explores the diverse cultures and complex histories of the seven Central American countries: Panama, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and Belize. This panoramic course discusses Central American literature, visual culture, and music with a special emphasis on topics such as race, gender, class, environment, geopolitics, revolution, trauma, and migration. Taught in Spanish.

SPPO 360 - SECOND LANGUAGE ACQUISITION: LINGUISTIC, COGNITIVE AND SOCIAL DIMENSIONS
Short Title: SECOND LANGUAGE ACQUISITION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Second language acquisition seeks to describe the development of a second language. It also attempts to provide an explanatory account of the internal and external factors that guide this process. This course surveys various theoretical approaches to the analysis of second language (L2) acquisition. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 360 if student has credit for SPAN 380.
SPPO 368 - LATIN AMERICAN SHORT FICTION
Short Title: LATIN AMERICAN SHORT FICTION
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Latin American writers have achieved great distinction in the genre of the short story. This course studies texts by some of the continent's best-known short-story writers, such as Cortazar, Borges, Monterroso, Rulfo, Fuentes, Garcia Marquez, Elena Garro, Ana Lydia Vega, Clarice Lispector, Benedetti, Usalr Pietri, Massiani, Lemebel, Asis, and Carpenter. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 368 if student has credit for SPAN 388.

SPPO 377 - BRAZILIAN MUSIC AND SOCIAL MOVEMENTS
Short Title: BRAZIL: MUSIC&SOCIAL MOVEMENTS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will consider the social dimensions of various musical genres such as Bossa Nova, Tropicalia, and Hip-Hop. Through an interdisciplinary approach, will discuss music as a contextualized social activity and examine Brazilian social movements through the lens of music. Taught in English. Mutually Exclusive: Cannot register for SPPO 377 if student has credit for SPAN 374.

SPPO 378 - SOCIAL ISSUES IN SPAIN
Short Title: SOCIAL ISSUES IN SPAIN
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Exploration of diverse cultural aspects of today's Spain through films and newspaper articles. The topics discussed will serve as a springboard for further development of writing skills. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 378 if student has credit for SPAN 348.
SPPO 381 - SPANISH CINEMA
Short Title: SPANISH CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Course will examine how Spanish film has represented the sociocultural and political life of the country – from the Francoist years, exposing the image of a Catholic and homogenous Spain, to a post-Francoist era open to reveal social problems from a more secular and global perspective. Taught in Spanish.

SPPO 382 - THEATER AND PERFORMANCE WORKSHOP
Short Title: THEATER & PERFORMANCE WORKSHOP
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to a wide array of Spanish plays from the Early Modern period to the present. Participants will also have the opportunity to create a series of original scenes, that they will adapt, direct and perform as the final outcome of the seminar. Taught in Spanish.

SPPO 384 - THE SPANISH AVANT-GARDE
Short Title: THE SPANISH AVANT-GARDE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This cross-genre, multimedia course examines the contributions of major figures (Picasso, Gris, Dali, Diego, Alberti, Lorca, Bunuel, Gomez de la Serna) to the Spanish avant-garde in the 20th century. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 384 if student has credit for SPAN 377.

SPPO 385 - TRENDS IN HISPANIC CINEMA
Short Title: TRENDS IN HISPANIC CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 390. This course examines the ways in which films in both Spain and Latin America have represented the cultural contexts of their countries. Focus is on the theme of power, and the consequences on social and individual lives. Taught in Spanish. Cross-list: SWGS 390.

SPPO 410 - THE CITY IN LATIN AMERICA
Short Title: THE CITY IN LATIN AMERICA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore representations of the city in both new Latin American writings and films, with a special focus on the changing urban landscape, the representation of poverty and the excluded from the new global economy, environmental issues and biopolitics, as well as hybrid cultures and multicultural identities. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 410 if student has credit for SPAN 402.

SPPO 411 - LITERATURE AND THE ENVIRONMENT IN LATIN AMERICA
Short Title: LATIN AMER LIT & ENVIRONMENT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course aims to offer students a systematic contact with a representative sample of the literature and scholarship about the mutual relationships between human societies and their natural environments, particularly but not exclusively in Latin America. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 411 if student has credit for SPAN 403.

SPPO 412 - BOOM-BOOM-CRACK: LATIN AMERICAN NOVEL
Short Title: BOOM-BOOM-CRACK: LATIN AM NOVEL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Works by Asturias, Carpenter, Rulfo, Onetti, Vargas Llosa, Cortazar, Fuentes, and others. Examines how Spanish American novelists from the 1940s onward appropriated the techniques of European modernist literature and infused them with new cultural content. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 412 if student has credit for SPAN 403.
SPPO 415 - BORDER NARRATIVES
Short Title: BORDER NARRATIVES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will analyze certain types of cultural productions (fiction, movies, etc.) produced in geographical contact zones, that generate hybrid languages and genres. These are products of migrations and nomadic people. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 415 if student has credit for SPAN 453.

SPPO 420 - LATIN AMERICAN LITERATURE IN THE MOVIES
Short Title: LATIN AMER LIT IN THE MOVIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course analyzes the relation between literary texts and the movies, and establishes connections and adaptations of both. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 420 if student has credit for SPAN 405/SPAN 505.

SPPO 422 - LATIN AMERICAN CINEMA
Short Title: LATIN AMERICAN CINEMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course explores the national cinemas of various regions of Latin America. Special attention is given to the different periods of its development, to the close relationship between political contexts and filmmaking, to the understanding of Latin American cinema from cultural studies views, and to the current shaping of Latin America in light of globalization. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SWGS 466.

SPPO 427 - MULTICULTURALISM IN SPANISH LITERATURE AND CULTURE
Short Title: MULTICULTURALISM IN SPAN LIT
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course investigates how multiculturalism and race have operated in the Iberian Peninsula through literary texts, legal and historical documents, film, and visual and performative arts. Particular attention will be paid to the coexistence of different identities—religious, racial, and ethnic, in particular. Taught in Spanish. Recommended Prerequisite(s): SPPO 330 or SPPO 332

SPPO 430 - LATIN AMERICAN WOMEN'S CULTURE
Short Title: LATIN AMERICAN WOMEN'S CULTURE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar focuses on the analysis of the interaction of the concepts of language identity (primarily identified at an individual level) and language ideology (described as an institutional/political perspective about the nature of language and its role in society). Some of the topics include: construction and negotiation of social identity through language use, language and nationhood, language policies/planning, beliefs about proper language use, gender-biased language, language contact and multilingualism, bilingual education, etc. Taught in Spanish (some readings in English).

SPPO 435 - LANGUAGE IDEOLOGIES AND LANGUAGE IDENTITIES
Short Title: LANGUAGE IDEOLOGIES/IDENTITIES
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course analyzes the relation between literary texts and the movies, and establishes connections and adaptations of both. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SWGS 466.

SPPO 450 - TWENTIETH CENTURY MEXICAN NOVEL
Short Title: TWENTIETH CENTURY MEXICAN NOVL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course analyzes the relation between literary texts and the movies, and establishes connections and adaptations of both. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SWGS 466.
SPPO 452 - WITNESSING, TRUTH & TRAUMA: TESTIMONIAL WRITING IN MEXICO & CENTRAL AMERICA
Short Title: WITNESSING, TRUTH & TRAUMA
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar provides an exploration of testimonial writing, a crucial and controversial Latin American genre that aims at giving voice to those marginalized within society. Looking at testimonials by indigenous militants, poor women, war crime survivors, and insurgents the course explores the meaning of truth and fiction, historical reckoning, and trauma. Taught in Spanish.

SPPO 462 - DON QUIJOTE
Short Title: DON QUIJOTE
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Cervantes’s masterpiece is studied in its relationship to the books of knight errantry, and to the picaresque and pastoral novels, with emphasis on the innovative techniques of Cervantes which contribute to the birth of the modern novel. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 462 if student has credit for SPAN 412.

SPPO 466 - THE SPANISH CIVIL WAR
Short Title: THE SPANISH CIVIL WAR
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Prelude to World War II and culmination of perennial struggles between the so-called “two Spains,” the Spanish Civil War (1936-39) is a watershed moment in modern Spanish and European history. Interdisciplinary, multi-media approach: the war seen through Spanish and foreign novels, poetry, film, painting, journalism, songs, and posters. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPPO 466 if student has credit for SPAN 375.

SPPO 467 - 20TH-CENTURY SPANISH NOVEL
Short Title: 20TH-CENTURY SPANISH NOVEL
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the evolution of the Spanish novel as a work of art while exploring how cultural issues are incorporated into fictional worlds. Taught in Spanish. Mutually Exclusive: Cannot register for SPPO 467 if student has credit for SPAN 430.

SPPO 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

SPPO 490 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research in Hispanic literature, Hispanic linguistics, Hispanic culture and civilization. Open to qualified juniors and seniors interested in a topic not covered in other courses. Instructor Permission Required. Mutually Exclusive: Cannot register for SPPO 490 if student has credit for SPAN 490.

SPPO 491 - DIRECTED RESEARCH
Short Title: DIRECTED RESEARCH
Department: Modrn & Classicl Lit & Culture
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent research and investigation on any aspect of literature, linguistics, cinema, or cultural studies from Spain, Latin America, or U. S. Latinx communities. This course includes directed research and/or a research project. Student works independently with only minimal faculty supervision. Permission of instructor required. Instructor Permission Required. Repeatable for Credit.
Spanish (SPAN)

SPAN 141 - FIRST YEAR SPANISH I
Short Title: FIRST YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 141 if student has credit for SPAN 161/SPAN 222.

SPAN 142 - FIRST YEAR SPANISH II
Short Title: FIRST YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 141
Description: Continuation of SPAN 141. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/acquisition. Effective May 15, 2019, this course does not carry D1 credit. Mutually Exclusive: Cannot register for SPAN 142 if student has credit for SPAN 262.

SPAN 204 - INTERMEDIATE SPANISH FOR HERITAGE LEARNERS
Short Title: INT SPAN HERITAGE LEARNERS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is for students who have been exposed to Spanish at home, through relatives and/or in the community and who wish to improve their confidence and intermediate fluency by expanding their formal knowledge of the language and of Hispanic cultures. Authentic materials such as short stories, poetry, films and articles will be used to develop reading, writing, speaking and listening skills. Placement Test is required.
SPAN 222 - AP/OTH CREDIT IN SPANISH LANGUAGE
Short Title: AP/OTH CREDIT SPANISH LANGUAGE
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 222 if student has credit for SPAN 101/SPAN 141/SPAN 161.

SPAN 225 - AP/OTH CREDIT IN INTERMEDIATE SPANISH
Short Title: AP/OTH CREDIT INTERM. SPAN
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Transfer
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course provides credit for students who have successfully completed approved examinations, such as Advanced Placement exams. This credit counts toward the total credit hours required for graduation. Mutually Exclusive: Cannot register for SPAN 225 if student has credit for SPAN 201/SPAN 263.

SPAN 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Pacticum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

SPAN 263 - SECOND YEAR SPANISH I
Short Title: SECOND YEAR SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 142
Description: Continuation of SPAN 142. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for SPAN 263 if student has credit for SPAN 201/SPAN 225.

SPAN 264 - SECOND YEAR SPANISH II
Short Title: SECOND YEAR SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SPAN 263
Description: Continuation of SPAN 263. Development of interactional competence in Spanish (sociolinguistic and socio cultural knowledge) to communicate and interact with speakers of Spanish. The course is based on a student-centered, critical-thinking approach to language analysis/ acquisition. Mutually Exclusive: Cannot register for SPAN 264 if student has credit for SPAN 202.

SPAN 303 - ADVANCED SPANISH FOR HERITAGE STUDENTS
Short Title: ADV SPAN HERITAGE STUDENTS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SPAN 204
Description: SPAN 303 aims to bring students to advanced proficiency in Spanish, enabling them to interact confidently in a wide variety of contexts, while providing them with cultural insights about the Hispanic world. It is designed for students who come with heritage exposure and at least intermediate proficiency in Spanish.

SPAN 321 - SPECIAL TOPICS: ADVANCED SPANISH I
Short Title: SPECIAL TOPICS: ADV SPANISH I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SPAN 264
Description: This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.
SPAN 322 - SPECIAL TOPICS: ADVANCED SPANISH II
Short Title: SPECIAL TOPICS: ADV SPANISH II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SPAN 321
Description: This is a continuation of SPAN 321. This course helps students develop an advanced level of proficiency in Spanish through the analysis and use of the target language in the context of specific topics of interest that will vary.

SPAN 323 - SPANISH PROFESSIONAL PRACTICUM I
Short Title: SPANISH PROFESSIONAL PRAC I
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This hybrid course combines practicum hours and course hours (whether face to face or online) for students who are interested in using their Spanish-language skills in professional settings. Practicum working hours to be determined between student and instructor. Effective May 15, 2019, this course does not carry D1 credit. Instructor Permission Required.

SPAN 324 - SPANISH PROFESSIONAL PRACTICUM II
Short Title: SPANISH PROFESSIONAL PRAC II
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides experiential learning for student show are interested in expanding their interactional and intercultural competence in Spanish in professional settings. Students participate as apprentices which includes working in contextualized strategic scenarios (simulated and/or real) such as simulations, shadowing professionals, work-related tasks, and case studies. Department Permission Required.

SPAN 325 - SPECIAL TOPICS: ADVANCED SPANISH III
Short Title: SPECIAL TOPICS:ADV SPANISH III
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a continuation of SPAN 323 or SPAN 324. Students develop an advanced level of proficiency and interactional competence in Spanish through analysis and use of the target language in the study abroad context. Students will facilitate class discussions with students in SPAN 322; collect samples of interactional and sociolinguistic data in various settings, and analyze and classify collected date. Department Permission Required.

SPAN 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Cntr Lang & Intercultural Comm
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

Sport Management (SMGT)

SMGT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
SMGT 260 - INTRODUCTION TO SPORT MANAGEMENT
Short Title: INTRO TO SPORT MANAGEMENT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to: first, provide the student with an overview of the structure of the sport industry as well as issues facing sport organizations and how management techniques can be applied to solve business problems. Second, students will be introduced to the various sub-disciplines within sport management (marketing, law, sales, event management, etc). Third, students will become familiar with career opportunities in sport management. Special Registration is required for Juniors and Seniors.

SMGT 266 - LEADING WITH SERVICE
Short Title: LEADING WITH SERVICE
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Freshman or Sophomore. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SMGT 260
Description: This course will examine industry leaders in customer service, identifying the unique qualities that their employees exhibit. Students will learn the fundamentals of service delivery and various research and various research and analysis methods, then apply those in practical applications with local sports franchises. By the conclusion of this course, students will have created a customer service vision for a fictitious organization, developed training programs for employees and created measurable objectives for success. This course is for Freshmen and Sophomores only. Special Registration is required for Juniors and Seniors.

SMGT 276 - SPORT MANAGEMENT PRACTICUM
Short Title: SPORT MANAGEMENT PRACTICUM
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): SMGT 260 or KINE 260
Description: This class is designed to prepare students for working in the sport industry. Students will learn how to construct an effective resume, interview skills, business etiquette, etc. Students will also gain real-life experience by working with one of the numerous sports organizations in Houston for 100 hours during the course of the semester.

SMGT 320 - BUSINESS OF COLLEGE ATHLETICS
Short Title: BUSINESS OF COLLEGE ATHLETICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260
Description: This course will focus on developing an understanding of college athletics and its role in higher education. Students will develop a research project and presentation as well as learn from guest speakers and case studies.

SMGT 350 - SPORT ETHICS
Short Title: SPORT ETHICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to assist students in self-evaluating, examining and developing a philosophy, values, and moral reasoning skills. Major moral/ethical issues and theoretical frameworks inside and outside of sport will be researched and discussed. Students will experience the ethical decision-making process through opportunities for critical analysis drawing upon their philosophical bases. All major theories of ethics will be examined with special application made to the sport management environment.

SMGT 360 - SALES & REVENUE GENERATION IN SPORT
Short Title: SALES & REVENUE GENERATION
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 or KINE 260
Description: In this class, students are introduced to the characteristics that are required for successful selling in the sport industry, such as developing proposals, making persuasive sales presentations, closing deals, maintaining relationships, etc. Students will also explore the various ways that revenue is generated in the sport industry.
SMGT 361 - SPORT FINANCE AND COMMUNITY ENGAGEMENT
Short Title: SPORT FINANCE
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore economic and financial principals that are significant in the sport industry. This course also addresses the issues, challenges, and opportunities of civic life and the benefits that diverse populations receive when sports organizations use their unique power to unite members of a community who otherwise might not share in the array of benefits provided.

SMGT 362 - SPORT MARKETING
Short Title: SPORT MARKETING
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers the essentials of sport marketing which includes planning, promotions, operations, and market analysis. Students will examine the fundamental principles used in the marketing of sport, products, events, and the importance of service quality. Recommended Prerequisite(s): SMGT 260 and (HUMA 201 or LEAD 321 or BUSI 296)

SMGT 364 - SPORT LAW
Short Title: SPORT LAW
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 or KINE 260
Description: This course is designed to introduce students to the American legal system and to the types of legal reasoning used by lawyers and judges. This course will also provide an overview of how various areas of sports are integrated with the American legal system.

SMGT 365 - SPORT MEDIATION
Short Title: SPORT MEDIATION
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 and SMGT 364
Description: This course introduces the core principles of mediation. Within the class each student will become familiar with the nature of conflict, have a better understanding of culture awareness, as well as the ethics within the field of mediation. Students will conduct a full mediation while maintaining neutrality, exhibiting negotiation skills, and drafting agreements.

SMGT 366 - EVENT & VENUE MANAGEMENT
Short Title: EVENT & VENUE MANAGEMENT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 or KINE 260 and SMGT 266
Description: This course will focus on the practical applications and principles related to managing venues and events. Emphasis will be placed on the importance of budgets, tickets, staffing, crowd management, risk management, operations, and event management, and how they all work together to create a positive experience their customers and clients. Students will be expected to evaluate and understand the nuances that go into event and venue management with the help of assignments, case studies, guest speakers and practical experience (when possible). At conclusion of this course a student should fully understand what goes into creating and managing a successful event.

SMGT 368 - ISSUES IN CONTEMPORARY SPORT
Short Title: ISSUES IN CONTEMPORARY SPORT
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 or KINE 260
Description: This class examines the social institution of sport and its consequences for American society and various social organizations ranging from leisure to professional sport. Topics such as deviance in sport, discrimination, women in sport, and ethics will be covered. This class will also review the socialization implications from participation in sport.
SMGT 376 - SPORT MANAGEMENT INTERNSHIP 1
**Short Title:** SPORT MANAGEMENT INTERNSHIP 1  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)  
**Description:** Internship experience for upper-level students in sport management.

SMGT 377 - SPORT MANAGEMENT INTERNSHIP 2
**Short Title:** SPORT MANAGEMENT INTERNSHIP 2  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)  
**Description:** Internship experience for upper-level students in sport management. Repeatable for Credit.

SMGT 378 - SPORT MANAGEMENT INTERNSHIP 3
**Short Title:** SPORT MANAGEMENT INTERNSHIP 3  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)  
**Description:** Internship course in sport management offered specifically during the summer session. Repeatable for Credit.

SMGT 379 - SPORT MANAGEMENT INTERNSHIP 4
**Short Title:** SPORT MANAGEMENT INTERNSHIP 4  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Internship/Practicum  
**Credit Hours:** 1-6  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)  
**Description:** Internship experience for upper-level students in sport management. Repeatable for Credit.

SMGT 396 - THE BUSINESS & HISTORY OF THE OLYMPIC GAMES
**Short Title:** THE OLYMPICS-BUSINESS&HISTORY  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** The Olympic Games is most watched and internationally-recognized sporting event. This course will examine the history of the Olympic Games but also the political, cultural, financial, and social aspects as well.

SMGT 400 - BUSINESS OF PROFESSIONAL SPORTS
**Short Title:** BUSINESS OF PRO SPORTS  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** SMGT 276 and SMGT 360 and SMGT 362  
**Description:** This course will provide the student with an intensive, immersive learning experience in conjunction with a professional sports franchise. Students enrolled in this course will interact with senior executives from the front office who will present weekly on the challenges and opportunities facing their various operating departments. Students will engage in traditional classroom learning while also tackling real-world problems and creating potential solutions. Each week a different operating area will be examined. Department Permission Required.

SMGT 405 - RESEARCH IN SPORT MANAGEMENT
**Short Title:** RESEARCH IN SPORT MANAGEMENT  
**Department:** Sport Management  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** (KINE 319 or STAT 280) and (SMGT 260 or KINE 260)  
**Description:** This class is designed to provide students with experience working on actual research projects, likely with one of the professional sport franchises in Houston. At the end of the semester, the class will present its findings to the organization's upper management.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMGT 415</td>
<td>THEORIES OF HIGH LEVEL PERFORMANCE</td>
<td>THEORIES-HIGH LVL PERFORMANCE</td>
<td>Sport Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This is a class designed for students who plan to go into coaching or training. It will provide the most current information available for training elite athletes in the area of strength, power, speed, and flexibility. Experts in the field of strength training, plyometrics, speed training, and flexibility will speak. The nature and basis of elite athlete training related to exercise physiology, biomechanics, motor learning, sport psychology, and nutrition will be explored.</td>
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<tr>
<td>SMGT 430</td>
<td>INTRODUCTION TO SPORT ANALYTICS</td>
<td>INTRO TO SPORT ANALYTICS</td>
<td>Sport Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>The focus of this course will be to provide the basics for understanding and applying analytical techniques to professional teams both on the sports side (predicting player performance and outcomes) and the business side (establishing business models). A survey into basic statistical techniques (multiple regression, discriminant analysis, etc.) will be the foundation of the class.</td>
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<tr>
<td>SMGT 450</td>
<td>SPORT BUSINESS ANALYTICS</td>
<td>SPORT BUSINESS ANALYTICS</td>
<td>Sport Management</td>
<td>Standard Letter</td>
<td>Seminar</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>This course will assist students in applying and developing advanced analytical skills specifically designed to evaluate sport performance as well as predict team &amp; individual success. Students will achieve this through the development of critical thinking skills as well as advanced knowledge in modeling, statistical analysis, predictive analytics, game theory, optimization, data mining, machine learning techniques, and simulation.</td>
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<tr>
<td>SMGT 460</td>
<td>BUSINESS ANALYSIS IN SPORT</td>
<td>BUSINESS ANALYSIS IN SPORT</td>
<td>Sport Management</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
<td>Undergraduate Upper-Level</td>
<td>Students will be exposed to the aspects of effectively planning for and introducing change in sport organizations. This will include an examination of the successful management of organizational and behavioral changes, focusing on planned and unplanned changes and emphasizing development of change strategies and the measurement of change effectiveness.</td>
</tr>
</tbody>
</table>
SMGT 464 - ADVANCED SPORT LAW
Short Title: ADVANCED SPORT LAW
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 364
Description: This course examines legal issues impacting amateur and professional sports. Students will analyze sport cases and materials that cover multiple disciplines, including contracts, torts, constitutional law, labor and employment, and criminal law. Students will augment their learning through analysis and discussion of up-to-the-minute professional and collegiate sports law developments.

SMGT 465 - SPORT CONTRACTS AND NEGOTIATION
Short Title: SPORT CONTRACTS & NEGOTIATION
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): SMGT 260 and SMGT 364
Description: This course introduces students to contracts and negotiations and how they are used in sport management. Students develop an understanding of contract language, drafting and negotiation, as well as practical experience applying those techniques through exercises and role-play designed to increase understanding and enhance learning.

SMGT 466 - SPORT PUBLIC RELATIONS
Short Title: SPORT PUBLIC RELATIONS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 362 or KINE 362)
Description: An applied study of media in business and sport with an emphasis on press conferences, news releases, media-athlete relations, communications, print journalism, and community relations. Recommended Prerequisite(s): HUMA 201 or LEAD 321.

SMGT 467 - SPORTS JOURNALISM
Short Title: SPORTS JOURNALISM
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Successful journalists must be able to communicate through their writing, their spoken word, and also through video. Students in this class will learn all of the different journalism formats and techniques including writing short and long articles, blogging, videos, podcasts, interviews, PR writing, social media, etc. Students will complete assignments in each of these areas. When students finish the course, they will have an updated portfolio filled with examples of their work. Recommended Prerequisite(s): SMGT 466

SMGT 470 - SPORT MANAGEMENT SEMINAR
Short Title: SPORT MANAGEMENT SEMINAR
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (SMGT 260 or KINE 260) and (SMGT 276 or KINE 276)
Description: The object of this course is to expose students to upper-level problem-solving methods in the sport management industry. Students will learn by writing and solving case studies as well as discussing current issues. This class is designed for students who are pursuing a career in the sport management industry. Students will also interact with a series of speakers from the industry. Students should have completed the majority of SMGT classes before considering taking this course. Instructor Permission Required. Repeatable for Credit.

SMGT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
SMGT 490 - SEMINAR IN SPORTS ANALYTICS
Short Title: SEMINAR IN SPORTS ANALYTICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): COMP 140 and SMGT 431 and (STAT 315 or DSCI 301) and STAT 405 and (SOSC 302 or STAT 280)
Description: This course is designed to be the culminating experience in the Sport Analytics Concentration. Students will complete a semester-long research project while also hearing from selected industry professionals who will discuss their cutting edge research in the field of Sport Analytics.

SMGT 495 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment limited to students with a class of Junior or Senior. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Reading or research project to be determined by discussions between student(s) and faculty member(s). Must have the approval of the Chair of the Department of Sport Management and the participating faculty member. Instructor Permission Required.

SMGT 498 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics may vary. Please consult with the Sport Management Program for additional information. Repeatable for Credit.

SMGT 499 - TEACHING PRACTICUM
Short Title: TEACHING PRACTICUM
Department: Sport Management
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Advanced teaching experience for upper level students who have demonstrated a particular aptitude and interest in an area of sport management. Students assist in conducting a course in which they have previously excelled. The student will learn techniques in course management, instruction, and evaluation. The Chair of the Department of Sport Management must approve all teaching assistants. Prerequisites: declared Sport Management major. Student must have received at least an "A-" in the course serving as the practicum. Instructor Permission Required. Repeatable for Credit.

Statistics (STAT)

STAT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

STAT 280 - ELEMENTARY APPLIED STATISTICS
Short Title: ELEMENTARY APPLIED STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics include basic probability, descriptive statistics, probability distributions, confidence intervals, significance testing, simple linear regression and correlation, association between categorized variables.

STAT 305 - INTRODUCTION TO STATISTICS FOR BIOSCIENCES
Short Title: INTRO TO STAT FOR BIOSCIENCES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 101 or MATH 105 or MATH 112) and (MATH 102 or MATH 106)
Description: An introduction to statistics for Biosciences with emphasis on statistical models and data analysis techniques. Computer-assisted data analysis and examples, are explored in laboratory sessions. Topics include descriptive statistics, correlation and regression, categorical data analysis, statistical inference through confidence intervals and significance testing, rates, and proportions. Real-world examples are emphasized. Recommended Prerequisite(s): MATH 212 or MATH 222
STAT 310 - PROBABILITY AND STATISTICS
Short Title: PROBABILITY & STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): MATH 102 or MATH 106
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Advanced topics (not covered in STAT 310 or STAT 315) include the modeling stochastic phenomena and asymptotic statistical theory. Intended for students wishing to understand more rigorous statistical theory and for those contemplating a BS degree in Statistics or graduate school in statistical science. Required prerequisite(s): MATH 212. Mutually Exclusive: A student cannot register for STAT 311 if student has credit for BUSI 395.

STAT 311 - HONORS PROBABILITY AND MATHEMATICAL STATISTICS
Short Title: HONORS STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): MATH 212 or MATH 222
Description: Probability and the central concepts and methods of statistics including probability, random variables, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Advanced topics (not covered in STAT 310 or STAT 315) include the modeling stochastic phenomena and asymptotic statistical theory. Intended for students wishing to understand more rigorous statistical theory and for those contemplating a BS degree in Statistics or graduate school in statistical science. Required prerequisite(s): MATH 212 (or equivalent). Mutually Exclusive: A student cannot register for STAT 311 if student has credit for ECON 307/STAT 310 or STAT 315/DSCI 301.

STAT 312 - PROBABILITY & STATISTICS FOR ENGINEERS
Short Title: PROB & STAT FOR ENGINEERS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): MATH 102
Description: Probability and the central concepts and methods of statistics including probability, distributions of random variables, expectation, sampling distributions, estimation, confidence intervals, and hypothesis testing. Examples are predominantly from civil and environmental engineering. Recommended Prerequisite(s): MATH 212.

STAT 313 - UNCERTAINTY AND RISK IN URBAN INFRASTRUCTURES
Short Title: RISK-BASED DEC UNDER UNCERT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): STAT 312 or STAT 310 or STAT 315 or DSCI 301 or ECON 307 or ECON 382 or STAT 331 or ELEC 331
Description: This course explores methods for practical risk-based decision support, particularly for infrastructure systems. Uncertainty quantification (UQ) to external events including natural hazards is at the core of risk-informed design, operation, and mitigation actions. UQ also guides engineering practice and enables code developments. The course emphasizes decision theory, Bayesian approaches, risk analysis tools, and infrastructure safety. Cross-list: CEVE 313. Repeatable for Credit.

STAT 315 - PROBABILITY AND STATISTICS FOR DATA SCIENCE
Short Title: STATISTICS FOR DATA SCIENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): MATH 102 or MATH 106 or MATH 112
Description: An introduction to mathematical statistics and computation for applications to data science. Topics include probability, random variables expectation, sampling distributions, estimation, confidence intervals, hypothesis testing and regression. A weekly lab will cover the statistical package, R, and data projects. Cross-list: DSCI 301. Recommended Prerequisite(s): MATH 212. Mutually Exclusive: Cannot register for STAT 315 if student has credit for BUSI 395.

STAT 376 - ECONOMETRICS
Short Title: ECONOMETRICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Prerequisite(s): (ECON 209 or ECON 309 or ECON 446) and (ECON 308 or ECON 401 or ECON 477)
Description: Survey of estimation and forecasting models. Includes multiple regression time series analysis. A good understanding of linear algebra is highly desirable. Cross-list: ECON 310. Mutually Exclusive: Cannot register for STAT 376 if student has credit for ECON 409/STAT 400.
STAT 385 - METHODS OF DATA ANALYSIS AND SYSTEM OPTIMIZATION
Short Title: METHODS FOR DATA ANALYSIS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 305 or STAT 310 or ECON 307 or STAT 312 or STAT 315 or DSCI 301
Description: The three general areas covered in this methodology oriented course are (a) statistical methods, including regression, sampling, and experimental design; (b) simulation based methods in statistics, queuing and inventory problems; (c) an introduction to optimization methods. Excel serves as the basic computing software.

STAT 405 - R FOR DATA SCIENCE
Short Title: R FOR DATA SCIENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group III
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 305 or STAT 312 or STAT 310 or ECON 307 or STAT 385 or STAT 315 or DSCI 301
Description: This course introduces students to the statistical programming language, R, and how to use it in statistical and data science problems. The course traces the data science pipeline from importing data into R, exploring and visualizing data, applying a variety of statistical methods, and communicating results. Important computational tools for data science (e.g. databases, web scraping, and big data) and good programming practice are integrated throughout the course. No programming experience is required. Graduate/Undergraduate Equivalency: STAT 605. Mutually Exclusive: Cannot register for STAT 405 if student has credit for STAT 605.

STAT 406 - SAS STATISTICAL PROGRAMMING
Short Title: SAS STATISTICAL PROGRAMMING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 305 or STAT 312 or ECON 307 or ECON 382 or STAT 385 or STAT 310 or STAT 315 or DSCI 301
Description: Students will learn how to work within the statistical programming language SAS. The course covers from getting data into SAS, transforming and plotting it, to applying appropriate statistical analysis, and communicating the results. Important topics such as database managing with SQL, macro programming, interactive Matrix Language, and efficient programming in general are integrated throughout the course. Graduate/Undergraduate Equivalency: STAT 606. Mutually Exclusive: Cannot register for STAT 406 if student has credit for STAT 606.

STAT 410 - LINEAR REGRESSION
Short Title: LINEAR REGRESSION
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 310 or STAT 312 or ECON 307 or ECON 382 or STAT 315 or DSCI 301
Description: An introduction to linear regression and its applications. Topics include simple and multiple linear regression, least squares, analysis of variance, model selection, diagnostics, remedial measures. Applications to real data using statistical software are emphasized. Recommended Prerequisite(s): CAAM 335 or MATH 355.

STAT 411 - ADVANCED STATISTICAL METHODS
Short Title: ADVANCED STATISTICAL METHODS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or ECON 382) and (STAT 410 or STAT 615)
Description: Advanced topics in statistical applications such as sampling, experimental design and statistical process control. STAT 411 will have assignments and examinations focusing more on basic concepts than on theoretical methods. Graduate/Undergraduate Equivalency: STAT 616. Mutually Exclusive: Cannot register for STAT 411 if student has credit for STAT 616.

STAT 413 - INTRODUCTION TO STATISTICAL MACHINE LEARNING
Short Title: INTRO TO STAT MACHINE LEARNING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (STAT 310 or STAT 312 or STAT 315 or DSCI 301 or ECON 307 or ECON 382) and (STAT 410 or STAT 615)
Description: This course is an introduction to concepts, methods, and best practices in statistical machine learning. Topics covered include regularized regression, classification, kernels, dimension reduction, clustering, trees, and ensemble learning. Emphasis will be placed on applied data analysis and computation. Recommended Prerequisite(s): STAT 411 and CAAM 335 or MATH 354 or MATH 355.
STAT 415 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 405 or COMP 140 or CAAM 210
Description: Students in this course will advise clients at Rice and beyond in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 515. Recommended Prerequisite(s): STAT 413 or COMP 440 or COMP 540 or COMP 330 or STAT 411. Mutually Exclusive: Cannot register for STAT 415 if student has credit for STAT 515. Repeatable for Credit.

STAT 418 - PROBABILITY
Short Title: PROBABILITY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics include random variables, distributions, transformations, moment generating functions, common families of distributions, independence, sampling distributions, and basic stochastic processes. STAT 418 will have assignments and examinations focusing more on basic concepts than on theoretical methods. Graduate/Undergraduate Equivalency: STAT 518. Mutually Exclusive: Cannot register for STAT 418 if student has credit for STAT 518.

STAT 419 - STATISTICAL INference
Short Title: STATISTICAL INFINERCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): (MATH 354 or MATH 355 or CAAM 334 or CAAM 335) and STAT 418
Description: Topics include principles of data reduction, point estimation, hypothesis testing, interval estimation, Bayesian inference, Decision Theory, inference foundations of analysis of variance and regression. STAT 419 will have assignments and examinations focusing more on basic concepts than on theoretical methods. Graduate/Undergraduate Equivalency: STAT 519. Mutually Exclusive: Cannot register for STAT 419 if student has credit for STAT 519.

STAT 421 - APPLIED TIME SERIES AND FORECasting
Short Title: APPLTD TIME SERIES/FORECASTNG
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 410 or ECON 310
Description: Applied time series modeling and forecasting, with applications to financial markets. STAT 621 is a graduate version of STAT 421 with advanced assignments. Graduate/Undergraduate Equivalency: STAT 621. Mutually Exclusive: Cannot register for STAT 421 if student has credit for STAT 621.

STAT 423 - PROBABILITY IN BIOINFORMATICS AND GENETICS
Short Title: PROB BIOINFORMATICS & GENETICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 310 or ECON 307 or STAT 315 or DSCI 301 or STAT 312 or STAT 418
Description: Course introduces the student to modern biotechnology and genomic data. Statistical methods to analyze genomic data are covered, including probability models, basic stochastic processes, and statistical modeling. Biological topics include DNA sequence analysis, phylogenetic inference, gene finding, and molecular evolution. Graduate/Undergraduate Equivalency: STAT 623. Mutually Exclusive: Cannot register for STAT 423 if student has credit for STAT 623.

STAT 425 - INTRODUCTION TO BAYESIAN INFERENCE
Short Title: INTRO TO BAYESIAN INFERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 410 and STAT 405 or COMP 210 or COMP 140 or COMP 130
Description: This course is an introduction to Bayesian inference, with emphasis on concepts and methods for analyzing data. We will consider a variety of models, including MCMC algorithms and methods for linear regression and hierarchical models. Computational methods will be emphasized. Recommended Prerequisite(s): STAT 411 or CAAM 335 or MATH 355.
STAT 435 - DATA SCIENCE PROJECTS
Short Title: DATA SCIENCE PROJECTS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 535. Mutually Exclusive: Cannot register for STAT 435 if student has credit for STAT 535. Repeatable for Credit.

STAT 440 - STATISTICS FOR BIOENGINEERING
Short Title: STATISTICS FOR BIOENGINEERING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): BIOE 252 (may be taken concurrently)
Description: Course covers application of statistics to bioengineering. Topics include descriptive statistics, estimation, hypothesis testing, ANOVA, and regression. BIOE 252 may be taken concurrently with BIOE 440. BIOE 440/STAT 440 and BIOE 439 cannot both be taken for credit. Cross-list: BIOE 440. Mutually Exclusive: Cannot register for STAT 440 if student has credit for BIOE 439.

STAT 449 - QUANTITATIVE FINANCIAL RISK MANAGEMENT
Short Title: QUAN FINANCIAL RISK MANAGEMENT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): MATH 211 and MATH 212 and (ECON 400 or STAT 400 or ECON 409 or STAT 410) or STAT 310 or ECON 307 or STAT 315 or DSCI 301 or STAT 312 or STAT 331 or ELEC 331
Description: This course covers the use of financial securities and derivatives to take or hedge financial risk positions. Most commonly used instruments, from simple forwards and futures to exotic options and swaptions are covered. The pricing of derivatives securities will also be studied, but the emphasis will be on the mechanics and uses of financial engineering methods. STAT 449 is mutually exclusive to ECON 449. Credit cannot be given for both. Graduate/Undergraduate Equivalency: STAT 649. Mutually Exclusive: Cannot register for STAT 449 if student has credit for ECON 449.

STAT 450 - SENIOR CAPSTONE PROJECT
Short Title: SENIOR CAPSTONE PROJECT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment limited to students with a class of Senior. Enrollment is limited to students with a major in Statistics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students engage in individual or team-oriented statistical projects to solve problems motivated by theory, computation, or application to real problems and data. Typical projects involve statistical modeling, data analysis, and computing to answer substantive questions in engineering or the physical, biological, or social sciences. Participants attend regular seminars addressing project development, research techniques and effective written and verbal communication skills in presenting statistical results. Repeatable for Credit.

STAT 453 - BIOSTATISTICS
Short Title: BIOSTATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 410
Description: An overview of statistical methodologies useful in the practice of Biostatistics. Topics include epidemiology, rates, and proportions, categorical data analysis, regression, and logistic regression, retrospective studies, case-control studies, survival analysis. Real biomedical applications serve as context for evaluating assumptions of statistical methods and models. R serves as the computing software. Graduate/Undergraduate Equivalency: STAT 553. Mutually Exclusive: Cannot register for STAT 453 if student has credit for STAT 553.

STAT 457 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
STAT 482 - QUANTITATIVE FINANCIAL ANALYTICS
Short Title: QUANT FINANCIAL ANALYTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A modern approach to fundamental analytics of securities, the classic works of Graham and Dodd. Deconstructing the Efficient Market Hypothesis Financial Statement Analysis, Capital Market Theory, CAPM, APT, Fama-French Empirical Financial Forecasting. Graduate/Undergraduate Equivalency: STAT 682. Mutually Exclusive: Cannot register for STAT 482 if student has credit for STAT 682.

STAT 484 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIR RISK ASSES&HUMAN HLTH
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 280 or STAT 305
Description: A project oriented computer intensive course focusing on statistical and mathematical solutions and investigations for the purpose of environmental decisions. This course is the undergraduate version of STAT 684 with reduced requirements. Graduate/Undergraduate Equivalency: STAT 684. Mutually Exclusive: Cannot register for STAT 484 if student has credit for STAT 684.

STAT 485 - ENVIRONMENTAL STATISTICS AND DECISION MAKING
Short Title: ENVIR STAT & DECISION MAKING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 305 or STAT 385
Description: A project oriented computer intensive course focusing on statistical and mathematical solutions and investigations for the purpose of environmental decisions. This course is the undergraduate version of STAT 685 with reduced requirements. Graduate/Undergraduate Equivalency: STAT 685. Recommended Prerequisite(s): STAT 305 and STAT 385. Mutually Exclusive: Cannot register for STAT 485 if student has credit for STAT 685.

STAT 486 - MARKET MODELS
Short Title: MARKET MODELS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): STAT 310 or ECON 307 or STAT 315 or DSCI 301 or ECON 382 or STAT 312
Description: This course takes the classical efficient market models and superimposes upon it models for other stochastic phenomena not generally accounted for in efficient market theory, showing how risk is lessened by portfolios and other mechanisms. This undergraduate course uses computer simulations as an alternative to closed form solutions. Graduate/Undergraduate Equivalency: STAT 686. Mutually Exclusive: Cannot register for STAT 486 if student has credit for STAT 686.

STAT 487 - COFES BLOCKCHAIN AND CRYPTOCURRENCIES
Short Title: COFES BLOCKCHAIN/CRYPTO
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How will blockchains empower positive and radical change in our increasingly globalized and data-driven society? Students should be prepared for exposure to highly interdisciplinary discussions regarding applying new technology to rethink existing economic & social structures. No technical or engineering experience is required. Graduate/Undergraduate Equivalency: STAT 687.

STAT 490 - UNDERGRADUATE RESEARCH IN STATISTICS
Short Title: UNDERGRADUATE RESEARCH IN STAT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides 1-3 credit hours of credit for STAT majors who wish to pursue a research project of mutual interest to the student and a faculty member in a selected area of statistical specialization. The student will conduct independent research under the faculty member's direction. Repeatable for Credit.

STAT 491 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
STAT 492 - STATISTICS PRACTICUM
Short Title: STATISTICS PRACTICUM
Department: Statistics
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hours: 1
Restrictions: Enrollment is limited to students with a major in Statistics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 498, MATH 498. Graduate/Undergraduate Equivalency: STAT 698. Mutually Exclusive: Cannot register for STAT 498 if student has credit for STAT 698. Repeatable for Credit.

STAT 496 - RTG CROSS-TRAINING IN DATA SCIENCE
Short Title: RTG CROSS-TRAINING IN DATA SCI
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Computer Science or Statistics. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course to introduce students to topics in Data Science at the interface between Statistics and Computer Science. Students participate in the process of preparing, delivering and critiquing talks. Topics change each semester. Instructor Permission Required. Cross-list: COMP 496. Graduate/Undergraduate Equivalency: STAT 696. Mutually Exclusive: Cannot register for STAT 496 if student has credit for STAT 696. Repeatable for Credit.

STAT 498 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES
Short Title: RESEARCH THEMES IN MATH. SCI.
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 498, MATH 498. Graduate/Undergraduate Equivalency: STAT 698. Mutually Exclusive: Cannot register for STAT 498 if student has credit for STAT 698. Repeatable for Credit.

STAT 499 - MATHEMATICAL SCIENCES SEMINAR
Short Title: MATHEMATICAL SCIENCES SEMINAR
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course prepares a student for research in the mathematical sciences. Topics will change each semester. Current topics include bioinformatics, biomathematics, computational finance, simulation driven optimization, and data simulation. Each semester may introduce new topics. Graduate/Undergraduate Equivalency: STAT 699. Repeatable for Credit.
Course URL: www.statistics.rice.edu (http://www.statistics.rice.edu)

STAT 502 - NEURAL MACHINE LEARNING I
Short Title: NEURAL MACHINE LEARNING I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of major neural machine learning (Artificial Neural Network) paradigms. Analytical discussion of supervised and unsupervised neural learning algorithms and their relation to information theoretical methods. Practical applications to data analysis such as pattern recognition, clustering, classification, function approximation/ regression, non-linear PCA, projection pursuit, independent component analysis, with lots of examples from image and digital processings. Details are posted at www.ece.rice.edu/~erzsebet/ANNcourse.html. Cross-list: COMP 502, ELEC 502.
Course URL: www.ece.rice.edu/~erzsebet/ANNcourse.html (http://www.ece.rice.edu/~erzsebet/ANNcourse.html)

STAT 503 - TOPICS IN METHODS AND DATA ANALYSIS
Short Title: TOPICS METHODS&DATA ANALYSIS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Applications of least squares and general linear mode. Cross-list: POLI 503.

STAT 509 - ADVANCED PSYCHOLOGICAL STATISTICS I
Short Title: ADVANCED PSYC STATISTICS I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to students with a major in Human-Comp Inter & Humn Factrs or Psychology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Introduction to inferential statistics, with emphasis on analysis of variance. Students who do not meet registration requirements as Graduate and Psychology or MHCIHF (Master in Human-Computer Interaction and Human Factors) Majors must receive instructor permission to register. Cross-list: PSYC 502.
STAT 510 - ADVANCED PSYCHOLOGICAL STATISTICS II
Short Title: ADVANCED PSYC STATISTICS II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): PSYC 502 or STAT 509
Description: A continuation of PSYC 502, focusing on multiple regression. Other multivariate techniques and distribution-free statistics are also covered. Cross-list: PSYC 503.

STAT 514 - INTRODUCTION TO BIOSTATISTICS
Short Title: INTRODUCTION TO BIOSTATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to students with a major in Bioengineering. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Presents basic and advanced methods of statistics as applied to problems in bioengineering. Demonstrates techniques for data organization, exploration, and presentation. Foundations of statistical estimation, inference, and testing are reviewed. Optimal planning of experiments is explored. Advanced techniques include multiple regression, variable selection, logistic regression, analysis of variance, survival analysis, multiple measurements and measurements over time. Additional topics, such as Bayesian methods, will be discussed as time allows. Labs will use the statistical software JMP and/or R. Cross-list: BIOE 514.

STAT 515 - DATA SCIENCE CONSULTING
Short Title: DATA SCIENCE CONSULTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students in this course will advise clients from across the Rice community in a data science consulting clinic, learn best practices in consulting, and gain exposure to a variety of real data science problems. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 415. Recommended Prerequisite(s): STAT 413 or problems. Instructor Permission Required. Graduate/Undergraduate

STAT 518 - PROBABILITY
Short Title: PROBABILITY
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Topics include random variables, distributions, transformations, moment generating functions, common families of distributions, independence, sampling distributions, and basic stochastic processes. STAT 518 will have more advanced assignments and examinations focusing on theoretical methods. Graduate/Undergraduate Equivalency: STAT 418. Mutually Exclusive: Cannot register for STAT 518 if student has credit for STAT 418.

STAT 519 - STATISTICAL INFERENCE
Short Title: STATISTICAL INFERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518
Description: Topics include principles of data reduction, point estimation, hypothesis testing, interval estimation, Bayesian inference, Decision Theory, inference foundations of analysis of variance and regression. STAT 519 will have more advanced assignments and examinations focusing on theoretical methods. Graduate/Undergraduate Equivalency: STAT 419. Mutually Exclusive: Cannot register for STAT 519 if student has credit for STAT 419.

STAT 525 - BAYESIAN STATISTICS
Short Title: BAYESIAN STATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course covers Bayesian Inference and methods for analyzing data. The emphasis will be on applied data analysis rather than theoretical development. We will consider a variety of models, including linear regression, hierarchical models, and models for categorical data. Recommended Prerequisite(s): STAT 519 and STAT 615 and STAT 605.

STAT 532 - FOUNDATIONS OF STATISTICAL INFERENCE I
Short Title: FOUNDATIONS OF STAT INF I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519
Description: The first semester in a two-semester sequence in mathematical statistics: random variables, distributions, small and large sample theorems of decision theory and Bayesian methods, hypothesis testing, point estimation, and confidence intervals; topics such as exponential families, univariate and multivariate linear models, and nonparametric inference will also be discussed. Required for graduate students in statistics.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Short Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
<th>Course Level</th>
<th>Prerequisite(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 533</td>
<td>FOUNDATIONS OF STATISTICAL INFERENCE II</td>
<td>FOUNDATIONS OF STAT INF II</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 532</td>
<td>A continuation of STAT 532. Required for Ph.D. students in statistics.</td>
</tr>
<tr>
<td>STAT 535</td>
<td>DATA SCIENCE PROJECTS</td>
<td>DATA SCIENCE PROJECTS</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 535</td>
<td>In this project-based course, student teams will complete semester-long data science research or analysis projects selected from a variety of disciplines and industries. Students will also learn best practices in data science. Instructor Permission Required. Graduate/Undergraduate Equivalency: STAT 435. Mutually Exclusive: Cannot register for STAT 535 if student has credit for STAT 435. Repeatable for Credit.</td>
</tr>
<tr>
<td>STAT 540</td>
<td>INTERNSHIP IN STATISTICAL MODELING</td>
<td>PRACTICUM IN STAT &amp; DATA SCI</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Internship/Practicum</td>
<td>1-2</td>
<td>Enrollment is limited to students with a major in Statistics. Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 519 and (STAT 615 or STAT 410)</td>
<td>Designed for graduate students in statistics. This course introduces current theoretical and applied problems encountered in statistical practice through practical internships. Students will be required to complete a paid or unpaid off-campus internship. MSTAT students will be required to submit a written, 10-15 page report/document summarizing the statistical experience developed during the internship, as well documenting how the internship was instrumental to the Master's in Statistical course of study. Repeatable for Credit.</td>
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<tr>
<td>STAT 541</td>
<td>MULTIVARIATE ANALYSIS</td>
<td>MULTIVARIATE ANALYSIS</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 410 or STAT 615</td>
<td>Study of multivariate data analysis and theory. Topics include normal theory, principal components, factor analysis, discrimination, estimation and hypothesis testing, multivariate analysis of variance and regression clustering.</td>
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<tr>
<td>STAT 542</td>
<td>SIMULATION</td>
<td>SIMULATION</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 519 and (STAT 615 or STAT 410)</td>
<td>Topics in stochastic simulation including; random number generators; Monte Carlo methods, resampling methods, Markov Chain Monte Carlo, importance sampling and simulation based estimation for stochastic processes.</td>
</tr>
<tr>
<td>STAT 545</td>
<td>GLM &amp; CATEG'L DATA ANALYSIS</td>
<td>GLM &amp; CATEG'L DATA ANALYSIS</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 519 or STAT 615 or STAT 410</td>
<td>Contingency tables, association parameters, chi-squared tests, general theory of generalized linear models, logistics regression, loglinear models, poisson regression.</td>
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<tr>
<td>STAT 547</td>
<td>SURVIVAL ANALYSIS</td>
<td>SURVIVAL ANALYSIS</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 519 and STAT 615</td>
<td>Lifetime tables, cumulative distribution theory, censored data, Kaplan-Meier survival curves, log-rank tests, Cox proportional hazards models, parametric and non parametric estimation, hypothesis testing.</td>
</tr>
<tr>
<td>STAT 549</td>
<td>FUNCTIONAL DATA ANALYSIS</td>
<td>FUNCTIONAL DATA ANALYSIS</td>
<td>Statistics</td>
<td>Standard Letter</td>
<td>Lecture</td>
<td>3</td>
<td>Enrollment is limited to Graduate level students.</td>
<td>Graduate</td>
<td>STAT 533 and STAT 581</td>
<td>Statistical methods for functional data; spaces of functions; pre-processing of functional data; probability models for functional data; basis representations including spline functions, orthogonal bases such as wavelets, and functional principal components; methods of inference for functional data including both frequentist and Bayesian methods.</td>
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</tbody>
</table>
STAT 550 - NONPARAMETRIC FUNCTION ESTIMATION
Short Title: NONPARAMETRIC FUNCTION EST
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Survey of topics in data analysis including data visualization, multivariate density estimation, and nonparametric regression. Advanced applications will include clustering, discrimination, dimension reduction, and bump-hunting using nonparametric density procedures.

STAT 551 - ADVANCED TOPICS IN TIME SERIES
Short Title: ADVANCED TOPICS IN TIME SERIES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 552 or STAT 621 or STAT 622
Description: The course will cover current topics in both modeling and forecasting discrete and continuous time series. A brief coverage will also be given to spatial and spatial-temporal processes.

STAT 552 - APPLIED STOCHASTIC PROCESSES
Short Title: APPLIED STOCHASTIC PROCESSES
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518
Description: This course covers the theory of some of the most frequently used stochastic processes in application; discrete and continuous time, Markov chains, Poisson and renewal processes, and Brownian motion.

STAT 553 - BIOSTATISTICS
Short Title: BIOSTATISTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615
Description: Same as STAT 453 with advanced problem sets. Graduate/Undergraduate Equivalency: STAT 453. Mutually Exclusive: Cannot register for STAT 553 if student has credit for STAT 453.

STAT 555 - BIOSTATISTICS CONSULTING AND COLLABORATION
Short Title: BIOSTAT CONSULTG & COLLAB
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 545 and STAT 553 and STAT 615
Description: Students will gain experience by working on real collaborative projects that biostatisticians encounter every day. The goal of the course is to introduce students to projects where statistics and science meet and interact to produce knowledge. The students will learn to work with clinical/basic science collaborators to elicit the scientific question of interest, design studies, identify the correct statistical analyses tools, and communicate the results in both oral and written form. We will also address important topics related to developing productive collaborations, such as building trust and mutual respect, effective communication, participating in multidisciplinary teams and reproducible research. This course is also offered at GSBS/MD Anderson Cancer Center as GS01 1723. Instructor Permission Required. Repeatable for Credit.
Course URL: statistics.rice.edu (http://statistics.rice.edu)

STAT 581 - MATHEMATICAL PROBABILITY I
Short Title: MATHEMATICAL PROBABILITY I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate

STAT 582 - MATHEMATICAL PROBABILITY II
Short Title: MATHEMATICAL PROBABILITY II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 581
Description: Continuation of STAT 581.

STAT 583 - INTRODUCTION TO RANDOM PROCESSES AND APPLICATIONS
Short Title: INTRO RANDOM PROCESSES & APPL
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Review of basic probability; Sequences of random variables; Random vectors and estimation; Basic concepts of random processes; Random processes in linear systems, expansions of random processes; Wiener filtering; Spectral representation of random processes, and white-noise integrals. Cross-list: CAAM 583, ELEC 533.
STAT 601 - STATISTICS COLLOQUIUM
Short Title: STATISTICS COLLOQUIUM
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course introduces students to the statistical programming language, R, and how to use it in statistical and data science problems. The course traces the data science pipeline from importing data into R, exploring and visualizing data, applying a variety of statistical methods, and communicating results. Important computational tools for data science (e.g. databases, web scraping, and big data) and good programming practice are integrated throughout the course. No programming experience is required. STAT 601 includes more advanced assignments and/or examinations than STAT 405. Graduate/Undergraduate Equivalency: STAT 405. Mutually Exclusive: Cannot register for STAT 605 if student has credit for STAT 405.

STAT 602 - NEURAL MACHINE LEARNING AND DATA MINING II
Short Title: NEURAL MACHINE LEARNING II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ELEC 502 or COMP 502 or STAT 502
Description: Advanced topics in ANN theories, with a focus on learning high-dimensional complex manifolds with neural maps (Self-Organizing Maps, Learning Vector Quantizers and variants). Application to data mining, clustering, classification, dimension reduction, sparse representation. The course will be a mix of lectures and seminar discussions with active student participation, based on most recent research publications. Students will have access to professional software environment to implement theories. Cross-list: COMP 602, ELEC 602. Repeatable for Credit.
Course URL: www.ece.rice.edu/~erzsebet/NMLcourseII.html

STAT 604 - COMPUTATIONAL ECONOMICS
Short Title: COMPUTATIONAL ECONOMICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 501 and ECON 502 and ECON 505 and ECON 508 and ECON 510 and ECON 511 and MATH 321
Description: Numerical methods most commonly used in economics and their application to frontier research projects in economic modeling. Topics include optimization theory and numerical integration. Cross-list: ECON 504.

STAT 605 - R FOR DATA SCIENCE
Short Title: R FOR DATA SCIENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 504.
Description: An Introduction to the statistical programming language, R, and its application to data science problems. The course covers modern computational tools for data science (e.g. databases, web scraping, big data) and good programming practice are integrated throughout the course. No programming experience is required. Repeatable for Credit.
STAT 606 - SAS STATISTICAL PROGRAMMING
Short Title: SAS STATISTICAL PROGRAMMING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Students will learn how to work within the statistical programming language SAS. The course covers from getting data into SAS, transforming and plotting it, to applying appropriate statistical analysis, and communicating the results. Important topics such as database managing with SQL, macro programming, interactive Matrix Language, and efficient programming in general are integrated throughout the course. Graduate/Undergraduate Equivalency: STAT 406. Mutually Exclusive: Cannot register for STAT 606 if student has credit for STAT 406.

STAT 610 - ECONOMETRICS I
Short Title: ECONOMETRICS I
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Estimation and inference in single equation regression models, multicollinearity, autocorrelated and heteroskedastic disturbances, distributed lags, asymptotic theory, and maximum likelihood techniques. Emphasis is placed on critical analysis of the literature. Cross-list: ECON 510.

STAT 611 - ECONOMETRICS II
Short Title: ECONOMETRICS II
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): ECON 510 or STAT 610
Description: Topics in linear and nonlinear simultaneous equations estimation, including panel data, qualitative and categorical dependent variable models, duration analysis, simulation-based estimation, treatment effects, stochastic production frontier estimation. Cross-list: ECON 511.

STAT 613 - STATISTICAL MACHINE LEARNING
Short Title: STAT MACHINE LEARNING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615 and STAT 431 may be taken concurrently with STAT 621
Description: This course is an advanced survey of statistical machine learning theory and methods. Emphasis will be placed methodological, theoretical, and computational aspects of tools such as regularized regression, classification, kernels, dimension reduction, clustering, graphical models, trees, and ensemble learning. Recommended Prerequisite(s): STAT 615 and STAT 605 and STAT 519.

STAT 615 - REGRESSION AND LINEAR MODELS
Short Title: REGRESSION AND LINEAR MODELS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): (STAT 310 or STAT 312 or ECON 307 or ECON 382) and (MATH 355 or CAAM 335)
Description: A survey of regression, linear models, and experimental design. Topics include simple and multiple linear regression, single- and multi-factor studies, analysis of variance, analysis of covariance, model selection, diagnostics. Data analysis using statistical software is emphasized.
Course URL: ece.rice.edu/~erzsebet/STAT615.html (http://ece.rice.edu/~erzsebet/STAT615.html)

STAT 616 - ADVANCED STATISTICAL METHODS
Short Title: ADVANCED STATISTICAL METHODS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615
Description: Advanced topics in statistical applications such as sampling, experimental design and statistical process control. STAT 616 will have more advanced assignments and examinations focusing on theoretical methods. Graduate/Undergraduate Equivalency: STAT 411. Mutually Exclusive: Cannot register for STAT 616 if student has credit for STAT 411.

STAT 620 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Seminar on advanced topics in Statistics. Repeatable for Credit.

STAT 621 - APPLIED TIME SERIES AND FORECASTING
Short Title: APPLIED TIME SERIES/FORECASTING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 615 (may be taken concurrently)
Description: Applied time series modeling and forecasting, with applications to financial markets with advanced problem sets. This is a graduate version of STAT 421 with advanced assignments. The courses STAT 615 and STAT 431 may be taken concurrently with STAT 621 if courses are not in history. Graduate/Undergraduate Equivalency: STAT 421. Mutually Exclusive: Cannot register for STAT 621 if student has credit for STAT 421.
writing up the results of a clinical trial for publication. Other options include interim monitoring, adaptive designs, multiple end points, and protocol writing, randomization, sample size calculation, study design, and ensuring that knowledge and/or satisfy optimality considerations. Topics include newer designs for clinical studies that incorporate prior knowledge critically and to design clinical studies. Additionally, the faculty will introduce newer designs for clinical studies that incorporate prior knowledge and/or satisfy optimality considerations. Topics include protocol writing, randomization, sample size calculation, study design options, interim monitoring, adaptive designs, multiple end points, and writing up the results of a clinical trial for publication.

STAT 623 - PROBABILITY IN BIOINFORMATICS AND GENETICS

Short Title: PROB BIOINFORMATICS & GENETICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 305 or STAT 310 or STAT 315 or DSCI 301 or STAT 331 or STAT 418 or STAT 518
Description: Course introduces the student to modern biotechnology and genomic data. Statistical methods to analyze genomic data are covered, including probability models, basic stochastic processes, and statistical modeling. Biological topics include DNA sequence analysis, phylogenetic inference, gene finding, and molecular evolution. Graduate/Undergraduate Equivalency: STAT 423. Mutually Exclusive: Cannot register for STAT 623 if student has credit for STAT 423.

STAT 625 - ADVANCED BAYESIAN INFERENCE

Short Title: ADVANCED BAYESIAN INFERENCE
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 525
Description: This course focuses on the Bayesian inference with emphasis on theory and applications. In this course, we will cover advancements and challenges in modern Bayesian inference, and illustrate a variety of theoretical and computational methods, simulation techniques, and hierarchical models that are suitable to analyze complex data. Repeatable for Credit.

STAT 630 - TOPICS IN CLINICAL TRIALS

Short Title: TOPICS IN CLINICAL TRIALS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519 and STAT 615
Description: This course deals with fundamental concepts in the design of clinical studies, ranging from early dose-finding studies (phase I) to screening studies (phase II) to randomized comparative studies (phase III). The goal is to prepare the student to read the clinical trial literature critically and to design clinical studies. Additionally, the faculty will introduce newer designs for clinical studies that incorporate prior knowledge and/or satisfy optimality considerations. Topics include protocol writing, randomization, sample size calculation, study design options, interim monitoring, adaptive designs, multiple end points, and writing up the results of a clinical trial for publication.

STAT 648 - GRAPHICAL MODELS AND NETWORKS

Short Title: GRAPH MODELS & NETWORKS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519
Description: Course introduces the student to modern biotechnology and genomic data. Statistical methods to analyze genomic data are covered, including probability models, basic stochastic processes, and statistical modeling. Biological topics include DNA sequence analysis, phylogenetic inference, gene finding, and molecular evolution. Graduate/Undergraduate Equivalency: STAT 423. Mutually Exclusive: Cannot register for STAT 623 if student has credit for STAT 423.

STAT 649 - QUANTITATIVE FINANCIAL RISK MANAGEMENT

Short Title: QUAN FINANCIAL RISK MANAGEMENT
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 519 or STAT 615
Description: This course will cover both theory and applications of stochastic control and stochastic differential equations. Topics include: the Langevin equation from physics, the Wiener process, white noise, the martingale theory, numerical methods and simulation, the Ito and Stratonovitch theories, applications in finance, signal processing, materials science, biology, and other fields.
STAT 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

STAT 682 - QUANTITATIVE FINANCIAL ANALYTICS
Short Title: QUANT FINANCIAL ANALYTICS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A modern approach to fundamental analytics of securities, the classic works of Graham and Dodd. Deconstructing the Efficient Market Hypothesis Financial Statement Analysis, Capital Market Theory, CAPM, APT, Fama-French Empirical Financial Forecasting. Graduate/Undergraduate Equivalency: STAT 482. Mutually Exclusive: Cannot register for STAT 682 if student has credit for STAT 482.

STAT 684 - ENVIRONMENTAL RISK ASSESSMENT & HUMAN HEALTH
Short Title: ENVIR RISK ASSESS&HUMAN HLTH
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 280 or STAT 305
Description: A modern approach to fundamental analytics of securities, the classic works of Graham and Dodd. Deconstructing the Efficient Market Hypothesis Financial Statement Analysis, Capital Market Theory, CAPM, APT, Fama-French Empirical Financial Forecasting. Graduate/Undergraduate Equivalency: STAT 482. Mutually Exclusive: Cannot register for STAT 684 if student has credit for STAT 484.

STAT 685 - ENVIRONMENTAL STATISTICS AND DECISION MAKING
Short Title: ENVIR STAT & DECISION MAKING
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 305 or STAT 385
Description: A project oriented computer intensive course focusing on statistical and mathematical solutions and investigations for the purpose of environmental decisions. This course is required for EADM students. Graduate/Undergraduate Equivalency: STAT 485. Mutually Exclusive: Cannot register for STAT 685 if student has credit for STAT 485.

STAT 686 - MARKET MODELS
Short Title: MARKET MODELS
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): STAT 518 and (STAT 615 or STAT 410)
Description: This course takes the classical efficient market models and superimposes upon it models for other stochastic phenomena not generally accounted for in efficient market theory, showing how risk is lessened by portfolios and other mechanisms. This graduate course uses computer simulations as an alternative to closed form solutions with advanced problem sets. Graduate/Undergraduate Equivalency: STAT 486. Mutually Exclusive: Cannot register for STAT 686 if student has credit for STAT 486.

STAT 687 - COFES BLOCKCHAIN AND CRYPTOCURRENCIES
Short Title: COFES BLOCKCHAIN/CRYPTO
Department: Statistics
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: How will blockchains empower positive and radical change in our increasingly globalized and data-driven society? Students should be prepared for exposure to highly interdisciplinary discussions regarding applying new technology to rethink existing economic & social structures. Graduate/Undergraduate Equivalency: STAT 487.

STAT 696 - RTG CROSS-TRAINING IN DATA SCIENCE
Short Title: RTG CROSS-TRAINING IN DATA SCI
Department: Statistics
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to students with a major in Computer Science or Statistics. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: A seminar course to introduce students to topics in Data Science at the interface between Statistics and Computer Science. Students participate in the process of preparing, delivering and critiquing talks. Topics change each semester. Instructor Permission Required. Cross-list: COMP 696. Graduate/Undergraduate Equivalency: STAT 496. Mutually Exclusive: Cannot register for STAT 696 if student has credit for STAT 496. Repeatable for Credit.
**Systems/Synthetic/Phys Biology (SSPB)**

**SSPB 501 - PHYSICAL BIOLOGY**

**Short Title:** PHYSICAL BIOLOGY  
**Department:** Systems/Synthetic/Phys Biology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Basic introduction to a biophysical view of living systems, from the subcellular to the multicellular scales. Topics include: biophysical equations, cellular biomechanics, cell motility and cell division, calcium signaling, action potential propagation, and tissue organization. Cross-list: BIOE 502, BIOS 505.

**SSPB 502 - INTRO COMPUTATIONAL SYSTEMS BIOLOGY: MODELING & DESIGN PRINCIPLES OF BIOCHEM NETWORKS**

**Short Title:** INTRO SYSTEMS BIOLOGY MODELING  
**Department:** Systems/Synthetic/Phys Biology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. More emphasis on recent advances in the field - paper reading and presentations. Cross-list: BIOE 552. Recommended Prerequisite(s): Basic knowledge of biochemistry, cell biology, linear algebra, and ordinary differential equations is expected.

**SSPB 503 - SYNTHETIC BIOLOGY**

**Short Title:** SYNTHETIC BIOLOGY  
**Department:** Systems/Synthetic/Phys Biology  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course prepares a student for research in the mathematical sciences on a specific topic. Each section is dedicated to a different topic. Current topics include bioinformatics, biomathematics, computational finance, simulation driven optimization, and data simulation. The topics change each semester. Graduate/Undergraduate Equivalency: STAT 499. Repeatable for Credit.

**Course URL:** [www.statistics.rice.edu](http://www.statistics.rice.edu)

**STAT 800 - THESIS**

**Short Title:** THESIS  
**Department:** Statistics  
**Grade Mode:** Standard Letter  
**Course Type:** Research  
**Credit Hours:** 1-15  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Thesis for Graduate Students. Repeatable for credit. Repeatable for Credit.

**STAT 698 - RESEARCH THEMES IN THE MATHEMATICAL SCIENCES**

**Short Title:** RESEARCH THEMES IN MATH. SCI.  
**Department:** Statistics  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A seminar course that will cover selected theme of general research in the mathematical sciences from the perspectives of mathematics, computational and applied mathematics and statistics. The course may be repeated multiple times for credit. Cross-list: CAAM 698, MATH 698. Graduate/Undergraduate Equivalency: STAT 498. Mutually Exclusive: Cannot register for STAT 698 if student has credit for STAT 498. Repeatable for Credit.

**STAT 699 - MATHEMATICAL SCIENCES SEMINAR**

**Short Title:** MATHEMATICAL SCIENCES  
**Department:** Statistics  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** The course summarizes techniques for quantitative analysis and simulations of basic circuits in genetic regulation, signal transduction and metabolism. We discuss engineering approaches adapted to computational systems biology and aim to formulate evolutionary design principles explaining organization of networks in terms of their physiological demands. We discuss biochemical simulation methodology and software as well as recent advances in the field. Topics include end-product inhibition in biosynthesis, optimality and robustness of the signaling networks and kinetic proofreading. More emphasis on recent advances in the field - paper reading and presentations. Cross-list: BIOE 552. Recommended Prerequisite(s): Basic knowledge of biochemistry, cell biology, linear algebra, and ordinary differential equations is expected.

**STAT 698 - RESEARCH THEMES IN MATH. SCI.**

**SSPB 575 - INTRODUCTION TO RESEARCH**

**Short Title:** INTRODUCTION TO RESEARCH  
**Department:** Systems/Synthetic/Phys Biology  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Seminar  
**Credit Hour:** 1  
**Restrictions:** Enrollment is limited to students with a major in Systems/Synthetic/Phys Biology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Seminar course to introduce SSPB students to current research topics and activities in the systems, synthetic, and physical biology fields. Repeatable for Credit.

**SSPB 575 - INTRODUCTION TO RESEARCH**

**Short Title:** INTRODUCTION TO RESEARCH  
**Department:** Systems/Synthetic/Phys Biology  
**Grade Mode:** Satisfactory/Unsatisfactory  
**Course Type:** Research  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to students with a major in Systems/Synthetic/Phys Biology. Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Introduction of first-year graduate students to the research programs and laboratories of individual faculty members. Repeatable for Credit.
SSPB 599 - GRADUATE TEACHING IN SSPB
Short Title: GRADUATE TEACHING IN SSPB
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Supervised instruction in teaching systems, synthetic, and physical biology. Repeatable for Credit.

SSPB 601 - NAVIGATING INTERDISCIPLINARY TEAMS IN SCIENCE AND ENGINEERING
Short Title: INTERDISCIPLINARITY I
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers literature on past biotechnological innovations that required interdisciplinary collaboration for success. Instructor Permission Required.

SSPB 602 - INNOVATIONS AND CHALLENGES IN BIOELECTRONICS RESEARCH
Short Title: INTERDISCIPLINARITY II
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Prerequisite(s): SSPB 601
Description: Covers literature on past biotechnological innovations that required interdisciplinary collaboration for success. Instructor Permission Required.

SSPB 610 - INTERDISCIPLINARY BIOELECTRONICS RESEARCH COLLOQUIUM
Short Title: BIOELECTRONICS COLLOQUIUM
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers effective oral communication in the interdisciplinary field of bioelectronics. Repeatable for Credit.

SSPB 620 - INTERDISCIPLINARY BIOELECTRONICS PEER WRITING GROUPS
Short Title: BIOELECTRONICS WRITING
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers effective written communication in the interdisciplinary field of bioelectronics. Repeatable for Credit.

SSPB 677 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Systems/Synthetic/Phys Biology
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory, Independent Study, Internship/Practicum, Laboratory, Lecture, Seminar
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

SSPB 700 - INTERDISCIPLINARY BIOELECTRONICS RESEARCH
Short Title: BIOELECTRONICS RESEARCH
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Covers research in the interdisciplinary field of bioelectronics. Repeatable for Credit.

SSPB 800 - GRADUATE RESEARCH
Short Title: GRADUATE RESEARCH
Department: Systems/Synthetic/Phys Biology
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 1-15
Restrictions: Enrollment is limited to students with a major in Systems/Synthetic/Phys Biology. Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: Graduate students will conduct independent research/thesis project under the direction of their advisor. Repeatable for Credit.

Theatre (THEA)

THEA 100 - STAGE CRAFT
Short Title: STAGE CRAFT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to materials, tools, and standard theatre production techniques. Theory and practice of scenic building and painting techniques, creation of props, sound support requirements, and running crew during performance. No Lab hours required.

THEA 101 - THEATRE TECHNOLOGY: COSTUME CONSTRUCTION
Short Title: THEA TECH: COSTUME CONSTRUCPTON
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the materials, tools, and standard techniques of costume/clothing construction. Lab hours required.
THEA 102 - INTRODUCTION TO ACTING
Short Title: INTRODUCTION TO ACTING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is a class in the basic terminology and craft of acting. It will encompass voice and movement training, as well as basic technical theatre terminology and vocabulary for the actor. The course work will progress from ensemble/group work and individual exercises/monologues to scenes. Space in classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor.

THEA 103 - THEATRE TECHNOLOGY
Short Title: THEATRE TECHNOLOGY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to lighting and sound equipment, tools, and board operation. Theory and practice of lighting and sound materials, hang and focus, programming both sound and lights boards as well as introduction to projection elements. No lab required.

THEA 202 - COSTUME AND PATTERN DRAFTING AND DRAPING FOR STAGE
Short Title: PATTERN DRAFTING AND DRAPING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): THEA 101
Description: This course enables students to explore pattern-making, design, fit and alteration of costumes for the stage. The course will familiarize students with the draping method of pattern development and the flat-patternning method of pattern development in order to create three-dimensional period and contemporary costumes for the theatre based on two-dimensional research and theatrical designer drawings. Instructor Permission Required.

THEA 207 - MAKEUP FOR THE STAGE
Short Title: MAKEUP FOR THE STAGE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Students with a class of Senior may not enroll. Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This is a hands-on class that explores the principals of stage makeup materials and skills, methods and techniques that are used in an actor's transformation for the stage. This includes techniques for moderate and extreme aging, injuries and character roles and period styles. Class will use the application of analytical and research skills in the visual development of the character. Spring 2021; Seniors must get special permission to enroll

THEA 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

THEA 270 - BIG PAINTING: MATERIALS AND TECHNIQUES FOR THEATRE TECHNOLOGY
Short Title: BIG PAINTING FOR THEATRE TECHNOLOGY
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): THEA 101
Description: Big Painting: Materials and Techniques for Theatrical Painting will examine the materials and techniques usually associated with scenic and theatrical painting but as applied to the context of 21st century contemporary art practices. Students will learn how to make big paintings. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARTS 270.
THEA 300 - INTRODUCTION TO THEATRE DESIGN
Short Title: INTRODUCTION TO THEATRE DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the theory and practice of theatre design through exploration of the principles and elements of design as they apply to scenery, lighting, and costumes with an emphasis on text analysis and research. Students will complete and present a variety of projects.

THEA 301 - ACTING I
Short Title: ACTING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Introduction to the fundamentals of acting through the exploration of actor training techniques based on the theories of Stanislavsky, Strasburg, Adler, Meisner, and Hagen, emphasizing the actor's primary tools: voice, body, emotional life, and imagination.

THEA 302 - ACTING II
Short Title: ACTING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: Text analysis for the actor with particular emphasis on a thorough investigation of given circumstances and dramatic action. Students will work on scenes from Ibsen to contemporary playwrights. Space in classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor.

THEA 303 - INTRODUCTION TO THEATRE
Short Title: INTRODUCTION TO THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey course of the art and theory of the theatre through an examination of dramatic literature and theatrical venues from the Greeks through the modern era. The course will also explore the craft of the theatre from a practitioner's point of view as it is realized today. Requires attending several theatre productions in local Houston venues. Cross-list: ENGL 390.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

THEA 304 - COSTUME DESIGN
Short Title: COSTUME DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Students with a class of Junior or Senior may not enroll.
Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 300
Description: Exploration of costume design and the designers' role in the collaborative process. Students will read diverse plays then present design projects that explore character, storytelling, and the relationship between performer and audience. Students will experiment with rendering techniques to explore the visual language of period and contemporary clothing. Juniors and Seniors must obtain special permission of the instructor before enrolling.

THEA 305 - LIGHTING DESIGN
Short Title: LIGHTING DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 300
Description: Exploration of the role that lighting plays in a production and the lighting designer's place as an artist in the collaboration process. Emphasis on the practical application of the controllable properties of light as they apply to theatre. Students will be required to complete a variety of projects including light labs responding to music and culminating in a final lighting project.
THEA 306 - SCENIC DESIGN
Short Title: SCENIC DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 300
Description: Advanced examination of the principles of scenic design including research, rendering, technical drawing, model construction, text analysis and the role of the scenic designer in collaboration with directors, actors, and other designers. Students will read and analyze a variety of plays in different periods and styles, and then, based on text analysis and research, complete and present design projects.

THEA 307 - HISTORY OF ARCHITECTURE, INTERIORS, AND CLOTHING FOR THEATRE DESIGNERS
Short Title: HIST FOR THEATER DESIGNERS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: HISTORY OF ARCHITECTURE, INTERIORS, AND CLOTHING FOR THEATRE DESIGNERS ***** Survey of the major period styles of buildings, homes, furnishings, and clothing from ancient Egypt through the 20th century including a critical analysis of the interdependent nature of the evolution of design and the relationship to the cultures in which they were created. Repeatable for Credit.

THEA 308 - IMPROVISATION FOR STAGE AND SCREEN
Short Title: IMPROV FOR STAGE AND SCREEN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This is a course in the practical training of comedic, long-form, improvisation. Students will learn how to craft scenes spontaneously using tools like character dynamic, status, comedic pattern, beat structuring, and agreement. Classic forms of scenic improv will be taught and the course will also examine the role of improvisation in comedy films, video, and the creation of sketch comedy. Students will get to practice their skills by crafting videos in the class’ culmination run of improv shows. Cross-list: FILM 308.

THEA 309 - MUSICAL THEATRE STUDIO
Short Title: MUSICAL THEATRE STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to familiarize students with the repertoire of a uniquely American art form that has had a widespread cultural influence. It will present a historical perspective of the decades of musical theatre from the 1920s to the present, with particular emphasis on representative innovative examples of change and the transition from musical comedy into musical theatre.

THEA 310 - THE SPOKEN TEXT
Short Title: THE SPOKEN TEXT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: An exploration of language through voice, movement and text as one of the actor’s primary means of communication and expression. The student will analyze, rehearse, and perform scenes from the work of William Shakespeare and his contemporaries. Recommended prerequisite(s): ENGL 321.

THEA 311 - HISTORY OF MUSICAL THEATRE
Short Title: HISTORY OF MUSICAL THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 301
Description: An exploration of language through voice, movement and text as one of the actor’s primary means of communication and expression. The student will analyze, rehearse, and perform scenes from the work of William Shakespeare and his contemporaries. Recommended prerequisite(s): ENGL 321.
THEA 312 - DIRECTING I  
**Short Title:** DIRECTING I  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** THEA 301  
**Description:** An introductory course exploring the tools and craft of the stage director. Students will learn how to analyze dramatic text and will gain a fundamental knowledge of the director's basic skills, including composition, picture, movement, rhythm, and pantomimic dramatization. Recommended prerequisite(s): THEA 303 or 300.

THEA 314 - PUPPETRY DESIGN  
**Short Title:** PUPPETRY DESIGN  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Studio  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An exploration of puppetry design, including the history of puppets and puppet styles. Students will create their own puppets by immersion into original character design and expanding on their practical capabilities by building a table top puppet. The students will work with a variety of materials, including leather, hooks, fabric, yarn, fur and fake hair.

THEA 315 - THEATRE IN WESTERN CULTURE: A HISTORICAL INTRODUCTION  
**Short Title:** INTRO TO THEATRE HISTORY  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Through reading and watching a selection of major plays and exploring other primary historical and critical sources, students in this course will study the development of the western dramatic tradition from ancient roots to modern day. Students will explore how the theatrical experience reflects and effects the society in which it exists and will consider how theater holds a mirror up to cultural power, taboos, and changes.

THEA 320 - GENDER, SEXUALITY AND THE ADAPTATION OF TRANSACTIONAL LITERATURE TO PERFORMANCE  
**Short Title:** GENDER AND PERFORMANCE  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course examines the embodiment of gender and sexuality through the oral interpretation of transnational literature. Students will learn how to analyze and adapt to performance novels and short stories from various global and historical contexts that exemplify the genre of the "coming of age" narrative. Cross-list: SWGS 320.

THEA 322 - DIRECTING SHAKESPEARE  
**Short Title:** DIRECTING SHAKESPEARE  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Prerequisite(s):** THEA 301  
**Description:** Staging Shakespeare's plays for modern audiences: learning to speak the lines "tripplying off the tongue", analyzing textual clues, and researching the period to find correlations to contemporary society in the process of active rehearsal. Students will work with THEA 310 to stage a final scene. Recommended prerequisite(s): THEA 310.

THEA 323 - VOICE AND SPEECH FOR THEATRE  
**Short Title:** VOICE AND SPEECH FOR THEATRE  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Development of an expressive speaking voice through awareness and overcoming physical and vocal habits and limitations, including alignment, relaxation, breath support, resonance, tone and projection. Recommended prerequisite(s): THEA 301.

THEA 324 - MOVEMENT FOR STAGE AND STAGE COMBAT  
**Short Title:** COMBAT & MOVEMENT FOR STAGE  
**Department:** Visual and Dramatic Arts  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture/Laboratory  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Introduction to body dynamics and stage combat through partner exercises, physical stretching and conditioning, ensemble movement, full body awareness, focus, action and counter-action, precision, and economy of effort. Recommended prerequisite(s): THEA 301.
THEA 325 - ACTING FOR FILM
Short Title: ACTING FOR FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): THEA 102 or THEA 301
Description: This course provides an introduction to the art of acting on camera. It emphasizes specific techniques of speech, movement, character development, and the creation of relationships as they relate to the recorded medium (film, television, commercials, industrial films). The elements of study include proper voice placement, appropriate acting styles, and subtlety in performance. Student performances will be videotaped for study.

THEA 330 - CONTEMPORARY DRAMATIC LITERATURE
Short Title: CONTEMP DRAM LITTERATURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: In this course we will examine contemporary American plays that have had a significant impact on theatrical form or that are highly reflective of contemporary society. Playwrights whose work will be studied will include Mamet, Guare, Lucas, Wilson and many others.

THEA 331 - THEATRE PRODUCTION
Short Title: THEATRE PRODUCTION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Practical application of skills acquired in previous THEA courses in a realized Theatre Program production as a company member. Admission to class requires either an audition, interview, or portfolio review with the director and/or production manager. Possible roles include: actor, assistant director, stage manager, assistant stage manager, designer, and technical support in scenery, costumes, lighting, or sound. Prerequisites: permission of instructor. Instructor Permission Required. Repeatable for Credit.

THEA 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS
Short Title: CRITICAL STUDIES OF MULTIMEDIA ARTS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; "sculptural" studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: ARTS 332, FILM 332, FOTO 332.

THEA 333 - SPECIAL PROBLEMS: THEATRE PRODUCTION
Short Title: SPECIAL PROBLEMS: THEATRE PRODUCTION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1,2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems at the intermediate level in theatre making. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit. Instructor Permission Required. Repeatable for Credit.

THEA 396 - THEATRE INTERNSHIP
Short Title: THEATRE INTERNSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a field-based, supervised, professional learning experience designed to enhance classroom learning. Students will be responsible for identifying and securing internship positions and must obtain permission from the department chairman and have a department faculty sponsor. All interns are required to keep an internship journal recording duties and activities; the journal will be used as the basis of a five-page paper summarizing the internship experience. Documentation of the work produced during the internship is required, portfolio, CD, DVD, etc. Instructor Permission Required. Repeatable for Credit.
TIBT 233 - INTRODUCTION TO TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INTRO TO TIBETAN LANG & LIT
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introducing the Tibetan alphabet and basics of grammar through reading section of a classic Tibetan text. In addition, readings in English in Indian and Tibetan Buddhist materials, also on the art, history, geography and /or modern era in those areas. Final includes a paper drawn from readings and class discussion. Cross-list: RELI 233.

TIBT 234 - INTERMEDIATE TIBETAN LANGUAGE, LITERATURE AND CULTURE
Short Title: INT TIBETAN LANG LIT & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Continued training in Tibetan language-extending vocabulary and facility with grammar. Final includes a paper drawn from readings and class discussion. Cross-list: RELI 234. Repeatable for Credit.

TIBT 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Course Type: Laboratory
Course Type: Lecture/Independent Study
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

TIBT 332 - ADVANCED TIBETAN LANGUAGE AND CULTURE
Short Title: ADV TIBETAN LANGUAGE & CULTURE
Department: Religion
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): RELI 132 or TIBT 132
Description: This class builds on RELI 232 and 234, now including more challenging material in Tibetan, and continuing the trajectory of gaining familiarity with Buddhist philosophical systems as these touch on epistemology, ontology, and contemplative practice. Cross-list: RELI 332. Repeatable for Credit.

TIBT 432 - SPECIAL PROBLEMS: DIRECTING AND DESIGN
Short Title: SPEC PROB: DIRECT & DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study. Instructor Permission Required. Repeatable for Credit.

TIBT 435 - SPECIAL PROBLEMS: ADVANCED TOPICS
Short Title: SPEC PROB:ADVANCED TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent study. Instructor Permission Required. Repeatable for Credit.

TIBT 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Seminar, Lecture, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
University Courses (UNIV)

UNIV 105 - SCHOLARLY APPROACHES TO SCIENCE AND ENGINEERING
Short Title: SCHOLARLY APPROACHES TO S&E
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Intensive Learning Experience
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: A six-week, academically intensive, pre-college program for pre-matriculating students who intend to major in science or engineering. The program includes coursework in Calculus, Chemistry, and Physics, with a focus on the most challenging topics from the freshman curricula; daily homework and group-work; and complementary seminars on design, bioscience research, and discrete math. Department Permission Required.

UNIV 106 - RISE
Short Title: RISE
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for incoming students with expressed interests in the Humanities, Social Sciences, this course uses scholarship on Houston to explore particular issues of race, place, and power in the city, and the relationship between university life and urban life.

UNIV 110 - FOUNDATIONS FOR SELF-DISCOVERY AND LIFELONG LEARNING
Short Title: FIRST YEAR FOUNDATIONS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to provide new students with the knowledge and tools to succeed at Rice. Combining classroom discussion, information from campus departments, self-assessments and reflections, and other interactive activities, this class will focus on key issues new students will encounter when transitioning to college. This course is limited to first-year students only.

UNIV 180 - INTRODUCTION TO RICE FOR NEW INTERNATIONAL UNDERGRADUATE STUDENTS
Short Title: INTRO TO RICE - INTERNATIONALS
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey course of themes geared for new undergraduate international students to the USA and Rice. Adjustment and acculturation topics include Rice culture, US culture and academic success.

UNIV 181 - ACADEMIC ENGLISH SKILLS FOR VISITING STUDENTS
Short Title: ENGLISH FOR VISITING STUDENTS
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course reviews the written and oral English skills needed by visiting international students to succeed in upper-division courses at Rice. Students will learn to express ideas effectively in individual and group conversations; to give academic presentations; to critique, report, and interpret research findings in writing; and to become better self-editors of their writing. Instructor Permission Required.

UNIV 194 - CTIS WORKSHOP
Short Title: CTIS WORKSHOP
Department: Dean of Undergraduates
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hours: 0
Course Level: Undergraduate Lower-Level
Description: CTIS Workshop will draw from a public health model of violence prevention to teach Freshman and transfer students the dynamics of domestic and sexual violence, consent and bystander intervention. Students will understand the impacts of healthy relationships and consent, as well as successful models shown to increase gender equality, healthy sexual communication and empathy. This course is only available to first time matriculants.

UNIV 201 - CENTURY SCHOLARS PROGRAM
Short Title: CENTURY SCHOLARS PROGRAM
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Repeatable for Credit.
UNIV 212 - PROFESSIONOWL PROGRAM - CAREER AND LIFE OPTIONS
Short Title: PROFESSIONOWL PROGRAM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The ProfessionOwlProgram (POP) is designed to help you learn more about yourself, careers, professional communication skills and more. This class is intended for students who are exploring careers and academic majors. Students will learn about career options that match their interests, personality, and values; become more familiar with the world of work and various career options; understand the connections between careers and major choice; learn about services that will enhance their marketability and academic experiences (internships, study abroad programs, scholarships/grants); and develop an action plan to reach their goals. This course welcomes students who aren't sure what they want to do after graduation, as well as students who have already identified potential career interests. Mutually Exclusive: Cannot register for UNIV 212 if student has credit for HUMA 212. Mutually Exclusive: Cannot register for UNIV 212 if student has credit for HUMA 212.

UNIV 215 - ALTERNATIVE SPRING BREAK LEADERSHIP COURSE
Short Title: ASB LEADERSHIP COURSE
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: UNIV 215 is required of all Alternative Spring Break student site leaders. This course consists of weekly 1.5 hour meetings that will include lectures, discussions, group activities, work sessions, and panel presentations. Instructor Permission Required. Repeatable for Credit.

UNIV 216 - ALTERNATIVE SPRING BREAK LEADERSHIP COURSE
Short Title: ASB LEADERSHIP COURSE
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Prerequisite(s): UNIV 215
Description: The course aims to: 1) analyze service philosophy and mechanisms for implementing a mutually beneficial short-term service program. 2) equip students with the knowledge, skills, and confidence necessary to lead a group of their peers, 3) provide a platform for self-assessment and an opportunity for personal and professional development for student leaders. Instructor Permission Required. Repeatable for Credit.
Course URL: ccl.rice.edu (http://ccl.rice.edu)

UNIV 220 - PEER ACADEMIC ADVISING PROFESSIONAL DEVELOPMENT
Short Title: PAA PROF DEVELOPMENT
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for members of the Peer Academic Advising (PAA) program. Students in this course will learn about best practices in advising and see that being a peer advisor is more than just recommending classes to fellow students. The course is meant to help PAs think differently and more critically about their roles as peer advisors, as well as to discuss the power PAs have in helping create positive change on campus and in the experiences of individual students. Instructor Permission Required.

UNIV 235 - APPLIED LEADERSHIP AND ORGANIZATIONAL DEVELOPMENT
Short Title: APPLIED LEADERSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed with an emphasis on critical thinking, this class will assist O-Week Coordinators in the critique, design, development and execution of a comprehensive orientation and new student transition program for freshmen and transfer students. Due to Rice's unique orientation structure, special attention will be placed on the importance of providing leadership to teams, as well as working successfully in a team environment to allow students to best function in their role as O-Week Coordinator this semester. Instructor Permission Required. Mutually Exclusive: Cannot register for UNIV 235 if student has credit for COLL 199.

UNIV 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
UNIV 250 - RICE HEALTH ADVISORS
Short Title: RICE HEALTH ADVISORS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to introduce students to the principles of peer health education. Students will assess their own personal health status as well as major health risks among their peers. They will learn effective strategies for reducing these risks and promoting healthy lifestyles to college students. Enrollment is restricted, students must be in good academic and judicial standing and complete an application. This course is a prerequisite to becoming a Rice Health Advisor. Instructor Permission Required.

UNIV 295 - EXPLORING CAREERS THROUGH AN INTERNSHIP
Short Title: CAREERS THRU INTERNSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Designed for currently enrolled undergraduate students from all areas of study to gain experience in a workplace setting, earn course credit, and further develop professional skills. Students meet individually with a CCO team member to process their experience and complete an application. This course is a prerequisite to becoming a Rice Health Advisor. Instructor Permission Required. Mutually Exclusive: Cannot register for UNIV 295 if student has credit for HUMA 295. Repeatable for Credit.

UNIV 299 - SCIENTIA: LECTURES IN SCIENCE AND CULTURE
Short Title: SCIENTIA SCIENCE & CULTURE
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Lecture
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Annual lecture series, panel discussions and discussion talks on topics bridging science, culture and art. 4 lectures plus 2 discussion talks. Lectures are on specified dates, usually Tuesdays. Discussion talks scheduled at semester beginning. Topics vary year to year. Repeatable for Credit.

UNIV 301 - UNDERGRADUATE RESEARCH
Short Title: UNDERGRADUATE RESEARCH
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Research
Credit Hours: 0
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This zero credit course enables students to have supervised research experience on and off campus recorded on their transcript. Students must register the name and contact of their PI in the UNIV 301 OWL-Space site by the end of the second week of classes or drop the class. Repeatable for Credit.

UNIV 304 - RESEARCH ETHICS IN THE COMMUNITY
Short Title: RESEARCH ETHICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class introduces students to a range of ethical issues that arise in community-based participatory research. Drawing on literature review and case studies, the class brings together students who will carry out CBR projects abroad on a Loewenstein Fellowship. We will also focus on cultural communication and how the international landscape influences the role of the researcher.

UNIV 305 - INTERNATIONAL SERVICE
Short Title: INTERNATIONAL SERVICE
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Objectives are to (1) examine the history of international service and service ethics, (2) develop broad knowledge of history, culture, and politics related to the country of service, and to (3) engage students in conversations about global society and international service work. Instructor Permission Required. Repeatable for Credit.

UNIV 309 - RICE LEGAL LAB
Short Title: RICE LEGAL LAB
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides hands-on exposure to the practical legal environment, including legal research, legal writing, and Texas court processes, with optional work placing the Texas legal environment into an international comparative context. Instructor Permission Required. Repeatable for Credit.
UNIV 311 - JUDICIAL INTERNSHIP - RICE LEGAL LAB
Short Title: RICE LEGAL LAB
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Students will serve judicial internships with Texas state or federal judges; required travel component over spring break, with associated costs and lab fee. Instructor Permission Required. Repeatable for Credit.

UNIV 313 - INTRODUCTION TO RESEARCH ABROAD
Short Title: INTRO TO RESEARCH ABROAD
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for currently enrolled undergraduate students to gain exposure to the medical setting and develop professional skills, while earning course credit. This course is designed to help undergraduate students develop skills to design, refine, and carry out an individual research project in an international context. This is a preparatory course for students who plan to apply for international scholarships such as Fulbright, Thinks, Wagoner, DAAD or for students who will design an international research project as part of their study abroad program or their honors thesis.

UNIV 320 - ADVANCED ACADEMIC ADVISING PRACTICUM
Short Title: ADVANCED ADVISING PRACTICUM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for current members of the PAA program. This course will focus on individually designed and faculty guided action plans. Students will design plans that enhance the role and effectiveness of the academic support provided by Fellow/Mentors at the individual, college, or university level. Instructor Permission Required. Repeatable for Credit.

UNIV 321 - ADVANCED ACADEMIC FELLOWS/MENTORS PRACTICUM
Short Title: ADV FELLOWS/MENTORS PRACTICUM
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Designed for current members of the Academic Fellows/Mentors program. This course will focus on individually designed and faculty guided action plans. Students will design plans that enhance the role and effectiveness of the academic support provided by Fellow/Mentors at the individual, college, or university level. Instructor Permission Required. Repeatable for Credit.

UNIV 330 - MEDICAL EXPLORATION AND OBSERVERSHIP
Short Title: MEDICAL EXPLORATION
Department: Dean of Undergraduates
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 2
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed for currently enrolled undergraduate students to gain exposure to the medical setting and develop professional skills, while earning course credit. The purpose is to allow you to explore careers in the health professions through exposure to medical shadowing and the healthcare industry. Students must complete the course application using the following link https://forms.gle/ABSeHSU8aNL733h79 and register for UNIV 003. NOTE: Space is limited and registration for UNIV 003 does not guarantee a seat in UNIV 330. Instructor Permission Required. Instructor Permission Required.

UNIV 395 - RICE SCHOLARS ABROAD PREDEPARTURE
Short Title: RICE SCHOLARS ABROAD PREDEPART
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class is for students participating in the Rice Scholars Abroad research project. It requires acceptance into that program and permission of the instructor. Instructor Permission Required. Repeatable for Credit.

UNIV 399 - RICE SCHOLARS ABROAD DIRECTED RESEARCH
Short Title: RICE SCHLARS ABROAD DIR RES
Department: University Courses
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class is for students participating in the Rice Scholars Abroad program and is to be completed before the student goes abroad. Acceptance into that program and permission of the instructor are required. Instructor Permission Required. Repeatable for Credit.

UNIV 400 - STUDENT AFFAIRS INTERNSHIP
Short Title: STUDENT AFFAIRS INTERNSHIP
Department: University Courses
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Repeatable for Credit.
UNIV 401 - INDEPENDENT STUDY: INTERNATIONAL EDUCATION SURVEY
Short Title: IND STUDY: INTERNATIONAL ED
Department: University Courses
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The independent study is intended for upper classmen who are considering working in the field of international education. Individualized meetings with the instructor and personalized coursework investigate ways to bridge current theoretical research in the field of international education with real-life practicalities in international education offices. Instructor Permission Required. Repeatable for Credit.

UNIV 402 - CIVIC LEADERSHIP CAPSTONE I
Short Title: CIVIC LEADERSHIP CAPSTONE I
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: UNIV 402 is a requirement for the Certificate in Civic Leadership. The course prepares students to develop and implement high-level, independent, community-based projects, and enhances students' capacity to lead in diverse community settings. Students are required to develop a project proposal in collaboration with a community partner and faculty advisor. Instructor Permission Required.

UNIV 403 - CIVIC LEADERSHIP CAPSTONE II
Short Title: CIVIC LEADERSHIP CAPSTONE II
Department: University Courses
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): UNIV 402
Description: UNIV 403 is a requirement for the Certificate in Civic Leadership. This course requires students to implement and complete their capstone project, present their findings at a conference or symposium, and submit a final reflection paper. Students who enroll in 403 and do not graduate may be permitted to implement their project during the summer. Instructor Permission Required.

UNIV 420 - PRE-DEPARTURE STUDY ABROAD SEMINAR
Short Title: PRE-DEPARTURE STUDY ABR SEM
Department: University Courses
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar provides a cultural introduction to study abroad students to help them maximize their international experience and engagement with host cultures. Students will acquire an introductory understanding of the prominent concepts in global citizenship, ethics, and responsibilities while abroad. The course will also introduce students to international research opportunities. Students may additional times outside the original posted time listed during the 2nd Half of Full Semester.

UNIV 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: University Courses
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory, Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

UNIV 500 - PRINCIPLES OF EFFECTIVE COLLEGE TEACHING
Short Title: PRINCIPLES EFFECTIVE TEACHING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course provides an overview of essential, research-based methods used by college instructors to enhance the quality of student learning. Topics will include course and syllabus design, student engagement, classroom management, and more. This course will culminate with the development of a syllabus and a statement of teaching philosophy.

UNIV 501 - RESEARCH ON TEACHING AND LEARNING
Short Title: RESEARCH TEACHING & LEARNING
Department: Center for Teaching Excellence
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course explores scholarship on teaching and learning in detail with special attention to the breadth of approaches and methodologies. The culminating project will be a literature review in an area of interest.
UNIV 502 - PRACTICUM IN COLLEGE TEACHING  
Short Title: PRACTICUM IN COLLEGE TEACHING  
Department: Center for Teaching Excellence  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum  
Credit Hours: 3  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): UNIV 500 and UNIV 501  
Description: This practicum allows students to design and deliver teaching demonstrations and to receive feedback on their work. The course will also focus on the place of teaching in the broader landscapes of higher education and the academic job market. Because of the highly practical and interactive nature of the course, students will be asked attend all classes. In order to develop a schedule of teaching demonstrations, we ask that students register for UNIV 502 two weeks before the start of the semester.

UNIV 555 - INTER-INSTITUTIONAL TRANSFER COURSE  
Short Title: INTER-INSTITUTIONAL TRANSFER  
Department: University Courses  
Grade Mode: Transfer Courses  
Course Type: Transfer  
Credit Hours: 1-6  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course is used when a Rice student transfers coursework taken through the inter-institutional program at UH, BCM, UTHSC, TAMHSC, UTMB-Galveston. The transfer course will carry the title of the course at the respective university. Department Permission Required. Repeatable for Credit.

UNIV 677 - SPECIAL TOPICS  
Short Title: SPECIAL TOPICS  
Department: University Courses  
Grade Mode: Standard Letter  
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Independent Study  
Credit Hours: 1-4  
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level students.  
Course Level: Graduate  
Description: This special topics course is designed to address areas of interest that are not covered by existing courses. Course topics and credit hours vary each semester. Contact Center for Teaching Excellence for course topics and restrictions. Department Permission Required. Repeatable for Credit.

UNIV 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS  
Short Title: ACADEMIC READING AND WRITING  
Department: Program Writing Communication  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how to construct arguments and use evidence to support claims, and they will learn the logic of research and how to write in academic genres. (Formerly BIOL/BIOE 594)

UNIV 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS  
Short Title: ORAL COMMUNICATION SKILLS  
Department: Program Writing Communication  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to speaking in academic contexts, small group interactions, and formal presentations. Final assignments will be related to students' studies or research.

UNIV 602 - ADVANCED ACADEMIC WRITING FOR INTERNATIONAL GRADUATE STUDENTS  
Short Title: ADVANCED ACADEMIC WRITING  
Department: Program Writing Communication  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to speaking in academic contexts, small group interactions, and formal presentations. Final assignments will be related to students' studies or research.

UNIV 594 - RESPONSIBLE CONDUCT OF RESEARCH  
Short Title: RESPONSIBLE CONDUCT - RESEARCH  
Department: University Courses  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Responsible conduct of research (RCR) is defined as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. (Formerly BIOL/BIOE 594)

UNIV 599 - TEACHING PORTFOLIO  
Short Title: TEACHING PORTFOLIO  
Department: Center for Teaching Excellence  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): UNIV 500 and UNIV 501 and UNIV 502 (may be taken concurrently)  
Description: This independent study serves as a capstone to the UNIV sequence on teaching and learning. Students will meet individually with the instructor to plan and complete a teaching portfolio.

UNIV 600 - INTRODUCTION TO ACADEMIC READING AND WRITING FOR INTERNATIONAL GRADUATE STUDENTS  
Short Title: ACADEMIC READING AND WRITING  
Department: Program Writing Communication  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course teaches fundamental academic reading and writing skills to international graduate students in the first two years of their studies. Students will learn how to construct arguments and use evidence to support claims, and they will learn the logic of research and how to write in academic genres. (Formerly BIOL/BIOE 594)

UNIV 601 - ORAL COMMUNICATION SKILLS FOR INTERNATIONAL GRADUATE STUDENTS  
Short Title: ORAL COMMUNICATION SKILLS  
Department: Program Writing Communication  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to speaking in academic contexts, small group interactions, and formal presentations. Final assignments will be related to students' studies or research.

UNIV 602 - ADVANCED ACADEMIC WRITING FOR INTERNATIONAL GRADUATE STUDENTS  
Short Title: ADVANCED ACADEMIC WRITING  
Department: Program Writing Communication  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: This course provides students with strategies to improve oral communication skills necessary for academic and professional success in North American contexts. Students will learn how to overcome common and individual challenges related to speaking in academic contexts, small group interactions, and formal presentations. Final assignments will be related to students' studies or research.

UNIV 594 - RESPONSIBLE CONDUCT OF RESEARCH  
Short Title: RESPONSIBLE CONDUCT - RESEARCH  
Department: University Courses  
Grade Mode: Satisfactory/Unsatisfactory  
Course Type: Seminar  
Credit Hour: 1  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Description: Responsible conduct of research (RCR) is defined as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research. (Formerly BIOL/BIOE 594)

UNIV 599 - TEACHING PORTFOLIO  
Short Title: TEACHING PORTFOLIO  
Department: Center for Teaching Excellence  
Grade Mode: Standard Letter  
Course Type: Independent Study  
Credit Hours: 2  
Restrictions: Enrollment is limited to Graduate level students.  
Course Level: Graduate  
Prerequisite(s): UNIV 500 and UNIV 501 and UNIV 502 (may be taken concurrently)  
Description: This independent study serves as a capstone to the UNIV sequence on teaching and learning. Students will meet individually with the instructor to plan and complete a teaching portfolio.
Visual Arts (ARTS)

ARTS 103 - CREATIVE 2-D DESIGN
Short Title: CREATIVE 2-D DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Description: Study of the elements and principles of design and drawing using traditional and digital means. The emphasis in the class is on a foundation to culture practice and the critical approaches to art and technology. Students will be required to participate in class discussions and critiques. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Distribution 1 credit effective Fall 2021.

ARTS 165 - BEGINNING SCULPTURE
Short Title: BEGINNING SCULPTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the concepts and forms of contemporary sculpture. Exploration of materials (including plaster, clay, cardboard, fabric, wood, and found objects) and sculpture techniques such as mold making and woodworking. Shop and studios are available days and evening throughout the week. This course has limited enrollment. The roster is formalized on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 200 - SPECIAL PROBLEMS IN STUDIO ART I
Short Title: SPECIAL PROB IN STUDIO ART I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of problems at the introductory level in creative art. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 225 - BEGINNING DRAWING
Short Title: BEGINNING DRAWING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An introduction to the art of combining words and pictures: diverse applications such as storyboarding for stage and screen, comic books and graphic novels, and serial or multiples in a variety of media all fall under the umbrella of Sequential Art. Through instruction, demos, readings and practice, students will learn the history and implementation of linear visual narratives utilizing the Comics Art Teaching and Study Workshop as a resource. Students in this class will also participate in the construction and establishment of a permanent research center for the study of Comic Book Art within the Department of Visual and Dramatic Arts. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: FILM 275.

ARTS 230 - COMICS AND SEQUENTIAL ART
Short Title: COMICS AND SEQUENTIAL ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Study of Comic Book Art within the Department of Visual and Dramatic Arts. This course has limited enrollment. The roster is formalized on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: FILM 275.

ARTS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Independent Study, Seminar, Lecture/Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.
ARTS 262 - ART OF DIY: PROBLEM SOLVING AND MAKING
Short Title: ART OF DIY: PROBLEM SOLVING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The utilization of D.I.Y. (Do It Yourself) communities will be a centralized resource used to guide and complete audio work within the class. Keeping in mind the question: within contemporary society, how has the ability to produce and problem solve on an individual basis changed? The focuses of this class are to produce diverse technically proficient works of art that draw from and inform the student's current research. The class will also, during the course of the semester, build and implement a large, open-source DIY laser cutter. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Instructor Permission Required.

ARTS 263 - ART OF DIY: PROBLEM SOLVING AND MAKING II
Short Title: ART OF DIY: PROBLEM SOLVING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: The focus of this class will be to first build a DIY 3-D printer. We will utilize the laser cutter built in the previous DIY course to make the necessary components for the printer. We will then focus our attention on utilizing these tools to construct works of art that draw from and inform the students current research and interests. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Instructor Permission Required.

ARTS 270 - BIG PAINTING: MATERIALS AND TECHNIQUES FOR THEATRICAL PAINTING
Short Title: BIG PAINTING FOR THEATRE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Big Painting: Materials and Techniques for Theatrical Painting will examine the materials and techniques usually associated with scenic and theatrical painting but as applied to the context of 21st century contemporary art practices. Students will learn how to make big paintings. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: THEA 270.

ARTS 280 - HISTORY & AESTHETICS OF FILM
Short Title: HISTORY & AESTHETICS OF FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Introduction to the art and aesthetics of film as an artifact produced within certain social contexts. Includes style, narration, mise-en-scene, editing, sound, and ideology in classical Hollywood cinema, as well as in independent, alternative, notification, and Third World cinemas. Cross-list: FILM 280, HART 280.

ARTS 294 - SPECIAL PROBLEMS IN STUDIO ART: JUNIOR FIELD TRIP
Short Title: JUNIOR FIELD TRIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: This course is designed to help visual & dramatic arts majors, in their third year of study, focus on the upcoming senior year of intensive work. The destination city may be national or international and will offer students the opportunity to visit cultural centers, museums, galleries, artist studios, theaters, and participate in meetings with creative professionals in their fields of study. Travel takes place during one of the University's official recess periods. Course may not be used in awarding transfer credit. Instructor Permission Required. Mutually Exclusive: Cannot register for ARTS 294 if student has credit for ARTS 387.

ARTS 300 - SPECIAL PROBLEMS IN STUDIO ART II
Short Title: SPECIAL PROB IN STUDIO ART II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems at the intermediate level in creative art. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.
ARTS 301 - BEGINNING PAINTING
Short Title: BEGINNING PAINTING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course introduces students to the basic language, tools, and materials of painting. Students will learn painting techniques and concepts, starting with painting from observation and ending with more student-directed projects. Lectures and filed trips will explore painting through an art historical context as well as a contemporary one.

ARTS 311 - BEGINNING PRINTMAKING
Short Title: BEGINNING PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will give an introduction to prints and printmaking through the study of original works on paper and the opportunity to produce printed works of art. Works will include etchings, lithograph, linocut, and monoprints. Enrollment is limited. The instructor will formulate the course roster and may allow additional majors and underclassmen to enroll.

ARTS 312 - RELIEF I
Short Title: RELIEF I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: Instruction in black-and-white linoleum prints. Includes advanced color methods. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 314 - SCREEN PRINTING I
Short Title: SCREEN PRINTING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Instruction in color screen-printing processes. Emphasis will be on figurative/narrative work with strong print experimentation. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 315 - LINO + MONOPRINTING
Short Title: LINO + MONOPRINTING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 101 or ARTS 225
Description: Introduction to Monotype. Includes black-and-white and color Monotype printing. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 320 - MONOTYPE I
Short Title: MONOTYPE I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: Instruction in black-and-white, color, chine-colle, and additional monotype printing techniques to produce one of a kind prints. Creative and personal imagery is emphasized.

ARTS 322 - 3-D PRINTMAKING
Short Title: 3-D PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: This course will produce 3-dimensional works utilizing the traditional and non-traditional print processes of linocut, photocopy, transfer, vinyl cutter, and monoprinting techniques. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.
ARTS 323 - DRAWING STUDIO
Short Title: DRAWING STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: A continuation of Beginning Drawing, where students continue to investigate the concepts, materials, and possibilities of drawing. Students will explore further drawing in all its permutations, experimenting with scale, new materials, and new techniques. Assignments will continue focusing on working from life while also offering opportunities to work more subjectively.

ARTS 325 - LIFE DRAWING
Short Title: LIFE DRAWING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 101 or ARTS 225
Description: This course introduces students to drawing from the model. Students will work from short and long poses on exercises emphasizing gesture, proportion, composition, and character. A variety of media and approaches will be introduced. Homework and required visits to museums and galleries will build on what students practice in class.

ARTS 326 - COLLAGE
Short Title: COLLAGE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 101 or ARTS 225
Description: This course introduces methods and theories of collage. Lectures, museum visits, and projects examine both the historical precedents for collage and its contemporary possibilities. Students explore collage through experimentation with diverse materials, approaches, and critiques. Students will work with frottage, photomontage, and assemblage, both independently and collaboratively.

ARTS 327 - DOCUMENTARY PRODUCTION
Short Title: DOCUMENTARY PRODUCTION
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of the expressive possibilities of documentary production using digital systems. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: ANTH 324, FILM 327.

ARTS 328 - FILMMAKING I
Short Title: FILMMAKING I
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Dramatic film production class that requires the making of one digital video and one 16mm film. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: FILM 328.

ARTS 329 - FILM FORM
Short Title: FILM FORM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Viewing, analysis, and discussion of modern and classic films. Space in studio classes is limited. Registration does not guarantee a place in class. The class roster is formulated on the first day of class by the individual instructor. Cross-list: FILM 329.
ARTS 332 - CRITICAL STUDIES OF MULTIMEDIA ARTS
Short Title: CRITICAL STUDY OF MULTIMEDIA ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Multimedia Arts is a course designed to familiarize art and non-art majors with key theories and core concepts in modern and contemporary multimedia art. Students will examine a broad spectrum of specific topics in contemporary artwork related conceptually to: space/time; bodies and performance; "sculptural" studies in an expanded field and video & film space. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and field trips to local museums, galleries and alternative art spaces. This course will include discussions on readings, writings and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts. Cross-list: FILM 332, FOTO 332, THEA 332.

ARTS 349 - PRINTMAKING STUDIO
Short Title: PRINTMAKING STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: Exploration of etching, lithography, photo gravure, and monoprinting. Enrollment is limited. The instructor will formulate the course roster and may allow additional majors to enroll.

ARTS 358 - GROTESQUE, IMPURE, AND HYBRID PRACTICES IN ART
Short Title: MONSTER STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course should be taken in conjunction with Monster (HUMA 368 or BIOC 368). Topics discussed in that seminar will act as prompts for studio projects. Students will work independently and in groups on assignments addressing the monstrous in art, culminating in a final exhibition. Intended for all skill and experience levels.

ARTS 359 - PRINTMAKING STUDIO
Short Title: PRINTMAKING STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 225
Description: Exploration of etching, lithography, photo gravure, and monoprinting. Enrollment is limited. The instructor will formulate the course roster and may allow additional majors to enroll.

ARTS 366 - SCULPTURE STUDIO
Short Title: SCULPTURE STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 165
Description: Study of advanced problems in various sculptural media. Limited enrollment. The roster is formulated on the first day of class by the instructor, who may allow additional registration for majors and under-classmen. It is necessary to attend the first class meeting to confirm your place on the class roster. Cross-list: ARCH 367.

ARTS 368 - PHYSICAL COMPUTING FOR ART
Short Title: PHYSICAL COMPUTING FOR ART
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class will explore how we relate to other humans and our environment through digital technology. We will begin constructing projects on traditional computers; however, the projects in the class will expand beyond these confines. The class will focus on a hands-on experience of making interactive art projects, performance installations, interactive moving images, and sound within the context of contemporary art. Space in studio class is limited. Registration does not guarantee a place in class. The class roster will be formulated on the first day of class by the individual instructor. Repeatable for Credit.

ARTS 370 - OUTSIDE CONTEXT: ART, ARTISTS AND AUDIENCES BEYOND THE WHITE CUBE
Short Title: OUTSIDE CONTEXT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Outside Context: Art, Artists, and Audiences beyond the White Cube concerns the history and practice of making artwork in mass media forms. Contexts that are traditionally the bailiwick of advertising and entertainment, and now more often, a place where artists implement work that engages wider audiences. Combining lectures and practice, students will participate in the development of new artworks in mass media and public forms. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.
ARTS 378 - EXHIBITION DESIGN
Short Title: EXHIBITION DESIGN
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will explore the world of museums and galleries through exhibition design. Students will study the curatorial process and exhibition preparation including concept development, educational goals, budget, installation, and publicity. Discussions, workshops, museum visits, and guest lectures will provide students the opportunity to gain practical experience in museum/gallery work.

ARTS 383 - STUDIO ART INTERNSHIP
Short Title: STUDIO ART INTERNSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Internship/Practicicum
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is a field-based, supervised, professional learning experience designed to enhance classroom learning. Students will be responsible for identifying and securing internship positions and must obtain permission from the department chairman and have a department faculty sponsor. All interns are required to keep an internship journal recording duties and activities; the journal will be used as the basis of a five-page paper summarizing the internship experience. Documentation of the work produced during the internship is required, portfolio, CD, DVD, etc. Instructor Permission Required. Repeatable for Credit.

ARTS 384 - TEXT AND IMAGE
Short Title: TEXT AND IMAGE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This interdisciplinary course will explore the relationship between language, text, and the visual arts. The class will examine poet/artist collaborations, text-focused artistic movements such as Dada, Surrealism, and the early text-based works of the 1960s, along with contemporary artists and writers who push the boundaries of their fields. Field trips, readings, group discussions, and class critique will all be integral to this course. Students will develop projects, either through individual investigation or group collaboration, examining how words and images might intersect. The semester will culminate in a publication of these projects. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 387 - JUNIOR PROFESSIONAL PRACTICES SEMINAR AND FIELD TRIP
Short Title: JUNIOR SEMINAR
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar is to help majors in the Department of Visual and Dramatic Arts establish a frame of reference for professional practices in the fields of Studio Art, Film/Photography and Theater. (Please note: this course will not include a travel component due to COVID-19 during the 2020-2021 academic year) Instructor Permission Required. Mutually Exclusive: Cannot register for ARTS 387 if student has credit for ARTS 294.

ARTS 388 - CRITICAL STUDIES FOR STUDIO PRACTICE
Short Title: CRIT STUDIES STUDIO PRACTICE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Critical Studies for Studio Practice is a course designed to familiarize art and non-art majors with key theories and concepts in modern and contemporary art. This is a multi-dimensional class consisting of guest lectures, artist-speakers, and art field trips to local museums, galleries, and alternative art spaces. The course will include discussions on readings, writing, and special projects. This promises to be a fun and thought-provoking class and is designed to enhance studio practice and encourage interest in the visual arts.

ARTS 396 - SPEC PROBLEMS: MOBILE ARTS PROJECT
Short Title: SPEC PROB: MOBILE ARTS PROJECT
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The focus of this special problems/independent study class will be on the practical conversion of a 30’ transit bus into a multi-purpose mobile arts platform. Students will work one-on-one with Professor Sperandio and visiting artists on the development and fabrication of a variety of mechanical systems, including HVAC, electrical and plumbing. Participants will develop a more comprehensive understanding of alternative art practices through targeted readings and discussions, as well as participate in the development of new uses for this mobile arts space once it’s completed. This project is funded in part by the Humanities Research Center, Rice Office of Parking and Transportation, and the Department of Visual and Dramatic Arts. Instructor Permission Required. Repeatable for Credit.
ARTS 400 - SPECIAL PROBLEMS IN STUDIO ART III
Short Title: SPECIAL PROB IN STUDIO ART III
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of problems at the advanced level in creative art. Topics may vary. Please consult with your faculty advisor for additional information. This class may be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 401 - PAINTING STUDIO
Short Title: PAINTING STUDIO
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 301
Description: A continuation of practices and concepts introduced in Beginning Painting. Individual expression will be encouraged through a series of assignments that explore scale, subject matter, and process. Experimentation in different, painterly media will be encouraged. Students will continue to learn how to discuss painting through in-class critique. Mutually Exclusive: Cannot register for ARTS 401 if student has credit for ARTS 303.

ARTS 402 - ARTS RESEARCH AND PRACTICE
Short Title: ARTS RESEARCH AND PRACTICE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Independent Study with a faculty member in Visual and Dramatic Arts in a specified art practice and field of research. The student will devise and work upon a chosen artistic practice. Instructor Permission Required.

ARTS 403 - HANDMADE FILM
Short Title: HANDMADE FILM
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: 16mm film production course utilizing handmade cinema techniques. Space in class is limited. Registration does not guarantee a place in class. The class roster is formulated the first day of class by the individual instructor. Cross-list: FILM 428.

ARTS 404 - FILMMAKING II
Short Title: FILMMAKING II
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. Cross-list: FILM 435, HART 480.

ARTS 405 - SEMINAR ON FILM AUTHORSHIP: THE NEW HOLLYWOOD
Short Title: SEMINAR ON FILM AUTHORSHIP
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar covers the concept of authorship in Hollywood cinema since 1968. Topics include: the auteur theory, biography, voice, the implied author, intention, and others. Cross-list: FILM 435, HART 480.
ARTS 447 - SPECIAL PROBLEMS IN LIFE DRAWING
Short Title: SPECIAL PROBLEMS LIFE DRAWING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 449 - PRINTMAKING STUDIO
Short Title: ADVANCED PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 311 and ARTS 349
Description: Advanced exploration of etching, lithography, photo gravure, and monoprinting. Enrollment is limited. The instructor will formulate the course roster and may allow additional majors to enroll.

ARTS 450 - SPECIAL PROBLEMS IN PRINTMAKING
Short Title: SPECIAL PROBLEMS PRINTMAKING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 457 - SPECIAL PROBLEMS IN SCULPTURE
Short Title: SPECIAL PROBLEMS-SCULPTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-6
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Study of advanced problems in creative art. Topics may vary. Please consult with the department for additional information. May be used in awarding transfer credit. Instructor Permission Required. Repeatable for Credit.

ARTS 460 - ADVANCED COMPUTER GRAPHICS
Short Title: ADV COMPUTER GRAPHICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This project-based class involves teams of 2-4 CS and Visual Arts students designing and building computer games suitable for Xbox Live Arcade using C# and XNA. For CS students, COMP 160 or COMP 360 is recommended as a prerequisite. For Visual Arts students, previous experience in drawing using Photoshop is suggested. Instructor Permission Required. Cross-list: COMP 460.
Course URL: www.owlnet.rice.edu/~comp460 (http://www.owlnet.rice.edu/~comp460/)

ARTS 465 - ADVANCED SCULPTURE
Short Title: ADVANCED SCULPTURE
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 165 or ARTS 365
Description: Study of advanced problems in various sculptural media. This course has limited enrollment. The roster is formatted on the first day class by the instructor, who may allow additional registration for majors. It is necessary to attend the first class meeting to confirm your place on the class roster.

ARTS 475 - ADVANCED PAINTING
Short Title: ADVANCED PAINTING
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Studio
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): ARTS 301 and (ARTS 303 or ARTS 401)
Description: Students will further advance their painting skills while beginning to develop a personal painting vocabulary. Students will have the opportunity to experiment with new materials, at new scales, and with new subject matter. Assignments will be more open in structure, allowing for more individually driven projects, specific to student interest.

ARTS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Visual and Dramatic Arts
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory, Seminar, Lecture, Laboratory, Internship/Practicum
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.
Women, Gender, & Sexuality (SWGS)

SWGS 101 - INTRODUCTION TO WOMAN & GENDER
Short Title: INTRO WOMEN & GENDER
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Introduction to the Study of Women, Gender, and Sexuality- An introductory survey of issues in the study of gender, such as women's social, political, and legal status in the US and globally; feminist perspectives on sexuality, race, the body, globalization, labor, culture; and the implications of these perspectives for social and critical theory. The course also introduces the concept of engaged research and the public service components of feminist activity.

SWGS 201 - INTRODUCTION TO LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES
Short Title: INTR LESBIAN, GAY, BISEX&TRAN
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: An introduction to the interdisciplinary examination of sexual desires, sexual orientations, and the concept of sexuality, with a focus on the construction of lesbian, gay, bisexual, and transgender identities. The course looks at how identities interact with other social phenomena such as government, family, popular culture, scientific inquiry, and especially gender, and highlights the complexity and variability of sexualities of both across historical periods and in relation to race, class, ethnicity and nation. The course also introduces the concept of engaged research and the public service component of LGBT activity.

SWGS 205 - LANGUAGE AND SOCIETY
Short Title: LANGUAGE AND SOCIETY
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: This course treats language as a social phenomenon to show how language, personal identity and institutions of social control inter-relate. The course focuses on linguistic interaction in daily life and how gender, ethnic, class, activity, and geographic variation affect language use. Cross-list: LING 205.

SWGS 234 - U.S. WOMEN’S HISTORY I: COLONIAL BEGINNINGS TO THE CIVIL WAR
Short Title: U.S. WOMEN'S HISTORY, I
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.

Description: Survey of American women’s history examines the lives of elite, working, black, Indian and white women, and traces changes in women’s legal, political, and economic status from the mid-17th century through the Civil War. Topics include slavery, suffrage, sexuality, and feminism. Cross-list: HIST 241.
SWGS 235 - U.S. WOMEN'S HISTORY II: CIVIL WAR TO THE PRESENT
Short Title: U.S. WOMEN'S HISTORY II
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Survey of American women's history examines the lives of black, Asian American, Chicana, Native American, and white women, and traces changes in women's legal, political, and economic status from the Civil War to the present. Topics include suffrage, anti-lynching, welfare, birth control, and the modern civil rights and feminist movements. Cross-list: HIST 242.

SWGS 238 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Lecture/Laboratory, Seminar, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SWGS 247 - SEX AND THE CITY
Short Title: SEX AND THE CITY
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: Sex literally shapes the city, both structurally and in our social imaginations. City governments regulate sexually oriented businesses, and not just through zoning. Specific urban sites become known as "that part of town." Urban planners look to "gayborhoods" as economic growth engines. This interdisciplinary seminar explores these and other dynamics at work in the past and the present of urban landscapes.

SWGS 250 - SEX, MONEY, AND POWER AROUND THE WORLD
Short Title: SEX, MONEY, AND POWER
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An interdisciplinary course exploring lives and well-being in the context of gendered international and domestic politics and economic processes. Emphasis on the implications of power relations at levels from the household to the global for women and men around the world (with particular attention to Asia). Cross-list: ASIA 251, POLI 250.

SWGS 273 - MEDICINE AND MEDIA
Short Title: MEDICINE AND MEDIA
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Lower-Level
Description: An interdisciplinary exploration of the role of imaging technologies in the practice of medicine, and the role of mass media in shaping our understandings of the body, health, and disease. This course examines visual media structure "ways of seeing" for physicians and for the public. Emphasis will be placed on developing media literacy skills. Cross-list: ENGL 273.

Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 301 - ARTHURIAN LITERATURE
Short Title: ARTHURIAN LITERATURE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the origins and development of the Arthurian legend from the earliest chronicles in the sixth century and later medieval French, Welsh, Irish, and English Arthurian poems to modern adaptations of Arthurian material, including films. Cross-list: ENGL 317, MDEM 317.

SWGS 303 - GENDER AND SCIENCE
Short Title: GENDER AND SCIENCE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An interdisciplinary exploration of the role of imaging technologies in the practice of medicine, and the role of mass media in shaping our understandings of the body, health, and disease. This course examines visual media structure "ways of seeing" for physicians and for the public. Emphasis will be placed on developing media literacy skills. Cross-list: ENGL 273.

Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 305 - CHAUCER
Short Title: CHAUCER
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to Geoffrey Chaucer's The Canterbury Tales, Middle English, and the political and cultural climate of the fourteenth century. Cross-list: ENGL 316, MDEM 316.
SWGS 306 - HUMAN SEXUALITY
Short Title: HUMAN SEXUALITY
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course is designed to explore the physiological, psychological, and sociological parameters of human sexuality, while providing accurate information and helping students develop healthy attitudes toward sexuality. Cross-list: HEAL 306.

SWGS 308 - THE FUTURE OF FOOD: FEMINIST, QUEER, AND CRITICAL APPROACHES
Short Title: FOOD FEMINIST QUEER APPROACHES
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines food studies, food movements, and food politics through feminist, queer, and critical approaches, analyzing throughout the course food's relationships to gender, class, race, disability, sexuality, and geography. The course will include sharing food with one another, going on field trips, and participating in an engaged food justice project. Repeatable for Credit.

SWGS 315 - GENDER AND ISLAM
Short Title: GENDER AND ISLAM
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores the lives of Muslim women in Asia, the Middle East, Europe, and North America; analyzes constructions of gender in the Islamic world over time; the challenges faced from such diverse quarters as colonial administrators, Western feminists, and states; as well as movements and individuals within the Muslim world. Cross-list: ASIA 315, RELI 315.

SWGS 317 - TRANSGENDER STUDIES
Short Title: TRANSGENDER STUDIES
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course surveys the evolving category of transgender in global context with a specific focus on the United States. Drawing on medicine, history, law, anthropology, cultural studies, women's studies, and sexuality studies, participants will explore the contested meanings of "transgender" and related terms like "non-binary" and "gender non-conforming." Instructor Permission Required. Recommended Prerequisite(s): SWGS 101 or SWGS 201.

SWGS 318 - ISRAELI WOMEN WRITERS
Short Title: ISRAELI WOMEN WRITERS
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the embodiment of gender and sexuality through the oral interpretation of transnational literature. Students will learn how to analyze and adapt to performance novels and short stories from various global and historical contexts that exemplify the genre of the "coming of age" narrative. Cross-list: THEA 320.

SWGS 320 - GENDER, SEXUALITY AND THE ADAPTATION OF TRANSNATIONAL LITERATURE TO PERFORMANCE
Short Title: GENDER AND PERFORMANCE
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how sexuality has been constructed, avoided, celebrated, and suppressed in museums. In addition to studying a genealogy of sexual display and spectatorship in museums, students will also do the work of collectors, curators, and critics of artistic, historical, and scientific displays of sex and sexuality. Cross-list: HART 399.

SWGS 321 - EXHIBITING SEXUALITIES
Short Title: EXHIBITING SEXUALITIES
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This class investigates how sexuality has been constructed, avoided, celebrated, and suppressed in museums. In addition to studying a genealogy of sexual display and spectatorship in museums, students will also do the work of collectors, curators, and critics of artistic, historical, and scientific displays of sex and sexuality. Cross-list: HART 399.

SWGS 324 - SOCIOLOGY OF GENDER
Short Title: SOCIOLOGY OF GENDER
Department: Stdy of Women, Gender, & Sxltty
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Relationship between gender and social role. Development of the contemporary sexual division of labor and process of socialization with reference to family, education, media, and occupations. Cross-list: SOCI 306.
SWGS 325 - SOCIOLOGY OF THE FAMILY
Short Title: SOCIOLOGY OF THE FAMILY
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will teach students the important influences and consequences of American family life. We will consider issues such as sex and sexualities, marriage and cohabitation, divorce, family structure, same-sex marriage, domestic violence, and household labor. We will also examine the role of social institutions and social inequality in shaping family norms and constraints on family behaviors. Cross-list: SOCI 334.

SWGS 327 - TOPICS IN WOMEN WRITERS
Short Title: TOPICS IN WOMEN WRITERS
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course that focuses on women from various traditions. Cross-list: ENGL 381. Repeatable for Credit.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 329 - THE AMERICAN WEST AND ITS OTHERS
Short Title: THE AMERICAN WEST & ITS OTHERS
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores ideas of history and attitudes toward the past as cultural values as well as conceptualizations of cause, change, time, and race on women's lives. Cross-list: HIST 338.

SWGS 332 - SEX, SELF, AND SOCIETY IN ANCIENT GREECE
Short Title: SOCIETY IN ANCIENT GREECE
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introductory venture into conducting fieldwork in the past. The course treats a wide range of artifacts, from philosophical essays to vase paintings. It derives its focus from a rich corpus of recent research into the ancient problemization of desire and self-control. Cross-list: ANTH 325.

SWGS 333 - MASCULINITIES
Short Title: MASCULINITIES
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course deals with masculinities in the West, concentrating on concepts of masculine protagonism and personhood. Readings explore identities constructed in realms such as law, politics, finances, art, the home, and war. Cross-list: ANTH 311.

SWGS 336 - THE ANTHROPOLOGY OF THE HISTORICAL IMAGINATION
Short Title: THE HISTORICAL IMAGINATION
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group II
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Explores ideas of history and attitudes toward the past as culturally conditioned phenomena. Emphasizes history as a statement of cultural values as well as conceptualizations of cause, change, time, and reality. Cross-list: ANTH 308.

SWGS 338 - 19TH CENTURY WOMEN'S NARRATIVES
Short Title: 19TH C. WOMEN'S NARRATIVES
Department: Stdy of Women, Gender, & SxltY
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines the experiences of women in the United States during the nineteenth century through first-hand accounts and scholarly readings. Students will read a variety of materials to explore the social and legal status of women and consider the impact of race on women's lives. Cross-list: HIST 333.
**SWGS 343 - JANE AUSTEN'S WORLDS**  
**Short Title:** JANE AUSTEN'S WORLDS  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** An exploration of Jane Austen as Regency writer and contemporary icon. The course will focus both on Austen's writing her novels, her juvenilia and her letters and on visual and textual adaptations of her work. Cross-list: ENGL 343.

**SWGS 345 - HISTORY OF FEMINISM**  
**Short Title:** HISTORY OF FEMINISM  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Distribution Group:** Distribution Group I  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** Explores feminism as political thought and social movement in various times and places. Readings will include classic as well as non-canonical texts. We will consider the historical contexts of feminist action, and examine controversies over and within feminisms. Cross-list: HIST 340.

**SWGS 346 - SEMINAR ON LOVE: MAKING LOVE IN MODERN ART AND THOUGHT**  
**Short Title:** MAKING LOVE IN MODERN ART  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This seminar explores various conceptions of love from the classical era to our postmodern age. Ranging from eros to philia to agape, we will examine literary, philosophical, and artistic expressions of love in painting, cinema, literature, psychoanalysis, philosophy, religion, and culture. Cross-list: HART 346.

**SWGS 348 - SEX AND GENDER IN MODERN JEWISH CULTURE**  
**Short Title:** SEX & GENDER IN JEWISH CULTURE  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** How has Jewish identity historically been constructed as gendered, and how has that affected Jewish self-perception and representation as well as the representations of others? This course explores the intersection between gender and Jewishness from several different historical and cultural perspectives, using literature, film, and philosophy. Cross-list: JWST 348. Mutually Exclusive: Cannot register for SWGS 348 if student has credit for RELI 347/SWGS 347.

**SWGS 353 - ILLNESS, DISABILITY, AND THE GENDERED BODY**  
**Short Title:** DISABILITY AND GENDERED BODIES  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retrench normative arrangements of gender. Cross-list: ANTH 354. Graduate/Undergraduate Equivalency: SWGS 554. Mutually Exclusive: Cannot register for SWGS 353 if student has credit for SWGS 554.

**SWGS 354 - CHICANO/A LITERATURE**  
**Short Title:** CHICANO/A LITERATURE  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** A mixed-genre course focusing on the Chicano movement, the Chicano renaissance, and alternative literary and mythic traditions associated with them. Cross-list: ENGL 371, SPPO 354. Repeatable for Credit.  
**Course URL:** www.english.rice.edu (http://www.english.rice.edu)

**SWGS 361 - NEW GERMAN FILM: HITLER'S CINEMATIC CHILDREN**  
**Short Title:** NEW GERM FILM: HITLER'S CINEMA  
**Department:** Stdy of Women, Gender, & Sxly  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.  
**Course Level:** Undergraduate Upper-Level  
**Description:** From the 1960 to 2000, Germany has developed a very distinct auteur cinema with independent filmmakers such as Fassbinder, Herzog, Wenders, Adlon, Trotta, Sander, Brueckner, Doerr, Garnier, Tykver, and others. The first 20 years of German film were oriented on coming to terms with the fascist past; the second 20 years focused on more contemporary issues. Film, critical reading and class discussion in English. All films are subtitled in English and will be assessed with podium technology. Taught in English. Cross-list: GERM 338, HUMA 373.
SWGS 364 - QUEER LITERARY CULTURES
Short Title: QUEER LITERARY CULTURES
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An introduction to queer literary theory by reading works in several genres, from Sappho to the present day, including Shakespeare, Dickinson, Tennyson, Whitman, Proust, Stein and Woolf. Cross-list: ENGL 354.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 370 - AFRICAN AMERICAN LITERATURE
Short Title: AFRICAN AMERICAN LITERATURE
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course that traces, through various genres and themes, African American literary history from the late eighteenth century to the present. Attention is given to theories and critiques of African American literature and culture. Cross-list: ENGL 370.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 372 - SURVEY OF VICTORIAN FICTION
Short Title: VICTORIAN FICTION
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A survey of the many genres of the 19th-century novel, this course will try to come to terms with some of the insistent questions posed by and through the fiction of the period. Cross-list: ENGL 342.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 373 - WOMEN'S SOCIAL MOVEMENTS IN LATIN AMERICA AND THE CARIBBEAN
Short Title: WOMEN'S SOCIAL MOVEMENTS
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The course will examine the historical development of women's social movements in Latin America and the Caribbean. We will explore how they are transforming the region through their diverse forms of political engagement. This is a lecture/seminar course that emphasizes writing and discussion. Cross-list: LASR 373.

SWGS 374 - FEMINIST AND QUEER THEORY IN THE AFRICAN DIASPORA
Short Title: FEM THEORY IN AFRICAN DIASPORA
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course provides an interdisciplinary overview of the body of Black feminist and queer theory that has emerged within the last forty years. We will examine these frameworks in order to understand how racial difference shapes gender and sexual identities. This is a seminar that emphasizes research and discussion. Cross-list: LASR 374.

SWGS 375 - LATINA AND AFRICAN AMERICAN WOMEN'S ACTIVISM IN THE URBAN METROPOLIS
Short Title: WOMEN'S ACTIVISM URBAN METRO
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will investigate the contemporary writings of Latina and African American women in urban spaces across the U.S. Understanding these women's experiences in relationship to each other will reveal the shared, yet distinct, trajectories that orient their struggle to resist poverty, racism, homophobia, and sexual and reproductive violence. Cross-list: LASR 375.

SWGS 376 - CHICANA AND LATINA EXPERIENCE THRU FILM
Short Title: CHICANA/LATINA EXP THRU FILM
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the Chicana and Latina experience in the U.S. We examine these women's response to each other and forces of conquest, capitalism, and patriarchy. Novels, oral life histories, film, and art will be used to interrogate these women's conceptualization and assertion of feminism, activism, and history. Cross-list: LASR 376.

SWGS 377 - RACE, POWER AND THE POLITICS OF PLACE
Short Title: RACE, POWER, PLACE
Department: Stdy of Women, Gender, & Sxltys
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines how the social construction of space informs processes of racial formation, gender, and sexuality by focusing largely on Latina communities in the Americas.
SWGS 380 - FEMINIST THEORY
Short Title: FEMINIST THEORY
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A course focusing on concepts that drive and divide social movements centered on gender equality, women’s issues, and sexual identity in the two-thirds and one-third world, among them feminism; the body; race; labor, rights, needs, and desires. Cross-list: ENGL 382.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 384 - MODERN GIRL AND ASIA IN THE WORLD
Short Title: MOD GIRL & ASIA IN THE WORLD
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Using the textbook “The Modern Girl Around the World,” this course examines the phenomenon of the so-called modern girl in Asia and the world, 1890-1949. Topics include: modernity, consumer culture, sexuality, and liberation. Cross-list: ASIA 328, HIST 384.

SWGS 385 - SEXUAL DEBATES IN THE U.S.: SOCIAL AND CULTURAL CONTEXTS OF SUPREME COURTS DECISIONS
Short Title: SEXUAL DEBATES IN U.S.
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: How do sex acts and sexualities enter public conversations over time? This course surveys a variety of sexual debates in the United States with a focus on the social and cultural contacts and the legacies of those debates. Topics vary, but examples include miscegenation, obscenity, abortion and sodomy.

SWGS 389 - YOUTH STUDIES
Short Title: YOUTH STUDIES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course exploring the cultural productions of youth, their social geographies, and youth as a critical field important to the theorization of activism, technology, law and incarceration, reproductive politics, sexuality, consumerism, citizenship, environment. Previous topics: Generation X, Third Wave Feminism, Obama and the Youth Vote, Harry Potter & Gen Y, Power, Politics, and Reading Issues of Access. Cross-list: ENGL 389.
Course URL: www.english.rice.edu (http://www.english.rice.edu)

SWGS 390 - TRENDS IN HISPANIC CINEMA
Short Title: TRENDS IN HISPANIC CINEMA
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 390. This course examines the ways in which films in both Spain and Latin America have represented the cultural contexts of their countries. Focus is on the theme of power, and the consequences on social and individual lives. Taught in Spanish. Cross-list: SPPO 385.

SWGS 393 - SCIENCE, FEMINISM AND CHRISTIANITY IN THE AMERICAN 20TH CENTURY
Short Title: SCIENCE/FEMINISM/CHRISTIANITY
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines a history of sex and gender at the intersection of American science and American Christianity over the past century. Students will be invited to interrogate the boundaries between scientific and religious discourse as they investigate how these have interacted in producing sex and gender identity.

SWGS 399 - WOMEN IN CHINESE LITERATURE
Short Title: WOMEN IN CHINESE LITERATURE
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course examines women’s roles in Chinese literature as writers, readers, and characters, focusing particularly on the tension between women’s lived bodily experiences and the cultural experiences inscribed on the female body and how, in the process, women have contrarily gendered patriarchal culture into their own. It will also touch on Chinese women’s incorporation of the Western Tradition. Cross-list: ASIA 399, MDEM 379.

SWGS 407 - FEMINIST STUDIES
Short Title: FEMINIST STUDIES
Department: Stdy of Women, Gender, & Sxly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course designed to build on student knowledge of feminist theory gained earlier in the curriculum. Past topics have included sexualities, Marriage and Its Others, and Third Wave Feminism. Cross-list: ENGL 481. Repeatable for Credit.
SWGS 415 - SOCIOLINGUISTICS
Short Title: SOCIOLINGUISTICS
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Prerequisite(s): LING 301 or ANTH 301 or LING 311 or ANTH 323 or LING 501 or ANTH 501 or LING 511 or ANTH 523
Description: This course covers contemporary sociolinguistic theory and methodologies. We examine the linguistic consequences to speakers of their group memberships such as gender, race, class and sexuality. Cross-list: LING 415.

SWGS 424 - WOMEN IN FRANCE
Short Title: WOMEN IN FRANCE
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course studies women in education, the workplace, politics, and in social and cultural institutions in French society. The class explores the history of the French women's movement and analyzes French concepts of gender and feminism in comparison to American models. Effective May 15, 2019, this course does not carry D1 credit. Cross-list: FREN 424. Recommended Prerequisite(s): Completion of one 300 level course or permission of instructor.

SWGS 434 - SEEING SEX IN EUROPEAN ART, 1400-1700
Short Title: SEEING SEX IN EUROPEAN ART
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Distribution Group: Distribution Group I
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course will examine the visual history of sexuality from 1400-1700. It will explore how imagery structured sexual desire; the role of erotic sacred art; the rise of pornography; the intersection of spatial topography and sexuality; the linkage of licit and illicit sexualities; and the sexuality of artist and patrons. Cross-list: HART 434, MDEM 434. Graduate/Undergraduate Equivalency: SWGS 534. Mutually Exclusive: Cannot register for SWGS 434 if student has credit for SWGS 534.

SWGS 449 - CULTURES OF SEXUALITY
Short Title: CULTURES OF SEXUALITY
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: What is "sexuality" across cultural milieux? This course analyzes understandings and practices of sexuality from a global, comparative perspective, including different social configurations of gender and intimacy, reproduction, sensuality and the erotic. Case studies explore the complex relationships between sexuality and gender, ethnicity, nationalism, globalization, commodification, politics, media, health and medicine. Cross-list: ANTH 449.

SWGS 453 - STUDIES IN AFRICAN AMERICAN LITERATURE
Short Title: AFRICAN AMERICAN STUDIES
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: A variable topics course designed to build on student knowledge of African American literature gained earlier in the curriculum. Recent topics include Black Women Writers. Cross-list: ENGL 470. Repeatable for Credit.

SWGS 465 - GENDER AND HEALTH
Short Title: GENDER AND HEALTH
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This seminar explores the relationship between gender and health (longevity, physical illness and functioning, mental health, and health behavior). Specific topics include masculinity, disease expression, medical research, health care use, stress and social relationships, and intersectionality (race/ethnicity and sexuality) as they relate shaping health outcomes among men and women. Cross-list: SOCI 465.

SWGS 466 - LATIN AMERICAN WOMEN'S CULTURE
Short Title: LATIN AMERICAN WOMEN'S CULTURE
Department: Stdy of Women, Gender, & Sxltly
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Formerly SPAN 456. Studies the cultural production (literary, artistic, cinematic) of intellectual women in Latin America. Examines the struggles for interpretive power in works by women from the colonial period to the present. Taught in Spanish. Effective May 15, 2021, this course does not carry D1 credit. Cross-list: SPPO 430.
SWGS 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester's topic(s). Repeatable for Credit.

SWGS 494 - PRE-SEMINAR IN ENGAGED RESEARCH
Short Title: PRE-SEMINAR: ENGAGED RESEARCH
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Satisfactory/Unsatisfactory
Course Type: Seminar
Credit Hour: 1
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: This course prepares students for the Spring semester and practicum sequence (496 and 497) by establishing a baseline of skills in research design and filing paperwork with the Institutional Review Board at Rice and elsewhere as needed.

SWGS 495 - INDEPENDENT STUDY
Short Title: INDEPENDENT STUDY
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Open to SWGS majors only. Instructor Permission Required.

SWGS 496 - ENGAGED RESEARCH PRACTICUM
Short Title: ENGAGED RESEARCH PRACTICUM
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Internship/Practicum
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An applied research complement to the Seminar consisting of six hours/week participating in a research-based project at a local public service agency that addresses the needs of women or is focused on gender and/or sexuality related work. Planning for the practicum takes place during the previous fall semester in consultation with the SWGS Director. Practicum projects are presented to a public audience. Permission of the instructor and some background in the study of women, gender or sexuality required.

SWGS 497 - ENGAGED RESEARCH SEMINAR
Short Title: ENGAGED RESEARCH SEMINAR
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Seminar
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Taken in conjunction with SWGS 496, the Seminar develops students’ research skills and situates the practicum project within a range of perspectives on feminist theory and practice, grassroots organizing, and policy-making around the issues of women, gender, and sexuality, for example, domestic violence, gender and the prison industry, reproductive freedom, the feminization of AIDS. Permission of the instructor and some background in gender or sexuality studies are required.

SWGS 498 - RESEARCH IN THE STUDY OF WOMEN GENDER SEXUALITY
Short Title: RES STUDY WOMEN GENDER SXLTY
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research seminar for SWGS seniors to fulfill capstone requirement. Open to SWGS majors only.

SWGS 499 - RESEARCH IN THE STUDY OF WOMEN GENDER SEXUALITY
Short Title: RES STUDY WOMEN GENDER SXLTY
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Research
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Research seminar for SWGS seniors to fulfill capstone requirement. Open to SWGS majors only. Instructor Permission Required.

SWGS 501 - FEMINIST DEBATES
Short Title: FEMINIST DEBATES
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Graduate level students.
Course Level: Graduate
Description: This course identifies and traces three streams of thought by debates about major issues in women's studies. While the content of these streams will vary the course will always be attentive to the historical and theoretical context of the debates in question and to the intersection of these debates with others. Topics might include: public and private spheres; the relation between the local and the global links between gender and sexuality; the problem of identity; the relation between activist and academic feminism.
SWGS 502 - GENDER, THE DISCIPLINES, AND INTERDISCIPLINARITY  
**Short Title:** GENDER, DISCIPL, & INTERDISCIP  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Prerequisite(s):** SWGS 501  
**Description:** Structured as a workshop, this course offers SWGS certificate students critically to engage cross-disciplinary feminist scholarship as they integrate the study of women, gender and/or sexuality into their doctoral writing by transforming existing papers into works that are of publishable quality.

SWGS 503 - DIRECTED READING  
**Short Title:** DIRECTED READING  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Independent Study  
**Credit Hours:** 1-3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** Directed reading under the supervision of a SWGS faculty member with permission of the instructor. May count only once toward major requirements. Instructor Permission Required.

SWGS 534 - SEEING SEX IN EUROPEAN ART, 1400-1700  
**Short Title:** SEEING SEX IN EUROPEAN ART  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** For each lecture, Graduate Students will be assigned additional readings. They will write an annotated bibliography of all these readings to be turned in at the end of the semester. We will meet for an additional every two or three weeks to discuss interpretive and methodological problems and ideas associated with the readings. Graduate Students will be expected to complete all the requirements of the class in addition to writing a substantial research paper due at the end of the semester. Cross-list: HART 534. Graduate/Undergraduate Equivalency: SWGS 434. Mutually Exclusive: Cannot register for SWGS 534 if student has credit for SWGS 434.

SWGS 542 - VICTORIAN FICTION  
**Short Title:** VICTORIAN FICTION  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A variable topics course. Please consult the English department website for additional information. Recent topics have included "The Victorian Marriage Plot", "The History of the Novel, Part II"; and "Victorian and Modern Sexualities". Cross-list: ENGL 542. Repeatable for Credit.

Course URL: [www.english.rice.edu](http://www.english.rice.edu)

SWGS 546 - SPECIAL TOPICS: 20TH CENTURY BRITISH LITERATURE  
**Short Title:** SP 20TH CENTURY BRITISH LIT  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A variable topics course. Cross-list: ENGL 546. Repeatable for Credit.

Course URL: [www.english.rice.edu](http://www.english.rice.edu)

SWGS 554 - ILLNESS, DISABILITY, AND THE GENDERED BODY  
**Short Title:** DISABILITY AND GENDERED BODIES  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** This course draws on critical disability studies and medical anthropology to explore how gender and sexuality matter in contexts of illness and disability across a range of institutional, social, and national contexts. We pay particular attention to the ways illness and disability expose, disturb, or retract normative arrangements of gender. Cross-list: ANTH 554. Graduate/Undergraduate Equivalency: SWGS 353. Mutually Exclusive: Cannot register for SWGS 554 if student has credit for SWGS 353.

SWGS 581 - CULTURAL STUDIES: CONTEMPORARY LITERATURE, CULTURE AND POLITICS  
**Short Title:** CONTEmplit, CULTURE & POLI  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Seminar  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A variable topics course. Please consult the English department website for additional course information. Recent topics have included Contemporary Issues in U.S. Culture and Studies in Sexuality: Thinking Sex Under Neo-Liberalism. Cross-list: ENGL 581. Repeatable for Credit.

Course URL: [www.english.rice.edu](http://www.english.rice.edu)

SWGS 585 - POSTcolonIALISM AND BEYOND  
**Short Title:** POSTcolonIALISM AND BEYOND  
**Department:** Stdy of Women, Gender, & Sxlty  
**Grade Mode:** Standard Letter  
**Course Type:** Lecture  
**Credit Hours:** 3  
**Restrictions:** Enrollment is limited to Graduate level students.  
**Course Level:** Graduate  
**Description:** A course that serves both as an introduction to postcolonial theory and as a reevaluation of its political and ethical ends vis-a-vis recent debates around globalization and cosmopolitanism. For additional course information please consult the English department website. Cross-list: ENGL 585.

Course URL: [www.english.rice.edu](http://www.english.rice.edu)
SWGS 677 - SPECIAL TOPICS

Short Title: SPECIAL TOPICS
Department: Stdy of Women, Gender, & Sxlty
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Laboratory, Lecture, Seminar, Lecture/
Laboratory, Independent Study
Credit Hours: 1-4
Restrictions: Enrollment is limited to Graduate or Visiting Graduate level
students.
Course Level: Graduate
Description: Topics and credit hours vary each semester. Contact
department for current semester's topic(s). Repeatable for Credit.
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- Faculty (p. 3006)
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<thead>
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<th>Name</th>
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</thead>
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<td>Vice President for Enrollment</td>
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<td>Vice President for Finance</td>
<td>Kathy Collins</td>
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<td>Vice President for Investments and Treasurer</td>
<td>Allison Thacker</td>
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<td>Vice President for International Operations and IT &amp; Chief Information Officer</td>
<td>TBN</td>
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<td>Vice President for Public Affairs</td>
<td>Linda Thrane</td>
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<td>Vice President and General Counsel</td>
<td>Richard A. Zansitis</td>
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<tr>
<td>Director of Athletics, Recreation and Fitness</td>
<td>Joe Karlgaard</td>
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<td>University Representative</td>
<td>Y. Ping Sun</td>
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<tr>
<td>Provost</td>
<td>Reginald DesRoches</td>
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<tr>
<td>Dean of the School of Architecture</td>
<td>Igor Marjanović</td>
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<td>Dean of the Jesse H. Jones</td>
<td>Peter L. Rodriguez</td>
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<td>Graduate School of Business</td>
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<tr>
<td>Dean of the Susanne M. Glasscock School of Continuing Studies</td>
<td>Robert Bruce Jr.</td>
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<tr>
<td>Dean of the George R. Brown School of Engineering</td>
<td>Luay Nakhlé</td>
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<tr>
<td>Dean of the School of Humanities</td>
<td>Kathleen Canning</td>
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<tr>
<td>Dean of the Shepherd School of Music</td>
<td>Matthew Loden</td>
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<td>Dean of the Wiess School of Natural Sciences</td>
<td>Thomas C. Killian</td>
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<tr>
<td>Dean of the School of Social Sciences</td>
<td>Rachel Tolbert Kimbro</td>
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<tr>
<td>Dean of Undergraduates</td>
<td>Bridget Gorman</td>
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<tr>
<td>Dean of Graduate and Postdoctoral Studies</td>
<td>Seiichi Matsuda</td>
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<tr>
<td>Vice Provost for Academic Affairs</td>
<td>C. Fred Higgs III</td>
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<tr>
<td>Vice Provost for Diversity, Equity and Inclusion</td>
<td>Alexander X. Byrd</td>
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<td>Vice Provost for Research</td>
<td>Yousif Shamoo</td>
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<td>Vice Provost and University Librarian</td>
<td>Sara Lowman</td>
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<tr>
<td>Director of the James A. Baker III Institute for Public Policy</td>
<td>Edward P. Djerejian</td>
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<td>Financial Aid</td>
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<td>Human Resources</td>
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<td>Information Security (OIT)</td>
<td>Marc Scarborough</td>
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<td>Institutional Effectiveness and Institutional Research</td>
<td>John M. Cornwell</td>
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<td>International Students and Scholars</td>
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<td>Police Department (RUPD)</td>
<td>Clemente Rodriguez</td>
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<td>President’s Office</td>
<td>Ryan Kirksey</td>
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<td>Risk Management</td>
<td>Eno Oregbesan</td>
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<td>Sponsored Research &amp; Research Compliance (SPARC)</td>
<td>Krystal Toups</td>
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<td>Student Center and Student Activities</td>
<td>E. Kate Abad</td>
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<td>Student Health</td>
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<td>Transportation Office</td>
<td>Eugen Radulescu</td>
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<td>Campus Store</td>
<td>Matthew Erskin</td>
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<td>Career Development</td>
<td>Nicole Van Den Heuvel</td>
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<td>Cashier’s Office</td>
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<td>Center for Civic Leadership (CCL)</td>
<td>Caroline Quenemoen</td>
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<td>Controller’s Office</td>
<td>Brad Fralic</td>
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<td>Counseling Center</td>
<td>Timothy Baumgartner</td>
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<td>Delivery Services</td>
<td>Ute Franklin</td>
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<td>Disability Resource Center</td>
<td>Alan Russell</td>
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<td>Emergency Medical Service (EMS)</td>
<td>Lisa Basgall</td>
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<td>Environmental Health and Safety</td>
<td>Kathryn Cavender</td>
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<td>Facilities, Engineering and Planning</td>
<td>Kathy Jones</td>
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<td>Faculty Development</td>
<td>Louma Ghandour</td>
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<td>College Magisters</td>
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<td>Baker College</td>
<td>Luis Duno-Gottberg and Angela Duno</td>
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<td>Brown College</td>
<td>B.J. and Shirley Fregly</td>
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<td>Duncan College</td>
<td>Eden B. King and Winston Liaw</td>
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<td>Hanszen College</td>
<td>Fabiola Lopez-Duran and Carlos Martinez-Rivera</td>
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<td>Jones College</td>
<td>Jason Hafner and Jennifer Trotter</td>
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<td>Lovett College</td>
<td>Mike Guster and Denise Klein</td>
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2021-2022 General Announcements PDF Generated 09/22/21
Faculty

Akin, John Edward, 1983. Professor of Mechanical Engineering and Computational and Applied Mathematics
BS (1964) Tennessee Polytechnic Institute; MS (1966) Tennessee Technological University; PhD (1968) Virginia Polytechnic Institute

Akins, Brian, 2012. Associate Professor of Accounting

Alabastri, Alessandro, 2015. Assistant Professor of Electrical and Computer Engineering
BSc (2007), MSc (2009) Polytechnic University-Milan; PhD (2014) Italian Institute of Technology and University of Genoa, Italy

Albareda, Francis, 2009. Weiss Visiting Professor of Earth, Environmental and Planetary Sciences
PhD (1976) University of Paris 7

Albers, Andrew, 2008. Lecturer of Architecture
BS (1995) Georgia Institute of Technology; MArch (1999) Rice University

Alemany, Lawrence B., 1994. NMR Manager and Lecturer of Chemistry
BS (1975) City College of New York; PhD (1980) University of Chicago

Alexander, David, 2003. Professor of Physics and Astronomy, Director of Rice Space Institute
BSc (1985), PhD (1988) University of Glasgow, Scotland

Alfaro, Ernesto, 2008. Lecturer of Architecture

Alford, John R., 1985. Professor of Political Science
BS (1975), MPA (1977) University of Houston; MA (1980), PhD (1981) University of Iowa

Allen, Genevera I., 2010. Associate Professor of Electrical and Computer Engineering, Statistics and Computer Science
BS (2010), MS (2012), PhD (2017) Bilken University

Alpan, Gokalp, 2017. G.C. Evans Instructor of Mathematics
BS (2010), MS (2012), PhD (2017) Bilken University

Alvarez, Pedro J. J., 2003. George R. Brown Professor of Civil and Environmental Engineering, Professor of Chemistry and Chemical & Biomolecular Engineering

Al-Zand, Karim, 2002. Professor of Composition and Theory

Ambrose, Catherine G., 2009. Adjunct Associate Professor of Bioengineering

Amin, Mustafa, 2015. Associate Professor of Physics and Astronomy

Amshtutz, Steven, 2018. Lecturer of Education
BS (1981) Wheaton College; MED (1985) University of Houston

Anand, Piyush, 2021. Assistant Professor of Marketing

Anandasabapathy, Sharmila, 2007. Adjunct Professor of Bioengineering BA (1993) Yale University; MD (1998) Albert Einstein College of Medicine


Arapalli, Sivaram, 2001. Adjunct Professor of Chemical and Biomolecular Engineering BS (1968) Andhra University; MS (1971), PhD (1979) Indian Institute of Technology


Atherholt, Robert, 1984. Professor of Oboe BMus (1976), MMus (1977) Juilliard School of Music


Back, Kerry E., 2009. J. Howard Creekmore Professor of Finance BA (1978) Western Kentucky University; PhD (1983) University of Kentucky


Bae, Kyung-Hee, 2012. Lecturer of the Program in Writing and Communication BS (1993) Seoul Women's University; MA (2003) University of Houston

Baig, Fatima, 2016. Lecturer of German BA (2001) Rupert Charles University; PhD (2011) University of Iowa

Balabanlilar, Lisa A., 2007. Professor of History, Department Chair of Transnational Asian Studies, Director of Chao Center for Asian Studies


Ballew, Hailey, 2019. Assistant Professor of Accounting BS (1999) University of Kansas; PhD (2019) Ohio State University

Bao, Gang, 2015. Foyt Family Professor of Bioengineering, Professor of Chemistry, Mechanical Engineering and Materials Science and NanoEngineering, Department Chair of Bioengineering BS (1976) Shandong University; (1981) MSc, Shandong University; PhD (1987) Lehigh University


Barlow, Tani E., 2008. George and Nancy Rupp Professor of Humanities BA (1975) San Francisco State University; MA (1979), PhD (1985) University of California—Davis


Barnhill, Allen, 2010. Associate Professor of Trombone BM (1977) Eastman School of Music


Basen-Engquist, Karen, 2010. Adjunct Professor of Kinesiology BA (1982) Saint Olaf College; PhD (1989) University of Texas; MPH (1990) University of Texas School of Public Health

Basgal, Lisa, 2009. Lecturer of Kinesiology
Bennaji, Charla, 2015. Instructor of Computer Science

Bencomo, Mario J., 2019. Pfeiffer Postdoctoral Instructor of Computer and Applied Mathematics

Bennet, Matthew, 2009. Professor of BioSciences and BioEngineering, Magister of Will Rice College
BS (2000), PhD (2006) Georgia Institute of Technology

Ben-Zion, Yehuda, 2018. Weiss Visiting Professor
BSc (1982) The Hebrew University of Jerusalem; PhD (2000) University of Southern California

Bernstein, Josh, 2014. Lecturer of Studio Art

Bertolusso, Roberto, 2013. Lecturer of Statistics

Bharadwaj, Vasudha, 2018. Lecturer of the Program in Writing and Communication

Biddle, Kevin Thomas, 2016. Adjunct Professor of Earth, Environmental and Planetary Sciences
BSc (1973) University of California–Santa Cruz; MA (1976) PhD (1979) University of Houston

Bissada, K. K., 1996. Adjunct Professor of Earth, Environmental and Planetary Sciences
BSc (1962) University of Assiut, Egypt; MS (1965), PhD (1967) Washington University

Biswal, Sibani Lisa, 2006. William M. McCordell Professor in Chemical Engineering, Professor of Chemical and Biomolecular Engineering and of Materials Science and NanoEngineering, Associate Department Chair of Chemical & Biomolecular Engineering

Blackburn, James B., 1981. Professor in the Practice of Environmental Law
BA (1969), JD (1972) University of Texas–Austin; MS (1974) Rice University

Blättler, Damian, 2013. Assistant Professor of Music Theory

Blumenthal-Barby, Martin, 2009. Associate Professor of German Studies
MA, MPhil (2006), PhD (2008) Yale University

Bobkova, Nina, 2019. Assistant Professor of Economics
BA (2011) Univeristy of Giessen; MSc 2012 University College London; PhD (2018) University of Bonn

Boggiano, Aymara, 2015. Lecturer of Spanish
BA (1982), MA (1987) Ohio State University

Bondos, Sarah, 2004. Adjunct Associate Professor of BioSciences

Bongmba, Elias K., 1995. Harry and Hazel Chavanne Professor of Christian Theology, Professor of Religion, Department Chair of Religion, Faculty Associate of Wiess College, President of the African Association for the Study of Religion

Borjik, Aladin, 1997. Adjunct Professor of Mechanical Engineering

Borle, Sharad, 2003. Associate Professor of Marketing

Bowdoin, Natasha, 2013. Associate Professor in Visual and Dramatic Arts
BA (2003) Brandeis University; MFA (2007) Tyler School of Art

Boyer, Dominic C., 2009. Professor of Anthropology

Boylan, Richard Thomas, 2005. Professor of Economics

Braam, Janet, 1990. Professor of BioSciences, Associate Dean for Strategic Initiatives
BS (1980) Southern Illinois University; PhD (1985) Sloan-Kettering Division of Cornell Graduate School of Medical Sciences

Brace, Paul, 1996. Clarence L. Carter Professor of Political Science

Braddock, Gwendolyn M., 1996. Associate Professor of Economics

Brinkley, Douglas G., 2007. Katherine Tsanoff Brown Professor in Humanities and Professor of History


BA (1969), MA (1972) Texas Tech University; PhD (1977) University of Pennsylvania

Brown, James N., 1992. Professor of Economics
BA (1973) University of Redlands; MA (1975), PhD (1980) University of Chicago

Brown, Tony N., 2016. Professor of Sociology

Browning, Logan D., 1991. Professor of the Practice; Publisher, Executive Editor, SEL Studies in English Literature, 1500–1900
BA (1977) University of the South; MA (1980) Oxford University; PhD (1999) University of North Carolina–Chapel Hill

Bryan, Brielle, 2018. Assistant Professor of Sociology

Buchman, Rachel, 2005. Lecturer of Music
BA (1978) Vassar College

Budimlic, Zoran, 2020. Lecturer in Computer Science MCS Online Program
BS (1984) University of Belgrade; PhD (2001) Rice University

Burch, James L., 1990. Adjunct Professor of Physics and Astronomy
BS (1964) St. Mary's University; PhD (1968) Rice University; MSA (1973) George Washington University

Butler, Alexander W., 2009. Jesse H. Jones Professor of Finance

Butler, Barbara, 2013. Professor of Trumpet and Director of Artist Diploma Program
BMus (1974) Northwestern University

Buyse, Leone, 1997. Joseph and Ida Kirkland Mullen Professor of Flute

Byrd, Alexander X., 2001. Vice Provost for Diversity, Equity and Inclusion, Associate Professor of History

Byrne, John H., 1994. Adjunct Professor of Psychological Sciences and Electrical and Computer Engineering
BS (1968), MA (1970), PhD (1973) New York University School of Engineering

Byrne, Michael D., 1999. Professor of Psychological Sciences

Caldwell, Peter C., 1994. Samuel G. McCann Professor of History

Cappelletti, Joseph A., Jr. 2006. William Shakespeare Professor of English, Professor of English Literature

Canning, Kathleen, 2018. Dean of the School of Humanities, Andrew W. Mellon Professor of History

Carlin, Barbara A., 2013. Lecturer for the Professional Science Masters Program
BA (1975) University of Arizona; MSIS (1976) University of Pittsburgh; PhD (1991) University of Texas-Austin

Carlin, Bruce, 2019. Professor of Finance

Carson, Daniel D, 2009. Schlumberger Chair of Advanced Studies and Research, Professor of BioSciences
BS (1975) University of Pennsylvania; PhD (1979) Temple University

Carter, Richard, 1997. Adjunct Professor of Computational and Applied Mathematics
BS (1979) Mississippi State University; PhD (1986) Rice University

Cartwright, Robert S., Jr., 1980. Professor of Computer Science

Casbarian, John J., 1973. Harry K. and Albert K. Smith Professor of Architecture, Director of RSA External Programs
BA (1969) Rice University; MFA (1971) California Institute of the Arts; BArch (1972) Rice University

Castellón Gonzalez, Juan José, 2018. Assistant Professor of Architecture

Castillo, Edward, 2018. Adjunct Associate Professor of Computational and Applied Mathematics
BA (2001) St. Mary's University; MA (2005), PhD (2007) Rice University

Castroman, Margarita, 2020. Assistant Professor of African American Literature and Culture

Catanese, Jamie, 2015. Assistant Teaching Professor of BioSciences
BS (1998) Texas A&M University; PhD (2005) Rice University

Cates, Mary Susan, 2003. Lecturer of BioSciences
BS (1995) University of Houston; PhD (2000) Rice University

Cavallaro, Joseph R., 1988. Professor of Electrical and Computer Engineering and Computer Science

Chaguine, Petr, 2005. Associate Research Professor of Physics and Astronomy
MS (1982) Institute for Physics and Technology, Moscow PhD (1991) Institute for High Energy Physics, Russia

Chambers, Gregory, 2017. Assistant Professor of Mathematics
BS, MS (2009), PhD (2014) University of Toronto

Chan, Anthony A., 1993. Professor of Physics and Astronomy

Chan, Jesse, 2013. Assistant Professor of Computational and Applied Mathematics
BA (2008) Rice University; PhD (2013) University of Texas–Austin

Chang-Diaz, Franklin R., 1998. Adjunct Professor of Physics and Astronomy
BS (1973) University of Connecticut; PhD (1977) Massachusetts Institute of Technology

Chapman, Walter G., 1990. William W. Akers Professor of Chemical and Biomolecular Engineering

Chappell, James, 2017. Assistant Professor of BioSciences and BioEngineering
BS (2008), PhD (2013) Imperial College, London

Chavez, Sergio, 2010. Associate Professor of Sociology

Chehab, E. Wassim, 2007. Lecturer of BioSciences
BS (1998) American University of Beirut; PhD (2003) University of Nevada

Chen, Ang, 2017. Assistant Professor of Computer Science and Electrical and Computer Science
BS (2009) Wuhan University; PhD (2017) University of Pennsylvania

Chen, Shih-Hui, 2000. Professor of Composition and Theory

Chen, Songtao, 2021. Assistant Professor of Electrical and Computer Engineering

Chen, Su, 2020. Assistant Teaching Professor in the Data to Knowledge Lab
BS (2008) Zhejiang University; PhD (2020) University of Texas–Austin

Chen, Wei, 2005. Adjunct Professor of Civil and Environmental Engineering
BS (1992) Nankai University, Tianjin, China; MS (1997), PhD (2000) Rice University

Chi, Eric, 2021. Associate Professor of Statistics

Chi, Taiyun, 2019. Assistant Professor of Electrical and Computer Engineering
BS (2012) University of Science and Technology of China; PhD (2017) Georgia Institute of Technology

Chiao, Leroy, 2012. Lecturer of Mechanical Engineering

Chiu, Wah, 2004. Adjunct Professor of Computer Science
BA (1969), PhD (1975) University of California–Berkeley

Chung, JaeYeon, 2018. Assistant Professor in Marketing

Cibor, Joseph, 2001. Adjunct Professor of the Practice in Civil Engineering Management
BS (1976), MS (1978) Purdue University

Citino, Nathan, 2015. Barbara Kirkland Chiles Professor of History

Ciufolini, Marco A., 2000. Adjunct Professor of Chemistry
BS (1978) Spring Hill College; PhD (1981) University of Michigan

Clementi, Cecilia, 2001. Wiess Career Development Chair, Professor of Chemistry and of Chemical and Biomolecular Engineering

Clements, Niki, 2014. Watt and Lilly Jackson Assistant Professor of Biblical Studies, Assistant Professor of Religion, Allison Sarofim Assistant Professor for Distinguished Teaching in Humanities

Cohon, Daniel, 2006. Associate Professor of Civil and Environmental Engineering

Cohen, G. Daniel, 2003. Samuel W. and Goldye Marian Spain Associate Professor of Jewish Studies, Associate of McMurtry College

Coker, Marya, 2016. Assistant Teaching Professor of Chemical and Biomolecular Engineering
BS (2009), PhD (2013) University of Calgary

Colman, Scott, 2010. Assistant Professor of Architecture

Colony, Andrew, 2014. Associate Professor of Architecture

Comer, Krista, 1998. Professor of English

Cone, Michael, 2015. Instructor of Physics and Astronomy
BA, BS (2003) Truman State University; PhD (2014) Texas A&M University

Connelly, Brian, 1984. Artist Teacher of Piano and Director of Piano Chamber Music and Accompanying Program
BMus (1980), MMus (1983) University of Michigan

Cook, David, 2001. Professor of Religion, Associate of Brown College

Cooper, Keith D., 1990. L. John and Ann H. Doerr Chair in Computational Engineering, Professor of Computer Science and Electrical and Computer Engineering
BS (1978), MA (1982), PhD (1983) Rice University

Cornwell, John M., 2007. Associate Vice President for Institutional Effectiveness and Institutional Research, Adjunct Professor of Psychological Sciences
BA (1977) Capital University; MS (1982) Georgia Institute of Technology; PhD (1987) University of Tennessee

Costello, Leo, 2005. Associate Professor of Art History

Coughlin, Maura, 2020. Assistant Professor of Economics

Couti, Jacqueline, 2018. Laurence H. Favrot Professor of French Studies
MA (2004), PhD (2008) University of Virginia

Coverdale, John, 2015. Adjunct Professor of Health Professions
BSc (1975); MB ChB (1980) University of Otago, New Zealand

Cowen, Kenneth, 2012. Professor of Organ

Cox, Alan L., 1991. Professor of Computer Science and of Electrical and Computer Engineering

Cox, Kenneth R., 2000. Professor in the Practice of Chemical and Biomolecular Engineering
BS (1974) Ohio State University; MS (1977), PhD (1979) University of Illinois

Crane, Alan David, 2010. Associate Professor of Finance
BS (2002), BA (2002) Trinity University; PhD (2010) University of Texas–Austin

Crawford-Brown, Sophie, 2020. Assistant Professor of Art History

Crear, Shelah, 2013. Lecturer of Education

**Dickinson, Debra.** 1993. Artist Teacher of Opera Studies
BS (1975) Northwestern University; MA (1991) Hunter College

**Dickinson, Mary.** 2006. Adjunct Professor of Bioengineering

**Dickman, J. David.** 2012. Adjunct Professor of Psychological Sciences, Director of the Neuroscience Program
BA (1979) University of Oklahoma; MS, PhD (1985) University of Wyoming

**Diddel, Roberta M.** 1985. Adjunct Assistant Professor and Lecturer of Psychological Sciences
BA (1976) Wesleyan University; PhD (1989) Boston University

**Diehl, Michael.** 2005. Associate Professor of Bioengineering and Chemistry

**Diep, Cassandra.** 2017. Assistant Teaching Professor of Kinesiology
BA (2007) Rice University; MS, PhD (2009), PhD (2012) Texas A&M University

**Djerejan, Edward P.** 1994. Edward A. and Hermina Hancock Kelly University Chair for Senior Scholars, Janice and Robert McNair Director of the James A. Baker III Institute for Public Policy
BS (1960), Doctor of Humanities (Hon) (1992) Georgetown University

**Do, Kim-Anh.** 1999. Adjunct Professor of Statistics
BS (1983) Queensland University; MS (1985), PhD (1990) Stanford University

**Dobelman, John.** 2008. Professor in the Practice, Director of Professional Master's Program

**Dodd, Stanley A.,** 1977. Associate Professor of Physics and Astronomy, Associate Chair for Administration
BS (1968) Harvey Mudd College; PhD (1975) Cornell University

**Dominguez Da Silva, Daniel.** 2017. Associate Professor of History, Magister of Martel College
BA (2004), MA (2009), PhD (2011) Emory University

**Dongarra, Jack.** 1988. Adjunct Professor of Computer Science
BS (1972) Chicago State University; MS (1973) Illinois Institute of Technology; PhD (1980) University of New Mexico

**Doss-Gollin, James.** 2021. Assistant Professor of Civil and Environmental Engineering
BS (2015) Yale University; MS (2016), PhD (2020) Columbia University

**Dove, Charles.** 2001. Professor in the Practice of Film, Director of Rice Cinema

**Dravis, Jeffrey J.,** 1987. Adjunct Professor of Earth, Environmental and Planetary Sciences
BS (1971) St. Mary's University; MS (1977) University of Miami; PhD (1980) Rice University

**Drezek, Rebekah Anna.** 2002. Professor of Bioengineering and of Electrical and Computer Engineering
BSE (1996) Duke University; PhD (2001) University of Texas–Austin

**Duarte, Jefferson.** 2008. Gerald D. Hines Associate Professor of Real Estate Finance, Director of Real Estate Initiatives

**Dudey, Marc Peter.** 1990. Associate Professor of Economics

**Dueñas-Osorio, Leonardo.** 2006. Professor of Civil and Environmental Engineering

**Dugan, Brandon.** 2004. Adjunct Professor of Earth, Environmental and Planetary Sciences

**Dunham, Amy E.,** 2007. Associate Professor of Ecology and Evolutionary Biology

**Dunham, James F.,** 2001. Professor of Viola and Chamber Music
BFA (1972), MFA (1974) California Institute of the Arts

**Dunn, Susan.** 2002. Artist Teacher of Opera Studies

**Dunning, F. Barry.** 1972. Sam and Helen Worden Professor of Physics and Astronomy
BSc (1966), PhD (1969) University College, London

**Duno-Gottberg, Luis.** 2008. Professor of Modern and Classical Literatures and Cultures, Magister of Baker College

**Ecklund, Elaine Howard.** 2008. Herbert S. Autrey Chair and Professor of Sociology

**Ecklund, Karl M.,** 2008. Professor of Physics and Astronomy

**Egan, Scott.** 2014. Associate Professor of Ecology and Evolutionary Biology

**Eich, Elizabeth.** 2006. Lecturer of BioSciences
BS (1998) Texas A&M University; PhD (2005) Rice University

**El-Bakry, Amr.** 1998. Adjunct Professor of Computational and Applied Mathematics
El-Dahdah, Farès. 1996. Professor of Art History and Humanities

El-Gamal, Mahmoud A.. 1998. Professor of Islamic Economics, Finance, and Management; Professor of Economics and Statistics

Ellenzweig, Sarah. 2000. Associate Professor of English

Elliot, James R., 2014. Professor of Sociology. Department Chair of Sociology

Elliot, Matthew. 2015. Lecturer of Mechanical Engineering
BS (2000), MS (2008), PhD (2013) Texas A&M University

Ellison, Paul V. H., 1975. Lynette S. Autrey Professor of Double Bass
BME (1965) Eastern New Mexico University; MM (1966) Northwestern University

Emami, Farshid. 2020. Assistant Professor of Art History

Emami, Maryam. 2010. Lecturer of French

Emden, Christian J., 2003. Frances Moody Newman Chair; Professor of German Studies, Department Chair of Modern and Classical Literature and Cultures

Engel, Paul S., 1970. Professor of Chemistry
BS (1964) University of California at Los Angeles; PhD (1968) Harvard University

Englebretson, Robert. 2000. Associate Professor of Linguistics, Department Chair of Linguistics

Ensor, Katherine Bennett. 1987. Noah G. Harding Professor of Statistics

Eraslan, Hülya. 2014. Ralph S. O’Connor Chair in Economics, Professor of Economics

Ernst, Philip A.. 2014. Associate Professor of Statistics

Esch, Sophie. 2018. Associate Professor of Modern and Classical Literatures and Cultures
MA (2009) Free Universität Berlin; PhD (2014) Tulane University

Estrella, Amarilys. 2021. Assistant Professor of Anthropology

Evans, Kory. 2020. Assistant Professor of BioSciences
BSc (2013) Nova Southeastern University; PhD (2017) University of Louisiana-Lafayette

Evans, Shani. 2021. Assistant Professor

Everitt, Henry. 2014. Adjunct Professor of Electrical and Computer Engineering

Fagan, Mike. 2020. Lecturer in Computer Science MCS Online Program
BS (1977), MEE (1978), PhD (1991) Rice University

Fagundes, Christopher P. 2015. Associate Professor of Psychological Sciences, Resident Associate Faculty Fellow of Lovett College
BA (2005) University of California, Davis; MS (2008), PhD (2010) University of Utah

Fang, Songying. 2009. Associate Professor of Political Science

Fanger, Claire. 2009. Associate Professor of Religion
BA (1979) Reed College; MA (1983) Boston University; MA (1987), PhD (1994) University of Toronto

Farajzadeh, Rouhollah. 2015. Adjunct Assistant Professor of Chemical and Biomolecular Engineering

Fernández, Esther. 2015. Associate Professor of Modern and Classical Literatures and Cultures, Resident Associate of Wiess College

Ferreira, Petrus. 2021. Assistant Professor of Accounting

Ferris, David. 1998. Associate Professor of Musicology

Festa, Elizabeth A., 2007. Lecturer of the Program in Writing and Communication

Fiel, Jeremy. 2021. Assistant Professor of Sociology


Firoozabadi, Abbas, 2019. Distinguished Research Professor of Chemical and Biomolecular Engineering BS (1970) Abadan Institute of Technology; MS (1972), PhD (1975) Illinois Institute of Technology


Fischer, Norman, 1992. Herbert S. Autrey Professor of Cello BMus (1971) Oberlin College


Fleishacker, Alan, 2003. Senior Lecturer of Architecture BA (1973) Oklahoma State University; JD (1976) University of Oklahoma

Fleisher, Jeffrey B., 2007. Professor of Anthropology, Department Chair of Anthropology BA (1992), MA (1997), PhD (2003) University of Virginia


Flynn, Jonathan R., 2018. Assistant Teaching Professor of Neuroscience BS (2010) University of North Carolina at Wilmington; PhD (2017) University of Texas Health Science Center at Houston


Foster, Matthew S., 2012. Associate Professor of Physics and Astronomy BEng (2000) The Cooper Union for the Advancement of Science and Art; PhD (2006) University of California, Santa Barbara


Frantz, Gene, 2012. Adjunct Professor in the Practice of Electrical and Computer Engineering


Fuentes David T., 2019. Adjunct Assistant Professor of Computational and Applied Mathematics BS (2002), MS (2005), PhD (2008) University of Texas-Austin

Fukuyama, Tohru, 1995. Adjunct Professor of Chemistry BS (1971), MS (1973) Nagoya University; PhD (1977) Harvard University


Gao, Xue, 2017. Ted N. Law Assistant Professor of Chemical and Biomolecular Engineering; BS (2005), MS (2007) Tianjin University; PhD (2013) University of California–Los Angeles

Gao, Yang, 2017. Assistant Professor of Biosciences BS (2007) University of Science and Technology of China; PhD (2013) Iowa State University

Gao, Zhiyong, 1986. Associate Professor of Mathematics BA (1979) Fudan University; PhD (1984) State University of New York–Stony Brook


Geiser, Reto, 2011. Associate Professor of Architecture, Director of Undergraduate Studies MArch (2002), PhD (2010) ETH Zurich


Geurts, Franciscus Johannes Maria, 2008. Professor of Physics and Astronomy

Ghorbel, Fathi, 1994. Professor of Mechanical Engineering and Bioengineering

Ghosn, Bilal, 2014. Lecturer of Bioengineering
BS (2002) Louisiana State University; MS (2004) Louisiana State University; PhD (2009) University of Texas–Austin

Gibson, Brian, 1996. Clinical Professor of Kinesiology
BA (1990), MA (1993), PhD (1996) University of Texas–Austin

Gigliotti-Labay, Jennifer, 2019. Adjunct Clinical Assistant Professor of Education

Gilbertson, Michelle, 2009. Lecturer of Chemistry
BS (1990) Valparaiso University; MS (1992), PhD (1994) Northwestern University

Gilbertson, Scott R., 2006. Adjunct Professor of Chemistry

Giliberti, M. Cristina, 2014. Lecturer of Italian
MA, PhD (2000) Universita’ degli Studi di Bari, Italy

Gillenwater, Ann M., 2006. Adjunct Professor of Bioengineering
BA (1983) Brown University; MD (1987) University of Virginia–Charlottesville

Glassberg, Jeffrey, 2007. Adjunct Professor of Ecology and Evolutionary Biology
BS (1969) Tufts University; PhD (1976) Rice University; JD (1993) Columbia University School of Law

Glowinski, Roland, 1986. Adjunct Professor of Computational and Applied Mathematics
Ecole Polytechnique (1958); Ecole Nationale Superieure das Telecommunications; PhD (1970) University of Paris

Goldman, Ronald N., 1990. Professor of Computer Science
BS (1968) Massachusetts Institute of Technology; MA, PhD (1973) Johns Hopkins University

Gong, Hua, 2020. Professor of Sport Management
BS (2013) University of Nottingham; MS (2015) Texas A&M; PhD (2020) University of South Carolina

Gonnermann, Helge, 2009. Professor of Earth, Environmental and Planetary Sciences

Gonzalez, Ramon, 2018. Adjunct Professor of Chemical and Biomolecular Engineering
BS (1993), MS (1999), PhD (2001) University of Chile

González-Stephan, Beatriz, 2001. Lee Hage Jamail Chair of Latin American Literature, Professor of Spanish and Portuguese

Goodman, Wayne, 2017. Adjunct Professor of Electrical and Computer Engineering
BS (1974) Colombia University; MD (1981) Boston University School of Medicine; PhD (1986) Yale University

Gopalakrishnan, Arun, 2019. Assistant Professor of Marketing

BA (1975) University of California–Santa Cruz; MS (1977), PhD (1979) Stanford University

Gorman, Bridget K., 2002. Dean of Undergraduates, Professor of Sociology

Gottschalk, Arthur W., 1977. Professor of Composition and Theory

Grande-Allen, Kathryn Jane, 2003. Isabel C. Cameron Professor of Bioengineering
BA (1991) Transylvania University; PhD (1998) University of Washington

Gray, Gary, 2015. Lecturer of Earth, Environmental and Planetary Sciences
BA (1980) Southern Oregon State College; PhD (1985) University of Texas–Austin

Greig, Nancy, 1991. Adjunct Assistant Professor of Ecology and Evolutionary Biology
BA (1980), PhD (1991) University of Texas–Austin

Greiner, John, 1997. Lecturer of Computer Science

Greitzer, Mary, 2013. Lecturer of Music

Grenader, Nonya S., 1995. Professor in the Practice of Architecture
BArch (1976) University of Texas; MArch (1994) Rice University

Guo, Hua, 2015. Assistant Research Professor in Materials Science and NanoEngineering
Harris, Toi
Bioengineering

Harrington, Daniel A.
Chair of Sport Management, Director of the Sport Management Program, Department
Management, Director of the Sport Management Program, Department

Haptonstall, Clark D.
BE (2010) Xi'an Jiaotong University, China; MSc (2012), PhD (2019) KTH
Hang, Kaiyu
BS (2012) Tsinghua University - Beijing; PhD (2018) Cornell University
NanoEngineering

Han, Yimo
BA (1998), PhD (1992) University of Missouri

Harter, Deborah A., 1990. Associate Professor of French Studies

Harterink, Jeffrey D., 2002. Professor of Chemistry and of Bioengineering, Associate Department Chair for Graduate Studies

Hartigan, Patrick M., 1994. Professor of Physics and Astronomy
BS (1981) University of Minnesota; PhD (1987) University of Arizona

Hartley, Maria K., 2011. Adjunct Assistant Professor of Ecology and Evolutionary Biology

Hartley, Peter Reginald, 1986. George A. Peterkin Professor of Economics
BA (1974), MEc (1977) Australian National University; PhD (1980) University of Chicago

Harvey, Shelly L., 2005. Professor of Mathematics
BS (1997) California Polytechnic State University; PhD (2002) Rice University

Hassanzadeh, Pedram, 2016. Assistant Professor of Mechanical Engineering
BSc (2005) University of Tehran; MSc (2007) University of Waterloo; PhD (2013) University of California–Berkeley

Hawley, Richard, 2011. Professor of Clarinet
BM (1992) Curtis Institute of Music

Hayes, Matthew, 2017. Assistant Professor of Political Science

Hazzard, Kaden, 2014. Associate Professor of Physics and Astronomy

He, Yinghua, 2016. Assistant Professor of Economics

Hebl, Michelle "Mikki" R., 1998. Martha and Henry Malcolm Lovett Chair of Psychological Sciences, Professor of Psychological Sciences, Professor of Management

Heckel, Reinhard, 2019. Adjunct Assistant Professor of Electrical and Computer Engineering
Diploma (2010) University of Ulm, PhD (2014) ETH Zurich

Heffes, Gisela, 2009. Professor of Modern and Classical Literatures and Cultures, Associate of Duncan College
UBA (1997) Universidad de Buenos Aires; PhD (2007) Yale University

Heinenschloss, Matthias, 1996. Noah Harding Chair and Professor of Computational and Applied Mathematics
BS (1988), PhD (1991) Universität Trier, Germany

Hemmer, Thomas, 2009. Houston Endowment Professor of Accounting
BA (1984), MBA (1986), PhD (1990) Odense University, Denmark
Henneberry, Rosemary, 2006. L.V. Fawrot Chair in Humanities, Professor of English Literature, Director of the Center for the Study of Women, Gender, and Sexuality
BA (1972) University of Pennsylvania; MA (1976) Temple University; PhD (1990) Syracuse University

Henze, Matthias, 1997. Isla Carroll and Percy E. Turner Professor of Biblical Studies and Professor of Religion, Director of the Program in Jewish Studies
MDiv (1992) University of Heidelberg; PhD (1997) Harvard University

Higgs, III, C. Fred. 2016. Vice Provost for Academic Affairs, John and Ann Doer Professor in Mechanical Engineering, Professor of Bioengineering, Faculty Director of RCEL

Hight, Christopher, 2003. Associate Professor of Architecture

Hill, N. Ross. 2010. Adjunct Professor of Earth, Environmental and Planetary Sciences
BS (1971) Louisiana State University; MS (1973) University of New Orleans; PhD (1978) University of Virginia

Hilton, Isaac. 2017. Assistant Professor of BioSciences, Assistant Professor of Bioengineering
BS (2004) University of Missouri–Columbia; PhD (2013) University of North Carolina–Chapel Hill

Hirschi, Kendal. 2003. Adjunct Professor of BioSciences

Ho, Vivian. 2004. James A. Baker III Institute Chair in Health Economics, Professor of Economics

Hobby, William P., 1989. Radoslav A. Tsanoff Professor of Public Affairs
BA (1953) Rice Institute

Hochberg, Yael. 2013. Ralph S. O’Connor Professor in Entrepreneurship, Director of Entrepreneurship Initiatives

Hoebig, Desmond. 2008. Professor of Cello
BM (1982), MM (1983) The Juilliard School of Music

Hohl, Detlef. 2016. Adjunct Professor of Computational and Applied Mathematics
MS (1985) Technical University Munich, Germany; PhD (1989); Habilitation (1997) Technical University Aachen, Germany

Homola, Jonathan. 2018. Assistant Professor of Political Science

Hopkins, Loren. 2006. Professor in the Practice of Statistics, Environmental Analysis
BS (1986) University of Texas; MS (1989), PhD (1998) Rice University

Hotez, Peter Jay. 2011. Adjunct Professor of Bioengineering

Hou, Jerry. 2014. Artist Teacher of Orchestras and Ensembles

Houlil-Ritchey, Emily. 2015. Assistant Professor of English

Hou, Ben, 2021. Assistant Professor of Computer Science

Huang, Huey. 1973. Research Professor of Physics and Astronomy
BS (1962) National Taiwan University; PhD (1967) Cornell University

Huang, Shih-Shan Susan. 2006. Associate Professor of Transnational Asian Studies

Huang, Xuelin. 2008. Adjunct Associate Professor of Statistics
BS (1994) Peking University, China; MS (1997) Texas A&M University; PhD (2002) University of Michigan

Huber, Stefan. 2021. Assistant Professor of Accounting
BSc (2013), MBR (2016) Ludwig-Maxmilians University; PhD (2021) Stanford University

Huberman, Brian Michael. 1975. Professor of Visual Arts
MFA Equivalent (1974) National Film School of Great Britain

Hughes, Daniel C., 2016. Lecturer of Kinesiology

Hughes, Gordon. 2008. Associate Professor of Art History

Hughes, Thomas J. R., 2002. Adjunct Professor of Mechanical Engineering

Huijsman, Ronald. 2015. Lecturer of Natural Science
MSE (1993) University of Twente, Enschede, The Netherlands

Hulet, Randall G., 1987. Fayez Sarofim Professor of Physics and Astronomy
BS (1978) Stanford University; PhD (1984) Massachusetts Institute of Technology

Hunter, Allison. 2012. Artist in Residence in Visual and Dramatic Arts

Hunter, Deirdre. 2016. Lecturer, Oshman Engineering Design Kitchen
Johnson, Amanda L. 2015. Lecturer of English

Huntington, Eric. 2021. T.T. and W.F. Chao Assistant Professor, Assistant Professor of Transnational Asian Studies


Hutchinson, John S. 1983. Professor of Chemistry, Associate Co-Chair for Graduate Studies
BS (1977), PhD (1981) University of Texas–Austin

Igoshin, Oleg A. 2006. Professor of Bioengineering, Chemistry, Bioengineering Associate Chair


Im, Miah. 2020. Professor of Opera and Director of the Opera Studies Program
BMA (1997); MM (1999) University of Michigan

Irish, Maya Soifer. 2010. Associate Professor of History, Director of Medieval and Early Modern Studies


Irvine Jr., Glen C. 2019. Research Professor, Chemical and Biomolecular Engineering

BS (1998) University of Illinois Urbana-Champaign; PhD (1999) Tulane University

Isella, Andrea. 2014. Associate Professor of Physics and Astronomy
MS (2003), PhD (2006) Università degli Studi di Milano

Jaber, Thomas I. 1988. Professor of Music, Director of Choral Ensembles


Jalbert, Pierre D. 1996. Professor of Composition and Theory


Jeanneret, P. Richard "Dick," 2003. Adjunct Professor of Psychological Sciences

BA (1962) University of Virginia; MA (1963) University of Florida; PhD (1969) Purdue University

Jermaine, Christopher M. 2009. J.S. Abercrombie Professor of Engineering, Professor of Computer Science, Director of Data Science

BA (1993) University of California—San Diego; MS (1997) Ohio State University; PhD (2002) Georgia Institute of Technology

Jimenez, Carlos. 1997. Professor of Architecture

BArch (1981) University of Houston

John, Randy. 2015. Lecturer of Materials Science and NanoEngineering

BS (1976), MS (1977), PhD (1979) Ohio State University

Johns-Krull, Christopher M. 2001. Professor of Physics and Astronomy, Faculty Senate Speaker

BA, BS (1989) University of Texas–Austin; MA (1991), PhD (1994) University of California–Berkeley

Johnson, Amanda L. 2015. Lecturer of English

Johnson, Bruce R. 1994. Research Professor in Chemistry, Executive Director of the Rice Quantum Institute

BA (1975) University of Minnesota; PhD (1981) University of Wisconsin–Madison

Johnson, Cassidy. 2015. Lecturer of BioSciences


Johnson, David B. 2000. Professor of Computer Science and of Electrical and Computer Engineering

BA (1982), MS (1985), PhD (1990) Rice University

Johnson, Lacy. 2016. Associate Professor of Creative Writing


Johnson, Raymond. 2006. Adjunct Professor of Mathematics

BSc (1967), MA (1968) University of Cambridge; PhD (1970) University of Warwick


BS (1992) Rice University; MS (1997) University of Virginia

Jones, B. Frank, Jr. 1962. Noah Harding Professor of Mathematics

BA (1958) Rice Institute; PhD (1961) Rice University

Jones, Matthew. 2017. Norman and Gene Hackerman Assistant Professor in Chemistry and Materials Science and NanoEngineering


Jones, Steven L. 2015. Lecturer of Kinesiology

BS (1977) Baylor University; MA (2002) Bryn Mawr College; PhD (2008) University of Texas–Austin

Johnson, Richard R. 1994. Research Professor in Chemistry, Executive Director of the Rice Quantum Institute

BA (1975) University of Minnesota; PhD (1981) University of Wisconsin–Madison

Johnson, Bruce R. 1994. Research Professor in Chemistry, Executive Director of the Rice Quantum Institute

BA (1975) University of Minnesota; PhD (1981) University of Wisconsin–Madison

Joyner, Mack. 2015. Lecturer of Materials Science and NanoEngineering

BS (2002), MS (2005), PhD (2011) Rice University

Juntti, Markku. 2007. Adjunct Professor of Electrical and Computer Engineering

MS (1993), PhD (1997) University of Oulu, Finland

Kabbani, Ahmad. 2019. Lecturer of Materials Science and NanoEngineering
Kakhbod, Ali, 2021. Assistant Professor of Finance  

Kailasam, Ganesh, 2017. Adjunct Professor of Chemistry  
BS (1985) A.C. College of Technology, Chennai, India; PhD (1991) Pennsylvania State University

Kale, Prashant, 2007. Associate Professor of Strategic Management  

Kalra, Ajay, 2008. Herbert S. Autry Professor of Business  

Kamins, Benjamin C., 1987. Professor of Bassoon

Kaminski, Vincent, 2001. Professor of Practice in Management  
PhD (1975) Main School of Planning and Statistics, Warsaw, Poland; MBA (1978) Fordham University

Kantor, Paul, 2012. Sallie Shepherd Perkins Professor of Violin  
BMus (1977), MMus (1978) The Juilliard School

Kaplan, S.C., 2017. Lecturer of French  

Kapusta, Sergio, 2017. Adjunct Professor of Materials Science and Engineering  

Kaslovsky, Jaclyn, 2021. Assistant Professor of Political Science  

Kavraki, Lydia, 1996. Noah Harding Professor of Computer Science, Bioengineering, Mechanical Engineering and Electrical and Computer Engineering, Director of Ken Kennedy Institute for Information Technology  

Keefe, Christina, 2008. Professor in the Practice in Theatre, Director of the Theatre Program  
BFA (1979) New York University; MFA (1994) University of South Carolina

Kelly, Kevin, 2002. Associate Professor of Electrical and Computer Engineering, Applied Physics Graduate Program Chair  

Kemere, Caleb, 2012. Associate Professor of Electrical and Computer Engineering and Bioengineering  

Kemmer, Suzanne E., 1993. Associate Professor of Linguistics and Cognitive Sciences  

Kiang, Ching-Hwa, 2002. Associate Professor of Physics and Astronomy and Bioengineering  
BS (1987) National Taiwan University; PhD (1995) California Institute of Technology

Kieffer, Alexandra, 2015. Assistant Professor of Musicology  
BA Grinnell College; MA (2009), MPhil (2011), PhD (2014) Yale University

Killian, Thomas C., 2000. Dean of Wiess School of Natural Sciences, E. Dell Butcher Professor of Physics and Astronomy  

Kim, Eun Hee, 2019. Lecturer of Korean  

Kim, Jaymin, 2021. T.T. and W.F. Chao Assistant Professor, Assistant Professor of Transnational Asian Studies  

Kim, Minjae, 2020. Assistant Professor of Management  

Kimbro, Rachel Tolbert, 2007. Dean of School of Social Sciences, Professor of Sociology  

Kimmel, Marek, 1990. Professor of Statistics and Bioengineering, Associate Department Chair of Statistics  
MS (1977), PhD (1980) Silesian Technical University

Kincaid, Kristi, 2016. Associate Teaching Professor  
BS (1998) University of California–Berkeley; PhD University of Colorado–Boulder

King, Danielle, 2018. Assistant Professor of Psychological Sciences  

King, Eden, 2017. Lynette S. Autrey Professor of Psychological Sciences  

Kirchner, Stefan, 2009. Adjunct Assistant Professor of Physics and Astronomy  

Kirienko, Natasha, 2015. Associate Professor of BioSciences  

Kirk, David E., 1982. Associate Professor of Tuba  
BM (1982) Juilliard School of Music

Klein, Andrew A., 2014. Lecturer of the Program in Writing and Communication  

Klein, Anne C., 1989. Professor of Religion  

Klie, Hector, 2018. Adjunct Professor of Computational and Applied Mathematics
Kley, Katharina, 2015. Lecturer of German

Knightly, Edward W., 1996. Sheafor-Lindsay Professor of Electrical and Computer Engineering, and Professor of Computer Science
BS (1991) Auburn University; MS (1992), PhD (1996) University of California—Berkeley

Kohn, Michael H., 2004. Associate Professor of Ecology and Evolutionary Biology
MSc (1994) University of Munich; PhD (2000) University of California—Los Angeles

Koš, Balaji, 2008. Associate Professor of Strategic Management

Kolomeisky, Anatoly B., 2000. Professor of Chemistry and of Chemical and Biomolecular Engineering, Department Chair of Chemistry

Kong, Yunmi, 2016. Assistant Professor of Economics

Kono, Junichiro, 2000. Karl F. Hasselmann Professor in Engineering, Professor of Electrical and Computer Engineering, of Physics and Astronomy, and of Materials Science and NanoEngineering, Applied Physics Graduate Program Chair
BS (1990), MS (1992) University of Tokyo; PhD (1995) State University of New York—Buffalo

Kortum, Philip T., 2005. Associate Professor of Psychological Sciences
BS (1988) University of Nebraska; MS (1990) Northeastern University; PhD (1994) University of Texas–Austin

Kowal, Daniel R., 2017. Dobelman Family Assistant Professor, Assistant Professor of Statistics

Krieger, Uriah, 2019. Professor of Philosophy

Kripal, Jeffrey J., 2002. J. Newton Rayzor Professor of Religion, Associate Dean of Humanities

Krouskop, Mark, 2013. Lecturer of Theater and Theater Production Manager
BA (2002), MFA (2012) University of Houston

Krouskop, Thomas A., 2013. Adjunct Professor of Kinesiology

Kürti, László, 2015. Professor of Chemistry, Associate Co-Chair for Graduate Studies


LaBove, Shannon, 2013. Lecturer of Forensics

Lairson, David R., 1977. Adjunct Professor of Economics
BA (1970), MA (1971), PhD (1975) University of Kentucky

Lamos, Colleen R., 1989. Associate Professor of English
BA (1978) State University of New York–Binghamton; PhD (1988) University of Pennsylvania

Landes, Christy F., 2009. Professor of Chemistry, of Electrical and Computer Engineering and of Chemical and Biomolecular Engineering
BS (1998) George Mason University; PhD (2003) Georgia Institute of Technology

Lansford, Benjamin, 2014. Professor in the Practice of Accounting

Lapinski, Lisa, 2014. Associate Professor of Visual and Dramatic Arts

Lavenda, Richard A., 1987. Professor of Composition and Theory
BA (1977) Dartmouth College; MMus (1979) Rice University; DMA (1983) University of Michigan

Leal, Stephanie, 2019. Assistant Professor of Psychological Sciences
BS (2011) University of California Santa Barbara; MA (2013), PhD (2016) Johns Hopkins University

Lee, Cin-Ty, 2002. Harry Carothers Wiess Professor of Geology, Professor of Earth, Environmental and Planetary Sciences

Leebron, David W., 2004. President and Professor of Political Science
BA (1976) Harvard University; JD (1979) Harvard Law School

Leeds, Brett Ashley, 2001. Professor of Political Science, Department Chair of Political Science
BA (1991), University of North Carolina at Chapel Hill; PhD (1998) Emory University

LeGrande, Thomas, 2003. Associate Professor of Clarinet
BMus (1980) Curtis Institute of Music

Leininger, Christopher J., 2020. Professor of Mathematics
BS (1997) Ball State University; PhD (2002) University of Texas-Austin

Lenardic, Adrian, 1999. Professor of Earth, Environmental and Planetary Sciences

Levander, Alan R., 1984. Carey Croneis Professor of Earth, Environmental and Planetary Sciences
BS (1976) University of South Carolina; MS (1978), PhD (1984) Stanford University
Levander, Caroline F., 2000. Vice President for Digital Education and Strategic Initiatives, Carlson Professor in the School of Humanities, Professor of English  

Levin, Harvey S., 2004. Adjunct Professor of Psychological Sciences  
BA (1967) City University of New York; MA (1971), PhD (1972) University of Iowa

Levy, Eugene H., 2000. Andrew Hays Buchanan Professor of Astrophysics, Professor of Physics and Astronomy  
AB (1966) Rutgers University; PhD (1971) University of Chicago

Lewis, Steven W., 1996. Professor in the Practice, Research Fellow at the James A. Baker III Institute for Public Policy, Associate Director at the Chao Center for Asian Studies  

Li, Haiyang, 2005. H. Joe Nelson III Professor of Management  
BA (1991), MA (1994) University of China; PhD (1998) City University of Hong Kong

Li, Hui, 2002. Adjunct Associate Professor of Physics and Astronomy  
BS (1990) Beijing University; PhD (1995) Rice University

Li, Lan, 2019. Assistant Professor of History  
BA (2010) Columbia University; PhD (2016) Massachusetts Institute of Technology

Li, Meng, 2017. Noah Harding Assistant Professor in Statistics  
BS (2010) Sun Yat-sen University, China; PhD (2015) North Carolina State University–Raleigh

Li, Qilin, 2006. Professor of Civil and Environmental Engineering, Materials Science and NanoEngineering and Chemical Biomolecular Engineering  
BE (1995) Tsinghua University, Beijing, China; MS (1999), PhD (2002) University of Illinois–Urbana-Champaign

Li, Siran, 2017. G.C. Evans Instructor of Mathematics  

Li, Wei, 2012. Associate Professor of Physics and Astronomy  
BS (2004) University of Science and Technology of China; PhD (2009) Massachusetts Institute of Technology

Liang, Edison P., 1991. Andrew Hays Buchanan Professor of Astrophysics  
BA (1967), PhD (1971) University of California–Berkeley

Lichtarge, Olivier, 2008. Adjunct Professor of BioSciences  

Lillehoj, Peter, 2020. Associate Professor of Mechanical Engineering  

Lin, Cho-Liang, 2006. Benjamin Armistead Shepherd Distinguished Professor, Professor of Violin  
BMus (1981) The Juilliard School of Music

Lin, Yingyan, 2018. Assistant Professor of Electrical and Computer Engineering  

Link, Stephan, 2006. Professor of Chemistry, Professor of Electrical and Computer Engineering  
MA (1996) Technical University of Braunschweig, Germany; PhD (2000) Georgia Institute of Technology

Little, Stephen H., 2010. Adjunct Associate Professor of Bioengineering  
BS (1993) York University, Canada; MD (1997) McMaster University, Canada

Löw, Peter, 2014. Professor in the Practice of Materials Science and NanoEngineering  
BA (1977); MS (1982), PhD (1986) Rice University

López-Alonso, Moramay, 2009. Associate Professor of History  

López-Durán, Fabiola, 2011. Associate Professor of Art History, Magister of Hanszen College  
BA (1987) Universidad de los Andes School of Architecture; PhD (2009) Massachusetts Institute of Technology

Lord, Tom F., 1992. Lecturer of Architecture  
BA (1960) Southern Methodist University; MA (1965) Yale University

Lou, Jun, 2005. Professor of Materials Science and NanoEngineering, Associate Department Chair of Materials Science and NanoEngineering  

Loveland, Katherine A., 1991. Adjunct Professor of Psychological Sciences  
BA (1975) University of Virginia; PhD (1980) Cornell University

Ludwig, Joseph A. IV, 2007. Adjunct Assistant Professor of Bioengineering  
BBA (1994) University of Iowa College of Business; MD (1998) University of Iowa College of Medicine

Luan, Lan, 2019. Assistant Professor of Electrical and Computer Engineering  
BS (2004) University of Science and Technology of China; PhD (2011) Stanford University

Lukic, Milivoje, 2016. Associate Professor of Mathematics  

Luria, Susan, 1987. Associate Professor of English

Lwigale, Peter Y., 2008. Associate Professor of BioSciences
BS (1994), MS (1997) University of Northern Iowa; PhD (2001) Kansas State University

Ma, Jianpeng, 2000. Professor of Bioengineering, Professor of BioSciences
BS (1985) Fudan University P.R. China; PhD (1996) Boston University

Maas, Michael R., 1984. William Gaines Twyman Professor of History, Director of Ancient Mediterranean Civilizations
BA (1973) Cornell University; MA (1975), PhD (1982) University of California–Berkeley

Mack, Hilary S., 1993. Associate Professor of Modern and Classical Literatures and Cultures

MacKintosh, Frederick C., 2016. Abercrombie Professor of Chemical and Biomolecular Engineering, Professor of Physics & Astronomy and Chemistry

Mackwell, Stephen J., 2005. Adjunct Professor of Earth, Environmental and Planetary Sciences
BS (1978), MS (1979) University of Canterbury, Christchurch, NZ; PhD (1985) Australian National University

Maher, Lynn M., 2007. Adjunct Professor of Psychological Sciences

Makdisi, Ussama, 1997. Arab-American Educational Foundation Professor of Arab Studies in History, Professor of History

Mamouras, Konstantinos, 2018. Assistant Professor of Computer Science

Manca, Joseph, 1989. Nina J. Cullinan Professor of Art History, Professor of Art History, Associate of Baker College

Mantoulidis, Christos, 2021. Assistant Professor of Mathematics
BSc (2011), PhD (2017) Stanford University

Marciel, Amanda B., 2019. William Marsh Rice Trustee Chair, Assistant Professor of Chemical and Biomolecular Engineering
BS (2008), PhD (2015) University of Illinois

Marjanović, Igor, 2021. William Ward Watkin Dean of School of Architecture

Marschall, Melissa J., 2003. Professor of Political Science
BA (1990) Florida State University; MA (1993) Bogazici University; PhD (1998) State University of New York—Stony Brook


Martin, Randi C., 1982. Elma Schneider Professor of Psychological Sciences
BA (1971) University of Oregon; MS (1977), PhD (1979) Johns Hopkins University

Martínez, Ana María, 2021. Professor of Voice

Martinez de Videa, Luz Maria, 2011. Adjunct Associate Professor of Chemistry

Masiello, Caroline A., 2004. W. Maurice Ewing Professor, Professor of Earth, Environmental and Planetary Sciences

Massie, Victoria, 2021. Assistant Professor of Anthropology
BA (2011) University of Rochester; MA (2015), PhD (2021) University of California-Berkeley

Matsuda, Seiichi P. T., 1995. Dean of Graduate and Postdoctoral Studies, E. Dell Butcher Professor of Chemistry, Professor of BioSciences

Matthews, Kirstin, 2003. Lecturer with the Professional Science Masters Program
BA (1996) University of Texas-Austin; PhD (2003) University of Texas Health Science Center-Houston

Mawlawi, Osama R., 2002. Lecturer of Electrical and Computer Engineering

McCary, Matthew, 2021. Assistant Professor of BioSciences

McDaniel, W. Caleb, 2008. Mary Gibbs Jones Professor of Humanities, Professor of History, Department Chair of History

McDavid, Carol, 2008. Adjunct Assistant Professor of Anthropology

McGill, Scott, 2001. Professor of Classical Studies
BA (1990) Salve Regina College; PhD (2001) Yale University

McGinley, Matthew, 2017. Adjunct Professor of Electrical and Computer Engineering

McGlamery Jr., Gerald, 2018. Lecturer of Chemical and Biomolecular Engineering
McGovern, Patrick J., 2005. Lecturer of Earth, Environmental and Planetary Sciences
SB (1986), PhD (1996) Massachusetts Institute of Technology

McGuffey, Elizabeth, 2020. Assistant Teaching Professor in Statistics
BS (2010), MS (2012), PhD (2015) Texas A&M University

McHugh, Kevin, 2019. Assistant Professor of Bioengineering
BS (2009) Case Western Reserve University; MS (2012), PhD (2014) Boston University

McIntosh, Susan Keech, 1980. Herbert S. Autrey Professor in Anthropology
BA (1973) University of Pennsylvania; MA (1975) Girton College, Cambridge University; MA (1976), PhD (1979) University of California–Santa Barbara

McNeil, Caroline V., 2008. Laboratory Coordinator, Lecturer of Chemistry

McNew, James A., 2000. Professor of BioSciences
BS (1989) Texas A&M University; PhD (1994) University of Texas Southwestern Medical Center–Dallas

McPhail, S. Morton, 2003. Adjunct Associate Professor of Psychological Sciences
BA (1972) Trinity University; MS (1975), PhD (1978) Colorado State University

Meade, Andrew, J., 1989. Professor of Mechanical Engineering

Medlock, Kenneth, 2003. Adjunct Assistant Professor of Economics
MA (1999), PhD (2000) Rice University

Mellor-Crummey, John M., 1989. Professor of Computer Science and Electrical and Computer Engineering

Merényi, Erzsébet, 2000. Research Professor of Statistics
MSc (1975) Attila Jozsef University, Hungary; PhD (1980) Attila Jozsef University and Central Research Institute for Physics, Hungarian Academy of Sciences

Merlo, Antonio, 2014. Adjunct Professor of Economics

Messmer, David K., 2009. Lecturer of the Program for Writing and Communication, Director of the FWIS Program

Metcalf, Alida C., 2009. Harris Masterson Jr. Professor of History, Professor of History
BA (1976) Smith College; MA (1978), PhD (1983) University of Texas–Austin

Michie, Helena, 1990. Agnes Cullen Arnold Professor of Humanities, Professor of English, Director of the Center for the Study of Women, Gender and Sexuality
BA (1979) Princeton University; PhD (1984) University of Pennsylvania

Mikos, Antonios G., 1991. Louis Calder Professor of Chemical Engineering, Professor of Bioengineering and Materials Science and Nanotechnology, Director of Center for Excellence in Tissue Engineering and J.W. Cox Laboratory for Biomedical Engineering
Diploma (1983) Aristotle University of Thessaloniki, Greece; MS (1985), PhD (1988) Purdue University

Miles, Jonathan, 2018. Assistant Clinical Professor of Management

Miller, Jordan, 2013. Associate Professor of Bioengineering

Miller, Thomas E. X., 2009. Associate Professor of Ecology and Evolutionary Biology
BA (2002) Colgate University; PhD (2007) University of Nebraska

Mittal, Vikas, 2007. J. Hugh Liedtke Professor of Marketing

Mohite, Aditya D., 2018. Associate Professor of Chemical and Biomolecular Engineering and Materials Science and Nanotechnology
BS (1999), MS (2001), PhD (2007) University of Louisville

Mok, Chin Man William, 2017. Lecturer of Earth, Environmental and Planetary Sciences

Mooijman, Marlon, 2019. Assistant Professor of Organizational Behavior
MSc (2012), PhD (2015) Leiden University

Mooiweer, Henk, 2015. Adjunct Professor of Chemistry
MS (1985) University of Utrecht, The Netherlands; PhD (1990) University of Amsterdam, The Netherlands

Moore, Bart, 2020. Lecturer of Social Sciences

Moore, Janet, 2016. Lecturer of Communication
BSFS (1984) Georgetown University; JD (1987) University of Texas School of Law

Moothy, Bhagavatula, 2018. Adjunct Professor of Chemical and Biomolecular Engineering
BS (1979) Madras University-India; MSc (1982) Andhra University-India; PhD (1988) Indian Institute of Science-India

Morey, Daryl, 2010. Adjunct Professor of Sport Management

Morgan, Alexander, 2015. Assistant Professor of Philosophy

Morgan, Julia K., 1999. Professor of Earth, Environmental and Planetary Sciences, Department Chair of Earth, Environmental and Planetary Sciences

Morgan, T. Clifton, 1987. Albert Thomas Professor of Political Science
BA (1978) University of Oklahoma; MA (1980), PhD (1986) University of Texas–Austin

Morín, Tomás Q., 2020. Assistant Professor of Creative Writing

Morones, Jessica, 2017. Lecturer of Spanish
BA (2011) Universidad Autónoma de Tamaulipas; MA University of Massachusetts

Morosan, Emilia, 2007. Professor of Physics and Astronomy, Chemistry, Materials Science and NanoEngineering and Electrical and Computer Engineering
BS (1999) A. I. Cuza University; PhD (2005) Iowa State University

Morris, Jeffrey, 2011. Adjunct Professor of Statistics

Morrison, Donald Ray, 1988. Professor of Philosophy

Morton, Timothy, 2012. Rita Shea Guffey Chair in English, Professor of English
BA (1989) Oxford University; PhD (1992) Oxford University

Moskvitina, Larisa, 2017. Lecturer of Russian
BA (1988), MA (1988) Irkutsk State University, Russia; PhD (1995) St. Petersburg University, Russia

Muharemovic, Tariq, 2011. Adjunct Professor in Electrical and Computer Engineering

Nagarajaiah, Satish, 1999. Professor of Civil and Environmental Engineering, Materials Science and NanoEngineering, and Mechanical Engineering
BS (1980) Bangalore University, India; MS (1982) Indian Institute of Science, India; PhD (1990) State University of New York–Buffalo

Nagath, Deepak, 2018. Adjunct Associate Professor of Chemical and Biomolecular Engineering

Naik, Gururaj, 2016. Assistant Professor of Electrical and Computer Engineering

Najafi, Bijan, 2017. Adjunct Associate Professor of Electrical and Computer Engineering

Nakhee, Luay K., 2004. William and Stephanie Sick Dean of Engineering, Professor of Computer Science and BioSciences

Naranjo-Olivares, Patricia, 2014. Assistant Professor of Accounting
BE (2003) Pontificia Universidad Católica de Chile; PhD (2014) Massachusetts Institute of Technology

Natelson, Douglas, 2000. Professor of Physics and Astronomy, of Electrical and Computer Engineering, and of Materials Science and NanoEngineering, Department Chair of Physics and Astronomy

Nelson, Joanna, 2018. Assistant Professor of Mathematics
BS (2007) University of Illinois at Urbana-Champaign; PhD (2013) University of Wisconsin–Madison

Nelson-Campbell, Deborah, 1974. Professor of French Studies
BA (1960) Wittenberg University; Certificat d'études Françaises, ler Degré (1961) University of Grenoble, France; MA (1964), PhD (1970) Ohio State University

Nevidomsky, Andriy, 2010. Associate Professor of Physics and Astronomy
MSc (2001) Ivan Franko National State University of L'viv; PhD (2005) University of Cambridge

Newell, Charles J., 1993. Adjunct Professor of Civil and Environmental Engineering

Newsome, Mary R., 2001. Adjunct Assistant Professor of Psychological Sciences

Ng, T. S. Eugene, 2003. Professor of Computer Science and Electrical and Computer Engineering

Nichol, Carolyn A., 2009. Assistant Research Professor of Chemistry
BS (1984) University of Massachusetts–Amherst; MS (1990), PhD (1992) University of Texas–Austin

Nichols, Sarah, 2020. Assistant Professor of Architecture

Nicolau, D. Colette, 2012. Lecturer of Psychological Sciences

Nicolau, K.C., 2013. Harry C. and Olga K. Wiess Professor of Chemistry
B.Sc. (1969) Bedford College, University of London; PhD (1972) University College, University of London

Niedzielski, Nancy A., 1999. Associate Professor of Linguistics, Associate of Lovett College

Nikonowicz, Edward P., 1993. Professor of BioSciences, Department Chair of BioSciences
BS (1985) St. Louis University; PhD (1990) Purdue University

Nittouer, Jeffrey, 2012. Assistant Professor of Earth, Environmental and Planetary Sciences

Niu, Fenglin, 2002. Professor of Earth, Environmental and Planetary Sciences
Director of Center for Theoretical Biological Physics  
Professor of Physics and Astronomy, Chemistry and BioSciences, Co-Director of Center for Theoretical Biological Physics  
BS (1996) Purdue University, MS (1999), PhD (2001) Vanderbilt University  
Computer Science, Associate Dean for Research and Innovation in Mechanical Engineering, Electrical and Computer Engineering, and O'Malley, Marcia K  
Oliver, Douglas E., 1997. Professor in the Practice of Architecture  
O'Malley, Marcia K., 2001. Thomas Michael Panos Family Professor in Mechanical Engineering, Electrical and Computer Engineering, and Computer Science, Associate Dean for Research and Innovation  
BS (1996) Purdue University, MS (1999), PhD (2001) Vanderbilt University  
Onuchic, Jose Nelson, 2011. Harry C. and Olga K. Wiess Chair of Physics, Professor of Physics and Astronomy, Chemistry and BioSciences, Co-Director of Center for Theoretical Biological Physics  
Orooji, Marmar, 2020. Lecturer in Computer Science MCS Online Program  
BS (2013) Shahed University, Iran; MS (2017), MS (2019), PhD (2019) Louisiana State University  
Orange, Jordan S., 2013. Adjunct Professor of BioSciences  
AB (1990), PhD (1996), MD (1997) Brown University  
Orcan Ekmekci, Betul, 2011. Assistant Teaching Professor of Mathematics  
BS (2003), MS (2005) Bosphorus University; PhD (2010) University of Texas–Austin  
Orchard, Michael T., 2001. Professor of Electrical and Computer Engineering  
Ordonez, Vicente, 2021. Associate Professor of Computer Science  
Ortiz, Alexis, 2013. Adjunct Associate Professor of Kinesiology  
Ostdiek, Barbara Bennett, 1994. Professor of Finance, Senior Associate Dean of Degree Programs  
BA (1986) University of Nebraska; PhD (1994) Duke University  
Osther, Kirsten, 2002. Gladys Louise Fox Professor of English, Department Chair of English  
O'Sullivan, Elizabeth, 2001. Senior Lecturer of Communications  
Oswald, Frederick L., 2008. Herbert S. Autrey Professor of Psychological Sciences, Professor of Management  
BA (1992) University of Texas-Austin; MA (1998), PhD (1999) University of Minnesota  
Oubre, Carroll, 1999. Adjunct Professor of Civil and Environmental Engineering  
BS (1955) University of Southwestern Louisiana; MS (1956) Ohio State University; PhD (1966) Rice University  
Oukaderova, Lida, 2008. Associate Professor of Art History  
BA (1997) Martin-Luther University; MA (1999), PhD (2005) University of Texas–Austin  
Ozaki, Naoko, 2015. Lecturer of Japanese  
BA (1997) University of Arizona; MS (2005), PhD (2011) Indiana University  
Padgett, Jamie Ellen, 2007. Stanley C. Moore Professor in Engineering, Professor of Civil and Environmental Engineering  
Padley, B. Paul, 1996. Professor of Physics and Astronomy  
BS (1981) York University; MS (1984), PhD (1987) University of Toronto
Pagano, Guido, 2019. Assistant Professor of Physics and Astronomy  

Page, Paula, 1985. Associate Professor of Harp  
BMus (1969) Cleveland Institute of Music

Papel, Krishna, 2007. Ken and Audrey Kennedy Professor of Computer Science  
MS (1981), PhD (1986) University of Texas

Panahi, Hesam, 2016. Lecturer of Management  
BBA (2005) University of Houston; PhD (2010) University of Houston

Pannell, Keith H., 2014. Adjunct Professor of Chemistry  
BSc (1962), MSc (1963) Durham University; PhD (1966) University of Toronto, Canada

Papageorgiou, Theodora Dorina, 2016. Adjunct Assistant Professor of Electrical and Computer Engineering  
BA (1998) University of Georgia; MHSc (1997) Johns Hopkins University; PhD (2006) University of Texas, MD Anderson Cancer Center

Park, Sohyoung, 2005. Artist Teacher of Piano and Piano Pedagogy  

Parker, Jon Kimura, 2000. Professor of Piano  
BMus, MMus (1981), DMA (1989) Juilliard School of Music

Parsons, Sandra V., 2011. Associate Teaching Professor of Psychological Sciences, Director of Pedagogy, Resident Associate of Will Rice College  

Parsons, William B., 1993. Professor of Religion, Associate of Brown College  
BA (1979) Brandeis University; MDiv (1982) Yale University; PhD (1993) University of Chicago

Pasquali, Matteo, 1999. A.J. Hartsook Professor of Chemical and Biomolecular Engineering, of Materials Science and NanoEngineering, and of Chemistry  
MS (1992) University of Bologna; PhD (1999) University of Minnesota

Pati, Debananda, 2006. Adjunct Assistant Professor of BioSciences  
BSc (1986) Orissa University; MS (1988) University of Buckingham; PhD (1995) University of Calgary

Patel, Ankit, 2017. Assistant Professor of Electrical and Computer Engineering  

Pazgal, Amit, 2006. Friedkin Chair in Management, Professor of Marketing  
BS (1987), MS (1992) Tel Aviv University; PhD (1997) Northwestern University

Pearson, Deborah A., 1991. Adjunct Professor of Psychological Sciences  
BA (1979) Wesleyan University; MA (1982), PhD (1986) Rice University

Pellis, Neal R., 1997. Adjunct Professor of BioSciences  
PhD (1972) Miami University

Perev, Evgeni, 2009. Assistant Research Professor in Materials Science and NanoEngineering  
MS (1994) St. Clement of Ohrid University of Sofia, Bulgaria; PhD (2002) Fritz Haber Institute of the Max Planck Society, Berlin, Germany

Peres, S. Camille, 2007. Adjunct Associate Professor of Psychological Sciences  

Perez, John T., 2013. Adjunct Lecturer of Chemical and Biomolecular Engineering  
BS (1996), MBA (2012) Rice University

Perkins, Heidi Y., 2008. Teaching Professor of Kinesiology, Department Chair of Kinesiology  
BS (1985) Missouri State University; MEd (1992), PhD (2006) University of Houston

Perkins Ball, Amanda, 2017. Assistant Teaching Professor of Kinesiology  

Perrigne, Isabelle, 2012. Professor of Economics  

Perry, Steven, 2020. Lecturer in Program for Writing and Communication  

Petrick, Elizabeth, 2019. Associate Professor of History  

Pettitt, B. Montgomery, 2010. Adjunct Professor of Chemistry  
BS (1975), PhD (1980) University of Houston

Peyravan, Leila, 2016. Assistant Professor of Accounting  
BA (2004), MBA (2007), PhD (2016) University of Toronto

Phillips, Dereth, 2004. Lecturer of BioSciences  

Phillips, George, 2012. Professor of BioSciences, Associate Dean of Research, Associate Chair  
BA (1974) Rice University; PhD (1976) Rice University

Piazza, Alessandro, 2018. Assistant Professor of Strategy  

Pimentelli, Alberto, 2014. Associate Research Professor of Materials Science and NanoEngineering  
MS (Laurea, 1986) University of Milan, Italy; PhD (1989) University of Parma, Italy

Pindell, James, 1997. Adjunct Professor of Earth Environmental and Planetary Sciences


**MFA (1985) University of Houston; MEd (1997) University of St. Thomas;**

**Radigan, Judy.** 1992. Professor of Double Bass


**Pollnitz, Aysha.** 2016. Associate Professor of History


**Pope, Albert H.** 1986. Gus Sessions Worsham Professor of Architecture


**Porter, Constance Elise.** 2011. Associate Clinical Professor of Marketing, Associate Dean of Diversity, Equity and Inclusion


**PhD (2005) Georgia State University**

**Prendergast, Mary.** 2021. Associate Professor of Anthropology


**Preston, Daniel.** 2019. Assistant Professor of Mechanical Engineering

**BS (2012) University of Alabama; MS (2014), PhD (2017) Massachusetts Institute of Technology**

**Protasov, Anastasiya.** 2017. Lecturer of Computational and Applied Mathematics

**BS (2005), MS (2007) Novosibirsk State University; PhD (2016) Rensselaer Polytechnic Institute**

**Pu, Han.** 2003. Professor of Physics and Astronomy, Associate Chair for the Graduate Program

**BS (1992) University of Science and Technology of China; MS (1994), PhD (1999) University of Rochester**

**Puelz, Charles.** 2020. Lecturer of Computational and Applied Mathematics

**BA (2011) Wesleyan University; MA (2013), PhD (2017) Rice University**

**Rao, Arvind.** 2014. Adjunct Assistant Professor of Electrical and Computer Engineering

**BEC (2001) Bangalore University; MSE (2003) University of Texas—Austin;**


**Raphael, Robert M.** 2001. Associate Professor of Bioengineering

**BS (1989) University of Notre Dame; MS (1992), PhD (1996) University of Rochester**

**Rarick, Janet.** 1992. Associate Professor of Music Career Development

**BM (1973) University of Southern California**

**Redding, Stephen.** 2009. Lecturer of Architecture

**BS (1970) Rice University; MME (1971) Rice University**

**Regier, Alexander T.** 2009. Professor of English


**Reid, Alan.** 2017. Edgar Odell Lovett Professor of Mathematics, Department Chair of Mathematics

**BS (1984), MS (1985), PhD (1988) University of Aberdeen**

**Reiff, Patricia H.** 1992. Professor of Physics and Astronomy, Associate Director of Outreach Programs, Rice Space Institute

**BS (1971) Oklahoma State University; MS (1974), PhD (1975) Rice University**

**Reiss, David.** 2017. Adjunct Associate Professor of Electrical and Computer Engineering


**Revzin, Arnold.** 2017. Lecturer of BioSciences

**BSE (1964) University of Wisconsin-Madison; PhD (1969) University of Wisconsin-Madison**

**Reynolds, Michael A.** 2013. Adjunct Professor of Chemical and Biomolecular Engineering

**BS (1995) Michigan State University, PhD (2000) Iowa State University**

**Rhodes, Anna.** 2017. Assistant Professor of Sociology


**Rice, John Robin.** 2018. Professor of Voice


**Richards-Kortum, Rebecca.** 2005. The Malcolm Gillis University Professor, Professor of Bioengineering and Electrical and Computer Engineering, Director of Rice 360: Institute for Global Health Technology

**BS (1985) University of Nebraska; MS (1987), PhD (1990) Massachusetts Institute of Technology**

**Richardson, Eric.** 2013. Adjunct Associate Professor of Bioengineering

**BS (2005) Brigham Young University; PhD (2009) University of Minnesota**
Richardson, Laura, 2021. Lecturer in Program for Writing and Communication

Rivière, Béatrice M., 2008. Noah Harding Chair and Professor of Computational and Applied Mathematics

Rixner, Scott, 2000. Professor of Computer Science and in Electrical and Computer Engineering

Robert, Marc A., 1984. Professor of Chemical and Biomolecular Engineering
Diploma (1975) Swiss Federal Institute of Technology, Zurich; PhD (1980) Swiss Federal Institute of Technology, Lausanne

Roberto, Elizabeth, 2018. Assistant Professor of Sociology

Robinson, Jacob, 2012. Associate Professor of Electrical and Computer Engineering and Bioengineering

Rodi, Patrick, 2018. Professor in the Practice of Mechanical Engineering
BS (1984) University of Florida; MS (1986), PhD (1992) University of Texas–Austin

Rodriguez, Augusto X., 2010. Associate Teaching Professor of Kinesiology

Rodriguez, Peter, 2016. Dean of the Jesse H. Jones Graduate School of Business, Professor of Strategic Management

Rogge, Corina E., 2013. Adjunct Assistant Professor of Chemistry

Rosenberg, Susan M., 2009. Adjunct Professor of BioSciences

Rossky, Peter, 2014. Harry C. and Olga K. Wiess Professor of Chemistry, Professor of Chemical and Biomolecular Engineering
BA (1971) Cornell University; MA (1972), PhD (1978) Harvard University

Ross, Malcolm I., 2013. Adjunct Professor of Earth, Environmental and Planetary Sciences

Rountree, Brian R., 2003. Associate Professor of Accounting

Roykovitch, Justin, 2018. Lecturer of Photography
BFA (2011) George Mason University; MFA (2014) Mason Gross School of the Arts, Rutgers University

Rudolph, Kurt, 2016. Adjunct Professor of Earth, Environmental Planetary Sciences
BS (1976) Rensselaer Polytechnic Institute; MA (1978) University of Texas

Rudolf, Volker H. W., 2007. Professor of BioSciences

Rusin, Craig, 2013. Adjunct Assistant Professor of Computational and Applied Mathematics
BSE (2001) Princeton University; PhD (2009) University of Virginia

Russell, Jeff, 2018. Lecturer in Communication
BA (2007), MBA (2014) University of Texas–Austin

Ryang, Sonia, 2014. T.T. and W.F. Chao Center Professor of Asian Studies

Sabharwal, Ashutosh, 2001. Ernest Dell Butcher Professor of Engineering, Professor of Electrical and Computer Engineering, Department Chair of Electrical and Computer Engineering

Sachdeva, Kunal, 2018. Assistant Professor of Finance

Salaberry, M. Rafael, 2013. Mary Gibbs Jones Professor of Humanities; Professor of Modern and Classical Literatures and Cultures

Salas, Eduardo, 2015. Allyn R. and Gladys M. Cline Professor, Department Chair of Psychological Sciences
BA (1978) Florida International University; MS (1980) University of Central Florida; PhD (1984) Old Dominion University

Saltz, Julia, 2014. Associate Professor of Ecology and Evolutionary Biology
AB (2005) Princeton University; PhD (2011) University of California-Davis

Sams, Clarence F., 1997. Adjunct Professor of BiocSciences
BA (1975), PhD (1983) Rice University

Samuels, Danny M., 1981. Professor in the Practice of Architecture
BArch (1971) Rice University

San, Ka-Yiu, 1984. E.D. Butcher Professor of Bioengineering, Professor of Chemical and Biomolecular Engineering

Sanders, Paula A., 1987. Joseph and Joanna Nazro Mullen Professor in Humanities, Professor of History, Director of the Boniuk Institute

Sano, Akane, 2018. Rice Trustee Chair, Assistant Professor of Electrical and Computer Engineering

Sarkar, Vivek, 2017. Adjunct Research Professor of Computer Science

Saterbak, Ann, 2002. Adjunct Professor of Bioengineering
BA (1990) Rice University; PhD (1995) University of Illinois

Schaefer, Andrew J., 2015. Noah Harding Chair, Professor of Computational and Applied Mathematics and Computer Science

Schaefer, Laura, 2015. Burton J. and Ann M. McMurtry Chair in Engineering, Professor of Mechanical Engineering, Department Chair of Mechanical Engineering
BA, BS (1995) Rice University; MA (1997), PhD (2000) Georgia Institute of Technology

Schaum, R. Troy, 2011. Associate Professor in Architecture

Schell, Wendy, 2008. Senior Lecturer of Kinesiology
BS (1994) Auburn University; BS (1996) Georgia State University; MS (2007) Texas Women’s University

Schimmel, Ian, 2011. Senior Lecturer of English
BA (2005) Tufts University; MFA (2010) University of Houston

Schart, Timothy, 2015. Professor of Philosophy, Department Chair of Philosophy

Scher, George, 1991. Herbert S. Autrey Professor of Humanities, Professor of Philosophy
BA (1964) Brandeis University; PhD (1972) Columbia University

Scombrone, Gustavo E., 1989. Robert A. Welch Professor of Chemistry, Physics and Astronomy, and Materials Science and NanoEngineering
BS (1979), PhD (1983) University of Buenos Aires

Segarra, Santiago, 2018. Assistant Professor of Electrical and Computer Engineering
BSc (2011) Buenos Aires Institute of Technology; MSc (2014), PhD (2016) University of Pennsylvania

Segatori, Laura, 2007. Associate Professor of Chemical and Biomolecular Engineering, Bioengineering, and BioSciences
BS (2000), MS (2000) University of Bologna, Italy; PhD (2005) University of Texas–Austin

Segner, III, Edmund, 1996. Professor of the Practice in Civil Engineering Management
BS (1976) Rice University; MA (1980) University of Houston

Shel, Bethany, 2014. Artist Teacher of Opera Studies


Seymour, John, 2020. Associate Professor of Electrical and Computer Engineering
BS (1996) Ohio State University, MS (2004), PhD (2009) University of Michigan

Sentle, Thomas, 2017. William Marsh Rice Trustee Chair, Assistant Professor of Chemical and Biomolecular Engineering

Shahsavar, Rouzbeh, 2011. Adjunct Assistant Professor of Civil and Environmental Engineering and of Materials Science and NanoEngineering
BS (2002) Sharif University of Technology, Iran; MS (2005) McGill University, Canada; PhD (2010) Massachusetts Institute of Technology

Shamoo, Yousif, 1998. Vice Provost for Research, Professor of BioSciences

Shaw, Chad A., 2004. Adjunct Associate Professor of Statistics

Sheaf, Stephen J., 2002. Adjunct Professor of Electrical and Computer Engineering
BS (1972), MEE (1972), Rice University; PhD (1974) University of Illinois; MBA (1979) Santa Clara University

Shehabuddin, Elora, 2001. Professor of Transnational Asian Studies

Shen, Yu, 2002. Adjunct Professor of Statistics

Shepard, Clayton, 2018. Lecturer of Electrical and Computer Engineering
BS (2008), MS (2012), PhD (2018) Rice University

Sher, George, 1991. Herbert S. Autrey Professor of Humanities, Professor of Philosophy
BA (1964) Brandeis University; PhD (1972) Columbia University

Shimizu, Sayuri Guthrie, 2014. Dunlevie Family Chair in History, Professor of History

Shouval, Harel, 2004. Adjunct Associate Professor of Electrical and Computer Engineering
BS (1987) Tel Aviv University, MS (1990) Weizmann Institute of Science, PhD (1994) Brown University

Shrivastava, Anshumali, 2015. Associate Professor of Computer Science, Electrical and Computer Engineering and Statistics

Si, Qimiao, 1994. Harry C. and Olga K. Wiess Professor of Physics and Astronomy
BS (1988) University of Science and Technology of China; PhD (1991) University of Chicago

Sidbury, James, 2011. Andrew W. Mellon Distinguished Professor of Humanities, Professor of History

Siebach, Kirsten, 2018. Assistant Professor of Earth, Environmental and Planetary Sciences
BA (2011) Washington University in St. Louis; PhD (2016) California Institute of Technology

Siefert, Janet, 2002. Associate Research Professor in Statistics
BS (1975) University of Central Arkansas; PhD (1997) University of Houston

Siemann, Evan, 1998. Harry C. and Olga K. Wiess Professor of BioSciences
AB (1989) Cornell University; PhD (1997) University of Minnesota

Siewert, Charles, 2010. Robert Alan and Kathryn Dunlevie Hayes Chair of Humanities, Professor of Philosophy
BA (1983) Reed College; PhD (1994) University of California–Berkeley

Siitonen, Juha, 2019. Lecturer of Chemistry
MSc (2014), PhD (2018) University of Jyväskylä, Finland

Silberg, Jonathan J., 2004. Stewart Memorial Professor of BioSciences, Professor of Bioengineering

Silva, Arlei Lopes, 2021. Assistant Professor of Computer Science
BSc (2008), MSc (2011) Federal University of Minas Gerais; PhD (2019) University of California–Santa Barbara

Simar, Ray, Jr., 2009. Professor in the Practice of Computer Architecture and Electrical and Computer Engineering
BS (1981) Texas A&M University; MS (1983) Rice University

Simoes Correa, Adrienne, 2012. Assistant Professor of BioSciences

Simpson, Robert, 2002. Lecturer of Church Music
AB (1970) Brown University; SMM (1972) Union Theological Seminary

Sivaramakrishnan, K., 2012. Henry Gardner Symonds Professor of Accounting

Smith, Brinton Averil, 2005. Associate Professor of Cello

Smith, D. Brent, 2000. Associate Professor of Management, Senior Associate Dean of Executive Education
BA (1992) University of Tulsa; MA (1996), PhD (1999) University of Maryland–College Park

Smith, Rebecca, 2020. Assistant Teaching Professor of Computer Science

Snow, Edward A., 1981. Mary Gibbs Jones Chair for the Humanities, Professor of English
BA (1964) Rice University; MA (1966) University of California–Riverside; PhD (1969) State University of New York–Buffalo

Solomon, Scott, 2009. Associate Teaching Professor of BioSciences
BS (2000) University of Illinois–Urbana-Champaign; PhD (2007) University of Texas–Austin

Somerville, Ted, 2008. Lecturer of Classical Studies
BA (1999) University of Texas–Austin; PhD (2007) Harvard University

Sonenshein, Scott, 2007. Henry Gardner Symonds Professor of Management

Song, Jayoung, 2016. Lecturer of Korean
BA (2005) Kyung Hee University; MA (2010), PhD (2014) University of Texas–Austin

Song, Yongcheng, 2009. Adjunct Assistant Professor of Chemistry
BS (1993) Nanjing University; PhD (2001) National University of Singapore/Institute of Molecular and Cell Biology


Sparagana, John, 1989. Grace Christian Vietti Chair in Visual Arts, Professor of Visual and Dramatic Arts, Department Chair of Visual and Dramatic Arts

Sperandio, Christopher, 2008. Associate Professor of Visual and Dramatic Arts

Spieler, Christof, 2000. Senior Lecturer of Architecture
BS (1997), MS (1999) Rice University

Stadler, Lauren, 2015. Assistant Professor of Civil and Environmental Engineering

Stallings, Tom, 2007. Professor in the Practice of Sport Management
BA (1991) University of Texas; MED (2008) University of Houston

Stallmann, Kurt, 2002. Professor of Composition and Theory

Stasevicius, Maria Luján, 2016. Lecturer of Spanish
BA (2007) Universidad Nacional del Sur; MA (2010), PhD (2016) University of Illinois at Urbana-Champaign

Stein, Robert M., 1979. Lena Gohlman Fox Professor of Political Science
Steiner, Uwe, 2001. Professor of German Studies

Stenson, Jared, 2013. Wiess Instructor of Physics and Astronomy
BS (2003), MS (2005) Brigham Young University; PhD (2010) Oregon State University

Stern, Michael, 1991. Professor of BioSciences
BS (1978) Stanford University; PhD (1985) University of California–San Francisco

Stevenson, Randolph T., 1997. Radoslav Tsanoff Professor of Public Affairs, Professor of Political Science

Stratton, Charles R., 1969. Professor of BioSciences
BS (1962) University of Wisconsin–Madison; PhD (1967) Stanford University

Stoll, Richard J., 1979. Albert Thomas Professor of Political Science
AB (1974) University of Rochester; PhD (1979) University of Michigan

St. Pierre, Francois, 2015. Adjunct Assistant Professor of Electrical and Computer Engineering

Straach, Janell, 2020. Lecturer in Computer Science MCS Online Program

Strait, Richard B., 2007. Adjunct Professor of Chemical and Biomolecular Engineering
BS (1970) Ohio State University; MBA (1978) University of Tulsa

Strassmann, Diana, 2004. Carolyn & Fred McManis Distinguished Professor in the Practice of Humanities, Baker Institute Scholar, Senior Research Fellow

Strauss, Matthew, 2015. Associate Professor of Percussion

Stringer, Tish, 2012. Lecturer of Film, Film Program Manager
BA (1997) University of Minnesota; PhD (2006) Rice University

Stroup, John M., 1988. Harry and Hazel Chavanne Professor of Religion, Professor of Religion
AB (1968) Washington University; MDiv (1972) Concordia Seminary; MPhil (1975), PhD (1980) Yale University

Studer, Christoph, 2013. Adjunct Assistant Professor of Electrical and Computer Engineering
MSc (2005), DrSc (2009) ETZ Zurich

Suarez-Potts, William, 2018. Associate Professor of History

Subramanian, Devika, 1995. Professor of Computer Science and of Electrical and Computer Engineering

Summa, Lori, 2016. Adjunct Professor of Earth, Environmental and Planetary Sciences
BS (1979) University of Rochester; PhD (1985) University of California–Davis

Summers, Carolyn, 1999. Adjunct Professor of Physics and Astronomy
BA (1970) Vanderbilt University; MEd (1977), EdD (1979) University of Houston

Swint, John Michael, 1977. Adjunct Professor of Economics
BA (1968) California State University–Humboldt; MA, PhD (1972) Rice University

Szabolowski, Jerzy, 2020. Assistant Professor of Bioengineering

Tabor, Jeffrey J., 2010. Associate Professor of Bioengineering
BA (2001), PhD (2006) University of Texas–Austin

Taghikhani, Vahid, 2015. Adjunct Professor of Chemical and Biomolecular Engineering

Takayama, Hiromi, 2018. Lecturer of Japanese

Takahashi, Kenji, 2011. Adjunct Associate Professor in Mechanical Engineering

Tandon, Nitin, 2012. Adjunct Professor of Electrical and Computer Engineering
MBBS (1992) Armed Forces Medical College

Tang, Evelyn, 2021. Assistant Professor of Physics and Astronomy

Tang, Ming, 2014. Associate Professor of Materials Science and NanoEngineering

Tang, Xun, 2014. Henry S. Fox Chair, Professor of Economics

Tao, Yizhi Jane, 2002. Professor of BioSciences
BS (1992) Peking University; PhD (1999) Purdue University

Tapia, Richard A., 1970. University Professor, Maxfield-Oshman Professor in Engineering, Professor of Computational and Applied Mathematics
BA (1961), MA (1966), PhD (1967) University of California–Los Angeles

Tavakkoli, Mohammad, 2017. Lecturer of Chemical and Biomolecular Engineering
BSc (2006), MSc (2009), PhD (2013) Sharif University of Technology-Iran


Tezcan, Tolga, 2021. Professor of Operations Management

Tezduyar, Tayfun E., 1998. James F. Barbour Professor of Mechanical Engineering
MS (1978), PhD (1982) California Institute of Technology

Thall, Peter, 2017. Adjunct Professor of Statistics
BS (1971) Michigan State University; MS (1973) Florida State University; PhD (1975) Florida State University

Thirkettle, Matthew, 2020. Assistant Professor of Economics

Thomann, Isabell, 2012. Assistant Professor of Electrical and Computer Engineering
MS (2001) ETH Zurich; PhD (2009) University of Colorado: Boulder

Thomas, Collin, 2017. Lecturer of BioSciences
BA (1994); PhD (1999) University of Texas-Austin

Thomas, Nova, 2020. Professor of Voice

Thyer, Ross, 2020. Assistant Professor of Chemical and Biomolecular Engineering
BSc (2008), PhD (2012) The University of Western Australia

Tihanyi, Laszlo, 2020. William Alexander Kirkland Professor of Strategic Management

Tkaczyk, Tomasz, 2007. Professor of Bioengineering

Toffoletto, Frank R., 1996. Professor of Physics and Astronomy
BS (1981) La Trobe University; PhD (1987) Rice University

Tolias, Andreas, 2016. Adjunct Associate Professor of Electrical and Computer Engineering

Tomson, Mason B., 1977. Professor of Civil and Environmental Engineering
BS (1967) Southwestern State College; PhD (1972) Oklahoma State University

Torres, Mark, 2017. Assistant Professor of Earth, Environmental and Planetary Sciences
BA (2010) Pitzer College; PhD (2015) University of Southern California

Torres, Michelle, 2019. Assistant Professor of Political Science

Tour, James M., 1999. T. T. and W. F. Chao Professor of Chemistry, and of Materials Science and NanoEngineering
BS (1981) Syracuse University; PhD (1986) Purdue University

Tran Lu, Lesa, 2012. Lecturer of Chemistry
BS (2007), MA (2009), PhD (2012) Rice University

Tran, Thanh, 2010. Professor in the Practice of Electrical and Computer Engineering

Treangen, Todd, 2018. Assistant Professor of Computer Science
BSc (2002) University of Nebraska−Omaha; PhD (2008) Polytechnic University of Catalonia

Tsai, Ah-Lim, 2007. Adjunct Professor of BioSciences
BS (1974) National Taiwan University; PhD (1983) Rice University

Tunnell, Christopher, 2018. Assistant Professor of Physics and Astronomy, and of Computer Science
BSc (2008) University of Texas; PhD (2013) University of Oxford

Turbesi, Christopher, 2019. Lecturer of Music

Turi, Luziris Pineda, 2010. Associate Teaching Professor of Spanish
BA (2003), MA (2005), PhD (2012) University of Houston

Turley, Ruth N. Lopez, 2010. Professor of Sociology

Umar, Tarik, 2017. Assistant Professor of Finance
BA (2010) Harvard University; MBA, PhD (2017) University of Chicago

Unhelkar, Vaiub V., 2020. Assistant Professor of Computer Science

Uribe, César A., 2020. Louis Owen Assistant Professor of Electrical and Computer Engineering
BSc (2010) University of Antiquia; MSc (2013) Delft University of Technology; MSc (2016), PhD (2018) University of Illinois at Urbana-Champaign

Uribe, Rosa, 2017. Assistant Professor of BioSciences
BS (2006) San Francisco State University; PhD (2012) University of Texas–Austin

Utting, Brittany, 2020. Assistant Professor of Architecture
BS (2011) Georgia Institute of Technology; MArch (2014) Yale University

Vajtai, Robert, 2008. Research Professor in Materials Science and NanoEngineering
MSc (1986) Jate University; PhD (1997) Szeged University, Hungary

Van der Werff, Ivo-Jan, 2007. Professor of Viola
Associate Hons (1980) Royal College of Music

VanHorn, David, 2007. Professor in the Practice of Operations Management
BS (1989); MEng (1990) Iowa State University; MBA (2000) Rice University

Vannucci, Marina, 2006. Noah Harding Professor of Statistics
BS (1982), PhD (1996) University of Florence, Italy
Vardi, Moshe, 1993. University Professor, Karen Ostrum George Distinguished Service Professor of Computational Engineering, Professor of Electrical and Computer Engineering and Computer Science BS (1975) Bar-Ilan University; MS (1980) Feinberg Graduate School of the Weizmann Institute of Science; PhD (1982) Hebrew University


VerMeulen, William, 1990. Professor of French Horn

Videa Vargas, Marcelo, 2011. Adjunct Associate Professor of Chemistry BSc (1993) Instituto Tecnologico y de Estudios Superiores de Monterrey; PhD (1999) Arizona State University


Wagner, Daniel S., 2003. Associate Professor of BiocSciences BA (1990) University of Texas; PhD (1997) University of Texas Health Science Center

Wainerdi, Richard E., 2012. Distinguished Adjunct Professor of Wiess School of Natural Sciences BS (1952) University of Oklahoma; MS (1955), PhD (1958) Pennsylvania State University


Wang, Haotian, 2019. William Marsh Rice Trustee Chair, Assistant Professor of Chemical and Biomolecular Engineering BS (2011), PhD (2016) Stanford University


Wehmeyer, Geoffrey, 2018. Assistant Professor of Mechanical Engineering BS (2013) University of Texas–Austin; PhD (2018) University of California–Berkeley
Weiler, Morgan, 2019. RTG Lovett Instructor of Mathematics
BA (2013), PhD (2019) University of California-Berkeley

Weinberg, Armin D., 2010. Adjunct Professor of Kinesiology
BSc (1966), PhD (1971) Ohio State University

Weininger, Melissa, 2015. Anna Smith Fine Lecturer of Jewish Studies
BA (1996) Harvard University; PhD (2010) University of Chicago

Weinermith, Kelly, 2015. Adjunct Assistant Professor of BioSciences
BS (2004), MS (2007) Bowling Green State University; PhD (2014) University of California-Davis

Weisman, R. Bruce, 1979. Professor of Chemistry, Associate Chair for Teaching
BA (1971) Johns Hopkins University; PhD (1977) University of Chicago

Weisheit, Jon, 1988. Adjunct Professor of Physics and Astronomy
BS (1966) University of Texas; MS (1969), PhD (1970) Rice University

Wensel, Theodore G., 2010. Adjunct Professor of BioSciences
BS (1980) University of South Florida; PhD (1984) University of California

West, Julian, 2019. Assistant Professor of Chemistry

Weston, James P., 2000. Harmon Whittington Professor in Finance

Wettergreen, Matthew, 2009. Associate Teaching Professor in Bioengineering, Oshman Engineering Design Kitchen
BS (2001) University of Illinois at Chicago; PhD (2008) Rice University

White, Frank S., 1982. Lecturer of Architecture
BS (1977) Rochester Institute of Technology

Whitford, Sheila, 2013. Lecturer of Education
BA (1970) Texas Woman's University; MBA (1983) University of Houston, Clear Lake

Whitmire, Kenton H., 1982. Associate Dean of the Wiess School of Natural Sciences, Professor of Chemistry

Whitmore, Mihriban, 1999. Adjunct Assistant Professor of Psychological Sciences

Whitson, Peggy, 1997. Adjunct Associate Professor of BioSciences
BS (1981) Iowa Wesleyan College; PhD (1986) Rice University

Wickham, Hadley, 2017. Adjunct Professor of Statistics

Wildenthal, Lora, 2003. John Antony Weir Professor of History

Wilson, Jennifer S., 2012. Senior Lecturer and Director of the Program in Writing and Communication

Wilson, Patrick "Burke", 2015. Lecturer of Kinesiology

BA (2003) Texas A&M University; DPT (2012) UT Southwestern Medical Center

Wilson, Rick K., 1983. Herbert S. Autrey Professor of Political Science, Professor of Statistics and of Psychological Sciences
BA (1975), MA (1977) Creighton University; PhD (1982) Indiana University

Windsor, Duane, 1977. Lynette S. Autrey Professor of Management
BA (1969) Rice University; AM (1973), PhD (1978) Harvard University

Winer, Rachel T., 2004. Adjunct Assistant Professor of Psychological Sciences

Winkler, Kathleen, 1992. Dorothy Richard Starling Chair of Classical Violin
BMus (1972) Indiana University; MMus (1974) University of Michigan

Winningham, Geoffrey L., 1969. Lynette S. Autrey Professor of Humanities, Professor of Visual and Dramatic Arts
BA (1965) Rice University; MS (1968) Illinois Institute of Technology

Woffinden, David, 2015. Adjunct Professor of Mechanical Engineering

Wolf, Michael, 1988. Milton B. Porter Professor, Professor of Mathematics
BS (1981) Yale University; PhD (1986) Stanford University

Wolfe, Cary E., 2003. Bruce and Elizabeth Dunlevie Professor of English, Director for Center for Critical and Cultural Theory

Wolynes, Peter G., 2011. D.R. Bullard-Welch Foundation Professor of Science, Professor of Chemistry, BioSciences, and Physics and Astronomy, Co-Director of Center for Theoretical Biological Physics
AB (1971) Indiana University; AM (1972) Harvard University; PhD (1976) Harvard University

Wong, Michael S., 2001. Tina and Sunit Patel Professor in Molecular Nanotechnology, Professor of Chemical and Biomolecular Engineering, Chemistry, and Materials Science and NanoEngineering, Civil and Environmental Engineering, Department Chair of Chemical and Biomolecular Engineering

Wong, Stephen B., 2001. Lecturer of Computer Science

Wood, Philip R., 1990. Associate Professor of French Studies

Woods, Gary L., 2008. Distinguished Professor in the Practice of Electrical and Computer Engineering

Wooten, Kevin C., 1994. Adjunct Professor of Psychological Sciences
BA (1976), MA (1978) University of Houston–Clear Lake; PhD (1991) Tulane University
Zhu, Jian-Xin, 2010. Adjunct Associate Professor of Physics and Astronomy
BS (1990), MS (1993) Nanjing University; PhD (1997) University of Hong Kong

Zimmerman, Carissa A., 2011. Senior Lecturer of Psychological Sciences, Director of Social Sciences Quantitative Methods
BA (2005) Trinity University; MS (2008), PhD (2010) Florida State University

Zodrow, George, 1979. Allyn R. and Gladys M. Cline Chair of Economics, Department Chair of Economics
BA, MME (1973) Rice University; MA (1977), PhD (1980) Princeton University

Zubarev, Eugene, 2005. Associate Professor of Chemistry, Associate Chair for Graduate Studies
MS (1993) Moscow State University; PhD (1996) Russian Academy of Sciences

Zygourakis, Kyriacos, 1980. A.J. Hartsook Professor of Chemical and Biomolecular Engineering, Professor of Bioengineering
Diploma (1975) National Technical University of Athens; PhD (1981) University of Minnesota

**Emeritus Faculty**

BA (1953) Willamette University; MA (1954) Stanford University; Certificat d'études politiques (1955) University of Bordeaux; PhD (1964) University of California–Berkeley

BSCE (1951), MS (1954) University of Arkansas; PhD (1964) University of California–Berkeley

BA (1963) University of Michigan; MA (1965) Stanford University; PhD (1970) University of Michigan

BS (1968) University of South Alabama; MS (1970) University of New Mexico; PhD (1972) Florida State University

Licence es lettres (1967) Université de Montpellier, France; PhD (1975) University of Washington

Armeniades, Constantine D., 1969–2006. Professor Emeritus of Chemical and Biomolecular Engineering
BS (1961) Northeastern University; MS (1967) Case Institute of Technology; PhD (1969) Case Western Reserve University

Bailey, Walter B., 1982-2019. Associate Professor Emeritus of Musicology
BMus (1976) Lewis and Clark College; MA (1979), PhD (1982) University of Southern California

Bally, Albert W., 1981–96. Harry Carothers Wiess Professor Emeritus of Geology
PhD (1953) University of Zurich, Switzerland

BS (1983), PhD (1986) Imperial College of Science and Technology, University of London

BA, BBA (1971), PhD (1976) University of Texas–Austin

Bennett, George N., 1978-2021. Professor Emeritus of BioSciences
BS (1968) University of Nebraska; PhD (1974) Purdue University


BS (1968) University of California at Berkeley; MS (1971), PhD (1972) Cornell University

Black, Earl, 1993-2012. Herbert S. Autrey Professor Emeritus of Political Science
BA (1964) University of Texas–Austin; PhD (1968) Harvard University

BA (1965) Rice University; PhD (1969) University of Virginia

BS (1961) Louisiana Polytechnic Institute; MA (1963), PhD (1965) Rice University

BA (1959) Kansas University; MFA (1965) Columbia University

BA (1967), MA, PhD (1970) Rice University

BFA (1972) University of Iowa; MFA (1980) University of Wisconsin–Madison

BS (1960) California Institute of Technology; PhD (1964) University of California–Berkeley

BME (1969) Temple University; MMus (1971) Catholic University of America

Burnett, Sarah A., 1972–2012. Professor Emerita of Psychological Sciences
BS (1966) Memphis State University; MA (1970), PhD (1972) Tulane University


Daichman, Graciela S., 1973–99. Lecturer Emerita of Spanish and Portuguese


BA (1962), MA (1964), PhD (1969) University of California–Berkeley

Etnyre, Bruce, 1984. Professor Emeritus of Kinesiology
BS (1973) Valparaiso University; MS (1977) Purdue University; PhD (1984) University of Texas—Austin

Farwell, Joyce, 1994–2005. Professor Emerita of Voice
BME (1956), MME (1958) University of Oklahoma; DMA (1976) College Conservatory of Music, University of Cincinnati

Faubion, James D., 1993. Radoslav A. Tsanoff Professor Emeritus

BS (1962) Southwestern University; MBS (1965) University of Colorado; PhD (1969) Rice University

BA (1953) Hanover College; MS (1958), PhD (1961) Purdue University


Fultz, Lucille P., 1990–2007. Associate Professor Emeritus of English
AB (1959) Spellman College; MA (1968) University of Iowa; PhD (1990) Emory University

George, Jennifer M., 1999-2018. Mary Gibbs Jones Professor Emeritus of Management

BA (1963) Brooklyn College; MS (1964), PhD (1966) Syracuse University

BS (1959) Birmingham University, England; PhD (1963) Cambridge University

AB (1975) University of Michigan; PhD (1981) University of California–Berkeley

BM (1966) George Peabody College for Teachers; MA (1968) Leland Stanford University


BA (1963) University of Pittsburgh; MA (1965), PhD (1968) Princeton University


BA (1952) Universidad de la Republica; MA (1987) Rice University

BS (1967) Michigan State University; PhD (1973) Yale University

BS (1967) Massachusetts Institute of Technology; PhD (1971) Brown University

BS, MA (1963) Carnegie Institute of Technology; PhD (1966) Stanford University

BA (1956) Rice Institute; MA (1959) Indiana University

Haymes, Robert C., 1968–98. Professor Emeritus of Space Physics and Astronomy
BA (1952), MS (1953), PhD (1959) New York University

Hempel, John, 1964-2013. Milton B. Porter Professor of Mathematics
BS (1957) University of Utah; MS (1959), PhD (1962) University of Wisconsin at Madison

Heggi, Dieter, 1966–98. Professor Emeritus of Geology and Geophysics, Adjunct Professor of Chemistry
MS (1954), PhD (1957) University of Amsterdam, The Netherlands

Hiraski, George J., 1989 - 2013. A. J. Hartsok Professor Emeritus of Chemical and Biomolecular Engineering
BS (1963) Lamar University; PhD (1967) Rice University

BS (1973), MA (1975) Brigham Young University; PhD (1984) University of California–Irvine

Huddle, Donald L., 1964–92. Professor Emeritus of Economics
BS (1959), MA (1960) University of California–Los Angeles; PhD (1964) Vanderbilt University

BA (1961) Wesleyan University; MA (1964), PhD (1966) Yale University

Itamarino, Nicholas K., 1978-2018. Professor Emeritus of Kinesiology
BS (1973) University of Dayton; MEd (1975) University of Toledo; PhD (1978) Ohio State University


BA (1957) Millsaps College; MA (1958), PhD (1960) Eastman School of Music, University of Rochester
BS (1960), MS (1962) University of Cincinnati; MS (1965), PhD (1968) University of Michigan

BS (1974) Aeronautical Institute of Technology, MS (1979) University of Sao Paolo, PhD (1983) University of Texas–Austin

BS (1966) City College of New York; PhD (1971) University of Kansas; PhD (1978) Johns Hopkins University

Kauffmann, Robert Lane, 1976–2015. Professor Emeritus of Spanish

Kaun, Kathleen, 1998–2013. Lynette S. Autrey Professor Emerita of Voice
BM (1966) Indiana University; MM (1970) University of Texas–Austin

Kecht, Maria-Regina, 1997–2010. Associate Professor Emerita of German Studies
Teacher's Diploma (1978) Pushkin Institute, Moscow State University; MA (1979) University of Illinois–Urbana-Champaign; PhD (1982) Innsbruck University

Keeton, Darra, 1994-2012. Professor Emerita of Visual Arts
BFA (1974) Miami University, Ohio; MFA (1979) Queens College, New York


King, Stephen, 2003. Lynette S. Autrey Professor of Voice

Kiperman, Anita, 1976–98. Lecturer Emerita of Spanish
BA (1957) Universidad Nacional de Buenos Aires; MA (1971) University of Houston

Klineberg, Stephen L., 1972-2018. Professor Emeritus of Sociology

BS (1963), Providence College; PhD (1968) University of Wisconsin

Kulstad, Mark, 1975–2015. Professor Emeritus of Philosophy
BA (1969) Macalester College; PhD (1975) University of Michigan

BA (1951) Yale University; PhD (1958) University of California–Berkeley

Lane, David M., 1977-2021. Associate Professor Emeritus of Psychological Sciences
BA (1971) Clark University; MA (1973) Tufts University; PhD (1977) Tulane University

Lane, Neal F., 1996–2014. Malcolm Gillis University Professor Emeritus, Professor Emeritus of Physics and Astronomy
BS (1960), MS (1962), PhD (1964) University of Oklahoma

BS (1962) North Texas State University; MEd (1967) Sam Houston State University; EdD (1974) Louisiana State University

Leeds, J. Venn, Jr., 1964–89. Professor Emeritus of Electrical and Computer Engineering
BA (1955), BSEE (1956) Rice Institute; MSEE (1960), PhD (1963) University of Pittsburgh; JD (1972) University of Houston


Long, Elizabeth, 1978-2014. Professor Emerita of Sociology, Department Chair of Sociology, Associate of Baker College
BA (1966) Stanford University; MA (1974), PhD (1979) Brandeis University

Lüttge, Andreas, 1999-2013. Professor Emeritus of Earth, Environmental and Planetary Sciences, Professor Emeritus of Chemistry, Associate of Will Rice College

Marcus, George E., 1975–2006. Professor Emeritus of Anthropology
BA (1968) Yale University; PhD (1976) Harvard University


Matthews, Kathleen Shive, 1972-2021. Stewart Memorial Professor Emeritus of BiocSciences
BS (1966) University of Texas–Austin; PhD (1970) University of California–Berkeley

Matusow, Allen J., 1963–2015. William Gaines Twyman Professor Emeritus of History, Associate Director Emeritus for Academic Programs of the James A. Baker III Institute for Public Policy; Research Professor in History
BA (1958) Ursinus College; MA (1959), PhD (1963) Harvard University

BA (1963) University of Cincinnati; MA (1965) University of Washington; MA (1968) University of Cincinnati

Mcintosh, Roderick J., 1980. Professor Emeritus of Anthropology
BA (1973) Yale University; MLITT (1975), PhD (1979) Trinity College, University of Cambridge

BMet (1957) Sheffield University; PhD (1962) Leeds University

McLendon, George, 2010-2016. Professor Emeritus of Chemistry
BS (1972) University of Texas–El Paso; PhD (1976) Texas A&M University

BA (1966) Texas Tech University; MA (1968) Baylor University; PhD (1977) University of Wisconsin–Madison
BS (1957), MA (1959) McGill University; PhD (1963) Johns Hopkins University


BA, BS (1961) Rice University; PhD (1969) University of Minnesota

BA (1969) Yale University; PhD (1976) University of Minnesota

BA (1970) North Dakota State University; MA (1975), PhD (1975) University of Kentucky

BA (1966), MBA (1968), PhD (1971) University of Texas–Austin

Neagley, Linda E., 1993-2020. Associate Professor Emeritus of Art History

BS (1957), MS (1958) University of Michigan; PhD (1962) University of California–Berkeley

O’Dell, Charles Robert, 1982–2000. Andrew Hays Buchanan Professor Emeritus of Astrophysics
BSEd (1959) Illinois State University; PhD (1962) University of Wisconsin–Madison

Olson, John Steven, 1973-2018. Ralph and Dorothy Looney Professor Emeritus
BS (1968) University of Illinois; PhD (1972) Cornell University

BS (1957), PhD (1962) University of Sheffield

BA (1964) Occidental College; PhD (1968) Brandeis University

Patten, Robert L., 1969–2012. Lynette S. Autry Professor Emeritus in Humanities, Professor Emeritus of English
BA (1960) Swarthmore College; MA (1962), PhD (1965) Princeton University

BSEE (1958), MSEE (1959) University of Arkansas; PhD (1962) Purdue University

Philpott, Charles William, 1964–96. Professor Emeritus of Ecology and Evolutionary Biology
BA (1957), MS (1958) Texas Technological College; PhD (1962) Tulane University

BS (1956) University of Notre Dame; MS (1961), PhD (1966) University of Chicago

Pomerantz, James R., 1988-2021. Professor Emeritus of Psychological Sciences
BA (1968) University of Michigan; PhD (1974) Yale University

BFA (1965) Atlanta School of Art; MFA (1968) Tulane University

BA (1976) University of Illinois; PhD (1982) University of Michigan

Rachford, Henry H., Jr., 1964–82. Professor Emeritus of Mathematical Sciences
BS (1945), MA (1947) Rice Institute; ScD (1950) Massachusetts Institute of Technology

Rau, Carl, 1983. Professor Emeritus of Physics and Astronomy
BS (1963), MS (1967), PhD (1970) Technical University, Munich

BA (1954) New York University; MA (1964) University of Houston; PhD (1970) University of Texas–Austin

Rusk, Jerrold G., 2006-2021. Professor Emeritus of Political Science
BS (1963) Brigham Young University; PhD (1968) University of Michigan

BS (1976) Purdue University; PhD (1982) Massachusetts Institute of Technology

BA (1954) Augustana College; PhD (1957) University of Southern California

BA (1962) Wabash College; PhD (1966) Stanford University

BA (1958) Rosary College; MMus (1960), PhD (1966) University of Illinois

BA (1972), MA, PhD (1976) Rice University

Seed, Patricia, 1982–2006. Professor Emerita of History
BA (1971) Fordham University; MA (1975) University of Texas–Austin; PhD (1980) University of Wisconsin–Madison

Shibatani, Masayoshi, 2002-2021. Deedee McMurtry Professor Emeritus of Humanities, Professor of Linguistics
BA (1970), PhD (1973) University of California–Berkeley

Shumway, Nicolas, 2010-2020. Frances Moody Newman Professor Emeritus of Humanities, Professor of Spanish, Portuguese and Latin American Studies
Emurities Faculty

BS (1972) Georgia Institute of Technology; PhD (1976) University of North Carolina

BA (1965) Swarthmore College; PhD (1971) Yale University

BFA (1969) San Francisco Art Institute; MA (1972) Hunter College

BA (1966), MA (1968), PhD (1972) University of California–Davis

BA (1958) University of British Columbia; PhD (1964) Yale University

BS (1972) University of California–Davis; MA (1975), PhD (1977) University of California–San Diego

Spence, Dale W., 1963. Professor Emeritus of Kinesiology
BS (1956) Rice Institute, MS (1959) North Texas State University; EdD (1966) Louisiana State University

Speziale, Marie, 2002–2013. Professor Emerita of Trumpet
BM (1964) College Conservatory of Music, University of Cincinnati

Spuler, Richard, 1992–2013. Senior Lecturer Emeritus of German

Stebbing, Ronald F., 1968–95. Professor Emeritus of Space Physics and Astronomy
BSc (1952), PhD (1956) University College, London

BA (1976) Cambridge University; PhD (1979) Imperial College

Strassmann, Joan, 1980–2011. Professor Emerita of BioSciences
BS (1974) University of Michigan; Ph.D. (1979) University of Texas–Austin

Stormer, John C., Jr., 1983–95. Croneis Professor Emeritus of Geology
AB (1963) Dartmouth College; PhD (1971) University of California–Berkeley

BA (1949) Hobart College; MA (1952), PhD (1955) University of Missouri

BA (1971) University of California–Berkeley; PhD (1975) Harvard University

BScHons (1951), MSc (1953) Delhi University; PhD (1959) Columbia University; PhD (Honoris Causa) (1981) Oslo University

BA (1966) Harvard University; Diploma (1969), PhD (1973) Oxford University

BA (1960) Westminster College; MA (1964) University of Nebraska; PhD (1970) University of Minnesota

Thomas, Edwin L., 2011. Ernest Dell Butcher Professor Emeritus of Engineering
BS (1969) University of Massachusetts; PhD (1974) Cornell University

Thompson, Ewa M., 1970–2012. Professor Emerita of Slavic Studies
BA (1963) University of Warsaw; MFA (1963) Sopot Conservatory of Music, Poland; PhD (1967) Vanderbilt University

BA (1955), MA, PhD (1959) Oxford University

BA (1968), MBA (1970), PhD (1973) University of Texas–Austin

Profesorando (1956) La Plata National University, Argentina; PhD (1968) Stanford University

AB (1952) Dartmouth College; MS (1953), PhD (1959) Northwestern University

BEng (1962), MS (1964) Stevens Institute of Technology; MA (1967) University of Michigan; PhD (1970) University of London

BS (1948) Robert College, Turkey; MS (1950), PhD (1953) University of Illinois

BA (1963) Bryn Mawr; MA (1965), PhD (1967) Stanford University

Wang, Chao-Cheng, 1968–2000. Noah Harding Professor Emeritus of Computational and Applied Mathematics, Associate Professor of Mechanical Engineering and Materials Science
BS (1959) National Taiwan University; PhD (1965) Johns Hopkins University

BS (1955) New Mexico State University; MS (1958), PhD (1960) Cornell University; MPH (1978) University of Texas School of Public Health

Weissenberger, Klaus H. M., 1971–2021. Professor Emeritus of German Studies
MA (1965) University of Hamburg, Germany; PhD (1967) University of Southern California

BA (1962) Rice University; MS (1964), PhD (1965) New York University
AB (1969), MBA (1971), PhD (1975) University of Michigan

BA (1962) Brandeis University; MA (1963), PhD (1967) Harvard University

BS (1966) University of Pennsylvania; PhD (1968) University of Texas–Austin

BA (1966) Iowa State University; PhD (1971) University of Washington–Seattle

Winkler, Michael, 1967–2000. Professor Emeritus of German Studies
BA (1961) St. Benedict’s College; MA (1963), PhD (1966) University of Colorado

BFA (1968) Trinity College, Connecticut; MArch (1972) Washington University

BEngPhys (1962) Cornell University; PhD (1966) California Institute of Technology

Wolfthal, Diane, 2008-2020. David and Caroline Minter Professor Emeritus of Humanities

BA (1968) East Texas State University; MA (1970) University of Texas–Arlington

Young, James, 1990-2016. Professor Emeritus of Electrical and Computer Engineering
BS (1965), MS (1966) Massachusetts Institute of Technology; PhD (1970) Stanford University

BA (1951), MA (1954) University of Minnesota; PhD (1965) Carnegie Institute of Technology

BA (1970) University of Texas–Austin; PhD (1978) University of California–Berkeley

Zhang, Yin, 1996-2021. Professor Emeritus of Computational and Applied Mathematics
IMPORTANT NOTICES

- Accreditation (p. 3044)
- Complaints Process (p. 3044)
- Contact Information (p. 3045)
- Consumer Information (p. 3045)
- Disclaimer (p. 3045)
- Ethical Concerns (p. 3045)
- Equal Opportunity Notice (p. 3046)
- Family Educational Rights and Privacy Act (FERPA) (p. 3046)
- Message from the President (p. 3047)
- State Authorization and Professional Licensure Requirements (p. 3048)

Accreditation
Rice University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, master’s, and doctoral degrees.

Please contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 (http://www.sacscoc.org/) or call 404-679-4500 for questions about the accreditation of Rice University or allegations of significant non-compliance with a requirement or standard. All other inquiries should be addressed directly to the appropriate office at Rice University.

Complaints Process
Rice University’s Student Complaint Process (compliant with DOE “Program Integrity” Regulations)
The Texas Higher Education Coordinating Board (THECB) and the Texas Administrative Code (19 TAC § 1.110-1.120) require Rice University – and all other Texas universities – to provide a student complaint procedure that complies with the U.S. Department of Education’s “Program Integrity” regulations as part of the university’s eligibility for Title IV federal funds. Rice’s policy for Written Student Complaints is located here (https://policy.rice.edu/701/).

The required complaint process must inform current, former, or prospective students who have exhausted Rice’s own grievance, complaint, or appeal processes how to initiate a complaint outside of Rice with THECB. The THECB’s procedures for such complaints are found here (http://www.highered.texas.gov/links/student-complaints/). Students wishing to use this outside process should have first addressed their complaint to the appropriate Rice University complaint process. If Rice is unable to resolve the matter after the student has exhausted internal complaint and appeal processes, the student may then file a complaint with THECB according to the following:

Students may pursue a complaint with the THECB by submitting the required forms along with: (i) proof of completion of Rice’s complaint procedures, (ii) the ultimate outcome of the procedures, and (iii) evidence to support the complaint. The forms required by all students pursuing a complaint include: THECB Student Complaint Form, FERPA Consent and Release Form, and THECB Consent and Agreement Form. A student may also wish to consult the THECB’s webpage for a listing of issues or concerns that the THECB does not investigate.

THECB Student Complaint and Authorization Forms are available for download in one combined document here (http://www.thecb.state.tx.us/reports/PDF/8616.PDF?CFID=74916598&CFTOKEN=32269308). The required documentation can be submitted in one of three ways: online, by email, or by regular mail.

To submit a student complaint online, click here (https://www1.thecb.state.tx.us/Apps/CRAFT/Home/Create/). Under Contact Reason, select Student Complaint Against a Higher Education Institution. Once you click Submit, wait for an online student complaint form to appear. Note that complaints regarding students with disabilities must also submit a signed Authorization to Disclose Medical Record Information (http://www.thecb.state.tx.us/reports/PDF/9410.PDF?CFID=74952659&CFTOKEN=43285230) form.

Alternatively, students can send the required forms and supporting documentation in a PDF by email to studentcomplaints@thecb.state.tx.us, or by regular mail to the Texas Higher Education Coordinating Board, Office of General Counsel, P.O. Box 12788, Austin, TX 78711-2788. Original documents should not be submitted, as the THECB cannot return documents received.

1. Complainants should understand that the THECB does not handle, investigate, or attempt to resolve complaints concerning actions that occurred more than two years prior to the filing of a student complaint form with the THECB (unless the delay in filing the THECB complaint was caused by the complainant exhausting Rice’s grievance procedures). The THECB also does not handle the various types of complaints listed in 19 TAC § 1.113.

2. Former students must file a complaint with the THECB no later than one year after the student’s last date of attendance at Rice, or within 6 months of discovering the grounds for complaint, unless the delay in filing the THECB complaint was caused by the complainant exhausting Rice’s grievance procedures.

3. The THECB may refer complaints alleging that Rice has violated state consumer protection laws to the Consumer Protection Division of the Office of the Attorney General of Texas for investigation and resolution. If THECB determines that a complaint is appropriate for investigation and resolution by Rice’s accrediting agency (SACSCOC – the Southern Associations of Colleges and Schools Commission on Colleges) or an educational association such as ICUT (Independent Colleges & Universities of Texas), the THECB may refer the complaint to the appropriate entity and may terminate the referral of the complaint to those entities at any time and proceed to investigate and adjudicate the complaint.

4. If a person wishes to file a complaint against Rice through the university’s accrediting agency, SACSCOC, that agency’s complaint process can be found here (https://sacscoc.org/app/uploads/2019/07/complaintpolicy.pdf). A complainant should complete SACSCOC’s Complaint Form and send two signed copies to the President, Southern Association of Colleges and Schools Commission on Colleges, 1866 Southern Lane, Decatur, GA 30033-4097. The details of the agency’s complaint process explain that it is intended to address significant, documented, alleged non-compliance with SACSCOC accreditation standards, policies, or procedures. Complainants are expected to have attempted to resolve the issue through Rice’s complaint processes before filing a complaint with SACSCOC.

2021-2022 General Announcements PDF Generated 09/22/21
5. If the complaint concerns compliance with statutes or regulations administered by the THECB and the complaint has not been referred to another entity, the THECB will initiate an investigation. The student must provide documentation that all Rice grievance, complaint, or appeal procedures have been exhausted.

6. The THECB, as part of its investigation, will request a Rice response, and may also contact other persons or entities named in the complaint or in Rice’s response, in order to ascertain relevant facts. The THECB will also, where appropriate, attempt to facilitate an informal resolution acceptable to both the student and Rice. When this is not feasible, the THECB will evaluate investigation results and recommend action by the Commissioner of the THECB, who after considering any recommendations will render a written determination dismissing the complaint or requiring Rice to take specific actions to remedy the complaint. The Commissioner may also request the THECB to review and decide issues regarding institutional integrity.

Contact Information

William Marsh Rice University
Physical Address: 6100 Main Street, Houston, Texas 77005
Mailing Address: P.O. Box 1892, Houston, Texas 77251-1892
Telephone: Campus Operator 713-348-0000
Homepage Address: https://www.rice.edu/

Please address all correspondence to the appropriate office or department followed by the university mailing address given above.

Admissions
Office of Admission-MS 17
109 Lovett Hall, 713-348-7423

Business Matters
Office of the Cashier-MS 55
110 Allen Center, 713-348-4946

Career Services
Center for Career Development-MS 521
Huff House, 713-348-4055

Credits, Transcripts
Office of the Registrar-MS 57
116 Allen Center, 713-348-4999

Financial Aid, Scholarships, Part-time Employment on Campus
Office of Financial Aid-MS 12
250 Allen Center, 713-348-4958

Graduate Studies
Chair of the appropriate department (see Degree Chart: Graduate-Level (p. 54))
or Office of Graduate and Postdoctoral Studies-MS 13
Sewall Hall, Suite 370, 713-348-4002

Undergraduates and Undergraduate Curricula
Office of the Dean of Undergraduates-MS 6
Sewall Hall, Suite 350, 713-348-4996

For questions about the organization or technical editing of the General Announcements, please email vpaa@rice.edu.

Consumer Information

Rice University posts a number of important notifications on its Consumer Information website, at https://financialaid.rice.edu/consumer-information. This includes notices related to campus fire safety and security (under the Clery Act), financial aid, disability or accommodations, student diversity, cost of attendance and net price, refunds, textbooks, transfer policies, copyright restrictions and protections, drug and alcohol abuse prevention, vaccination policies, timely warnings, student outcomes, equity in athletics, voter registration, and other important information.

Disclaimer

This publication represents the most accurate information available at the time of its posting. The university reserves the right, in its discretion, to correct or otherwise change any information without notice. The information contained in this publication is not intended to, and does not, confer any contractual rights on any individual. Regarding course offerings, the departments have attempted to anticipate which courses will be offered and by whom and when. However, course offerings may be affected by various factors, including changes in faculty, student demand, and funding. Although efforts have been made to indicate these uncertainties, course offerings are subject to change without notice.

Ethical Concerns

Rice University pursues excellence at all levels and strives to practice the highest standards of ethical conduct. Rice students are encouraged, as are all community members, to communicate ethical concerns or questions to officials in their schools or departments, to the dean of undergraduates, or to the dean of graduate and postdoctoral studies. They may also contact the offices of Human Resources, Internal Audit, General Counsel, Equal Employment Opportunity Programs/Affirmative Action, or Risk Management, all of which are listed in the university directory and on its website.

The University also provides an ethics reporting mechanism through the EthicsPoint website (a third-party agent) that allows students and other community members a simple way to report activities that may involve potential criminal conduct, ethical breaches, or violations of university policies. (Go to https://www.rice.edu/ethics.) Persons making reports through EthicsPoint may elect not to provide their names when making a complaint or raising a concern. Rice treats the investigation of any report as a confidential matter. Reports submitted to EthicsPoint are forwarded to the proper university officials for appropriate action. No person will be subjected to retaliation or reprisal who, in good faith, makes a report or inquiry, or who seeks guidance on dealing with potential or suspected improper behavior.
Equal Opportunity Notice

Rice University is committed to equal opportunity in education and employment. It is the policy of Rice University to attract qualified individuals of diverse backgrounds to its faculty, staff, and student body. Rice University does not discriminate against any individual on the basis of race, color, religion, sex, sexual orientation, gender identity, national or ethnic origin, ancestry, age, genetic information, disability, or veteran status in its admissions, educational programs, or employment. In employment, the university seeks to recruit, hire, and advance qualified candidates, including women, members of underrepresented minority groups, individuals with disabilities, and protected classes of military veterans specified by law.

Family Educational Rights and Privacy Act (FERPA)

Notification of Rights under the Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act ("FERPA") is a federal law that protects the privacy of, and limits access to, student education records. The law affords students the following rights with respect to their education records:

1. the right to inspect and review the student's education records within 45 days after the date Rice University ("Rice") receives a request for access;
2. the right to seek amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA;
3. the right to provide written consent to disclosures of personally identifiable information ("PII," as defined by law) contained in the student's education records, except to the extent FERPA authorizes disclosure without consent;
4. the right to file a complaint with the U.S. Department of Education concerning alleged failures by Rice to comply with the requirements of FERPA. The name and address of the federal office that administers FERPA is:

   Family Policy Compliance Office
   U.S. Department of Education
   400 Maryland Ave., S.W.
   Washington, DC 20202

Inspect and Review Records

A student should make written request to any offices that maintain student education records, identifying the record(s) the student wishes to inspect. Though not exhaustive, as a guide for students, this is a list of the primary offices that maintain student education records: Office of the Registrar, Office of the Dean of Undergraduates, Office of Graduate and Postdoctoral Studies, Office of Student Judicial Programs, Office of Admission, Office of Financial Aid, Center for Career Development, Office of Student Activities, Office of Academic Advising, Office of International Students and Scholars, Cashier's Office, and departmental offices. The appropriate Rice official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Rice official to whom the request is submitted, that Rice official will advise the student of the correct official to whom the request should be addressed.

Amendment of Records

Any questions, problems, or written requests for amendment of records should be submitted to the Office of the Registrar. A student requesting to amend a record should clearly identify the part of the record the student wants changed and specify why it should be changed. If Rice decides not to amend the record as requested, Rice will notify the student in writing of the decision and of the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when the student is notified of the right to a hearing.

Disclosure of Information

As permitted by FERPA, Rice reserves the right to publish or release the following directory information without prior consent:

1. Name; permanent, local, mailing, and campus address; Rice employment (job title[s], teaching appointment[s], employing department[s], and dates of employment) and work location(s); residential college affiliation; telephone and mobile number(s); campus email address(es); and Net ID
2. Date and place of birth
3. Classification, degrees or programs, and majors and minors
4. Participation in officially recognized activities and sports
5. Weight and height of members of athletic teams
6. Dates of attendance, degrees, honors, and awards received
7. The most recent previous educational agency or institution attended by the student
8. Photograph

Students who would like Rice to withhold this directory information may do so by logging in to ESTHER, clicking Personal Information, clicking Release or Withhold Directory Information, and indicating that the information should be withheld. Thereafter, Rice will withhold access to, and release of, the student's directory information until further written instruction is received from the student. For more information regarding FERPA, please visit the U.S. Department of Education's website (https://www2.ed.gov/policy/gen/guid/fpco/ferpa/).

FERPA permits the disclosure of PII from students' education records, without consent of the student, if the disclosure meets certain conditions found in 34 C.F.R. §99.31 of the FERPA regulations. Except for disclosures to school officials, disclosures related to some judicial orders or lawfully issued subpoenas, disclosures of directory information, and disclosures to the student, Section 99.32 of the FERPA regulations requires the institution to record the disclosure. Eligible students have a right to inspect and review the record of disclosures. A postsecondary institution may disclose PII from the education records without obtaining prior written consent of the student –

• To other school officials, whom Rice has determined have legitimate educational interests and require this information in order to perform instructional, supervisory, advisory, administrative, or other duties for Rice. These school officials include faculty, research personnel, staff (including law enforcement unit personnel and health staff), trustees, or students serving on official committees (such as disciplinary or grievance committees) or assisting another school official. School officials have a legitimate educational interest if the officials need to review an educational record in order to fulfill their professional
responsibility to Rice. This includes contractors, consultants, auditors, attorneys, collection agents, volunteers, or other parties to whom Rice has outsourced institutional services or functions, provided that the conditions listed in §99.31(a)(1)(i)(B)(1) - (a)(1)(i)(B)(3) are met. (§99.31(a)(1))

- To officials of another school where the student seeks or intends to enroll, or where the student is already enrolled if the disclosure is for purposes related to the student's enrollment or transfer, subject to the requirements of §99.34. (§99.31(a)(2))
- To authorized representatives of the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or State and local educational authorities, such as a State postsecondary authority that is responsible for supervising the university's State-supported education programs. Disclosures under this provision may be made, subject to the requirements of §99.35, in connection with an audit or evaluation of Federal- or State-supported education programs, or for the enforcement of, or compliance with, Federal legal requirements that relate to those programs. These entities may make further disclosures of PII to outside entities that are designated by them as their authorized representatives to conduct any audit, evaluation, or enforcement or compliance activity on their behalf. (§§99.31(a)(3) and 99.35)
- In connection with financial aid for which the student has applied or which the student has received, if the information is necessary to determine eligibility for the aid, determine the amount of the aid, determine the conditions of the aid, or enforce the terms and conditions of the aid. (§99.31(a)(4))
- To organizations conducting studies for, or on behalf of, the school, in order to: (a) develop, validate, or administer predictive tests; (b) administer student aid programs; or (c) improve instruction. (§99.31(a)(6))
- To accrediting organizations to carry out their accrediting functions. (§99.31(a)(7))
- To parents of an eligible student if the student is a dependent for IRS tax purposes, though Rice generally limits such information to financial details of the student's enrollment. (§99.31(a)(8))
- To comply with a judicial order or lawfully issued subpoena. (§99.31(a)(9))
- To appropriate individuals in connection with a health or safety emergency, subject to §99.36. (§99.31(a)(10))
- Information the school has designated as “directory information” above and pursuant to §99.37. (§99.31(a)(11))
- To a victim of an alleged perpetrator of a crime of violence or a non-forcible sex offense, subject to the requirements of §99.39. The disclosure may only include the final results of the disciplinary proceeding with respect to that alleged crime or offense, regardless of the finding. (§99.31(a)(13))
- To the general public, the final results of a disciplinary proceeding, subject to the requirements of §99.39, if the school determines the student is an alleged perpetrator of a crime of violence or non-forcible sex offense and the student has committed a violation of the school's rules or policies with respect to the allegation made against him or her. (§99.31(a)(14))
- To parents of a student regarding the student's violation of any Federal, State, or local law, or of any rule or policy of the school, governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21. (§99.31(a)(15))

For further information regarding Rice's policy on student education records, please contact the Office of the Registrar.

Rice University
Office of the Registrar—MS 57
6100 Main Street
Houston, TX 77005-1892
Email: registrar@rice.edu

Rice University Privacy Notice

Additionally, you may also wish to consult privacy rights and practices discussed at https://privacy.rice.edu/ and https://privacy.rice.edu/GDPR (https://privacy.rice.edu/GDPR/).

Message from the President

Rice University is an outstanding research university and an extraordinary community. We take pride in our contributions to the world and the excellence of our teaching, creativity, scholarship and research. We work to foster our distinctive and supportive culture. Now eight years into our second century, Rice University has changed a tremendous amount since 59 students and 12 faculty members participated in the first matriculation in the early fall of 1912. But while our university has changed in important aspects, including our commitment to a diverse community gathered from across the globe, we have built upon the best of our founding ideals and ambitions. The result of a century of thoughtful progress has been the creation of one of the great universities of America. Rice's mission and aspirations today are captured in our mission statement:

As a leading research university with a distinctive commitment to undergraduate education, Rice University aspires to pathbreaking research, unsurpassed teaching, and contributions to the betterment of our world. It seeks to fulfill this mission by cultivating a diverse community of learning and discovery that produces leaders across the spectrum of human endeavor.

Universities and other institutions are often distinguished by how they fare and what they achieve when confronted with challenges. These are indeed unusual and challenging times. All of our students moved to a completely online education in March 2020. But although our students and faculty may only have seen each other on screens for the remainder of that semester, and some for longer than that, our community and sense of belonging remain strong. We are eager to continue that community during this unprecedented time – a period in which we will undoubtedly continue to face unique challenges but, working together in pursuit of a common vision, a time in which we can continue to support each other as members of the Rice community.

Although with somewhat over 7,000 students we remain a comparatively small research university, we aim for the highest levels of achievement and contribution. We are committed to a wide range of endeavors and disciplines across our eight schools and many interdisciplinary institutes and centers. Our success is built on the contributions of every part of our community: graduate and undergraduate students, faculty and staff, alumni and other supporters across our city and around the world.

We strive to be bold in our aspirations and entrepreneurial in our approach. We seek to make a distinctive contribution to our home city of Houston while achieving a global impact through education, research and service. We are committed to enriching understanding, creating opportunity, discovering knowledge and improving our world. Reflecting
these ambitions, we have adopted a new strategic plan, the “V2C2,” which you can learn more about at https://v2c2.rice.edu/.

The General Announcements of the University sets forth the immense array of opportunities for our students, as well as the rules and policies which govern their participation in the university. But we demand more of each other than just adherence to rules and policies. We expect that all members of our community will be guided in all their endeavors by the core Rice values: Responsibility, Integrity, Community and Excellence. These values are just as important as the academic offerings and rules included in these announcements. If you have questions about how rules and policies may apply to you, we urge you to seek advice from one of the many sources available to you.

We take great pride and joy in the diversity of our community in every aspect, even while recognizing we must continue the work of building a more diverse and inclusive community across the entire university. Our success requires thoughtfulness and respect in every interaction on our campus, whether with members of the Rice community or the visitors we welcome. Each of us has a role to play in helping to assure access and inclusion for all members of our community. Our “culture of care” demands not only that we not cause harm to others, but also that we look out for each other, listen to each other, and provide or seek help when needed. It falls on each of us to do our part to welcome, help and listen to those who may not always feel supported and included, recognizing that some come from backgrounds of great privilege, while others have overcome enormous obstacles to be part of our community.

We are pleased that you have chosen to become a part of this dynamic university as it embarks on its second century of excellence and achievement. On behalf of our faculty and staff, I wish you every success as you pursue your educational endeavors, and I look forward to working with you as you seize the opportunities Rice offers to achieve your aspirations and dreams.

David W. Leebron
President
Rice University

State Authorization and Professional Licensure Requirements

State Authorization refers to the requirement that institutions of higher education obtain authorization for their distance education offerings from individual states, in accordance with each individual state’s laws and regulations. The State of Texas and Rice University are members of the State Authorization Reciprocity Agreement (SARA), which allows students in 49 states (all but California), District of Columbia, Puerto Rico, and the US Virgin Islands to take Rice University courses in an online or distance format. California is not currently part of SARA, however, Rice University distance education programs are not subject to approval or exemption by California Bureau for Private Postsecondary Education (and therefore students in California may also take Rice University distance education courses).

For information regarding student complaints, please see Rice University Policy 701, Written Student Complaints (https://policy.rice.edu/701/), or NC-SARA at: https://nc-sara.org/sara-students (https://nc-sara.org/sara-students/). For information on refunds, see: https://financialaid.rice.edu/forms-resources/refunds-and-return-title-iv (https://financialaid.rice.edu/forms-resources/refunds-and-return-title-iv/).

Upon registration for courses, individuals will be asked to provide the state or location where they will physically be taking the majority of the course. This may be the same or different than that individual’s permanent residence, or legal state of residence.

Requirements for licensure can vary by profession and state. Prospective and current students are encouraged to research the requirements in their current or intended state of residence to ensure that their intended enrollment in a program will meet the requirements of their state’s licensing agency. It may be necessary to reach out to state agencies with questions or for clarification.

Rice University has not evaluated or made a determination that its curriculum meets the educational requirements for licensure or certification in any state or territory other than the State of Texas.
POLICIES

- Undergraduate Academic Policies and Procedures (p. 21)
- Graduate Academic Policies and Procedures (p. 59)
- Student Handbook (https://dou.rice.edu/student-resources/student-handbook/)
- Faculty Handbook (https://fachandbook.rice.edu/)
- Faculty Senate Approved Proposals (https://senate.rice.edu/approved-proposals/all-approved-proposals/)
- University Policies (https://professor.rice.edu/professor/Policies.asp)
These archived General Announcements (also known as Catalogs) represent the most accurate information available at the time of publication. The university reserves the right to correct or otherwise change any such information without notice at its sole discretion. With respect to course offerings, the departments have attempted to anticipate which courses will be offered, and by whom and when such courses will be taught. However, course offerings may be affected by changes in faculty, student demand, and funding. Although efforts have been made to indicate these uncertainties, course offerings are subject to change without notice.

- 2021-2022 (Original PDF)
- 2012-2013 ([https://ga.rice.edu/archive/2012-2013_GA.pdf]
- 2010-2011 ([https://ga.rice.edu/archive/2010-2011_GA.pdf]

For archived General Announcements prior to 2001-2002, please visit Rice University's digital scholarship archive: [https://scholarship.rice.edu/handle/1911/35950/browse?type=dateissued](https://scholarship.rice.edu/handle/1911/35950/browse?type=dateissued)
INDEX

A

Academic and Judicial Discipline .................................................. 24
Academic Honor Societies .......................................................... 50
Academic Opportunities .............................................................. 13
Academic Opportunities .............................................................. 53
Academic Policies and Procedures .................................................. 21
Academic Policies and Procedures .................................................. 59
Access to Student Records .......................................................... 48
Access to Student Records .......................................................... 88
Accounting .................................................................................... 108
Accreditation .................................................................................. 3044
Administration .............................................................................. 3004
Administration and Faculty ............................................................ 3004
Admission ....................................................................................... 21
Admission ....................................................................................... 59
African and African American Studies ............................................. 116
African and African American Studies (AAAS) .................................. 2112
Air Force Science ........................................................................... 122
Air Force Science (AFSC) ............................................................... 2112
All Graduate Students .................................................................... 60
Americas Research Center (ARC) .................................................... 2114
Ancient Mediterranean Civil (AMCI) ................................................. 2115
Ancient Mediterranean Civilizations ............................................... 124
Anthropology .................................................................................. 129
Anthropology (ANTH) .................................................................... 2115
Applied Chemical Sciences ............................................................. 169
Applied Physics ............................................................................. 173
Applied Physics (APPL) ................................................................. 2149
Arabic (ARAB) ................................................................................ 2150
Architecture ...................................................................................... 177
Architecture (ARCH) ....................................................................... 2151
Archive ............................................................................................. 3050
Art History ....................................................................................... 206
Art History (HART) ........................................................................ 2168
Artist Diploma (AD) in the field of Bassoon Performance .................. 1545
Artist Diploma (AD) in the field of Cello Performance ....................... 1547
Artist Diploma (AD) in the field of Clarinet Performance ................... 1549
Artist Diploma (AD) in the field of Double Bass Performance .......... 1551
Artist Diploma (AD) in the field of Flute Performance ....................... 1552
Artist Diploma (AD) in the field of Harp Performance ....................... 1554
Artist Diploma (AD) in the field of Horn Performance ....................... 1556
Artist Diploma (AD) in the field of Oboe Performance ....................... 1558
Artist Diploma (AD) in the field of Opera Performance ..................... 1560
Artist Diploma (AD) in the field of Orchestral Conducting .................. 1562
Artist Diploma (AD) in the field of Organ Performance ...................... 1563
Artist Diploma (AD) in the field of Percussion Performance .............. 1565
Artist Diploma (AD) in the field of Piano Performance ...................... 1567
Artist Diploma (AD) in the field of Trombone Performance .............. 1569
Artist Diploma (AD) in the field of Trumpet Performance ................. 1571
Artist Diploma (AD) in the field of Tuba Performance ....................... 1573
Artist Diploma (AD) in the field of Viola Performance ....................... 1574
Artist Diploma (AD) in the field of Violin Performance ...................... 1576
Asian Studies ................................................................................... 266
Asian Studies (ASIA) ...................................................................... 2212
Astronomy (ASTR) .......................................................................... 2221
Attendance and Excused Absences ................................................... 26
Auditing Courses ............................................................................. 13
Auditing Courses ............................................................................. 53
Auditors ............................................................................................. 93

B

Bachelor of Architecture (BArch) Degree ......................................... 196
Bachelor of Arts (BA) Degree / Master of Science (MS) Degree / Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology .................................................. 345
Bachelor of Arts (BA) Degree with a Major in Ancient Mediterranean Civilizations ................................................................................................................................. 126
Bachelor of Arts (BA) Degree with a Major in Anthropology ............. 164
Bachelor of Arts (BA) Degree with a Major in Architectural Studies ...... 198
Bachelor of Arts (BA) Degree with a Major in Architecture .......... 199
Bachelor of Arts (BA) Degree with a Major in Art History ................. 251
Bachelor of Arts (BA) Degree with a Major in Asian Studies ............. 277
Bachelor of Arts (BA) Degree with a Major in Astronomy ................. 1788
Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Biochemistry ................................................................. 347
Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics .................................................. 350
Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology .................................................. 353
Bachelor of Arts (BA) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology .................................................. 356
Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Finance ................................................................. 458
Bachelor of Arts (BA) Degree with a Major in Business and a Major Concentration in Management ................................................................. 460
Bachelor of Arts (BA) Degree with a Major in Chemical Engineering .... 569
Bachelor of Arts (BA) Degree with a Major in Chemistry .................. 598
Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Civil Engineering ................. 632
Bachelor of Arts (BA) Degree with a Major in Civil and Environmental Engineering and a Major Concentration in Environmental Engineering .... 636
Bachelor of Arts (BA) Degree with a Major in Classical Studies .......... 676
Bachelor of Arts (BA) Degree with a Major in Cognitive Sciences ....... 680
Bachelor of Arts (BA) Degree with a Major in Computational and Applied Mathematics .................................................. 710
Bachelor of Arts (BA) Degree with a Major in Computer Science ...... 751
Bachelor of Arts (BA) Degree with a Major in Earth, Environmental, and Planetary Sciences ................................................... 821
Bachelor of Arts (BA) Degree with a Major in Economics ............... 850
Bachelor of Arts (BA) Degree with a Major in Electrical Engineering ... 908
Bachelor of Arts (BA) Degree with a Major in English .................. 983
Bachelor of Arts (BA) Degree with a Major in English and a Major Concentration in Creative Writing ....................................... 988
Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Earth Science .......................... 1001
Bachelor of Arts (BA) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology ............................................................................ 1005
Bachelor of Arts (BA) Degree with a Major in European Studies ...... 1026
Bachelor of Arts (BA) Degree with a Major in French Studies .......... 1041
Bachelor of Arts (BA) Degree with a Major in German Studies ......... 1054
Bachelor of Arts (BA) Degree with a Major in Health Sciences ......... 1118
Bachelor of Arts (BA) Degree with a Major in History .................. 1149
Bachelor of Arts (BA) Degree with a Major in History and a Major Concentration in History: International Concentration .................. 1155
Bachelor of Arts (BA) Degree with a Major in Latin American Studies 1294
Bachelor of Arts (BA) Degree with a Major in Linguistics ............... 1339
Bachelor of Arts (BA) Degree with a Major in Managerial Economics and Organizational Sciences ................................................. 1342
Bachelor of Arts (BA) Degree with a Major in Materials Science and NanoEngineering .......................................................... 1355
Bachelor of Arts (BA) Degree with a Major in Mathematical Economic Analysis .............................................................. 1385
Bachelor of Arts (BA) Degree with a Major in Mathematics ............. 1403
Bachelor of Arts (BA) Degree with a Major in Mechanical Engineering 1427
Bachelor of Arts (BA) Degree with a Major in Medieval and Early Modern Studies ................................................................. 1452
Bachelor of Arts (BA) Degree with a Major in Music ....................... 1578
Bachelor of Arts (BA) Degree with a Major in Neuroscience ............. 1739
Bachelor of Arts (BA) Degree with a Major in Operations Research ... 1755
Bachelor of Arts (BA) Degree with a Major in Philosophy ................ 1769
Bachelor of Arts (BA) Degree with a Major in Physics .................... 1799
Bachelor of Arts (BA) Degree with a Major in Political Science ...... 1823
Bachelor of Arts (BA) Degree with a Major in Psychology .............. 1876
Bachelor of Arts (BA) Degree with a Major in Religion ................. 1917
Bachelor of Arts (BA) Degree with a Major in Social Policy Analysis .. 1930
Bachelor of Arts (BA) Degree with a Major in Sociology ............... 1958
Bachelor of Arts (BA) Degree with a Major in Spanish and Portuguese 1979
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Analytics ................................ 1989
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Law ......................................... 1991
Bachelor of Arts (BA) Degree with a Major in Sport Management and a Major Concentration in Sport Leadership .................................................. 1993
Bachelor of Arts (BA) Degree with a Major in Sports Medicine and Exercise Physiology ........................................................... 2004
Bachelor of Arts (BA) Degree with a Major in Statistics ................. 2021
Bachelor of Arts (BA) Degree with a Major in Study of Women, Gender and Sexuality .......................................................... 2045
Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Film and Photography .................. 2100
Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Studio Art ........................................ 2104
Bachelor of Arts (BA) Degree with a Major in Visual And Dramatic Arts and a Major Concentration in Theatre ........................................ 2107
Bachelor of Music (BMus) Degree with a Major in Bassoon Performance 1580
Bachelor of Music (BMus) Degree with a Major in Cello Performance. 1583
Bachelor of Music (BMus) Degree with a Major in Clarinet Performance 1585
Bachelor of Music (BMus) Degree with a Major in Composition ....... 1587
Bachelor of Music (BMus) Degree with a Major in Double Bass Performance .................. 1589
Bachelor of Music (BMus) Degree with a Major in Flute Performance. 1592
Bachelor of Music (BMus) Degree with a Major in Harp Performance. 1594
Bachelor of Music (BMus) Degree with a Major in Horn Performance. 1596
Bachelor of Music (BMus) Degree with a Major in Music History ...... 1598
Bachelor of Music (BMus) Degree with a Major in Music Theory ...... 1602
Bachelor of Music (BMus) Degree with a Major in Oboe Performance. 1604
Bachelor of Music (BMus) Degree with a Major in Organ Performance 1607
Bachelor of Music (BMus) Degree with a Major in Percussion Performance .......................................................................... 1609
Bachelor of Music (BMus) Degree with a Major in Piano Performance 1611
Bachelor of Music (BMus) Degree with a Major in Trombone Performance ........................................................................ 1613
Bachelor of Music (BMus) Degree with a Major in Trumpet Performance ........................................................................ 1616
Bachelor of Music (BMus) Degree with a Major in Tuba Performance. 1618
Bachelor of Music (BMus) Degree with a Major in Viola Performance. 1620
Bachelor of Music (BMus) Degree with a Major in Violin Performance 1622
Bachelor of Music (BMus) Degree with a Major in Vocal Performance 1625
Bachelor of Science (BS) Degree with a Major in Astrophysics ........ 1791
Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Biochemistry ........................................... 361
Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Cell Biology and Genetics .............. 361
Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Ecology and Evolutionary Biology ........ 364
Bachelor of Science (BS) Degree with a Major in Biosciences and a Major Concentration in Integrative Biology .................... 376
Bachelor of Science (BS) Degree with a Major in Chemical Physics .... 580
Bachelor of Science (BS) Degree with a Major in Chemistry ............. 600
Bachelor of Science (BS) Degree with a Major in Earth, Environmental, and Planetary Sciences ............................................. 824
Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Earth Science ............... 1008
Bachelor of Science (BS) Degree with a Major in Environmental Science and a Major Concentration in Ecology and Evolutionary Biology .... 1011
Bachelor of Science (BS) Degree with a Major in Mathematics ......... 1404
Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Applied Physics ............................... 1792
Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Biological Physics ............................ 1794
Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in Computational Physics .................... 1796
Bachelor of Science (BS) Degree with a Major in Physics and a Major Concentration in General Physics ................................. 1798
Bachelor of Science (BS) Degree with a Major in Statistics ............... 2024
Bachelor of Science in Bioengineering (BSBE) Degree .................. 305
Bachelor of Science in Chemical Engineering (BSChE) Degree ...... 571
Bachelor of Science in Civil Engineering (BSCE) Degree ............... 639
Bachelor of Science in Computer Science (BSCS) Degree .......... 753
Bachelor of Science in Electrical Engineering (BSEE) Degree ........ 912
Bachelor of Science in Materials Science and NanoEngineering (BSMSNE) Degree ......................................................... 1357
Bachelor of Science in Mechanical Engineering (BSME) Degree .... 1429
Bioengineering .................................................................... 283
Bioengineering (BIOE) .......................................................... 2225
Bioscience and Health Policy .................................................. 380
BioSciences ........................................................................ 321
Biosciences (BIOS) ................................................................ 2245
Board of Trustees .................................................................. 3004
Business ............................................................................. 384
Business (BUSI) .................................................................... 2266

C
Center for Civic Leadership (LEAD) ........................................... 2279
Certificate in African and African American Studies ..................... 118
Certificate in Civic Leadership ............................................... 610
Certificate in Critical and Cultural Theory .................................. 764
Certificate in Dual Credit Teacher Credentialing - English .......... 790
Certificate in Dual Credit Teacher Credentialing - History .......... 791
Certificate in Engineering Leadership ....................................... 950
Certificate in Gnosticism, Esotericism and Mysticism ................. 1103
Certificate in Language and Intercultural Communication - Arabic .. 1271
Certificate in Language and Intercultural Communication - Chinese .. 1273
Certificate in Language and Intercultural Communication - French .. 1275
Certificate in Language and Intercultural Communication - German .. 1277
Certificate in Language and Intercultural Communication - Hindi .. 1278
Certificate in Language and Intercultural Communication - Italian .... 1280
Certificate in Language and Intercultural Communication - Japanese 1282
Certificate in Language and Intercultural Communication - Portuguese 1286
Certificate in Language and Intercultural Communication - Russian .. 1288
Certificate in Language and Intercultural Communication - Spanish .. 1290
Certificate in Teaching and Learning ....................................... 2068
Certificate in the Study of Women, Gender and Sexuality .......... 2049
Certificates: Graduate-Level .................................................. 53
Chemical & Biomolecular Eng (CHBE) .................................. 2280
Chemical and Biomolecular Engineering ................................... 554
Chemical Physics .................................................................. 580
Chemistry ........................................................................... 582
Chemistry (CHEM) ................................................................ 2294
Chinese (CHIN) .................................................................... 2308
Cinema and Media Studies ................................................... 604
Civic Leadership .................................................................... 608
Civil and Environmental Eng (CEVE) .................................... 2311
Civil and Environmental Engineering ......................................... 613
Classical Civilizations ............................................................ 654
Classical Studies ................................................................... 666
Classical Studies (CLAS) ......................................................... 2329
Clubs and Organizations ....................................................... 38
Clubs and Organizations ....................................................... 77
Ctrn Lang & Intercultural Comm (CLIC) ................................. 2333
Code of Student Conduct ...................................................... 50
Code of Student Conduct ...................................................... 90
Cognitive Sciences ............................................................... 678
Cognitive Sciences (CSCI) ..................................................... 2333
College Course (COLL) .......................................................... 2334
College Courses .................................................................... 684
Communication (COMM) ..................................................... 2346
Comp. & Applied Mathematics (CAAM) ................................ 2348
Doctor of Musical Arts (DMA) Degree in the field of Violin Performance

Doctor of Musical Arts (DMA) Degree in the field of Viola Performance

Doctor of Musical Arts (DMA) Degree in the field of Piano Performance

Doctor of Musical Arts (DMA) Degree in the field of Composition

Doctor of Musical Arts (DMA) Degree in the field of Double Bass Performance

Doctor of Musical Arts (DMA) Degree in the field of Flute Performance

Doctor of Musical Arts (DMA) Degree in the field of Oboe Performance

Doctor of Musical Arts (DMA) Degree in the field of Organ Performance

Doctor of Musical Arts (DMA) Degree in the field of Percussion Performance

Doctor of Musical Arts (DMA) Degree in the field of Piano Performance

Doctor of Musical Arts (DMA) Degree in the field of Violin Performance

Doctor of Musical Arts (DMA) Degree in the field of Vocal Performance

Doctor of Philosophy (PhD) Degree in the field of Anthropology

Doctor of Philosophy (PhD) Degree in the field of Applied Physics

Doctor of Philosophy (PhD) Degree in the field of Art History

Doctor of Philosophy (PhD) Degree in the field of Biochemistry and Cell Biology

Doctor of Philosophy (PhD) Degree in the field of Bioengineering

Doctor of Philosophy (PhD) Degree in the field of Bioengineering / Doctor of Medicine (MD) Degree with Baylor College of Medicine

Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Accounting

Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Finance

Doctor of Philosophy (PhD) Degree in the field of Business and a Major Concentration in Marketing

Doctor of Philosophy (PhD) Degree in the field of Chemical Engineering

Doctor of Philosophy (PhD) Degree in the field of Chemistry

Doctor of Philosophy (PhD) Degree in the field of Civil Engineering

Doctor of Philosophy (PhD) Degree in the field of Computational and Applied Mathematics

Doctor of Philosophy (PhD) Degree in the field of Computer Science

Doctor of Philosophy (PhD) Degree in the field of Earth Science

Doctor of Philosophy (PhD) Degree in the field of Ecology and Evolutionary Biology

Doctor of Philosophy (PhD) Degree in the field of Economics

Doctor of Philosophy (PhD) Degree in the field of Economics and a Major Concentration in Econometrics and Quantitative Economics

Doctor of Philosophy (PhD) Degree in the field of Economics and a Major Concentration in Economics and Finance

Doctor of Philosophy (PhD) Degree in the field of Electrical and Computer Engineering

Doctor of Philosophy (PhD) Degree in the field of English

Doctor of Philosophy (PhD) Degree in the field of Environmental Engineering

Doctor of Philosophy (PhD) Degree in the field of History

Doctor of Philosophy (PhD) Degree in the field of Materials Science and NanoEngineering

Doctor of Philosophy (PhD) Degree in the field of Mathematics

Doctor of Philosophy (PhD) Degree in the field of Mechanical Engineering

Doctor of Philosophy (PhD) Degree in the field of Philosophy

Doctor of Philosophy (PhD) Degree in the field of Physics

Doctor of Philosophy (PhD) Degree in the field of Political Science

Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Cognitive and Affective Neuroscience

Doctor of Philosophy (PhD) Degree in the field of Psychology and a Major Concentration in Health Psychology and Behavioral Medicine Research
Honors Program (HONS) .................................................. 2597
Honors Programs .......................................................... 51
Human-Computer Interaction and Human Factors .............. 1169
Humanities (HUMA) ......................................................... 2598
Humanities Research Center (HURC) ............................ 2609
I
Important Notices .......................................................... 3044
Industrial Engineering ..................................................... 1192
Industrial Engineering (INDE) ...................................... 2610
Industrial-Organizational Psychology .............................. 1198
Italian Language and Culture (ITAL) .............................. 2612
J
Japanese (JAPA) ............................................................. 2613
Jewish Studies ............................................................... 1221
Jewish Studies (JWST) .................................................... 2615
K
Keck Center (KECK) ....................................................... 2616
Kinesiology ................................................................. 1226
Kinesiology (KINE) ....................................................... 2617
Korean (KORE) ............................................................. 2620
L
Languages and Intercultural Communication .................... 1235
Latin American Studies .................................................. 1292
Latin American Studies (LASR) ...................................... 2626
Latin Language and Literature ....................................... 1297
Latin (LATI) ................................................................. 2622
Leaves, Withdrawals and Readmission ............................ 31
Liberal Studies .............................................................. 1303
Liberal Studies Core/Capstone (MLSC) ............................ 2628
Lifetime Phys Activity Credit (LPCR) ............................... 2643
Lifetime Phys Activity Program (LPAP) ........................... 2643
Lifetime Physical Activity Program ............................... 1324
Linguistics ................................................................. 1334
Linguistics (LING) ........................................................ 2652
M
Majors, Minors, and Certificates .................................... 17
Management (MGMT) .................................................... 2657
Managerial Economics and Organizational Sciences ......... 1341
Managerial Economics and Organizational Sciences (MEOS) 2699
Managerial Studies (MANA) ......................................... 2700
Master Accounting (MACC) .......................................... 2700
Master of Accounting (MAcc) Degree ............................ 113
Master of Architecture (MArch) Degree ........................ 201
Master of Arts in Teaching (MAT) Degree, for Current Rice Undergraduates ............................................. 869
Master of Arts in Teaching (MAT) Degree, for Experienced Teachers ......................................................... 871
Master of Arts in Teaching (MAT) Degree, for Experienced Teachers with Principal Certification ..................... 873
Master of Arts in Teaching (MAT) Degree, for New Teachers ................................................................. 874
Master of Arts (MA) Degree in the field of Religion .......... 1922
Master of Bioengineering (MBE) Degree ......................... 310
Master of Bioengineering (MBE) Degree / Doctor of Medicine (MD) Degree with UT Health Science Center .... 314
Master of Bioengineering (MBE) Degree, and a Major Concentration in Applied Bioengineering .................. 319
Master of Bioengineering (MBE) Degree and a Major Concentration in Global Medical Innovation ............ 317
Master of Business Administration (MBA) Degree / Doctor of Medicine (MD) Degree with Baylor College of Medicine ......................................................... 469
Master of Business Administration (MBA) Degree / Master of Chemical Engineering (MCHE) Degree .... 469
Master of Business Administration (MBA) Degree / Master of Computational and Applied Mathematics (MCAA)M) Degree .............................................................. 471
Master of Business Administration (MBA) Degree / Master of Computer Science (MCS) Degree ............ 473
Master of Business Administration (MBA) Degree / Master of Industrial Engineering (MIE) Degree ......... 474
Master of Business Administration (MBA) Degree / Master of Materials Science and Nanoengineering (MMSNE) Degree ......................................................... 476
Master of Business Administration (MBA) Degree / Master of Mechanical Engineering (MME) Degree ... 477
Master of Business Administration (MBA) Degree / Master of Science in Bioscience and Health Policy (MSBHP) Degree ......................................................... 479
Master of Business Administration (MBA) Degree / Master of Science in Environmental Analysis (MSEA) Degree .............................................................. 480
Master of Business Administration (MBA) Degree / Master of Science in Space Studies (MSSpS) Degree .... 482
Master of Business Administration (MBA) Degree / Master of Science in Subsurface Geoscience (MSSG) Degree .... 483
Master of Business Administration (MBA) Degree / Master of Statistics (MStat) Degree .......................... 485
Master of Business Administration (MBA) Degree, Executive Program ..................................................... 486
Master of Business Administration (MBA) Degree, Full-Time Program ..................................................... 490
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Accounting .............................................................. 495
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Energy ........ 500
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Entrepreneurship ......................................................... 505
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Finance ... 509
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Health Care ........................................ 514
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Marketing ........................................ 518
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Operations Management ................. 523
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Real Estate ..................................... 527
Master of Business Administration (MBA) Degree, Full-Time Program, and a Major Concentration in Strategic Management ............................. 532
Master of Business Administration (MBA) Degree, Online Program .... 536
Master of Business Administration (MBA) Degree, Professional Program .......................................................................................... 540
Master of Business Administration (MBA) Degree, Professional Program (Evening, Evening Extended) ................................................. 545
Master of Business Administration (MBA) Degree, Professional Program (Weekend) ................................................................. 549
Master of Chemical Engineering (MChE) Degree ................................................. 577
Master of Chemical Engineering (MChE) Degree / Master of Business Administration (MBA) Degree ..................................................... 578
Master of Civil and Environmental Engineering (MCEE) Degree in the field of Civil Engineering ....................................................... 647
Master of Civil and Environmental Engineering (MCEE) Degree in the field of Environmental Engineering ............................................. 649
Master of Computational and Applied Mathematics (MCAAM) Degree. 713
Master of Computational and Applied Mathematics (MCAAM) Degree / Master of Business Administration (MBA) Degree ....................... 714
Master of Computational Science and Engineering (MCSE) Degree ..... 718
Master of Computer Science (MCS) Degree ................................................. 756
Master of Computer Science (MCS) Degree / Master of Business Administration (MBA) Degree ............................................................. 760
Master of Computer Science (MCS), Online Program ....................... 761
Master of Data Science (MDS) Degree ......................................................... 768
Master of Data Science (MDS), Online Program ................................. 771
Master of Electrical and Computer Engineering (MECE) Degree ............. 918
Master of Energy Economics (MEECon) Degree ................................. 941
Master of Engineering Management and Leadership (MEML) Degree .... 952
Master of Engineering Management and Leadership (MEML), Online Program ................................................................. 955
Master of Global Affairs (MGA) Degree ..................................................... 1063
Master of Human-Computer Interaction and Human Factors (MHCIIHF) Degree ................................................................. 1190
Master of Industrial Engineering (MIE) Degree ........................................ 1195
Master of Industrial Engineering (MIE) Degree / Master of Business Administration (MBA) Degree ..................................................... 1197
Master of Industrial-Organizational Psychology (MIOP) Degree ............. 1219
Master of Liberal Studies (MLS) Degree .................................................... 1322
Master of Materials Science and NanoEngineering (MMSNE) Degree .... 1362
Master of Materials Science and NanoEngineering (MMSNE) Degree / Master of Business Administration (MBA) Degree ............. 1364
Master of Mechanical Engineering (MME) Degree ............................... 1434
Master of Mechanical Engineering (MME) Degree / Master of Business Administration (MBA) Degree .......................... 1436
Master of Music (MMus) Degree in the field of Bassoon Performance .... 1655
Master of Music (MMus) Degree in the field of Cello Performance ....... 1658
Master of Music (MMus) Degree in the field of Clarinet Performance .... 1661
Master of Music (MMus) Degree in the field of Composition .................. 1665
Master of Music (MMus) Degree in the field of Double Bass Performance .... 1668
Master of Music (MMus) Degree in the field of Flute Performance ....... 1671
Master of Music (MMus) Degree in the field of Harp Performance ....... 1674
Master of Music (MMus) Degree in the field of Horn Performance ...... 1677
Master of Music (MMus) Degree in the field of Musicology ................. 1680
Master of Music (MMus) Degree in the field of Oboe Performance ........ 1683
Master of Music (MMus) Degree in the field of Orchestral Conducting .... 1687
Master of Music (MMus) Degree in the field of Organ Performance .... 1690
Master of Music (MMus) Degree in the field of Percussion Performance .... 1693
Master of Music (MMus) Degree in the field of Piano Chamber Music and Accompanying ............................................................ 1696
Master of Music (MMus) Degree in the field of Piano Performance ...... 1699
Master of Music (MMus) Degree in the field of String Quartet Performance .... 1702
Master of Music (MMus) Degree in the field of Trombone Performance .... 1705
Master of Music (MMus) Degree in the field of Trumpet Performance .... 1708
Master of Music (MMus) Degree in the field of Tuba Performance ....... 1711
Master of Music (MMus) Degree in the field of Viola Performance ...... 1714
Master of Music (MMus) Degree in the field of Violin Performance ...... 1717
Master of Music (MMus) Degree in the field of Vocal Performance .... 1720
Master of Science in Applied Chemical Sciences (MSACS) Degree ..... 170
Master of Science in Bioscience and Health Policy (MSBHP) Degree .... 381
Master of Science in Bioscience and Health Policy (MSBHP) Degree / Master of Business Administration (MBA) Degree .......................... 383
Master of Science in Environmental Analysis (MSEA) Degree ........... 996
Master of Science in Environmental Analysis (MSEA) Degree / Master of Business Administration (MBA) Degree .......................... 999
Master of Science in Space Studies (MSSpS) Degree ........................... 1963
Master of Science in Space Studies (MSSpS) Degree / Master of Business Administration (MBA) Degree ............................................. 1966
Master of Science in Subsurface Geoscience (MSSG) Degree .......... 2052
Master of Science in Subsurface Geoscience (MSSG) Degree / Master of Business Administration (MBA) Degree .......................... 2055
Master of Science (MS) Degree in the field of Architecture ................. 205

Rice University
3057

2021-2022 General Announcements PDF Generated 09/22/21
Minor in Classical Civilizations ................................................................. 375
Minor in Business ..................................................................................... 653
Minor in Asian Studies ............................................................................. 653
Military Science ......................................................................................... 375
Military Science (MECH) ......................................................................... 830
Minor in Ecology and Evolutionary Biology ........................................... 378
Minor in Energy and Water Sustainability .................................................. 922
Minor in Engineering Design ..................................................................... 943
Minor in Entrepreneurship ......................................................................... 994
Minor in Environmental Studies ................................................................. 1022
Minor in Financial Computation and Modeling ........................................ 1030
Minor in French Studies ............................................................................ 1043
Minor in German Studies ........................................................................... 1056
Minor in Global Health Technologies ......................................................... 1069
Minor in Greek Language and Literature .................................................. 1107
Minor in History ........................................................................................ 1164
Minor in Jewish Studies ............................................................................. 1223
Minor in Latin Language and Literature ................................................... 1302
Minor in Mathematics ............................................................................... 1407
Minor in Medical Humanities .................................................................... 1441
Minor in Medieval and Early Modern Studies .......................................... 1457
Minor in Museums and Cultural Heritage .................................................. 1509
Minor in Naval Science .............................................................................. 1726
Minor in Neuroscience ............................................................................... 1741
Minor in Physics ......................................................................................... 1801
Minor in Politics, Law and Social Thought ................................................. 1828
Minor in Poverty, Justice and Human Capabilities ..................................... 1833
Minor in Religion ......................................................................................... 1923
Minor in Sociology ..................................................................................... 1961
Minor in Spanish and Portuguese ............................................................... 1982
Minor in Statistics ...................................................................................... 2032
Modern and Classical Literatures and Cultures ......................................... 1465
Museums and Cultural Heritage ................................................................. 1508
Museums and Cultural Heritage (MUCH) ................................................. 2768
Music ........................................................................................................ 1511
Music (MUSI) ........................................................................................... 2769

N

Name Changes ............................................................................................ 34
Natural Sciences (NSCI) ............................................................................ 2799
Visiting Students (non-degree) ......................................................... 94
Visual and Dramatic Arts .............................................................. 2075
Visual Arts (ARTS) ........................................................................ 2985

W
Women, Gender, & Sexuality (SWGS) ............................................. 2993